EnergyCo

Newcastle Logistics Precinct – Intertrade Project

Scoping Report

March 2025

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Acknowledgement of Country

The Energy Corporation of New South Wales acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past and present through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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Newcastle Logistics Precinct – Intertrade Project

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NSW GOVERNMENT

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Glossary

Term	Definition
Biodiversity study area	A study area used in the biodiversity assessment that includes the project area and a 10 kilometre buffer for database search to inform the preliminary environmental assessment.
(the) project	Newcastle Logistics Precinct – Intertrade project that would facilitate the unloading, loading and storage of materials and equipment for renewable energy projects.
Project area	Area of land that would potentially be disturbed by the project during construction and operation. The estimated indicative project area is around 46 hectares. The indicative project area contains a hardstand area in the northern portion, staff facilities buildings, staff carparking, possible re-use of non-heritage listed buildings in the southern portion (such as the Roll Shop building), internal access roads that would connect to Selwyn Street and Steel Works Road (and any required adjustments to those roads). The indicative project area would be subject to design refinement and would be refined during the preparation of the EIS.
Project site	A 52 hectare property located at 99 Selwyn Street, Mayfield North adjacent to Port of Newcastle's Mayfield 4 Berth.
Project study area	A study area that includes the project area and a five kilometre buffer for database searches to inform the preliminary environmental assessment. There are some occasions where desktop searches and the study area would extend further such as 10 kilometres for *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters search.
Renewable Energy Zone	A geographic area of high renewable energy resource potential that has been identified and declared under the *Electricity Infrastructure Investment Act 2020*).

Abbreviations

Term	Definition
ABS	*Australian Bureau of Statistics*
AEMO	*Australian Energy Market Operator*
AEP	Annual exceedance probability
AHIMS	Aboriginal Heritage Information Management System
ANZG	Australian New Zealand Guidelines
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
Biodiversity and Conservation SEPP	State Environmental Planning Policy (Biodiversity and Conservation) 2021
BIAs	Biologically important areas
BTEX	Benzene, toluene, ethylbenzene and xylene
CBD	Central business district
CIA	Cumulative Impact Assessment
CLM Act	*Contaminated Land Management Act 1997*
CMSC Act	*Coal Mine Subsidence Compensation Act 2017*
CSM	Conceptual site model
CSMP	Contaminated Site Management Plan
Cth DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
CWO	Central West Orana
CWO REZ	Central-West Orana Renewable Energy Zone
DEEC	Department of Environment and Climate Change (former)
DISER	Department of Industry, Science and Resources
DP	Deposited Plan
DPE	Department of Planning and Environment (former)
DPIE	Department of Planning, Industry and Environment (former)
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental impact statement
EnergyCo	Energy Corporation of NSW
EPA	NSW Environment Protection Authority

Term	Definition
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021* (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPL	Environment protection licence
ESD	Ecologically sustainable development
FM Act	*Fisheries Management Act 1994*
FTE	Full time equivalent employee
GDE	Groundwater dependent ecosystem
GHG	Greenhouse gases
HCCDC	Hunter and Central Coast Development Corporation
IAQM	Institute of Air Quality Management
IBRA	Interim Biogeographical Region of Australia
ISP	Integrated Systems Plan
LALC	Local Aboriginal Land Council
LGA	Local government area
MNES	Matters of National Environmental Significance
MIEA	Mayfield Industrial Estate Association
the Minister	NSW Minister for Planning and Public Spaces
NARCliM	NSW and Australian Regional Climate Modelling
Native Title Act	*Native Title (NSW) Act 1994*
NCIG	Newcastle Coal Infrastructure Group
NEM	National Electricity Market
New England REZ	New England Renewable Energy Zone
Newcastle LEP	Newcastle Local Environmental Plan 2012
NIS	NSW Network Infrastructure Strategy
NML	Noise management level
NP&W Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
OSOM	Oversize and/or over mass
Planning Systems SEPP	State Environmental Planning Policy (Planning Systems) 2021 (NSW)
PAH	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyl compounds

Term	Definition
PMST	Protected Matter Search Tool
Primary Production SEPP	State Environmental Planning Policy (Primary Production) 2021
PMF	Probable maximum flood
POEO Act	*Protection of the Environment Operations Act 1997*
Resilience and Hazards SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021
Resources and Energy SEPP	State Environmental Planning Policy (Resources and Energy) 2021
REZ	Renewable Energy Zone
RNI	REZ Network Infrastructure
Roads Act	*Roads Act 1993*
the Roadmap	NSW Electricity Infrastructure Roadmap (DPIE, 2020a)
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SIA	Social Impact Assessment
SSD	State significant development
SSI	State significant infrastructure
SVOCs	Semi-volatile organic compounds
TECs	Threatened ecological communities
Transport and Infrastructure SEPP	State Environmental Planning Policy (Transport and Infrastructure) 2021 (NSW)
UCL	Urban Centre and Localities
VENM	Virgin excavated natural material
VMP	Voluntary Management Plan
VOCs	Volatile organic compounds

Executive summary

Project overview and need

New South Wales (NSW) is currently undergoing an energy sector transformation that is changing how we generate and use energy. The National Energy Market (managed by the Australian Energy Market Operator) is transitioning from a system dominated by a small number of large coal-fired generators located close to metropolitan centres to one of diverse renewable and distributed energy generation and storage located where the resource and environmental constraints permit.

The NSW Government is leading the development of Renewable Energy Zones (REZs) across NSW to deliver renewable energy generation and storage, supported by transmission infrastructure. A REZ groups new renewable energy power generation into locations where it can be efficiently stored and transmitted across NSW, requiring the coordination of power generation, power storage and transmission infrastructure. By doing so, REZs capitalise on economies of scale to deliver clean, affordable and reliable electricity for homes, businesses and industry in NSW.

A key part of this energy transition is the Newcastle Logistics Precinct – Intertrade Project (the project), identified as the 'Intertrade Industrial Park' under the State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) as it:

- mitigates the shortage of existing portside storage by providing additional storage areas near Port of Newcastle lease area to support the supply chain for critical transmission, generation, firming and storage projects under the NSW Electricity Infrastructure Roadmap (Department of Planning, Industry and Environment, 2020a)
- reduces reliance on the well-used Mayfield 4 hardstand area within the Port of Newcastle and almost doubles the existing storage capacity for Renewable Energy Zone (REZ) and non-REZ projects
- gives the NSW Government greater certainty over logistics and storage capacity for critical REZ projects and greater confidence in achieving the targets set out in the Roadmap.

Energy Corporation of NSW (EnergyCo), a NSW Government statutory authority, has been appointed under the *Electricity Infrastructure Investment Act 2020* as the Infrastructure Planner responsible for delivering the REZs. EnergyCo is responsible for coordinating REZ transmission, generation, firming and storage projects to deliver efficient, timely and coordinated investment.

The project

The project is located at 99 Selwyn Street, Mayfield North (the project site) and comprises an indicative project area of around 46 hectares. The project site is owned by the NSW Government and is located within the Newcastle local government area and Awabakal Local Aboriginal Land Council. The regional context of the project is shown in Figure 2.2.

Key components of the project include:

- construction of hardstand and internal roads used for the unloading, loading and storage of materials and equipment (including potentially hazardous materials and equipment) associated with renewable energy projects
- operation of mobile equipment comprising of forklifts, cranes, reach stackers and road trucks for movement of materials and equipment for renewable energy projects
- associated stormwater drainage to manage stormwater flows and water quality across and around impervious surfaces within the project site
- construction of bridges over existing stormwater channels, for the provision of access and egress from the project site
- internal roads, staff amenity buildings, carpark and other ancillary infrastructure to facilitate operation of the project.
- utility adjustments and provisions within the project area to maximise operational efficiencies of the hardstand area and minimise possible upgrades in future.

It is expected that construction of the project would commence in late 2026 and take around nine months to complete with initial operations commencing around 2027.

Planning and assessment process

The project is state significant infrastructure and is subject to Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979*. The Minister for Planning and Public Spaces is the approval authority and an Environmental Impact Statement would be prepared for the project.

The project is not expected to impact on Matters of National Environmental Significance and will not impact Commonwealth land or the environment on Commonwealth land.

Purpose of this document

EnergyCo has prepared this Scoping Report to support a State Significant Infrastructure application under section 5.15 of the NSW *Environment Planning and Assessment Act 1979*. It provides a description of the project and presents the environmental matters that would require further assessment as part of an Environmental Impact Statement for the project, including the proposed approach to assessing each of these matters. It also describes the community engagement that would be carried out during the preparation of the Environmental Impact Statement. The Scoping Report is intended to assist in the formulation of the Secretary's Environmental Assessment Requirements that would be issued by the NSW Department of Planning, Housing, and Infrastructure (DPHI) under section 5.16 of the NSW *Environmental Planning and Assessment Act 1979*.

Environmental, social and economic issues

A preliminary environmental assessment was carried out to identify potential environmental, social and economic issues associated with proposed construction and operation of the project. Chapter 6 contains detail on existing environmental characteristics, potential impacts of the project during construction and operation, and proposed assessment approach in the Environmental Impact Statement for each issue considered in the preliminary assessment.

The list of issues considered in the preliminary assessment and the proposed level of assessment in the Environmental Impact Statement is provided in Table ES.1.

Table ES.1 Preliminary assessment outcomes

Issue	Preliminary assessment outcome
Non-Aboriginal heritage	A detailed assessment (Statement of Heritage Impact) with regard to the Guidelines for Preparing a Statement of Heritage Impact (DPE, 2023a) would be included in the EIS.
Traffic and access	A detailed assessment on traffic would be included in the EIS which would identify future base traffic conditions and assess the impacts on the road network performance in the vicinity of the project site during construction and operation.
Noise and vibration	A detailed noise and vibration assessment would be included in the EIS. This will assess airborne noise impacts during construction and operation (including traffic noise) and vibration impacts during construction.
Surface water and flooding	A detailed surface water and flooding assessment would be included in the EIS that would identify existing conditions and potential impacts of the project on hydrology, flooding and water quality. The assessment would be assisted with project flood and MUSIC modelling.
Hazard and risk	A preliminary hazard analysis would be included in the EIS that includes an evaluation of the existing land use safety study for the Port of Newcastle in response to proposed storage of battery energy storage system units that may contain lithium-ion batteries. Further, the assessment is to consider the proposal and potential land use conflicts from surrounding industrial operations and potentially hazardous developments.
Soils and contamination	The EIS would provide consideration to the consistency of the project (and associated construction activities) with the CSMP and ongoing maintenance order, and what measures have been incorporated or have been identified to be required to maintain consistency with these documents.
Groundwater	A standard (qualitative) assessment of groundwater would be included in the EIS that would consider the potential risks to groundwater (such as levels and quality) during construction and operation.
Social	A Basic Phase 2 SIA would be prepared to predict and evaluate likely social impacts, outline mitigation, and propose arrangements to monitor and manage residual impacts.
Biodiversity	A Biodiversity Development Assessment Report waiver request has been included with the Scoping Report based on prior disturbance and outcomes of the site assessment (refer to Appendix C). Therefore, no further assessment is proposed to be included in the EIS.

Issue	Preliminary assessment outcome
Aboriginal heritage	The indicative project area is heavily disturbed during its prior use as a BHP Steelworks and subsequent remediation. As such, Aboriginal objects are not likely to be present, and the project is not likely to result in harm to any Aboriginal objects or sites and can proceed with caution without further investigations and impact assessment and an Aboriginal heritage impact permit application.
Landscape and visual	The project has potential to temporarily alter the visual amenity during construction with activities such as earthworks and during operation, with removal of the bicycle shed, however, impacts are expected to be minor due to the surrounding industrial landscape. As such, a standard (qualitative) assessment on landscape character and visual amenity would be included in the EIS.
Land use and property	Potential impacts on private property and/or any land use and property conflicts would be limited, and most likely associated with utility adjustments or road works along internal port roads or Selwyn Street and Steel Works Road. Therefore, a standard assessment of land use and property impacts would be included in the EIS.
Air quality	A standard air quality assessment is to be carried out that identifies existing conditions, potential impacts during construction and operation, and appropriate mitigation measures. Further, a semi-quantitative risk assessment for particulate matter and a qualitative assessment of the release of Volatile Organic Compounds will be carried out as part of the standard assessment.
Climate change and greenhouse gases	A standard assessment of climate change would be included in the EIS that includes detail on potential impacts associated with the project and outline appropriate management measures.
Waste	The objectives (waste hierarchy) of the *Waste Avoidance and Resource Recovery Act 2001* would be applied to minimise extent of waste generated from the project. As the disposal of waste generated during construction and operation is not anticipated to result in significant adverse environmental impacts, as removal of waste generated would be managed through application of standard environmental management measures, a standard assessment on waste management would be included in the EIS.
Cumulative impacts	An issue-specific and combined cumulative impact assessment would be undertaken for the project in accordance with the Cumulative Impact Assessment Guidelines for State Significant Projects (Department of Planning, Industry and Environment, 2022) during preparation of the EIS.

Next steps

Following receipt of the Secretary's Environmental Assessment Requirements, EnergyCo would prepare an Environmental Impact Statement for the project. The Environmental Impact Statement would be developed in accordance with the requirements of Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979*, Part 8, Division 5 of the NSW *Environmental Planning and Assessment Regulation 2021* and the State Significant Infrastructure Guidelines (DPHI, 2024) and would include:

- an analysis of feasible alternatives to the carrying out of the project
- a description of the project during construction and operation
- a description of the existing environment and an assessment of potential direct and indirect impacts on key and other potential environmental issues during construction and operation, including cumulative impacts with other projects
- measures that would be implemented to avoid, minimise and offset potential impacts
- consideration of issues raised by stakeholders and the community during preparation of the Environmental Impact Statement.

The Environmental Impact Statement would be publicly exhibited by DPHI, in accordance with the provisions of Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979*. During the public exhibition of the Environmental Impact Statement, the community, stakeholder, organisations and government agencies would have the opportunity to provide feedback via a formal submission. The Environmental Impact Statement is expected to be exhibited later in 2025.

1 Introduction

This chapter gives an overview and background to the Newcastle Logistics Precinct – Intertrade Project (the project). This chapter provides a summary of the project details, and the purpose and structure of this Scoping Report.

1.1 Project overview

New South Wales (NSW) is currently undergoing an energy sector transformation that would change how we generate and use energy. A key part of this energy transition is the Newcastle Logistics Precinct – Intertrade Project (the project), identified as the 'Intertrade Industrial Park' under the State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) as it:

- mitigates the shortage of existing portside storage by providing additional storage areas near Port of Newcastle lease area to support the supply chain for critical transmission, generation, firming and storage projects under the NSW Electricity Infrastructure Roadmap (the Roadmap) (Department of Planning, Industry and Environment [DPIE], 2020a)
- reduces reliance on the well-used Mayfield 4 hardstand area within the Port of Newcastle and almost doubles the existing storage capacity for Renewable Energy Zone (REZ) and non-REZ projects
- gives the NSW Government greater certainty over logistics and storage capacity for critical REZ projects and greater confidence in achieving the targets set out in the Roadmap.

The project site is located at 99 Selwyn Street, Mayfield North (the project site). The project site is owned by the NSW Government and located within the Newcastle local government area (LGA) and Awabakal Local Aboriginal Land Council (LALC).

The indicative project area depicted in Figure 1.1 would be confirmed during the preparation of the environmental impact statement (EIS). The indicative project area totals around 46 hectares and includes the majority of the project site as well as sections of Selwyn Street (managed by the City of Newcastle Council) and Steel Works Road (an internal road). The regional context of the project is shown in Figure 2.2.

Key components of the project include:

- construction of hardstand and internal roads used for the unloading, loading and storage of materials and equipment for renewable energy projects
- operation of mobile equipment comprising of forklifts, cranes, reach stackers and road trucks for movement of materials and equipment for renewable energy projects
- associated stormwater drainage to manage stormwater flows and water quality across and around impervious surfaces
- construction of bridges over existing stormwater channels, for the provision of access and egress from the hardstand area
- internal roads, staff amenity buildings, carpark and other ancillary infrastructure to facilitate operation of the project
- utility adjustments and provisions within the indicative project area to maximise operational efficiencies of the hardstand area and minimise possible upgrades in future.

It is expected that construction of the project would commence in late 2026 and take around nine months to complete with initial operations commencing in 2027.

The project would be developed to avoid environmental impacts as far as reasonably practicable, as described in Chapter 2. This approach would continue throughout further refinement to the concept design. This would be detailed in the EIS.

1.2 Project objectives

The project supports the NSW Government's objectives to accelerate the energy transition by providing critical infrastructure to support the development of large-scale renewable energy projects within and outside the REZs. The objectives of the project include:

- improve availability of sufficient port side storage required to support the supply chain of materials and equipment to be used on renewable energy, REZ transmission, firming and storage projects
- maximise efficiency of logistical movements given limited hardstand available within the Port of Newcastle
- support the build out of REZs within regional and state context
- provide facilities for storage and domestic distribution
- minimise potential adverse impacts on the environment.

1.3 Related development

Related development includes projects that are connected, in this case, where operation of the project would be linked and cannot be completed without development of the other projects. Related developments to the project that are subject to separate planning and approval processes include:

- The Port to REZ program – this program of works comprises road and intersection upgrades, as well as construction of designated pull over bays, between Port of Newcastle and Central-West Orana (CWO) and New England (New England) REZs to allow for the movement of oversize and/or overmass (OSOM) loads from Port of Newcastle to the REZs. These activities are being determined under Part 5, Section 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) or are under construction. Activities that have not commenced construction are expected commence in 2025.
- The relocation of a substation and the removal of the wastewater treatment plant that are located within the project site and is being carried out under a separate approval and is not part of this project. The design and operation of the project would be based on the removal of these facilities from the hardstand area. This would occur prior to the commencement of construction for the project and is to comply with the existing Contaminated Site Management Plan (CSMP) covering the project site.

1.4 The proponent

Under the *Electricity Infrastructure Investment Act 2020*, the Minister for Energy and the Environment has appointed the Energy Corporation of NSW (EnergyCo) as the Infrastructure Planner for NSW REZs.

In its capacity as Infrastructure Planner, EnergyCo is responsible for coordinating transmission, generation, firming and storage projects for the NSW REZs, commencing with the CWO REZ, to deliver efficient, timely and coordinated investment. EnergyCo's functions in respect of the project include:

- working with developers of proposed wind, solar and storage projects to understand their logistic needs and plan for efficient solutions that encourage investment in grid-scale renewable projects and minimise cumulative impacts on the community
- maintaining the land within the Intertrade project site
- leading the environmental planning approval process
- contributing to strategic planning to support the development of NSW REZs.

EnergyCo's postal address is GPO Box 5469, Sydney NSW 2001.

1.5 Purpose and structure of this Scoping Report

The project meets the criteria of state significant infrastructure (SSI) under section 2.13 of the State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)). The project is SSI as it is permissible without development consent and falls within Schedule 3, section 2 of the Planning Systems SEPP. As such, the project is considered SSI under section 5.12 of the EP&A Act and the Minister for Planning and Public Spaces is the approval authority.

The purpose of this Scoping Report is to describe the project and present the preliminary assessment of the potential environmental issues that would be assessed as part of an EIS for the project. It has been prepared having regard to the State Significant Infrastructure Guidelines (Department of Planning, Housing and Infrastructure (DPHI), 2024) (the SSI guidelines).

This Scoping Report is intended to provide sufficient information to allow for the preparation of the Secretary's Environmental Assessment Requirements (SEARs). The EIS would be prepared in accordance with the requirements of the SEARs, section 192 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) and the SSI guidelines (refer to Chapter 4 of this Scoping Report for more information relating to the statutory context of the project).

The information and recommendations in this Scoping Report would be used to further inform the ongoing design process for the project with an aim to avoid or minimise environmental, economic and social impacts where practicable.

The structure and content of this Scoping Report is as follows:

- Chapter 1 – Introduction: outlines the background and need for the project, and purpose of this Scoping Report.
- Chapter 2 – Strategic context: provides an overview of the strategic and regulatory context and the anticipated benefits of the project. An overview of the options assessment that led to the preferred option is also presented.
- Chapter 3 – Project description: provides an outline of the key features of the project.
- Chapter 4 – Statutory context: provides an overview of the relevant statutory approvals framework for the project, including applicable legislation and planning policies.

- Chapter 5 – Stakeholder and community engagement: provides an overview of the stakeholder engagement and consultation activities that have been undertaken to date with regards to the project. An overview of the proposed future consultation activities is also provided.
- Chapter 6 – Proposed environmental assessment: provides a preliminary description of the existing environment and an initial consideration of the potential direct and indirect impacts that may result from this project.
- Chapter 7 – Conclusion: outlines the key conclusions of this Scoping Report.
- Chapter 8 – References: identifies the key reports and documents used to generate this Scoping Report.

The appendices to this Scoping Report include:

- Appendix A – Summary scoping table
- Appendix B –Social impact assessment scoping report
- Appendix C – BDAR waiver request.

1.6 Limitations

The information presented in this Scoping Report has primarily been based on preliminary desktop studies (Appendix A). The exception is the completion of a ecology site inspection and survey of the project site to inform the Biodiversity Development Assessment Report (BDAR) waiver request appended to this Scoping Report (Appendix C).

The preliminary desktop studies included preliminary desktop review and assessment of published data including relevant databases, reports and other available literature. Further investigations of potential environmental issues, including field inspections, would occur during preparation of the EIS for the project.

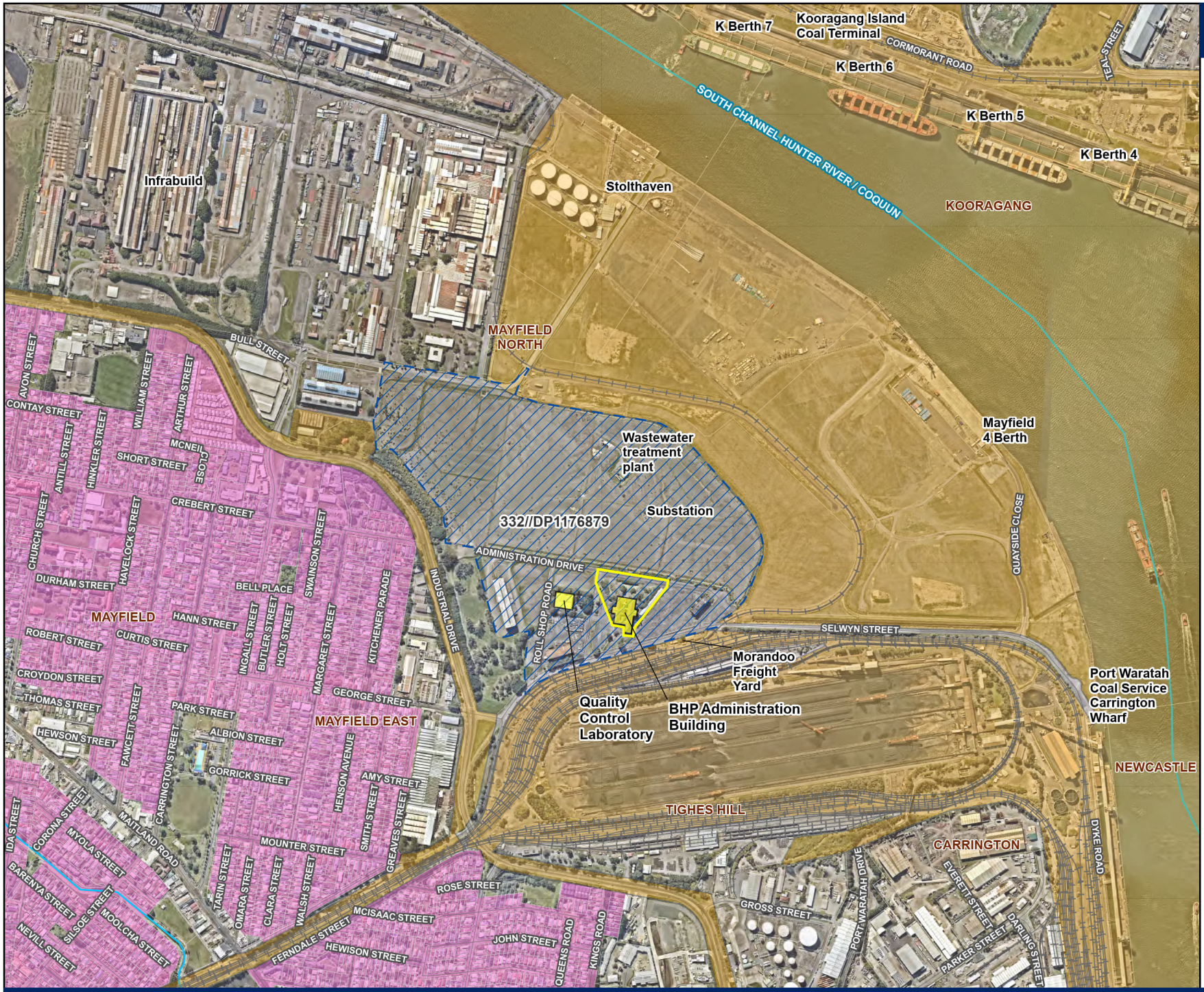

Figure 1.1
Project site location

Legend

- Road
- Railway
- Watercourse
- Indicative project area
- Cadastre
- Port of Newcastle lease area
- Residential
- SEPP heritage items*
- SEPP heritage curtilage*

Note: Heritage items listed under section 5.31(9) of the Transport and Infrastructure SEPP within the project area are depicted.

Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A4
1:13,000 Date: 17/03/2025
Data sources: WSP, EnergyCo, NSWSS
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2 Strategic context

This chapter describes the need for the project, including the relevant Australian and NSW Government policies that support the project. It describes the project objectives, and the alternative options considered to address the objectives.

2.1 Project need

2.1.1 Overview

The Australian Government is committed to coordinated global action to reduce greenhouse gas emissions in line with the Paris Agreement and has set targets to reduce emissions by 43 per cent below 2005 levels by 2030 and to net zero by 2050. Independently, the NSW Government has set a goal to achieve net-zero emissions by 2050 (Department of Planning, Industry and Environment (DPIE), 2020b). Achieving these goals requires transformative low emissions technologies to be deployed at scale across all sectors of the economy.

The closure of large coal-fired power stations has potential to put pressure on the future supply of energy, particularly when considering that electricity consumption in NSW is forecast to increase in the future (AEMO, 2024). This highlights the urgent need to develop and connect new renewable energy to the national electricity market (NEM), noting that more renewables are required to replace conventional generators because of their lower capacity factors due to the intermittency of the electricity that they produce (Australian Energy Council, 2017).

The 2024 Integrated Systems Plan (ISP) (AEMO, 2024) forecasts 82 per cent of electricity supplied by renewable sources by 2030 and development of 127 gigawatts of grid-scale renewables by 2050. With most of Australia's coal-fired generation likely retiring by 2040, the NEM needs to develop and connect to new low emission energy generation sources to continue to have enough energy to meet future demand, while meeting Australia's carbon emissions policy commitments (Department of Industry, Science and Resources (DISER), 2020).

The NSW Government's Electricity Strategy and the Roadmap establishes NSW's plan to deliver the major infrastructure needed to modernise the electricity system and power our economy. It sets out NSW's commitments to coordinate and unlock investment in replacement generation before NSW's existing coal fired power stations close.

REZs being established by EnergyCo as the Infrastructure Planner for NSW, are a key part of the NSW Government's work to coordinate and encourage investment in REZs and realise objectives of the ISP and the Roadmap and its enabling legislation. This extends to creating certainty to developers from providing transmission connectivity as well as supporting logistics that would facilitate development of renewable energy projects in REZs.

2.1.2 Need for logistics precinct to support energy transition

The logistics challenge of importing and transporting the components required to achieve the commitments of the Roadmap is significant. The delivery of projects would require importation of OSOM equipment, most notably wind turbine components, high-voltage transformers, synchronous condensers and other equipment that are required for construction of the renewable energy generation projects and REZ Network Infrastructure (RNI).

The Port of Newcastle has been identified as the critical import and logistics hub, however it has limited portside storage capacity which is already well utilised by other industries. Without the development of dedicated portside logistics precinct that has good road network connectivity to the REZs, there would be insufficient capacity to temporarily store and process the incoming volume of imported renewable energy components required for the CWO REZ and New England REZ delivery programs and their associated delivery timeframes. This would create a bottleneck at the port, which would put the timely development of NSW REZs at critical risk and jeopardise electricity reliability and affordability to consumers as coal power stations retire.

The project would almost double the existing storage capacity within the Port of Newcastle and reduce reliance on the well-used Mayfield 4 berth hardstand. As a result, the NSW Government and renewable developers would have greater certainty over critical REZ and non-REZ project logistics, resulting in greater confidence in achieving the targets set out in the strategic plans and policies and unlocking investment for renewable energy projects.

2.2 Consistency with strategic planning and policy

The Australian, NSW and local governments including industry has put in place a number of plans and policies to support the energy market transition. An overview of how the project would be consistent with the aims and objectives of these strategic planning and policy documents is included in Table 2.1, Table 2.3 and Table 2.3.

Table 2.1 Australian government policy context

Australian Government policy	Project alignment with policy
Australia's Long-Term Emissions Reduction Plan (DISER, 2021) The Long Term Emissions Reduction Plan is a whole-of-economy plan that aims to achieve net-zero emissions by 2050, based on coordinated actions across four areas: • driving down the cost of low emissions technologies • enabling deployment of low emission technologies at scale • helping regional industries and communities seize economic opportunities in new and traditional markets • work with other countries on the technologies needed to accelerate innovation in low emissions technology and adapt to climate impacts.	The project would provide critical infrastructure to support the supply chain for renewable energy components through Port of Newcastle and unlock the development of REZs such as CWO REZ and New England REZ, along with other renewable generation projects outside of the REZs. By providing renewable energy projects with greater certainty and reducing reliance on existing hardstand within the Port of Newcastle lease area, the project would help drive down costs of low emissions technologies and enable development of new utility-scale renewable energy projects. Therefore, the project is considered to be consistent with the priorities of the Long-Term Emissions Reduction Plan.
2024 Integrated Systems Plan (AEMO, 2024) The ISP is an actionable roadmap for eastern Australia's power system to optimise consumer benefits through a transition of the energy market. The ISP forecasts the development of 127 gigawatts of grid-scale renewables by 2050.	The project would facilitate the development of NSW REZ's, such as CWO REZ and New England REZ, along with other renewable energy generation projects located outside the REZs, by providing critical infrastructure to support the delivery of OSOM renewable energy components for large-scale renewable energy projects. As such the project is considered consistent with the ISP.

Australian Government policy	Project alignment with policy
2023 Infrastructure Investment Objectives Report (AEMO, 2023) The Infrastructure Investment Objectives Report is prepared every two-years by AEMO. Each report sets out a development pathway for the next twenty years, identifying the timing and scale for renewable energy generation and storage investment – while providing flexibility to ensure we continue to prioritise the financial interest of NSW electricity customers.	The project is consistent with the development pathway identified in the Infrastructure Investment Objectives Report as it would facilitate the construction of renewable energy generation developments through provision of critical logistics infrastructure to support the delivery of renewable energy components.

Table 2.2 NSW government policy context

NSW Government policy	Project alignment with policy
NSW Electricity Infrastructure Roadmap (DPIE, 2020a) The Roadmap provides a coordinated framework for the delivery of new transmission, generation, long duration storage and firming infrastructure to support low carbon renewable energy and the replacement of coal fired power station capacity scheduled to close in the next two decades. Key to the transition of the energy sector are five REZs identified, including CWO REZ and New England REZ.	The Roadmap is underpinned by the development of REZs. The project is consistent with the Roadmap as it provides critical hardstand areas and logistics precinct in Port of Newcastle to support the supply chain for critical transmission, generation, firming and storage projects.
NSW Network Infrastructure Strategy (NIS) (EnergyCo, 2023) The NIS is a 20-year strategy for the practical coordination of NSW network infrastructure to connect new generation and storage in NSW's REZs. The NIS proposes Network Infrastructure Options to be delivered as soon as practicable over the next decade (by 2033), and further options to be considered beyond that to meet the objectives of the *Electricity Infrastructure Investment Act 2020.*	The project is consistent with the NIS as it provides critical hardstand areas and logistics precinct in Port of Newcastle to support the supply chain for renewable energy projects.

NSW Government policy	Project alignment with policy
State Infrastructure Strategy 2022-2042 (Infrastructure NSW, 2022) The State Infrastructure Strategy establishes the strategic directions, projects and initiatives to meet the infrastructure needs of a growing population and a growing economy over the next 20 years.	The project would provide a critical logistics precinct to support the development of renewable energy projects. The strategy recommends a suite of measures to achieve an orderly and efficient transition to Net Zero and land uses that include: • promote steady and reliable investment in new renewable and firming capacity and/or long duration storage to match demand and replace retiring plants • optimise the use of industrial and urban services lands through integrated strategic land use planning with infrastructure investment. The project is consistent with the State Infrastructure Strategy as it would provide developers greater certainty and greater confidence to unlock investment for renewable energy projects to enable NSW's energy transition while facilitating a strategic use of the project site.
Hunter Regional Plan 2041 (DPE, 2022b) This regional plan provides a 20-year land use plan prepared under the EP&A Act and includes the Newcastle LGA. The regional plan identifies the need to take advantage of transport links to support the development of REZs, such as the Port of Newcastle.	The project is consistent with the regional plan as it would provide critical logistics infrastructure adjacent to the Port of Newcastle lease area.
Greater Newcastle Metropolitan Plan 2036 (DPE, 2018) This plan identifies the desired role for the Port of Newcastle and the need for planning decisions to consider the adaptation of the port to respond to changing global freight demands, and opportunities of port-side infrastructure and availability of land. For the project site, this is identified as the Mayfield Freight and Logistics Precinct and identifies outcomes for the project site, including finalisation of remediation and the alignment of planning controls to allow for the development of freight and logistics, intermodal and warehousing to complement the port's export role.	The project is consistent with the metropolitan plan as it would utilise remediated land to provide port-side infrastructure that is critical to support NSW's transition to renewable energy. The project would provide a dedicated logistics precinct for imported renewable energy components that would free up availability within the Port of Newcastle, including Mayfield Berth 4 hardstand area, for freight and logistics, intermodal and warehousing to complement the port's export role.

Table 2.3 Local government and Industry policy context

Local Government and Industry policy	Project alignment with policy
Newcastle 2040 Plan (Newcastle City Council, 2022) This plan aims to support Newcastle in becoming a liveable, sustainable and inclusive global city by optimising opportunities and building resilience in the face of future challenges. In becoming sustainable, the plan identified the goal of encouraging clean technology and future energy initiatives and industries to support the move towards net zero emissions.	To project is consistent with the Newcastle 2040 Plan as it would provide critical logistics infrastructure to support the renewable energy transition towards net zero emissions.
Port of Newcastle Master Plan 2040 (Port of Newcastle, 2018) Identifies the role of Port of Newcastle in providing access and infrastructure to service the needs for key infrastructure delivery for renewable projects. The masterplan also identified the project site as a freight and logistics precinct in line with the Greater Newcastle Metropolitan Plan 2036, and envisioned uses that could be provided at this site such as warehousing, distribution, and container storage.	The project would provide critical logistics infrastructure to support the delivery of infrastructure associated with renewable energy projects and associated transmission projects. The project would not preclude the broader uses of the project site in the long term.

2.3 Regional context

This section provides an overview of the regional context of the project including the natural environment, built environment and the communities in the region. The regional context helps to inform the objectives to be addressed by the project.

2.3.1 Local and regional community

The project is located within the Newcastle LGA and Awabakal LALC of the Hunter region. An overview of the project's regional context and local context is provided in Figure 2.2 and Figure 2.3 respectively.

The Hunter region of NSW is one of Australia's leading regional economies. The Hunter is home to more than 860,000 people and offers a wide range of employment opportunities and exceptional natural environment (refer to Section 2.3.2). Newcastle is the regional centre of the Hunter and offers residents of the city and broader region a metropolitan centre with diverse communities and globally connecting infrastructure (DPE, 2022b).

Within Newcastle, the project is located in the suburb of Mayfield North and is adjacent to the residential suburbs of Mayfield and Mayfield East. Mayfield North is predominantly comprised of port infrastructure and associated industrial land uses, Mayfield is predominately comprised of medium and low density residential areas that are supported by a small commercial core along the Pacific Highway and Industrial Drive, and Mayfield East is comprised of predominately low density residential areas.

Except for some potential road adjustments along Steel Works Road, the project is outside the Port of Newcastle lease area. The project is approximately two kilometres from the Newcastle Central Business District (CBD). The project site is currently owned by the NSW Government (Property and Development NSW).

Current activities within the Port of Newcastle lease area include:

- wharf and berth services
- complementary businesses and uses, such as hardstands
- operation and maintenance of port assets
- cruise shipping.

2.3.2 Features of the natural and built environment

The project is located on the former BHP Steelworks site, west of the Mayfield 4 Berth on the southern side of the Hunter River South Channel. Most of the indicative project area is heavily disturbed, with some vegetation on the western border of the project site along Industrial Drive.

The indicative project area and surrounds was historically operated as a copper smelter and steelworks. It was extensively affected by land and groundwater contamination. The steelworks ceased operations in 1999 and the site was remediated between 2016 and 2018 by Hunter and Central Coast Development Corporation (HCCDC). This is further discussed in Section 2.3.3.

Adjacent to the project, the built environment comprises Mayfield Berth 4 and associated hardstand area to the east; heavy industry and the SCE recycling plant to the north; and coal stockpiles and Morandoo Freight Yard to the south. West and southeast of the project, the built environment is comprised of residential suburbs (as described in Section 2.3.1).

On the opposite side of the Hunter River South Channel, around one kilometre north of the project, the built environment is primarily SP1 – Special Activities zoned land, which permits port infrastructure and uses. This includes the Newcastle Coal Infrastructure Group (NCIG) terminal that receives inbound coal, that is stacked in the stockyard prior to exportation, and other port infrastructure (refer to Section 2.3.4).

Key features of the natural environment within the project study area include:

- Hunter Estuary wetland (Ramsar wetland) – located around three kilometres north of the project
- Hunter Wetlands National Park – located around three kilometres north of the project
- Hunter River South Channel and associated fish habitat – located around 600 metres east of the project.

2.3.3 Existing consent – Stage 1 (DA 293-08-00)

An existing consent (DA 293-08-00) covers the Stage 1 development of the former BHP Newcastle Steelworks main site (refer to Figure 2.1). It provided consent for the remediation of the site and the development of a multi-purpose terminal. The approved multi-purpose terminal is not located in the project site. The consent was granted by the then Minister for Urban Affairs and Planning on 6 April 2001.

The consent applies to Lot 221 DP1013964, which has since been subdivided into multiple land parcels (including the project site). The Stage 1 consent did not provide for the redevelopment of the project site for any industrial or commercial uses and therefore, the consent including its conditions does not apply to the project.

The development as approved in 2001 is shown in Figure 2.1. However, several modifications have since been made to the consent. This includes a modification in 2008 to change the access to the multi-purpose terminal from Crebert Street via the project site (as shown in Figure 2.1) to Selwyn Street.

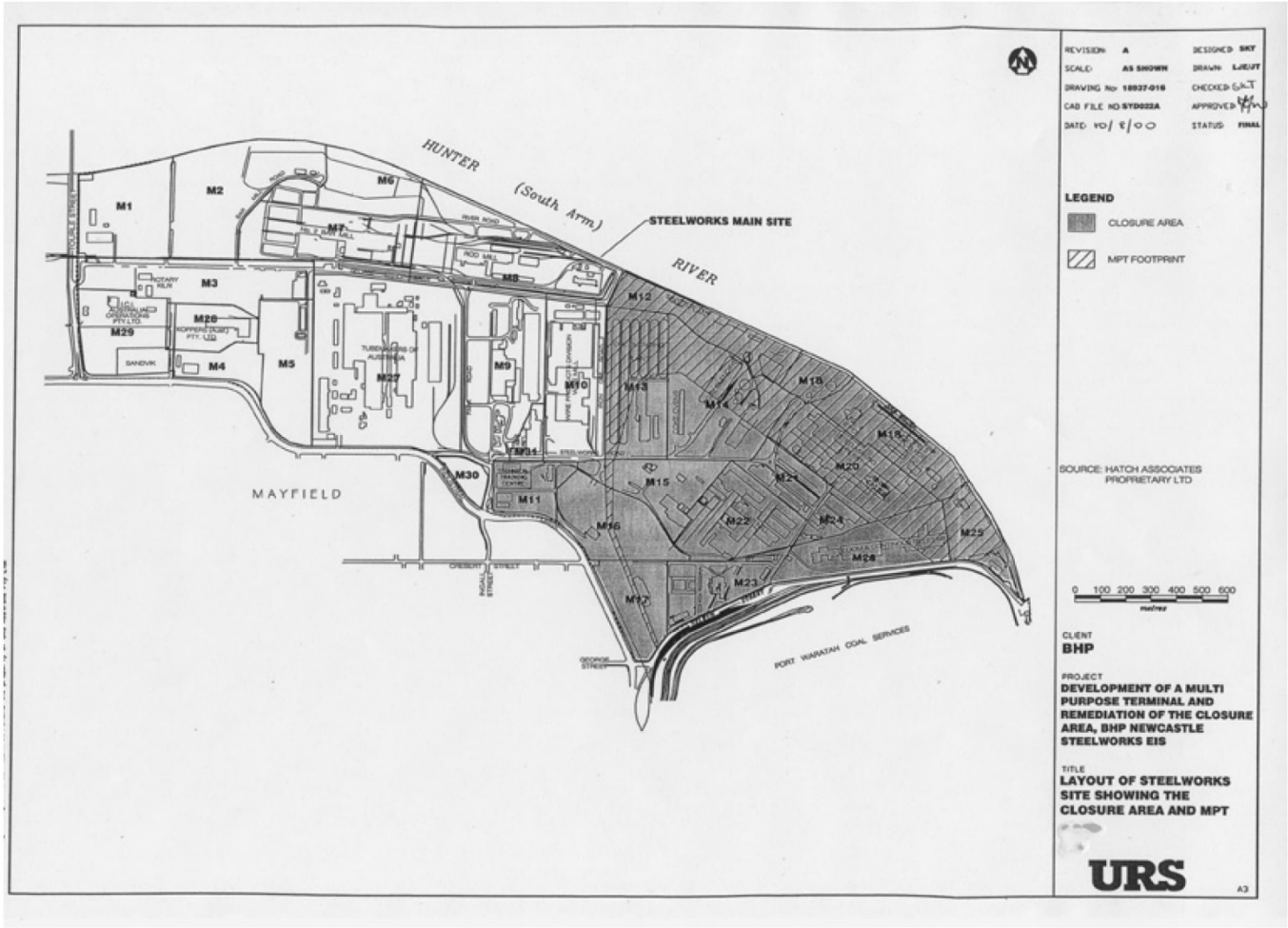

Figure 2.1 The BHP Steelworks remediation and multi-purpose terminal development (DA 293-08-00), as approved in 2001 (Department of Urban Affairs and Planning, undated)

The project site is located within part of the Closure Area. Remediation of the project site has occurred in accordance with the development consent and in accordance with a Voluntary Management Plan regulated by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997* (the CLM Act). The site is considered to be in a satisfactory condition for commercial and industrial uses, subject to:

- the implementation of the *Former BHP Steelworks Mayfield Newcastle Contaminated Site Management Plan* (December 2018) prepared by the Hunter and Central Coast Development Corporation for the project site
- the ongoing maintenance of the remediation infrastructure in accordance with the CSMP
- compliance with the conditions of an ongoing maintenance order issued under section 28 of the CLM Act.

The CSMP and the ongoing maintenance order specifies what the recipient of site must maintain, including what the future redevelopment of the site must maintain or address. The CSMP and the ongoing maintenance order is discussed further in Section 4.2.3.

The site for the multi-purpose terminal has since been subject to a separate concept approval in 2012.

2.3.4 Existing major infrastructure

Existing major infrastructure within the project study area are shown in Figure 2.3 and include:

- Industrial Drive, Selwyn Street and Steel Works Road and surrounding road network
- Mayfield 4 Berth and associated hardstand and laydown areas
- Mayfield Cargo Handling Facility (which is separate to the Mayfield 4 berth laydown areas)
- a wastewater treatment plant (being decommissioned), an interim sewer pumping station (being commissioned to the west of the wastewater treatment plant) and substation. The decommissioning and removal of the wastewater treatment plant and the relocation of the substation will be subject to separate approvals (refer to Chapter 3)
- Mayfield Bulk Liquids Berth 7 and associated storage facilities, including Stolthaven Terminals
- rail infrastructure (including Morandoo Freight Yard on the southern boundary of the indicative project area and to Stolthaven Terminals)
- Port Waratah Coal Service Carrington Wharf (and associated coal stockpile)
- SCE recycling plant
- Infrabuild Steel Centre and other industrial properties
- Koppers Carbon Materials and Chemicals
- Kooragang Island Coal Terminal
- NCIG coal stockpiles
- coal export berths from Kooragang Berth 4 through to Kooragang Berth 10
- navigation channel and turning circle
- Orica site including ammonia plant, nitric acid plants, two ammonium nitrate plants and a product dispatch facility (Kooragang Island)
- Boral Cement Works and Concrete (Kooragang Island)
- BOC Kooragang Island Plant
- Cargill Australia Crush Plant, Oil Refinery and Terminal (Kooragang Island)
- Cement Australia – distribution (Kooragang Island)
- East Coast cement – bulk cement supplier (Kooragang Island)
- Incitec Pivot Fertilisers – suppliers (Kooragang Island).

Figure 2.2
Regional context

Legend

- Road
- Railway
- Watercourse
- Project site
- Indicative project area
- Port of Newcastle lease area
- National Park

Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A4
1:50,000 Date: 14/03/2025
Data sources: WSP, EnergyCo, NSWSS MetroMap WMS Services:

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Figure 2.3
Local context

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2.4 Project alternatives

Feasible alternative options for the project have been assessed, including:

1. Do nothing option
2. Alternate port option
3. Alternate site option
4. Proposed project site option.

Key attributes of the project site are considered against each of the alternatives to understand constraints and opportunities.

2.4.1 Do nothing option

Under the 'do nothing' approach, the project would not be developed.

A large area for storage close to the Port of Newcastle is essential in managing the logistics associated with the development of renewable energy projects in the NSW REZs and enables a coordinated approach to the management of transport logistics. Without the project, there would be insufficient portside storage to temporarily store and process the volume of imported renewable energy componentry to meet the CWO and New England REZ delivery timeframes. This would create a bottleneck at the port, which would put the timely development of NSW REZs at critical risk and jeopardise electricity reliability and affordability as coal power stations retire.

The 'do nothing' option does not meet NSW renewable energy targets as set out in the Roadmap and would pose considerable risk to the NSW electricity system, as well as to NSW electricity consumers. The 'do nothing' option does not align with the policy objectives of the NSW government and is not considered a viable option.

2.4.2 Alternate port option – Port Kembla

Port Kembla is located directly south of the Wollongong CBD and is primarily utilised for motor vehicle importation and grain export for southern and southwestern NSW. Landside operations are managed by NSW Ports.

To date, Port Kembla has been utilised as an import point for several windfarms.

EnergyCo has undertaken an analysis of the potential of utilising Port Kembla as an import location for REZ OSOM components. This analysis identified multiple prohibitive constraints with the use of this location, that include:

- Significant upgrades would be required to the intersection which connects the port to the public road network (Tom Thumb Road and Springhill Road) to facilitate transportation of blades greater than 70 metres in length. Engagement with wind generation projects in both the CWO REZ and New England REZ have indicated that projects are likely to use larger turbine blades.
- Three bridges near Port Kembla on the Princes Motorway (including Princes Highway Bridge and University Avenue Bridge) are restricted to a 4.9 metre height clearance. These bridges would require raising to allow for the transportation of some OSOM components.
- Significant geometrical road constraints between Port Kembla and the CWO REZ and New England REZ. OSOM loads would require transportation along Great Western Highway, over the Blue Mountains.

Heavy vehicle routes to CWO REZ from Port Kembla would be more than 100 kilometres further than Port of Newcastle, and even further for the New England REZ.

2.4.3 Alternate site option – Port of Newcastle

The alternate site option would involve the development of the existing hardstand area located north of Mayfield Berth 4 within the Port of Newcastle lease area into the dedicated logistics precinct for OSOM components for renewable energy projects. The Mayfield Berth 4 hardstand offers potential as a logistics precinct due to its direct access (adjacent) to the berth and is around 18 hectares in size. However, this hardstand area is relatively heavily utilised at present, with demand for the area anticipated to grow as the number of renewable energy projects in the state increase. This would not provide sufficient storage area for the REZ or other roadmap projects and would prevent other port users from using the hardstand area for import/export purposes.

Due to the limited availability of suitable land within the Port of Newcastle lease area for new hardstand areas to facilitate the unloading and storage of OSOM components, no further alternatives were identified.

2.4.4 Proposed project site (preferred option)

The proposed project site is located adjacent to the Port of Newcastle lease area and in the vicinity of Mayfield Berth 4. This site was identified as most suitable due to:

- the Port of Newcastle is strategically located with connections to the state road network and REZs, including CWO REZ and New England REZ
- the large area of available land is suitable for development as a logistics precinct
- the land is Government owned
- previously installed remediation infrastructure has made the land suitable for industrial and commercial use
- it is located in proximity to port and shipping operations being adjacent to Mayfield 4 Berth
- proximity to arterial road network to facilitate transport of OSOM components
- suitable land zoning for use as a logistics precinct
- provide practical management measures for the ongoing compliance requirements of contaminated material at the project site
- opportunity to expand to meet future demand (if required)
- the project would connect with EnergyCo's proposed Port to REZ road and intersection upgrade program between the Port of Newcastle and the REZs (subject to a separate planning and approval process)
- the project site is of sufficient size that it would enable EnergyCo to manage any delays on the generation projects that would otherwise lead to requirements for additional storage area at Port of Newcastle.

2.5 Project development

The project would be developed with consideration of both technical and environmental considerations with the objective to avoid and minimise impacts to the community and environment (as far as practicable). This would continue during refinements of the concept design in the EIS phase of the project.

The concept design would be developed based on existing site information with a strong focus on compliance with an ongoing maintenance order issued by the NSW Environment Protection Authority under section 28 of the *Contaminated Lands Management Act 1997*, specifically compliance with the CSMP. The CSMP requires the integrity of previously installed remediation infrastructure across the project site is maintained and or reinstated as a result of any disturbance, and therefore presenting a key constraint for the project site.

Key considerations during project development would include:

- maximising site area available for storage of materials and equipment, as well as logistical movement of OSOM components
- avoiding or minimising excavations and limiting the extent of interference with development features and the BHP subgrade material including remediation infrastructure
- maintaining the integrity of existing remediation infrastructure and or reinstate infrastructure in accordance with CSMP to manage the risk to users of the site and surrounding areas, and surrounding environment including waters of the Hunter River
- minimising the risk of flooding through the design of project and utilising existing drainage channels on the project site as far as practicable
- managing surface water to ensure it does not interact with groundwater avoiding and/or mitigating impacts to non-Aboriginal heritage items located to the south of Administration Drive within the southern portion of the project site
- managing noise and amenity impacts for potentially sensitive receivers located to the west of Industrial Drive
- providing project site access and internal road arrangements that accommodates the delivery and storage of turbine blades that can be around 100 metres in length
- providing adequate capacity in the pavement for lifting of OSOM components, utilising cranes and reach stackers.

The EIS and associated technical assessments would further assess identified constraints to facilitate design refinements to the concept design in response to the identified values and constraints, as well as strategies to mitigate potential impacts.

Chapter 3 (Project description) describes the key components of the project, construction and operation.

3 Project description

This chapter outlines the project description including construction and operation. The current design for the project is described in this chapter; however, further refinement of the concept design will occur following the lodgement of the Scoping Report and documented in the EIS.

3.1 Project context and location

The project site is owned by the NSW Government and is located within the Newcastle local government area (LGA) and Awabakal Local Aboriginal Land Council (LALC). It is located adjacent to the Port of Newcastle's Mayfield 4 Berth on the southern side of the Hunter River South Channel and is approximately two kilometres from the Newcastle Central Business District (CBD). The project site is the former BHP Steelworks site that closed in 1999 and subsequently remediated between 2016 and 2018.

The project site is comprised of an area of around 52 hectares (refer to Figure 3.1), of which around 33 hectares is comprised of suitable hardstand areas, as shown in Figure 3.1, devoid of vegetation and/or structures due to previous industrial use and subsequent remediation infrastructure installed on the site. The project site includes the properties listed in Table 3.1.

The indicative project area is shown in Figure 3.1 and is subject to further refinement. It comprises the project site as well as parts of Selwyn Street and Steel Works Road.

Table 3.1 Project site details

Address	Deposited Plan (DP)	Lot
99 Selwyn Street, Mayfield North NSW 2304	DP1176879	Lot 332

The project site is relatively flat, at varying elevation of approximately two to six metres above sea level. The project site is largely unimproved except for some existing structures in the southern portion, a substation and a wastewater treatment plant. The wastewater treatment plant is being decommissioned. A railway line is located directly to the east and south of the project site and indicative project area.

The project study area includes the indicative project area and surrounding areas within five kilometres. Surrounding land uses include port infrastructure, residential, commercial and industrial as well as conservation and aquatic environments. There are some occasions where the study area is expanded where desktop searches would extend further such as 10 kilometres for EPBC Act Protected Matters search.

Figure 3.1
Project site and layout

Legend

- Road
- Railway
- Watercourse
- Cadastre
- Project site
- Indicative project area
- Hardstand area

Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A4
1:12,500 Date: 3/02/2025
Data sources: WSP, EnergyCo, NSWSS
World Hillshade: Esri, CGIAR

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3.2 Key components of the project

The project is expected to comprise the following key infrastructure:

- a hardstand area of around 33 hectares that would be used for the unloading, loading and storage of materials and equipment (including potentially hazardous materials and equipment) associated with renewable energy projects
- operation of mobile equipment comprising of forklifts, cranes, reach stackers and road trucks for movement of materials and equipment for renewable energy projects
- associated stormwater drainage to manage stormwater flows and water quality across and around impervious surfaces within the project site
- internal roads including new access and egress points to the project site and bridges over existing drainage channels within the project site
- staff amenity buildings, carparks and other ancillary infrastructure required to facilitate operation of the project
- utility adjustments and provisions within the project area to maximise operational efficiencies of the hardstand area and minimise possible upgrades in future.

The indicative project area to the south of Administration Drive would be refined during the preparation of the EIS to minimise impacts on built heritage and to allow for the possible re-use of existing non-heritage listed buildings within this area. However, the heritage listed Quality Control Laboratory building and the main BHP Administration Building (refer to Section 6.2.1) would not be directly impacted and re-use of these buildings is not proposed as part of the project.

Key components of the project are summarised in Table 3.2.

Table 3.2 Summary of key components of the project

Component	Description
Earthworks	Earthworks would be required in preparation for construction of the hardstand. Any excess materials from the earthworks would be either taken off site or retained and managed on site.
Hardstand	Hardstand areas would be constructed to provide laydown areas for materials and equipment. The hardstand would comprise large, flat areas for storage of these components.
Drainage	Construction of hardstand areas and internal roads may require adjustment to, and or reinstatement of, natural stormwater runoff flows across the project site to optimise hardstand areas. Whereas stormwater drainage around the perimeter of the project site (within the indicative project area) would only be revised where necessary to minimise potential impacts resulting from adjustments to stormwater runoff from the new surfaces.

Component	Description
Access and external road upgrades	Internal access roads would be required, including new structures to cross over the drainage channels within the project site. New access and egress points for heavy and light vehicles would be required. The number of access and egress points would be determined during the refinement to the concept design. Adjustments to Selwyn Street and/or Steel Works Road would be required to facilitate connections to the project site. Any further road/intersection upgrades (beyond what is described above) to reach the REZs are subject to separate approvals, including the Port to REZ program of works to support the development of CWO REZ and New England REZ.
Structures	Bridge structures would be required to facilitate access to the project site over the existing drainage channels.
Internal roads and car parking	Internal roads would be required to access the hardstand areas within the indicative project area and the existing road network. To provide for the required swept paths for heavy vehicles, construction of internal roads would impact the heritage listed BHP Administration Building and may impact the curtilage of the Quality Control Laboratory (refer to Section 6.2). This may involve direct impacts to the curtilage and the gardens of each heritage item as well as full demolition of the bicycle shed. This would be confirmed during the preparation of the EIS. Cranage for the unloading and storage of equipment would be used to handle equipment within the hardstand areas. Car parking areas would be required (subject to concept design refinement).
Staff amenity buildings	Buildings for staff amenity would be constructed on the project site to the south of Administration Drive for site operations. These would include, subject to the refinement to the concept design, offices, change rooms, bathroom and shower facilities, first aid and meal rooms.
Utilities	Relocation and or installation of new utilities is to be confirmed during the refinement to the concept design but is likely required to facilitate site access to hardstand areas, optimise and minimise future disturbance to hardstand areas, and ancillary infrastructure. Utility works may also be required for the connection of staff amenity buildings with existing utility services. An existing wastewater treatment plant located within the project site is being decommissioned and replaced by a pump station connected to the Hunter Water Corporation sewer network to ensure continued service to commercial properties within the adjacent Mayfield industrial estate. This pump station and associated infrastructure within the project site may require relocation or adjustment to optimise operational efficiency of the hardstand area. This would be confirmed during the refinement to the concept design.
Ancillary infrastructure	Other ancillary infrastructure required for operation of the site (such as lighting and security).

3.3 Construction of the project

3.3.1 Construction program

Based on the current design and preliminary construction program, it is expected that construction of the project would commence in late 2026, subject to relevant planning approvals. The project is estimated to take around nine months to construct.

The program would continue to be refined and would be further considered as part of the EIS.

3.3.2 Project area

Construction activities would be undertaken within the indicative project area (refer to Figure 3.1), however, the bulk of the construction activity would occur to the north of Administration Drive.

3.3.3 Construction methodology

The construction methodology for the project would be developed in more detail during preparation of the EIS for the project and would consider the interaction with remediation infrastructure installed within the project site.

Construction activities would include:

- site establishment and other enabling works to enable the main construction works to commence:
  - establishment of temporary environmental controls (where required)
  - site and geotechnical investigations in accordance with the CSMP, where such investigations impact remediation infrastructure
  - material stockpiling
  - confirm and safeguard remediation infrastructure not proposed to be disturbed by the project works where relevant
  - potential removal or adjustments to the bar mill slab in accordance with the CSMP, where relevant
  - establishment of a construction compound and construction access to the project site
  - utility protection and relocations including easement adjustments (this may extend outside the indicative project area and subject to the utility provider(s) planning approval processes, though this would be confirmed during the refinement to the concept design)
  - clearing of urban and exotic vegetation
  - utility supply to the construction compound
  - traffic control, redirection and or management during works on Selwyn Street.
- main construction works, including:
  - construction of structures, for the provision of access and egress to the project site, over the existing stormwater channels and in accordance with the CSMP, where relevant
  - earthworks in accordance with the CSMP, where relevant, including regrading and removal of unsuitable material from the project site
  - demolition of any structures on the site, as required, to facilitate the future hardstand and access/egress to the project site (excluding the main BHP Administration Building and the Quality Control Laboratory building)

  - modification of existing stormwater infrastructure and/or construction of new stormwater infrastructure
  - construction of hardstand pavement to facilitate storage of equipment and travel within the site via internal access road, along with plant and vehicle parking
  - installation of site fencing, utilities, lighting, linemarking and roadside furniture and infrastructure, both internal and external to the project site
  - construction of staff amenity buildings and connection to relevant utilities
  - any tie in works, which would include adjustments to levels and pavement widening, to tie the access and egress points to the existing roads bordering the project site
  - property adjustments including but not limited to fencing and site access
- site restoration, validation of remediation infrastructure and appropriateness including where required, need to satisfy Site Audit requirements, site closure and commissioning. This includes removal of any temporary facilities and environmental controls.

The opportunity to re-use on existing non-heritage listed buildings within the project site such as the Roll Shop Building would be explored during the preparation of the EIS. This may require work to these structures, including internal and external modifications. Heritage buildings including the main BHP Administration Building and the Quality Control Laboratory building would not be re-used.

The project and the associated construction works, including regrading for the hardstand pavement, would be designed (where practicable) to minimise works that would disturb the capping layer and other remediation infrastructure within the indicative project area. The project and all construction work would be carried out in accordance with the CSMP and the ongoing maintenance order issued by the NSW EPA for the ongoing management of remediation infrastructure within the project site.

A construction workforce of around 90 personnel is expected for the project. This would be refined during the preparation of the EIS.

3.3.4 Construction plant and equipment

An indicative list of construction plant and equipment likely to be required for the key construction elements is provided below. Not all the equipment identified below would be required for all phases of construction:

- Air compressors
- Backhoes
- Bob cats
- Bulldozers
- Bitumen sealing plant (or paving machines)
- Concrete agitator
- Concrete pump
- Day makers (portable lighting)
- Dump trucks
- Excavators (various sizes) with attachments
- Flatbed trucks
- Fuel trucks
- Cranes (various sizes)
- Generators
- Graders
- Pneumatic jackhammers
- Rigid tippers
- Rollers
- Semi-trailers
- Tilt tray trucks
- Transport trucks
- Trenchers
- Watercarts
- Generators
- Piling rigs
- Drill rigs.

3.3.5 Construction hours

Construction works would be prioritised between 7 am to 6 pm, Monday to Saturday, a mixture of both standard and non-standard construction hours as defined in the *Interim Construction Noise Guideline* (DECC, 2009).

Works outside standard hours may be required for the following activities:

- tie in of access roads to the existing road network
- utility relocation and adjustment works
- to facilitate and or not impede on Port of Newcastle operations
- any other works that cannot be safely undertaken during standard construction hours.

Extended hours would achieve a reduction in overall construction program and meet the objective of the project. The indicative project area is located within the Port of Newcastle, a 24 hour operational area, and impacts to nearby potentially impacted receivers would be appropriately managed during non-standard construction hours.

Any activities required to be undertaken outside of standard construction hours and where works would potentially exceed noise management levels (NMLs), would be carried out with additional mitigation measures and through an out of hours work protocol.

As details of construction methodology and project needs are refined, these hours would be refined for certain activities and considered in the EIS.

3.3.6 Construction compound

In addition to laydown and storage, a construction compound would be located on the indicative project area. The location of the compound would be confirmed following engagement and in consultation with the contractor. The construction compound would comprise office, amenities, staff parking, laydown areas, and generator(s) in the event it cannot connect to existing utilities.

3.3.7 Construction traffic

Construction vehicle movements would comprise vehicles transporting equipment, waste, quarry products, materials and spoil, as well as workers' vehicles. Larger volumes of heavy vehicles would occur during the main civil construction works associated with construction of the project. Primary access to the project site would be from Industrial Drive via George and Selwyn Street.

The construction routes for project related vehicle movements would use much of the surrounding external road network in the study area. Indicative traffic routes are provided in Figure 3.2. Construction routes, construction traffic volumes and access would be confirmed and assessed as part of the EIS.

Figure 3.2
Surrounding road network
and indicative construction routes

Legend

- Road
- Potential constuction routes
- Railway
- Watercourse
- Project site
- Indicative project area

Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A4
1:20,000 Date: 17/03/2025
Data sources: WSP, EnergyCo, NSWSS
World Topographic Map: Esri, TomTom, Garmin, FAO, NOAA, USGS

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3.3.8 Utilities

Construction ancillary sites would prioritise connections to existing utilities, otherwise temporary servicing would be required including generator(s) and tanked connection points. This would be confirmed during the refinement to the concept design.

Utilities would be augmented to service the staff amenity buildings to be used during operation (subject to the refinement to the concept design). The buildings would be connected to utilities including telecommunications, power, water and sewer.

Utility relocations would be required where the new infrastructure would clash with existing utilities, or the existing utilities would have a detrimental impact on the availability of the future hardstand. These works would be minimised, where feasible, by protection of assets and designing the new infrastructure to avoid impacts to existing utilities and as part of an optimised hardstand area.

Fire water mains (if applicable) may be required to be connected to the project site.

3.4 Operation

The project would provide hardstand with internal roads to facilitate the unloading, loading and storage of materials and equipment, including but not limited to wind turbines, transformers, synchronous condensers and other equipment associated with renewable energy projects including the interim storage of BESS units that may contain lithium-ion batteries (potentially hazardous materials and equipment). Cranes and reach stackers would be used to handle materials and equipment.

The project would generally involve the following activities during operation:

- transport of materials and equipment (including potentially hazardous materials and equipment) from Mayfield berth 4 (Port of Newcastle) to the project site
- unloading and storage of materials and equipment (including potentially hazardous materials and equipment) onto the hardstand area
- loading of materials and equipment (including potentially hazardous materials and equipment) onto delivery trucks for transportation to their final location, which would include locations with REZs and other renewable energy generation projects.

Indicative vehicle movements would comprise around:

- 300 heavy vehicle movements per week, including 10 OSOM vehicle movements per day/night
- 50 light vehicles per day.

These anticipated traffic numbers would be refined during the EIS and confirmed during the preparation of the EIS. As identified in Section 3.2, new access and egress points for heavy and light vehicles would be required. The number of access and egress points would be determined during the refinement to the concept design. This may include access to/from Selwyn Street and/or Steel Works Road.

The project would operate up to 7 days per week, 24 hours a day.

Maintenance activities may include:

- regular inspection of roads, hardstand areas, buildings and other areas as appropriate
- repair of internal roads, hardstand areas and other areas as appropriate
- fire detection system inspection and maintenance (if required)
- regular inspection and maintenance of stormwater management systems
- servicing and minor maintenance of loading and unloading equipment
- other works required for compliance with the ongoing maintenance order for the project site.

If the site were to be decommissioned at the end of life, the process would be undertaken in accordance with all relevant legislation, regulations and requirements including any conditions of approval.

Operation of the project would provide around 20 full-time equivalent (FTE) jobs. This would be refined during the preparation of the EIS.

4 Statutory context

This chapter describes the statutory context of the project and identifies the NSW and Commonwealth legislation that may apply. Environmental planning approval for the project is required in accordance with the EP&A Act.

4.1 Power to grant approval and permissibility

The approval pathway and permissibility of the project is summarised in Table 4.1 and detailed within this section.

Table 4.1 Approval pathway and permissibility

Matter	Application of provision
Power to grant approval	The project is declared State Significant Infrastructure (SSI) under Section 2.13(1) of the Planning Systems SEPP as it is permissible without development consent and is development specified in Schedule 3. Schedule 3, section 2 identifies '*development for the purpose of port and wharf facilities or boating facilities (not including marinas) by or on behalf of a public authority that has an estimated development cost of more than $30 million*'. As such, the project is subject to Part 5, Division 5.2 of the EP&A Act and the Minister for Planning and Public Spaces is the approval authority.
Permissibility	The project is permissible without consent by virtue of section 2.80(1)(b) of the Transport and Infrastructure SEPP as it is for a port facility in a prescribed zone and would be undertaken by or on behalf of a public authority.

Approval for the project will be sought under Part 5, Division 5.2 of the EP&A Act. Section 5.12(2) of the EP&A Act states:

> *(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant infrastructure*

Under section 2.13(1) of the Planning Systems SEPP, development is declared State Significant Infrastructure (SSI) if it is permissible without development consent and is development specified in Schedule 3. Schedule 3, section 2 identifies '*development for the purpose of port and wharf facilities or boating facilities (not including marinas) by or on behalf of a public authority that has an estimated development cost of more than $30 million*' as SSI.

Under the Standard Instrument – Principal Local Environmental Plan the project would be considered a port facility:

> ***port facilities*** means any of the following facilities at or in the vicinity of a designated port within the meaning of section 47 of the *Ports and Maritime Administration Act 1995*...
>
> **(b) facilities for the loading or unloading of freight onto or from vessels and associated receival, land transport and storage facilities**...

The indicative project area is zoned SP1 – Special Activities under the Transport and Infrastructure SEPP. The land use table under Chapter 5 of the Transport and Infrastructure SEPP identifies *port facilities* as permissible with consent. However, under Chapter 2 of the Transport and Infrastructure SEPP, development for the purposes of a port facility may be undertaken by or on behalf of a public authority without consent in a prescribed zone (section 2.80(1)(b)). Section 2.78 includes SP1 – Special Activities as a prescribed zone.

The project would be considered a port facility at or in the vicinity of a designated port and would have a capital investment value of over $30 million. As such, the project meets the criteria to be considered SSI under the Planning Systems SEPP as it is development specified in Schedule 3.

EnergyCo was established under the *Energy and Utilities Administration Act 1987* (NSW), section 36(1)(e) of which states that EnergyCo is, for the purpose of any Act, a statutory body representing the Crown. The definition of 'public authority' within the meaning of section 1.4(1) of the EP&A Act includes a 'statutory body representing the Crown' and EnergyCo is therefore a public authority for the purpose of the EPA Act. Port of Newcastle is classified as a designated port under section 47 of the *Ports and Maritime Administration Act 1995*. The indicative project area is within the Port of Newcastle and except for some road adjustments, the indicative project area is outside the lease area.

As such, the project is permissible without consent and meets the criteria of SSI under Chapter 2 of the Transport and Infrastructure SEPP. The NSW Minister for Planning and Public Spaces (the Minister) is the approval authority for the project.

4.2 NSW environmental planning legislation and approvals

4.2.1 Planning approval process

Part 5, Division 5.2 of the EP&A Act establishes the assessment and approval regime for SSI projects. An EIS would be prepared for the project in accordance with section 5.16 of the EP&A Act.

The Minister is the approval authority for the project with the EIS required to be lodged to the Department of Planning, Housing and Infrastructure (DPHI).

Before preparing the EIS, the proponent must request the SEARs for the EIS. This Scoping Report has been prepared to support that request in accordance with the SSI guidelines. The EIS would be prepared to address the SEARs (once issued) and the form and content requirements set out in Part 8 Division 5 of the EP&A Regulation. The EIS would be submitted to DPHI for review before it is publicly exhibited for at least 28 days. During the exhibition period, the public and agencies would be invited to make submissions. After the exhibition period closes, DPHI would ask the proponent to respond to issues raised in the submissions and prepare a Submissions Report.

Following the publication of the Submissions Report (and if required, an Amendment Report or Preferred Infrastructure Report) by the proponent, the Secretary would prepare an Assessment Report for the Minister in accordance with the provisions of section 5.18 of the EP&A Act. The Assessment Report must be considered by the Minister in determining whether or not to approve the carrying out of the project. The Minister's approval may be subject to conditions of approval, in accordance with section 5.19 of the EP&A Act.

4.2.2 Other NSW approvals

Other relevant NSW approvals that may be required for the project or approvals that are not required for SSI are summarised in Table 4.2.

Table 4.2 Other NSW approvals that may or may not be required for the project

Requirement of provision	Application of provision
Approvals that should be applied consistently	Relevant approvals or authorisations that cannot be refused if they are necessary for carrying out approved SSI and are substantially consistent with the Division 5.2 approval under section 5.24(1) of the EP&A Act include: • an approval under Part 3 of the *Coal Mine Subsidence Compensation Act 2017* (CMSC Act) • environment protection licences (EPLs) under Chapter 3 of the *Protection of the Environment Operations Act 1997* (POEO Act) • consent (Road Occupancy Licence) under section 138 of the *Roads Act 1993* (Roads Act) from the relevant roads authority for the erection of a structure, or the carrying out of work in, on or over a public road, or the digging up or disturbance of the surface of a road. With respect to the CMSC Act, EnergyCo would potentially require approval should access road works be undertaken on Selwyn Street as it is within mine subsidence district (subject to the refinement to the concept design). With respect to EPLs, Schedule 1 of the POEO Act, subject to development of the construction methodology, certain construction activities would be classified as a scheduled activity triggering the requirement for an EPL and this would be confirmed in the EIS phase. With respect to Road Occupancy Licences, the project would potentially require temporary/partial closure of classified and unclassified roads for the construction and operation of the project. EnergyCo would require approval to undertake work on classified roads and this would be confirmed in the EIS phase.
Approvals that are not required	Approvals of potential relevance to the project which are not required under section 5.23(1) of the EP&A Act, include: • a permit under sections 201, 205 or 219 of the *Fisheries Management Act 1994* (FM Act) • an approval under Part 4, or an excavation permit under section 139 of the *Heritage Act 1977* • an Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974* (NP&W Act) • various approvals under the *Water Management Act 2000*, namely a water use approval under section 89, a water management work approval under section 90, and an activity approval (other than aquifer interference approvals) under section 91.
NSW legislation and concurrent approvals	Refer to Section 4.2.3 for other NSW legislation and approvals that were considered for relevance to the project.

4.2.3 Mandatory matters for consideration

Applicable NSW Environmental Planning Instruments

Section 5.22 of the EP&A Act provides that environmental planning instruments (such as Local Environmental Plans and SEPPs) do not apply to SSI projects except to the extent they apply to the declaration of infrastructure as SSI and to the declaration of development that does not require consent. Notwithstanding, as a matter of good practice in respect of addressing environmental impacts, key environmental planning instruments have been considered. These instruments are discussed in Table 4.3.

Table 4.3 Environmental Planning Instruments and their relevance to the project

Environmental planning instrument	Relationship to project
State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)	The Planning Systems SEPP identifies development that is SSI. The project meets the criteria of SSI under section 2.13 and Schedule 3 of the Planning Systems SEPP.
State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP)	The Transport and Infrastructure SEPP also identifies development that is SSI. Under Chapter 2 of the Transport and Infrastructure SEPP, development for the purposes of a port facility may be carried out by on behalf of a public authority without consent on a prescribed zone (section 2.80). Section 2.78 includes SP1 – Special Activities as a prescribed zone. Chapter 5 of the Transport and Infrastructure SEPP applies to Newcastle Port, including the project site. This chapter establishes the land use zoning, planning controls, the consent authority for development applications, and what type of development is considered to be of State significance within the Port of Newcastle. It also identifies heritage items within the Port of Newcastle and what a consent authority must consider when assessing a development that impacts the heritage significance of a heritage item. The EIS will include a heritage impact assessment and is discussed further in Section 6.2. Refer to Section 4.1 for further details on land use zoning, permissibility and approvals pathway.
State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)	**Offensive and hazardous development** Chapter 3 of the Resilience and Hazards SEPP regulates hazardous and offensive development. Relevant aims of the chapter are to ensure that in determining whether a development is hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account, and when considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.

Environmental planning instrument	Relationship to project
	As the chemical composition of the BESS units requiring interim storage on the indicative project area may include lithium-ion, the project is considered a potential "*hazardous storage establishment*" and according to Chapter 3 of the Resilience and Hazards SEPP, could be a "*potentially hazardous industry*". Such categorisation requires a preliminary hazard analysis be carried out as part of the EIS to determine the risk to people, property and the environment in the presence of controls at the proposed storage location. **Remediation of land** Chapter 4 of the Resilience and Hazards SEPP provides a state-wide approach to the remediation of contaminated land for the purpose of minimising the risk of harm to the health of humans and the environment. Section 4.6(1) of the Resilience and Hazards SEPP provides that a consent authority must not consent to the carrying out of development on any land unless: • it has considered whether the land is contaminated • if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or would 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 satisfied that the land would be remediated before the land is used for that purpose. The site is considered by the NSW EPA to be in a satisfactory condition for commercial and industrial uses subject to implementation of the ongoing maintenance order issued under section 28 of the CLM Act and the CSMP. The project site is subject to an interim Section B site audit statement under the CLM Act that approves it use for commercial and industrial purposes. The project would make permanent this arrangement under a Section A site audit statement. The *Managing Land Contamination: Planning Guidelines SEPP 55 –Remediation of Land* SEPP 55 (Department of Urban Affairs and Planning and EPA, 1998) identifies that where sufficient information on a remediated site is available, a planning authority may not need further information when making a decision, and that any proposals on such land should be managed through the planning process. The EIS would demonstrate how the project addresses the requirements of the CSMP and ongoing maintenance order. The EIS would summarise the findings from previous site investigations and audit reports, and identify any required management and mitigation measures in line with the CSMP and maintenance order to manage the activities that form part of the project.

Environmental planning instrument	Relationship to project
State Environmental Planning Policy (Primary Production) 2021 (Primary Production SEPP)	The Primary Production SEPP aims to facilitate the orderly economic use and development of land for primary production and reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources. The SEPP is also intended to identify land which has been declared to be State Significant agricultural land (currently no land identified by the SEPP). As the indicative project area is located within the Newcastle LGA and zoned SP1 – Special Activities land under the Transport and Infrastructure SEPP, it will not have an impact on primary production or agricultural land.
State Environmental Planning Policy (Resources and Energy) 2021 (Resources and Energy SEPP)	The Resources and Energy SEPP contains provisions to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources. The indicative project area does not contain mineral, petroleum or extractive material resources.
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (Biodiversity and Conservation SEPP)	The Biodiversity and Conservation SEPP contains provisions for the conservation and management of natural vegetation areas that provide habitat for koalas. There are no natural vegetation areas on the project site that provide habitat for koalas (refer to Section 6.9) and therefore, provisions of the Biodiversity and Conservation SEPP do not apply.

Local Environmental Plans

The project is located in the Newcastle LGA; however, is subject to the Transport and Infrastructure SEPP and would not need to consider the provisions of the Newcastle Local Environmental Plan 2012 (Newcastle LEP).

Other NSW planning legislation

Table 4.4 presents other NSW legislation that may be applicable regardless of the project being declared SSI.

Table 4.4 Other NSW planning legislation of potential relevance to the project

Legislation	Requirement
Biodiversity Conservation Act 2016 (BC Act)	The BC Act aims to conserve threatened species, populations and ecological communities through ensuring appropriate assessment, management and regulation of actions that may damage critical or other habitat for a listed threatened species, or may otherwise significantly affect a threatened species, population or ecological community. Section 7.9 of the BC Act applies to SSI applications and requires the project's EIS to be accompanied by a Biodiversity Development Assessment Report (BDAR) unless the Planning Agency Head and Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values. A BDAR waiver is being sought for the project (refer to Appendix C of this Scoping Report). The BDAR waiver concludes that the project is highly unlikely to have any impact on biodiversity values or threatened species listed under the BC Act, and any potential prescribed impacts (while highly unlikely) would not require offsetting of biodiversity credits. No native Plant Community Types (PCT) are located within the indicative project area and no removal of a PCT is proposed. Further details on the site inspection and targeted surveys completed for the BDAR waiver is provided in Section 6.10 and Appendix C.
Contaminated Land Management Act 1997 (CLM Act)	The project site is managed subject to a CSMP and the ongoing maintenance order issued under Section 28 of the CLM Act. On 8 April 2020, the EPA repealed the 'significantly contaminated land' declaration that applied to the project site (Notice No. 20194450). In the event previously unidentified contamination is uncovered during the course of the project works and not covered by the existing CSMP, the NSW Environment Protection Authority (EPA) is required to be notified in accordance with the CLM Act.
Native Title (NSW) Act 1994 (Native Title Act)	This Native Title Act provides for the recognition of native title in relation to land or waters in NSW in accordance with the Commonwealth *Native Title Act 1993* (refer to Section 4.3.2). Searches of the registers maintained by the National Native Title Tribunal in November 2024 indicate there are no native title claims or any Indigenous land use agreements that apply to land within the area covered by this project.

Legislation	Requirement
POEO Act	The POEO Act establishes, among other things, pollution management, pollution incident reporting and the procedures for issuing licences for environmental protection on aspects such as waste, air, water and noise pollution control. An EPL is required under Chapter 3 of the POEO Act to undertake a scheduled activity (listed in Schedule 1 of the POEO Act) or scheduled development work (outlined in section 47 of the POEO Act). Licensing requirements for the project would be considered in consultation with the EPA and confirmed in the EIS. Construction activities must comply with the requirements for the POEO Act, including (but not limited to) requirements in relation to the disposal of waste, leaks, spillages and other escapes (sections 115 and 116), pollution of waters (section 120), air pollution (section 124 and 126), noise pollution (section 139), land pollution (section 142A), waste offences (sections 143 and 144) and the maintenance and operation of plant and equipment (section 167). Appropriate management and mitigation would be identified in the EIS in relation to these aspects.

Ecologically sustainable development

Section 192(1)(f) of the EP&A Regulation requires an EIS to include the reasons for carrying out the infrastructure, considering the biophysical, economic and social factors, including the principles of ecologically sustainable development (ESD). Part 8, Division 5 (section 193) of the EP&A Regulation and section 6(2) of the *Protection of the Environment Administration Act 1991* outline the four principles of ESD. The four ESD principles comprise the precautionary principle; intergenerational equity; conservation of biological diversity and ecological integrity; and improved valuation, pricing and incentive mechanisms.

EnergyCo would consider the principles of ESD in the further refinement to the concept design. A discussion of how the project has considered ESD principles and how these are incorporated into the project would be included in the EIS.

4.3 Commonwealth legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act, proposed actions with the potential to significantly impact matters protected by the EPBC Act must be referred to the Australian Minister for the Environment and Water to determine whether they are controlled actions and require approval. Under Chapter 2 Part 3 of the EPBC Act, approval from the Minister for Environment and Water is required for:

- an action that is likely to have a significant impact on MNES
- an action taken by any person on Commonwealth land (including Commonwealth leased land) that is likely to have a significant impact on the environment
- an action taken by any person outside of Commonwealth land (including Commonwealth leased land) that is likely to have a significant impact on the environment on Commonwealth land
- an action taken by a Commonwealth agency anywhere in the world that is likely to have a significant impact on the environment.

The project area does not contain vegetation that supports significant biodiversity values and is located within a highly disturbed, fragmented urban and industrial environment. A likelihood of occurrence assessment for EPBC listed fauna species has been completed, which concluded that significant impacts to MNES would not occur (refer to Appendix C of this Scoping Report).

The project would not impact Commonwealth land or impact the environment on Commonwealth land.

Matters of National Environmental Significance

A search of the EPBC Act Protected Matter Search Tool (PMST) for the biodiversity study area was conducted in December 2024 to identify potential MNES that may trigger the need for referral of the action to the Minister. A summary of the potential MNES within the biodiversity study area is presented in Table 4.5.

Table 4.5 MNES under the EPBC Act

MNES	Matters within the project study area
World heritage properties	None
National heritage places	None
Wetlands of international importance	Ramsar wetland (Hunter Estuary Wetlands) three kilometres north of the indicative project area.
Commonwealth listed threatened species and ecological communities	The indicative project area is located on reclaimed land and is heavily disturbed from its former use as the BHP Steelworks site. Vegetation within the indicative project area does not support significant biodiversity values and is located within a highly disturbed, fragmented urban and industrial environment, as confirmed during recent site surveys (refer to Appendix C of this Scoping Report). Vegetation may provide marginal foraging habitat for highly mobile species. Within 10 kilometres of the indicative project area, the PMST search identified: • eight potential threatened ecological communities • 23 potential threatened flora species • 66 potential threatened fauna species • 103 potential listed marine species. The project would not have a significant impact on EPBC listed threatened species and/or ecological communities.
Commonwealth listed migratory species	Vegetation within the indicative project area does not support significant biodiversity values and is located within a highly disturbed, fragmented urban and industrial environment, as confirmed during recent site surveys (refer to Appendix C of this Scoping Report). Vegetation may provide marginal foraging habitat for highly mobile species. Within 10 kilometres of the indicative project area, the PMST search identified: • 55 migratory bird species (terrestrial) • 19 migratory marine species. The project would not have a significant impact on listed migratory species.

MNES	Matters within the project study area
Nuclear action	None
Commonwealth marine area	No Commonwealth marine areas within or in close proximity of the indicative project area.
Great Barrier Reef Marine Park	None
Protection of water resources from coal seam gas development and large coal mining	None

4.3.2 *Native Title Act 1993*

The Australian Government *Native Title Act 1993* provides for the recognition of native title and establishes ways in which future dealing affecting native title may proceed, sets the standards for those dealings and established a mechanism for determining claims to native title.

Searches of the registers maintained by the National Native Title Tribunal in November 2024 indicate there are no native title claims or any Indigenous land use agreements that apply to land within the area covered by this project.

5 Stakeholder and community engagement

5.1 Engagement strategy

This chapter outlines the community and stakeholder engagement carried out for the project to date, including a summary of the feedback provided. This chapter also outlines future engagement activities planned for the upcoming stages of the project.

5.1.1 Engagement considerations, principles and strategy to date

EnergyCo is committed to ongoing, open, and inclusive engagement and consultation with key government stakeholders and the wider community, which aims to continue engagement with these stakeholders during the preparation of the EIS by:

- implementing a comprehensive community engagement strategy during the 28-day display of the EIS as part of the environmental approval for the project
- providing regular and targeted information to the community and stakeholders about the progress of the project, including opportunities to provide feedback
- wherever possible, ensuring community and stakeholder feedback informs the project development process
- effectively managing the expectations of the community and stakeholders regarding project impacts, including the operation phase of the project.

Strategy

Engagement with key government stakeholders regarding the Newcastle Logistics Precinct have been ongoing since 2023 as part of a Whole of Government approach to the development of renewable energy zones across New South Wales.

Engagement with the general public is scheduled to align with the release of this Scoping Report and subsequent milestones outlined in Table 5.4 including exhibition of the EIS.

5.2 Stakeholders

Table 5.1 Key stakeholder groups for the project

Stakeholder group	Stakeholders
Government – Political representatives	• NSW elected representatives • Federal elected representatives
Government – Commonwealth	• Australian Government agencies with an interest in the project site
Government – State	Key government stakeholders for the project include at a minimum: • DPHE • DCCEEW • EPA • Transport for NSW • Infrastructure NSW • Property and Development NSW • Fire and Rescue NSW • NSW Police
Government – Local	• Newcastle City Council
Whole of Government Steerco	• Refer to Section 5.4
Community general	• Newcastle residents, road users and landowners near the project site • Wider community with an interest in renewable energy projects • Freight and heavy vehicle operators
Industry organisation	• Port of Newcastle • Mayfield Industrial Estate Association (MIEA)
Community Organisations	• Port of Newcastle Community Liaison Group • Newcastle Community Members • Newcastle Industrial Heritage Association • Business Hunter • Newcastle Chamber of Commerce • Newcastle and District Chamber of Commerce • Fort Scratchley Historical Society • Newcastle Family History Society • Newcastle and Hunter District Historical Society
First Nations stakeholders	• NSW Aboriginal Land Council • Awabakal LALC

5.3 Communications materials, engagement channels, purpose and reach

Table 5.2 Communication materials

Tool	Audience	Reach	Timeframe
Online tools			
Project web page	Community, stakeholders, industry	Lead website for project updates, project information, milestones and documents	April 2025 onwards
Cover email	Council, local MPs, community groups	Update council, community groups and MPs on project news and key milestones	April 2025 and during EIS exhibition
E-newsletters	Registered community members and stakeholders	Provide email updates when relevant via a mailing list once people sign up	As required
Collateral			
Project update	Community, stakeholders, industry	Inform people about the latest project news	April 2025 onwards
FAQS	Community, stakeholders, industry	Anticipated and answers likely project questions	April 2025 onwards
Fact sheets and other information materials	Community and stakeholders	Provide information about specific topics and issues	April 2025 onwards
Media and advertising			
Print advertising	Community, media	Use local and regional media publications to share project news or engagement events	As required
Media releases and announcements	Media, elected representatives	Update media outlets on project news and key milestones	As required
Media events	Media, elected representatives	Provide opportunities for media and key stakeholders to publicise key project milestones and positive news stories	As required
Engagement activities			
Project contact details	Community, stakeholders, road users	Allow people to contact the project team and ask questions: Phone: 1800 849 794 (9am-5pm, Monday to Friday) Email: npl@energyco.nsw.gov.au	April 2025 onwards

Tool	Audience	Reach	Timeframe
Meetings and briefings	Community, stakeholders, industry, government agencies, working groups	Discuss specific matters and issues with individuals and groups	As required
Community information sessions	Community	Provide an opportunity for people to meet the project team, view the latest project information and ask questions	EIS exhibition
Pop-up displays	Community	Allow people to engage directly with the project team at local events and during the exhibition period	April 2025 onwards
Letterbox distribution	Community	Provide updates and notifications to landowners and residents in a given region	April 2025 onwards
Door knocking	Businesses, residents	To notify someone of a disruption or investigation work around their home or business	During construction

5.4 Feedback received from engagement

EnergyCo's communication and engagement activities to date are summarised in Table 5.3. Further consultation with relevant stakeholders will be undertaken while preparing the EIS in keeping with the DPHI's Undertaking Engagement Guidelines for State Significant Projects (DPE, 2024).

Table 5.3 Engagement activities to date and outcomes

Activity	Description
SteerCo	General information about the project was provided via the 'Whole of Government' SteerCo established for EnergyCo, with the following agencies informed from 2023 about the Newcastle Logistics Precinct: • Aboriginal Affairs NSW • Department of Climate Change, Energy, the Environment and Water (DCCEEW) • Department of Creative Industries, Tourism, Hospitality and Sport • Department of Education • DPHI • Department of Primary Industries and Regional Development • EnergyCo • Infrastructure NSW • NSW Health • NSW Police • NSW Treasury • Office of Local Government

Activity	Description
	• Premier's Department • The Cabinet Office • Transport for NSW.
Briefing sessions	EnergyCo held briefing sessions with the following stakeholders in February 2025: • DPHI (Planning Group) • DCCEEW (Conservation Programs Heritage and Regulations, formerly Biodiversity, Conservation and Science) • EPA • Property and Development NSW • Heritage NSW • Transport for NSW • Newcastle City Council • Infrastructure NSW • MIEA (including Port of Newcastle) • Newcastle Industrial Heritage Association. Purpose of these sessions was to provide stakeholders with an overview of the project, share preliminary assessment outcomes on key issues, and seek feedback on these issues including their assessment approach as part of the EIS. A range of issues were discussed and feedback received included: • preliminary ecology and field surveys detailed within this Scoping Report should be carried out in accordance with guidelines, where applicable • importance of providing access to the Muster Point memorial and the Newcastle Steelworkers memorial • preference to minimise extent of impact to the planted garden and driveway to the northern access of the BHP Main Administration Building • contaminated BHP sub grade material and design approach to minimise interface with this layer below capping infrastructure, compliance with CSMP and early engagement of the appointed Site Auditor • further detail on the wastewater treatment plant removal and substation relocation being carried out by others prior to determination of this project • exploring possible reuse options for buildings located in southern portion of the project site, particularly in the context of the Roll Shop, and any alterations to consider their historical context • traffic impacts including proposed routes and ability of Selwyn Street to handle OSOM movements • provision of off-street parking and alternative means of transport to accommodate expected workforce • importance of community engagement on issues of concern and their management including but not limited to noise, cumulative impacts and potential air quality impacts • proposed need and storage of potentially hazard materials during both construction and operation.
Stakeholder engagement	EnergyCo engaged NSW Police and Fire and Rescue NSW in March 2025 regarding the project. Police NSW were advised of the anticipated OSOM movements from the project to the REZ and non REZ projects during operation, and Fire and Rescue NSW of the proposed battery storage and need for a preliminary hazard assessment.

5.5 Engagement milestones

A summary of milestones that require engagement is outlined in Table 5.4.

Table 5.4 Key milestones and timeframes

Timeframe	Milestone
March 2025	Scoping Report uploaded to DPHI's major project register. Media release and Intertrade website go live.
Q2 2025	SEARs issued
Q4 2025 / Q1 2026	EIS exhibition
Q1 2026	Submissions Report
Q2 2026	Determination by the Minister for Planning and Public Spaces
Late 2026	Construction commences
2027	Renewable energy components begin leaving the Port of Newcastle from the project site

6 Proposed environmental assessment

This chapter considers the environmental, social and economic issues requiring further assessment in the EIS for the project and the level of assessment that would be undertaken for each issue. A summary of the identified issues and level of assessment in the EIS is also provided in the Scoping Summary Table in Appendix A.

6.1 Overview

A preliminary environmental assessment has been carried out to identify potential environmental, social and economic issues associated with proposed construction and operation of the project.

Environmental issues are described in terms of sensitivity of the project study area and surrounds, scale and nature of the likely impacts of the project and the ability to avoid, minimise and/or offset these impacts. The significance of each issue and need for specialist assessment has been based on potential environmental impact and likely level of community and stakeholder interest at this preliminary phase of the project.

For each issue, the proposed scope and required level of assessment (detailed or standard) to be carried out as part of the EIS, or issues that requiring no further assessment in the EIS, is identified. A detailed level of assessment would be undertaken for matters that are complex or where assessment is needed to design project specific mitigation. A standard level of assessment would be required for matters that are straightforward or where the approach to mitigation is well understood. No further assessments are proposed for those matters where the project will have no impact on the matter, or the impacts of the project on the matter will be so small that they are not worth considering further in the EIS.

A summary of the key issues and their proposed scope and level of assessment in the EIS is provided in the Scoping Summary Table in Appendix A.

6.2 Non-Aboriginal heritage

6.2.1 Existing environment

Exploration and settlement of Newcastle and surrounds by early Europeans occurred from 1804, after its first official documented discovery in 1797 by John Shortland (City of Newcastle, 2020). Early Europeans brought forestry and mining (in particular coal mining) activities to the region, which were inefficient until the installation of railways in the 1850s (City of Newcastle, 2020). From the introduction of railways, Newcastle's coal mining industry led to Newcastle becoming the "powerhouse of the Australian colonies" (Suters Architects, 1996/7).

In 1915, World War I hampered coal exports, however, the opening of BHP Steelworks transformed Newcastle and shaped the industrial nature of Newcastle today, as Australia's industrial capital (City of Newcastle, 2018). The BHP Steelworks closed in 1999 and the site (including the project site) was subject to remediation between 2016 and 2018 (refer to Section 6.7) where a number for buildings were demolished with the remaining buildings within the southern portion of the project site considered to reflect key periods of development (NBRS, 2021). The southern portion of the project site also features the Muster Point memorial and the Newcastle Steelworkers Memorial (NBRS, 2021).

Heritage registers

Potential impacts on non-Aboriginal heritage items would include vibration generating works within 100 metres of the indicative project area.

Heritage registers including the World Heritage List, National Heritage List, State Heritage Register and the Newcastle LEP were searched in relation to the project site and areas within a one kilometre buffer in November 2024. Thirty-four listed heritage items were found to occur within the one kilometre buffer. Two heritage items are listed under section 5.31(9) of the Transport and Infrastructure SEPP and Port of Newcastle Heritage and Conservation Register within the indicative project area, namely:

- BHP Administration Building and associated curtilage, which includes the main building, the gardens at the front of the main building and a bicycle shed
- Quality Control Laboratory.

A review of the Port of Newcastle Heritage and Conservation Register (Port of Newcastle, 2021) identified an additional two items under section 170 of the Heritage Act adjacent to the indicative project area and outside the project site, including the Master Mechanic's Office and Pattern Store. However, both section 170 items were demolished around 2015 prior to remediation of the project site and have not been considered further in this Scoping Report.

Beyond the indicative project area, the closest heritage items are the Transport and Infrastructure SEPP heritage items located on Ingall Street and Steel Works Road.

Heritage items within one kilometre of the indicative project area are listed in Table 6.1 and shown in Figure 6.1.

Table 6.1 Heritage listing with the project site and within one kilometre of the indicative project area

Listing name	Item number	Significance	Spatial relation to the indicative project area
BHP Administration Building	N/A	Not stated in SEPP	Within indicative project area
Quality Control Laboratory	N/A	Not stated in SEPP	Within indicative project area
Delprat's Quarters*	N/A	Not stated in SEPP	Adjacent to the western boundary of the project area
Tool Room*	N/A	Not stated in SEPP	120 metres west
Cycle Sheds for No. 2 Rod Mill*	N/A	Not stated in SEPP	Adjacent to the western boundary of the project area
Apprentice Training Centre*	N/A	Not stated in SEPP	Adjacent to the western boundary of the project area
Administration Building, 1933*	N/A	Not stated in SEPP	Adjacent to the northern boundary of the project area
1st Mill Building*	N/A	Not stated in SEPP	Greater than 500 metres northwest

Listing name	Item number	Significance	Spatial relation to the indicative project area
No 1 Change House*	N/A	Not stated in SEPP	Greater than 500 metres northwest
Administration Buildings Nos 2, 3 and 4*	N/A	Not stated in SEPP	Greater than 500 metres northwest
Beauford Hotel	I272	Local	One kilometre southwest
Dangar Park	I270	Local	750 metres west
Date Palms	I271	Local	950 metres southwest
Simpsons Cottage	I266	Local	900 metres west
St Andrews Church	I243	Local	One kilometre west
Former St Andrews Rectory	I253	Local	950 metres west
Residence	I287	Local	300 metres southwest
Burrundulla (Residence)	I277	Local	One kilometre west
San Clemente School	I261	Local	850 metres west
Mayfield East Public School	I282	Local	300 metres west
Burgman House	I278	Local	One kilometre west
Ingall House Group	I283	Local	300 metres west
Ingall House Group	I284	Local	400 metres west
Bella Vista (Former Residence)	I246	Local	950 metres west
Former Substation	I247	Local	One kilometre west
St Columbans Presbytery	I245	Local	One kilometre west
Residence	I288	Local	300 metres west
Former Mayfield House	I262	Local	One kilometre west
St Columbans Church	I244	Local	900 metres west
Ingall House	I285	Local	450 metres west
Former Hunter Institute of Technology	I260	Local	900 metres west
Australia Wire Rope Building	I286	Local	350 metres southwest
Royal Oak Hotel	I623	Local	950 metres southwest
Tighes Hill School of Arts	I619	Local	One kilometre south
Tighes Hill Public School	I620	Local	950 metres south
Former Police Lock-Up	I621	Local	900 metres south

* These items are only identified by Lot/DP with no mapping provided in the Transport and Infrastructure SEPP. The Lot/DP for these items have been used to depict the curtilage in Figure 6.1 and determine distance to the project area in Table 6.1. However, the distance is likely to be greater.

Figure 6.1
Non-Aboriginal heritage within one kilometre of the project area

Legend

- Railway
- Watercourse
- Project site
- Indicative project area
- Local heritage
- SEPP heritage items*
- SEPP heritage curtilage*

Note : Heritage items listed under section 5.31(9) of the Transport and Infrastructure SEPP. The curtilage for items outside the project area have been identified by Lot/DP only. Several items are within the same property boundary.

Coordinate system: GDA2020 MGA Zone 56
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6.2.2 Potential impacts

Two heritage items listed within the Transport and Infrastructure SEPP are within the indicative project area. The internal roads and connections to Selwyn Street would be designed to minimise impacts on these two listed heritage items. However, to provide for the required swept paths for heavy vehicles, impacts to the curtilage and gardens of the heritage listed BHP Administration Building and/or the Quality Control Laboratory may occur, alongside the full demolition of the bicycle shed located east of the BHP Administration Building within its heritage curtilage.

The design and position of the staff amenities building including utility connections and servicing configurations, as well as other possible uses in the areas to the south of Administration Drive may have indirect impacts on listed heritage items or their heritage curtilage.

The project site may have historical significance as the former BHP Steelworks site. In addition to the two heritage items within the indicative project area, other buildings and structures within the project site's southern precinct (south of Administration Drive) exist and may have significance given their connection to the BHP Steelworks. However, with the exception of the Roll Shop building, the other buildings and structures are not proposed to be used or repurposed as part of the proposal. The EIS would also need to give consideration to any impacts from the project on the potential heritage values of these buildings.

6.2.3 Proposed further assessments

A detailed assessment (Statement of Heritage Impact) with regard to the Guidelines for Preparing a Statement of Heritage Impact (DPE, 2023a) would be included in the EIS that would identify:

- relevant historical information including regional and local histories, heritage studies and historical maps to understand the historical heritage context, and searches of relevant heritage registers and schedules
- potential risk of direct and/or indirect impact of the project on identified historic heritage values of listed heritage items and potential heritage items within the project site
- mitigation measures to avoid, minimise and manage identified potential impacts.

6.3 Traffic and access

6.3.1 Existing environment

The project connects to several major roads and secondary roads used for operations of Port of Newcastle, as shown in Figure 3.2, and includes:

- Industrial Drive
- Selwyn Street
- George Street.

Industrial Drive connects to the Pacific Highway (Maitland Road) to the east of the project site at Mayfield West.

Selwyn Street, George Street and Industrial Drive intersection is the main intersection into the project site that would be used by the project. Main road access to the project is from Selwyn Street via George Street and Industrial Drive, that joins the Pacific Highway and New England Highway to the west. Industrial Drive is managed by Transport for NSW while George Street and Selwyn Street is managed by the City of Newcastle.

Roll Shop Road and Administration Drive are internal roads within the indicative project area. Steel Works Road is an internal port road managed by Property and Development NSW and Port of Newcastle. A section of Steel Works Road to the intersection with Bull Street and Ingall Street is located within the project site.

Rail infrastructure bounds the eastern border of the indicative project area and services freight and coal transportation to and from the Port of Newcastle.

The indicative project area is located around 12 kilometres southwest of Williamtown (Newcastle) Airport. The project site is within the Declared Defence Aviation Area and is subject to Part 11A of the (Commonwealth) Defence Regulation 2016, which provides a legal framework for controlling activities which may be dangerous to aviation. The Declared Defence Aviation Area for Williamtown Airport sets a height limit of 90 metres. The expected maximum crane height is below this height limit.

6.3.2 Potential impacts

Construction

Construction traffic associated with the project would include heavy and light vehicles related to:

- delivery of construction plant and equipment
- delivery of materials including quarry products and concrete
- delivery of plant to be used for construction
- delivery of large equipment to be used in operation, such as cranes
- movement, encapsulation and or removal of excavated soil and waste materials in accordance with the POEO Act and EPA guidelines, where applicable
- water trucks used for dust suppression and personnel in light vehicles tending to site controls
- construction workers driving to and from the indicative project area.

Construction traffic is likely to use the surrounding major road network that is approved for use by heavy vehicles for transportation of key elements of construction plant and equipment and bulk material haulage. Light vehicles would typically be used to transport construction workers.

Volumes of heavy and light vehicles generated during construction of the project may result in a noticeable increase in traffic using the surrounding road network, particularly along any local roads where existing traffic volumes are typically lower. Estimates of heavy and light vehicle movements would be determined during construction planning and would be described in the EIS.

There may be some temporary disruptions to traffic movements along roads within the Port of Newcastle, including Selwyn Street to the south, and Ingall Street and Bull Street to the north during construction and upgrade of site access points to the road network. Construction may require temporary traffic management of lane closures; however, where practicable this would be scheduled to minimise impacts during peak traffic periods. Any impacts associated with this are expected to be short term and unlikely to cause considerable disruptions to road users.

Operation

The indicative project area would be accessible to cargo ships via the Hunter River South Channel to Mayfield 4 Berth with proposed road access via Steel Works Road and/or Quayside Close and Selwyn Street.

During operation of the project, there would be an increase in heavy vehicles using the surrounding road network that could result in traffic impacts. The number of heavy vehicles expected during operation would be described in the EIS.

Traffic and transport impacts from operational workers and maintenance activities are expected to be negligible and would typically be limited to light vehicles using the surrounding road network to access the indicative project area.

6.3.3 Proposed further assessments

A detailed assessment on traffic would be included in the EIS and would identify:

- existing conditions, including traffic counts at key mid-block and intersection locations
- future base traffic conditions
- construction routes for access to the indicative project area and current regulations, road functions and/or conditions that may apply
- traffic generation and distribution for construction and operation of the project, including light and heavy vehicles
- impact of additional traffic at key mid-block locations during construction and operation in accordance with Austroads guidelines on traffic capacity
- impact of additional traffic at key intersection locations during construction and operation, with intersection modelling completed using the SIDRA software package
- qualitative impact of operational activities which interact with the road network
- mitigation measures to avoid, minimise and manage any identified potential impacts.

6.4 Noise and vibration

6.4.1 Existing environment

Noise

The indicative project area is adjoined by multiple heavy industrial land uses to the north and south, and port operations to the east. Industrial, commercial, residential and other sensitive land uses are located to the west of the indicative project area. The nearest residential noise receiver is around 90 metres west of the indicative project area. A landscape mound within and bordering the project site largely separates the indicative project area from potentially sensitive receivers north of the Crebert Street and Industrial Drive intersection. Sensitive receivers are shown in Figure 6.2.

The indicative project area is generally surrounded by a highly urban and industrialised environment, influenced primarily by noise from road and rail traffic, industrial activities and port operations.

Meteorological conditions can influence or reduce transmission of noise. In particular, weather conditions including atmospheric temperature inversions and wind conditions have a significant impact on noise levels.

Vibration

Ground vibration impacts for typical construction activities are generally limited to the immediate area surrounding the vibration source and rarely extend beyond around 100 metres for human comfort and 50 metres on building and structures. Existing ground vibration sources within the project study area would include industrial activities and heavy vehicle movements on Selwyn Street and the associated road network.

Residential receivers are located around 90 metres from the western boundary of the indicative project area (refer to Figure 6.2). No vibration sensitive developments, such as microelectronics, medical and imaging laboratories have been identified within 100 metres of the indicative project area. Major, critical infrastructure exists within the Port of Newcastle lease area, such as coal loading facilities and gas pipelines, however these are not considered to be highly vibration sensitive.

Two heritage items are listed under section 5.31(9) of the Transport and Infrastructure SEPP are within the southern portion of the indicative project area and within 50 metres of heavy vehicle movements and construction activities, being:

- BHP Administration Building
- Quality Control Laboratory.

Several heritage items are also located adjacent to the indicative project area.

Figure 6.2
Sensitive receivers within proximity of indicative project area

Legend

- Road
- Railway
- Watercourse
- Project site
- Indicative project area
- Residential and other sensitive land uses
- SEPP heritage items*
- SEPP heritage curtilage*

Note : Heritage items listed under section 5.31(9) of the Transport and Infrastructure SEPP. The curtilage for items outside the project area have been identified by Lot/DP only. Several items are within the same property boundary.

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6.4.2 Potential impacts

Construction

Potential noise impacts during the construction phase would be associated with:

- operation of noise generating plant and equipment such as excavators, graders, rollers and dozers during construction activities
- increased road traffic noise along construction routes due to heavy and light vehicle movements transporting construction staff, materials and equipment to and from the indicative project area.

For most of the indicative project area, these activities would not be expected to cause significant noise and vibration impacts due to the distance from sensitive receivers, however, potential impacts would be experienced by sensitive receivers for works close to the western boundary and the two heritage listed items within the indicative project area.

Ground vibration associated with road traffic is generally low and would be experienced as part of background conditions at residential receivers closest to Industrial Drive. However, the primary routes for heavy vehicles to access the indicative project area are likely to be the existing designated heavy vehicle routes and as such project traffic is not expected to impact the existing vibration environment.

Due to the nearest residential receiver being located around 90 metres of the indicative project area, potential vibration impacts during construction would be minor, short-term and infrequent.

There is the potential for vibration impacts to the two heritage items within or adjacent to the indicative project area. This would depend on the nature of the construction activities and distance to the heritage structures that form part of these listings. The potential risk to heritage structures due to vibration intensive activities within 50 metres of heritage structures would be considered further in the EIS and suitable mitigations identified.

Operation

On site activities during operation of the project would involve the unloading and loading of renewable energy components via a crane onto vehicles. Noise generated by on site activities would be consistent with existing noise generated by operations within the Port of Newcastle, as such the operational noise impacts are expected to be minor.

There may be occasional minor noise impacts from maintenance activities. However, these maintenance activities are expected to be infrequent and short in duration.

Operation of the project is unlikely to result in significant offsite traffic noise impacts due to the primary routes for heavy vehicles to access the project site are existing designated heavy vehicle routes. As such, project traffic noise impacts are expected to be minor.

Potential vibration impacts during operation and maintenance are expected to be negligible.

6.4.3 Proposed further assessments

A detailed assessment on noise and vibration would be included in the EIS and would identify:

- existing sources of noise and vibration and characterisation of the existing noise environment
- sensitive receivers (for both noise and vibration) and noise management levels with reference to the results of background noise monitoring
- noise and vibration generating activities associated with construction, operation, and maintenance of the project (including equipment inventory)
- potential noise and vibration impacts (in accordance with relevant legislation, guidelines and standards) associated with construction and operation of the project, including potential road traffic noise impacts on public roads
- likely residual noise impacts (following the adoption of standard noise or vibration management measures) where there would be the need for additional management measures
- potential cumulative noise impacts (in accordance with relevant legislation, guidelines and standards)
- mitigation measures to avoid, minimise and manage any identified potential impacts.

6.5 Surface water and flooding

6.5.1 Existing environment

Surface water and water quality

The project study area is within the Hunter Catchment, which is the largest coastal catchment area in NSW (around 21,500 square kilometres) (NSW Government, 2024). Water from the catchment is managed by the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022 under the *Water Management Act 2000*.

The Hunter Estuary comprises over 100 kilometres of waterways, including the Hunter River South Channel, which is located around 600 metres northeast of the indicative project area at its closest point (refer to Figure 6.3) and Hunter Estuary Wetland (Ramsar wetland) around three kilometres from the indicative project area. The hardstand area is bounded by water drainage channels.

Existing water quality within the project study area, in particular the Hunter River, is expected to be influenced by surrounding land uses, such as existing and former port operations that may have resulted in increased pollutants and sedimentation within nearby waterways. The Hunter Estuary has been highly modified by industrial activity and land use changes with resulting impacts on water quality and habitat integrity (BMT, 2009).

Flooding

A review of the City of Newcastle *Know Your Flood Risk* flood mapping identified a 'very low risk' flood prone area across the indicative project area (refer to Figure 6.3). The mapping indicates that the indicative project area is outside of the one per cent annual exceedance probability (AEP) event flood prone area, but could be subject to larger and less frequent floods up to the probable maximum flood (PMF) (City of Newcastle, n.d).

The 'Throsby, Styx and Cottage Creek Flood Study' (Rhelm, 2023) modelled flood depth and elevation of the 2007 Flood Event that identified areas of flooding within indicative project area. The model presented flood depth ranging from 0 to 1.5 metres (Rhelm, 2023) for areas within the indicative project area including along the drainage channels, Steel Works Road, southeast boundary and the southern portion of the indicative project area between Selwyn Street and Administration Drive (Rhelm, 2023).

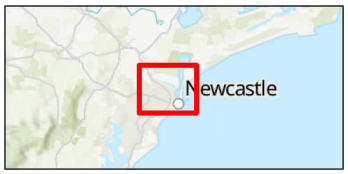
Figure 6.3
Existing surface water and flood risk within the project study area

Legend

- Road
- Watercourse
- Railway
- Project site
- Indicative project area
- Waterbodies

Flood risk

- High risk
- Medium risk
- Low risk
- Very low risk



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Data sources: WSP, EnergyCo, NSWSS
World Topographic Map: Esri, TomTom, Garmin, FAO, NOAA, USGS

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6.5.2 Potential impacts

Construction

There is potential for erosion and sedimentation resulting from construction works such as earthworks, road infrastructure and stormwater drainage.

Potential impacts on water quality could occur during construction due to:

- disturbance to remediation infrastructure and subsequent exposure to capped material
- sedimentation of soil material eroded during ground disturbance, vegetation removal and storm events, if uncontrolled, would have the potential to increase sediment load, organic matter and turbidity of water
- leaks and spills of fuels, chemicals or wastewater impacting surface water quality, if not managed appropriately could result in changes to water quality.

Construction of the project could result in changes to hydrology flow patterns due to the location of earthworks, flow diversions, bunding, material stockpiles and temporary drainage infrastructure.

Operation

Potential impacts related to surface water during operation are likely associated with:

- changes to local hydrology, including the quality, quantity and patterns of surface water runoff and drainage, associated with an increase in permanent non-permeable surfaces and culverts
- transport and deposition of soils from ground disturbance as well as vehicle and equipment movements during maintenance activities
- maintenance and repair of finished surfaces
- potential leaks and spills of chemicals and fuels during maintenance activities.

Potential impacts on flooding relate to structures and infrastructure creating obstructions and changes to natural surface water flows.

6.5.3 Proposed further assessments

A detailed assessment of surface water and flooding would be included in the EIS that would identify:

- existing hydrology, flooding and water quality conditions
- potential impacts on hydrology, flooding and water quality including:
  - potential impacts to water quality for the water catchment (including consideration of the Hunter Estuary Ramsar wetland and the Hunter River) against baselines ambient conditions
  - flood behaviour and risk across the indicative project area
  - potential change to existing flows and quantities that may impact drainage infrastructure
  - potential range of pollutants that may be generated during construction and operation and the potential risks of these pollutants against the NSW Water quality objectives and the Australian and New Zealand guidelines for fresh and marine water quality 2018 trigger values

- develop a site-specific MUSIC model that would establish existing pollutant discharge levels and identify appropriate water quality mitigation to meet local, state and national discharge guidelines and objectives with consideration of sensitive receiving environments and performance objectives.
- mitigation measures to avoid, minimise and manage any identified potential impacts of the project.

6.6 Hazard and risk

6.6.1 Existing environment

Dangerous goods and hazardous materials

Dangerous goods and hazardous materials may be stored within the vicinity of the indicative project area associated with port operations and other industrial activities.

Under the Port of Newcastle Land Use Safety Study (AECOM, 2017), hazardous activities currently operating within the Mayfield Precinct include:

- ammonium nitrate – Mayfield 4 Berth (ship and transit storage)
- explosives – Mayfield 4 Berth (ship and transit storage)
- coal tar distillates: Koppers Manufacturing Plant (storage and processing), Mayfield 7 Berth (ship unloading/loading and pipeline) and booster station (storage and transfer)
- combustible and flammable fuels – Stolthaven (storage, transfer and tanker loading) and Mayfield 7 Berth (ship unloading and pipeline)
- grade 1 creosote – Koppers Manufacturing Plant (storage and processing), Mayfield 7 Berth (ship unloading/loading and pipeline) and booster station (storage and transfer)
- naphthalene, molten – Koppers Manufacturing Plant (storage and processing), Mayfield 7 Berth (ship unloading/loading and pipeline) and booster station (storage and transfer)
- natural gas/methane – Jemena and Arrium (pipeline).

Businesses are required to store, handle and use these dangerous goods and hazardous substances in accordance with the *Work Health and Safety Act 2011* and relevant Australian Standards. Road users are required to transport dangerous goods and hazardous materials within the surrounding road network in accordance with the *Dangerous Goods (Road and Rail Transport) Act 2008* and the Dangerous Goods (Road and Rail Transport) Regulation 2022.

The Port of Newcastle Land Use Safety Study (AECOM, 2017), which reflects projects developed or approved in mid-2015, identifies the need for development within the Intertrade area to be light to medium industry instead of residential or heavy industrial activities. However, it identifies that any intensification of activities within the Mayfield Precinct would require consideration of the societal and individual risk levels from surrounding developments. While it is understood that the Port of Newcastle are revising the Land Use Safety Study to reflect developments since the completion of the 2017 study, a review of the existing Land Use Safety Study would be carried out for the project and considered further in the EIS.

Mine subsidence

The indicative project area is not mapped within a mine subsidence district. Adjacent to the southern boundary of the indicative project area, Selwyn Street, is the northern boundary of the Newcastle mine subsidence district. This mine subsidence district is defined by historic underground coal mining that has occurred south of the indicative project area.

Bushfire

The indicative project area is not mapped as bushfire prone land. There is bushfire prone land within the project study area, with the closest bushfire prone land being 2.6 kilometres east at Stockton on the opposite side of the Hunter River.

Contamination

Hazards and risks associated with historic contamination within the indicative project area are discussed in Section 6.7 and are not discussed further in this section.

Flooding

Flooding risks for the indicative project area are discussed in Section 6.5.1 and are not discussed further in this section.

6.6.2 Potential impacts

Construction

Construction activities are unlikely to be impacted by bushfires due to the indicative project area's distance from bushfire prone land. Likewise, the project is outside the Newcastle Mine Subsidence District.

Based on typical construction methods, the dangerous goods and hazardous substances required for the construction of the project could include:

- bitumen
- cement and concrete including curing compounds
- fuels (petrol and diesel)
- herbicides
- oils, greases and lubricants
- paints and epoxies.

Storage, handling and use of dangerous goods and hazardous substances may adversely impact human safety, either directly through contact, or indirectly through damage to the local environment. This may impact construction workers but is unlikely to pose impacts off site. The types of dangerous goods and hazardous substances that would be stored and used during construction would be refined during construction planning for the project and discussed in the EIS.

The storage, handling and use of dangerous goods and hazardous substances would be carried out in accordance with the *Work Health and Safety Act 2011*, relevant Australian Standards and environmental management measures developed for the project. As such, the potential for impacts to construction workers and the environment is low.

During construction, a construction workforce of around 90 personnel is expected for the project. The intensification of workers within the site would be short-term but would be considered further alongside the permanent workforce expected at the project site. This is discussed further below in this section.

Operation

During operation, the project would involve use of the indicative project area and internal roads, reducing the overall potential vegetation fuel load for the management of potential hazardous materials stored within the project site. Likewise, ongoing vegetation management across the indicative project area in accordance with the EPA's ongoing maintenance order for the site would further minimise fire risks.

It is not anticipated that substantial volumes of dangerous goods or hazardous substances would be used for maintenance activities during operation of the project. Contamination either directly associated with a spill or hazardous material clean-up may enter the receiving environment from both paved and unpaved surfaces. However, when appropriate environmental mitigation measures are in place, the potential for a spill and consequential impacts is considered low.

Cranes would be in operation within the indicative project area which would be considered further in the EIS.

As identified in Section 3.4, the project would involve the interim storage of BESS units, which depending on the chemical composition of the batteries that may include lithium-ion , considered the more hazardous composition, is potentially considered a "*hazardous storage establishment*" and according to Chapter 3 of the Resilience and Hazards SEPP, could be a "*potentially hazardous industry*". Such categorisation would then require a preliminary hazard analysis be carried out as part of the EIS.

The operational workforce would be low (around 20 FTE workers) but represents an increase in the worker population at the project site. Land use conflicts due to surrounding potentially hazardous developments would require further consideration during the preparation of the EIS.

6.6.3 Proposed further assessments

A preliminary hazard analysis in accordance with the relevant NSW Hazardous Industry Planning Advisory Papers would be included in the EIS. It would a consideration of the existing land use safety study for the Port of Newcastle and potential land use conflicts from surrounding industrial operations and potentially hazardous developments, as well as consideration to the Fire and Rescue NSW guidance on open yard storage of BESS units (including the expected state of charge of the units). This assessment would be prepared by a suitably qualified hazard specialist that considers the societal and individual risk levels from existing or approved potentially hazardous activities occurring in the vicinity of the project site in the context of the proposed description outlined in this Scoping Report and the project's expected workforce during construction and operation.

6.7 Soils and contamination

6.7.1 Existing environment

Contamination

The former BHP Steelworks was declared a 'remediation site' (i.e. 'significantly contaminated land') under Section 11 of the CLM Act (declaration number: 21022) on 14 June 2001. The remediation site extended from Industrial Drive in the west to the Hunter River in the east and included the project site. Remediation of the project site occurred between 2016 and 2018 and generally included the following measures:

- importation of clean fill materials to reshape the land and create free drainage
- construction of grassed and lined drains on the project site, containing the virgin excavated natural material (VENM) cap
- VENM cap of the northern portion of the project site to a permeability of less than 10–6 metres per second and a minimum thickness of 500 millimetres
- cap protection layer in areas of VENM cap
- replacement of unsuitable surface material with clean material, cleaning of existing stormwater drains and seal of car park areas in the southern portion of the project site.

Based on the review of available information the key contaminants at the project site are understood to be generally associated with historical filling with industrial wastes as part of land reclamation works and historical industrial operations related to the smelting of copper and extensive iron and steel production.

The project site has been remediated by the Hunter and Central Coast Development Corporation (HCCDC), in accordance with a Voluntary Management Plan (VMP) regulated by EPA) under the CLM Act. The project site is considered by the EPA accredited Site Auditor to be in a satisfactory condition for commercial and industrial uses, subject to the implementation of the CSMP and compliance with the conditions of an ongoing maintenance order issued under section 28 of the CLM Act. As identified in Section 4.2.4, the EPA has repealed the 'significantly contaminated land' declaration that applied to the project site (Notice No. 20194450). The project site is subject to an interim Section B site audit statement under the CLM Act that approves it use for commercial and industrial purposes. The project would make permanent this arrangement under a Section A site audit statement.

The CSMP provides a common framework to be applied across the whole of the remediation site (including the project site) for the design, implementation, completion, use and maintenance works, which is overseen by the appointed Site Auditor.

Key sources of environmental risk (pre-remediation) included:

- heterogeneous waste materials from industrial activities used across the entire site for land reclamation, that include elevated concentrations of polycyclic aromatic hydrocarbons (PAH), lead, manganese and zinc, amongst other chemicals and compounds
- waste materials and releases to ground from steelworks processes that contain elevated levels of semi-volatile organic compounds (SVOCs) and a range of heavy metals
- waste materials and releases to ground from steelworks processes that contain elevated levels of volatile organic compounds (VOCs) and possibly phase separated hydrocarbon materials, predominantly coal tar and petroleum compounds
- isolated and localised occurrences of asbestos materials or polychlorinated biphenyl compounds (PCBs) occurring within the fill material.

The CSMP indicates that contamination present across the project site may generate VOCs and that there is a requirement to assess VOC risks and incorporate into the design. Specifically, risks associated with the potential presence of VOCs must be assessed in an appropriate and professional manner prior to commencement of works. Attention is also drawn to sealed roads, pavements and the like. It was commonplace for BHP to utilise coal tars from the Coke Ovens (a Level 3 material under the CSMP and hazardous waste material under the Waste Classification Guidelines (EPA, 2014)) as a binder and seal for road pavements, carparks and the like. Some of these impacts are recorded in previous site investigations. In general, all old pavement areas should be treated with caution as they potentially contain hazardous coal tars.

Soils

Soils within the indicative project area are 'not assessed' under Australian Soil Classification mapping. This is due to the previous heavy disturbance of soils within the indicative project area. This extends throughout the SP1 – Special Activities zone associated with the Port of Newcastle, due to historic port operations and heavy industries.

Acid sulfate soils

Acid sulfate soils are not mapped within the indicative project area; however, are mapped 40 metres west of the indicative project area (on the western side of Industrial Drive) and include:

- Class 2 – likely to be found below the natural ground surface
- Class 4 – likely to be found beyond two metres below the natural ground surface
- Class 5 – not likely to be found (areas within 500 metres of Class 1, 2, 3 or 4 acid sulfate soils).

6.7.2 Potential impacts

Construction of the project has potential to impact upon the effectiveness of completed remediation works and cap integrity. Any impact of remediation infrastructure by the project would be carried out in accordance with the CSMP and in consultation with the appointed Site Auditor. The CSMP requires that where disturbance of the existing remediated infrastructure, such as the capping layer, is to be undertaken that plans of management be prepared to set out the control measures to be implemented to be protective of the health of works, the surrounding users and community and the environment. The project would prepare any plans required by the CSMP and these plans would be subject to review and acceptance as appropriate by the appointed Site Auditor, if required by the CSMP.

The project would be designed so that it is compatible with the existing site conditions and the requirements detailed in the CSMP. Contamination risks would require consideration and/or management during design and construction works, where relevant.

Where disturbance to the capping layer or the underlying material is required, measures (prior to or during construction works) would be implemented to manage this activity and ensure the integrity of the previously installed capping layer is either not compromised or repaired, refurbished or replaced as required by the CSMP such that the CSMP conditions can be maintained.

During operation of the project, the risk of impact to completed remediation works is significantly reduced due to placement and formalisation of additional hardstand material over the existing VENM cap in the northern portion of the indicative project area and reinstated of impacted remediation infrastructure elsewhere on the indicative project area.

Potential exposure of acid sulfate soils resulting in off site discharge of acidic water could occur during construction, however, this is unexpected due to the previous heavy disturbance of soils on the indicative project area and exposure of sub grade material limited to bridge construction over existing drainage lines and any utilities requiring realignment. Likewise, there are no expected impacts from acid sulfate soils expected during operation of the project. Any control measures required for the project would be set out in the relevant management plans to be prepared in accordance with the CSMP and other project requirements.

6.7.3 Proposed assessment for EIS

The EIS would provide consideration to the consistency of the project (and associated construction activities) with the CSMP and ongoing maintenance order, and what measures have been incorporated or have been identified to be required to maintain consistency with these documents. The EIS would set out the type of work plans to be prepared to comply with the CSMP as part of the project and would be supported by:

- a summary of previous investigations and the relevant outcomes of previous remediation and validation reports as documented in the CSMP
- if required, refinement of the existing conceptual site model (CSM) presented in the CSMP to be specifically relevant to the project to identify any potential residual contamination sources, receptors and exposure pathways associated with the proposed activities within the project site that are not already addressed in the CSMP. The CSM would:
  - consider the likelihood of potential impacts of compromising the existing capping layer covering contaminated materials, or other remediation infrastructure within the project site
  - consider the potential for proposed activities to interact with groundwater and to create preferential pathways for the migration of existing contaminated groundwater.

The EIS would set out the requirements that those work plans need to satisfy under the CSMP which would include:

- consideration of VOC risks, where relevant, that may occur during construction or where new above ground enclosed structures are proposed (such as the staff amenities building)
- proposed management and mitigation measures in line with the CSMP and ongoing maintenance order, including any required further investigations (if required). This includes the management of any excavated materials onsite during construction.

6.8 Groundwater

6.8.1 Existing environment

The project study area is within the Hawkesbury to Hunter Coastal Sands groundwater source. Groundwater behaviour has been significantly modified by remediation works carried out on the project site and adjoining Port of Newcastle lease area, as part of the previous Closure Area (refer to Section 2.3.3).

Previous investigations at the project site have reported the presence of a shallow unconfined aquifer within fill materials and a deeper estuarine (sand) aquifer underlying the site. Following the installation of the cap as part of the remediation works, groundwater levels in the fill aquifer were observed to be 0.9 to 3.8 metres below the existing ground level.

Groundwater wells within the indicative project area are located within a shallow aquifer, with seven shallow fill wells and a shallow estuarine aquifer well (Ramboll, 2018). These wells were monitored in accordance with voluntary remediation agreement requirements until 2021 when it was verified that the remediation works carried out on the project site were effective and no further contamination to groundwater was in occurrence.

In 2012/2013 prior to remediation of the project site, contaminants of concern within the voluntary remediation proposal for the project site included petroleum hydrocarbons, specifically PAHs, benzene, toluene, ethylbenzene and xylene (BTEX) and metals (arsenic, chromium, copper and zinc) (Ramboll, 2018).

No active groundwater remediation was conducted during remediation of the project site (between 2016 and 2018). A barrier wall was constructed in 2006 as part of the remediation works beyond the project site to the east to minimise flow to the Hunter River. The completed cap across the Closure Area has minimised groundwater recharge and the drainage system has been constructed to ensure groundwater is isolated from surface water utilising geosynthetic liners.

In August 2018, groundwater monitoring identified low concentrations of chemicals of concern, including total recoverable hydrocarbons, BTEX, PAHs and cyanide (Ramboll, 2018). Elevated concentrations of manganese and zinc were also detected, although at lower concentrations than 2012/2013 results (Ramboll, 2018).

In 2020 and 2021, monitoring completed for the project site on behalf of PropertyNSW reported stable trends in groundwater contamination. This monitoring found that groundwater contamination concentrations were generally below the adopted assessment criteria, with the exception of:

- manganese and benzo(a)pyrene which were reported above the NEPM Groundwater Investigation Levels criteria for drinking water
- copper, zinc and ammonia reported above the Australian New Zealand Guidelines for Fresh and Marine Quality (ANZG 2018) marine water criteria for 95% species protection.

The concentrations of manganese, benzo(a)pyrene copper, zinc and ammonia in the 2020 and 2021 monitoring period were in similar ranges to groundwater monitoring completed prior to and following the completion of the remediation works. PFAS compound concentrations in groundwater also showed a stable trend across the 2020–2021 monitoring period and were reported to be comparable to concentrations reported in 2018. On 6 March 2025 and following the advice from the NSW EPA accredited auditor, the EPA amended the maintenance order issued under the CLM Act. This removed the need for ongoing monitoring of groundwater as further monitoring to verify the efficacy of the remediation works is no longer required.

Groundwater remains unsuitable for abstraction for beneficial use and is prohibited.

A groundwater dependent ecosystem (GDE), Sporobolus virginicus Saltmarsh, is mapped by NSW DCCEEW high ecological value aquatic ecosystems groundwater dependent ecosystems mapping within the indicative project area. However, a site survey of the project site was carried out by a Biodiversity Assessment Method (DPIE, 2020c) accredited assessor who confirmed the GDE, as previously mapped, was not present (refer to Appendix C).

6.8.2 Potential impacts

Construction

As identified in Section 3.3.3, the project and associated construction works would be designed (where practicable) to minimise works that would disturb the capping layer within the indicative project area, which has minimised groundwater recharge within the Closure Area. Potential impacts on groundwater during construction would be dependent on extent and depth of the excavations and piling activities within the indicative project area relative to groundwater levels.

If encountered, impacts to or from groundwater could include:

- impacts to groundwater levels, flows and connectivity: these include changes to groundwater connectivity, groundwater flow direction, groundwater levels and recharge rates
- dewatering: groundwater could be intercepted, and minor dewatering may be required
- groundwater chemistry: these include pollution to surface soils and or surface water including potential migration from runoff offsite due to mismanagement of any groundwater dewatering or changes to groundwater quality from spills or leaks.

The project would be designed in accordance with the CSMP which requires drainage systems to isolate groundwater and surface water systems. Contamination risk from groundwater encountered or extracted for dewatering during construction of the project would need to be managed in accordance with the works management plan (developed in accordance with the CSMP) that effectively manages its contamination status and the on site requirements.

Operation

The project is not expected to interact with groundwater during operation. As such, there are no expected material impacts on groundwater levels, flow or connectivity.

Installation of non-permeable surfaces are unlikely to result in a change of local recharge of groundwater due to the existing remediation capping installed across the project site. Surface water runoff is expected to infiltrate into the regional groundwater system regardless of the increased non-permeable area.

Potential leaks and spills during operation of the project could result in impacts to groundwater from runoff into drainage systems.

6.8.3 Proposed further assessments

A standard (qualitative) assessment of groundwater would be included in the EIS that would consider the potential risks to groundwater (such as levels and quality) during construction and operation. For construction this would be based on the construction methodology and reviewing existing groundwater data collected at the project site.

6.9 Social

This section presents a summary of a Phase 1 Social Impact Assessment (SIA) prepared for the project by WSP (refer to Appendix B).

6.9.1 Existing environment

The indicative project area is within the Newcastle LGA of the Hunter region. Social locality considers the geographical areas expected to experience direct and/or indirect impacts (positive and negative) from a project. The direct social locality includes residents located within the project study area who are expected to experience the most social change and also captures the values that people associated to the built and natural features within this area. The local social locality includes the broader geographical areas where increased traffic might affect residents and where increased employment, and procurement activities would result in benefits.

The local social locality for the project includes a population of around 179,269 people within:

- Newcastle Statistical Area Level 3 (SA3) – including the suburbs of Warabrook, Sandgate, Mayfield West, Mayfield North, Mayfield East, Mayfield, Tighes Hill, Maryville, Islington, Hamilton North, Carrington, Georgetown, Waratah, Waratah West, Callaghan and North Lambton within the project study area.
- Tomago Urban Centre and Localities (UCL) – including a section of the Hunter Wetlands to the north of the project.

Newcastle is the urban centre of the Hunter Region in NSW, Australia. It is the second most populated area in the state and serves as a major hub for economic, cultural, and educational activities. The city is known for its rich industrial history, particularly in coal mining and steel production, which has shaped its development over the years.

Port of Newcastle is an economic hub, primarily recognised for its extensive coal export operations and diverse cargo handling capabilities.

The main occupations for Newcastle residents in the 2021 Census included (ABS, 2021):

- professionals (25.7 per cent of the population)
- technicians and trades workers (13.8 per cent of the population)
- community and personal service workers (13.3 per cent of the population)
- clerical and administrative workers (12.5 per cent of the population)
- managers (11.2 per cent of the population)
- sales workers (8.4 per cent of the population)
- labourers (8.2 per cent of the population)
- machinery operators and drivers (5.5 per cent of the population).

The main industries of employment at the 2021 Census included (ABS, 2021):

- hospitals (except psychiatric hospitals)
- other social assistance services
- takeaway food services
- aged care residential services
- supermarket and grocery stores.

6.9.2 Potential impacts

Construction

During construction, potential minor impacts on the social locality include:

- increased traffic impacting way of life of residents (e.g. how people experience their daily routines, travel and sense of road safety) from the transport of materials to and from the project site during construction. The potential for this social impact would depend on the contribution of this project to existing or future vehicle volumes along the Industrial Drive, which is a major arterial road (refer to Section 6.3)
- the development of the project site may impact the community's historical connection and association with the project site as part of the former BHP Steelworks site (refer to Section 6.2).

The project has a capital investment value greater than $30 million that would be spent within the local, regional and NSW economies during the construction phase. The expenditure would occur over a relatively short period of time, with construction expecting to take around nine months.

The construction phase would contribute to and generate opportunities for local employment, with around 90 construction jobs expected to be generated by the project.

Construction of the project is expected to provide positive direct and indirect economic opportunities for local and regional employment and businesses. It is anticipated that a locally based workforce would be utilised for construction of the project. As such and noting the relatively small size of the construction workforce, it is not anticipated that short term accommodation in the vicinity of the project would be impacted.

Operation

Operation of the project would provide security for renewable energy developers, by providing critical logistics infrastructure required to develop renewable energy projects in NSW, including the CWO REZ and New England REZ. As a result, the project would provide a significant regional and national economic benefit associated with energy security and would contribute to unlocking investment in regional NSW. As identified above, the redevelopment of the project site may impact the community's historical connection with the project site.

The project is expected to provide around 20 full time employment positions on site during operation.

6.9.3 Proposed further assessments

The Phase 1 SIA identified a limited number of social issues that would have a minor impact. As such, a Basic Phase 2 SIA would be prepared in accordance with the NSW SIA Guideline (DPE, 2023b). The social locality will be further refined during the Phase 2 SIA.

The key objectives of the Basic SIA Phase 2 report would be to:

- predict and analyse the extent and nature of likely social impacts against baseline conditions using accepted social science methods
- evaluate, draw attention to and prioritise the social impacts that are important to people
- integrate the findings of the other proposed assessments that will support the EIS to determine the magnitude of the potential social impacts
- develop appropriate and justified responses (e.g., avoidance, mitigation and enhancement measures) to social impacts, and identify and explain residual social impacts
- propose arrangements to monitor and manage residual social impacts, including unanticipated impacts, over the life of the project (DPE, 2023b).

6.10 Biodiversity

A biodiversity study area was used to inform this section of the Scoping Report, including the indicative project area and a 10 kilometre buffer used for desktop threatened flora and fauna searches and in accordance with standard practice.

6.10.1 Existing environment

The indicative project area is located within the Sydney Basin Interim Biogeographical Region of Australia (IBRA) region and Hunter IBRA subregion.

The indicative project area is heavily disturbed from its former use as the BHP Steelworks site and roads. There is a small area of isolated vegetation bordering Industrial Drive and small clusters of vegetation within the project site (outside the indicative project area).

A BioNet Atlas search on 7 November 2024 was conducted and included a review of the following data:

- NSW Bionet Systematic Flora Survey data
- Bionet Flora Survey Sites Pcts data
- NSW Bionet Koala Species Sightings data
- NSW Bionet Superb Parrot Species Sightings data
- NSW Bionet Species Sightings data).

The review identified no threatened flora or fauna species records (state or Commonwealth listed) within the indicative project area. One sighting of the Swift Parrot (*Lathamus discolor*) was recorded around 450 metres north of the indicative project area.

Existing biodiversity within the biodiversity study area is shown in Figure 6.4.

A search of the PMST for the biodiversity study area was conducted in December 2024. A summary of the relevant MNES within the biodiversity study area identified in the PMST search is included in Table 6.2.

Table 6.2 Summary of PMST results

PMST item	Description
Threatened ecological communities (TECs)	Eight potential TECs were identified by the PMST search within the biodiversity study area and include: • Central Hunter Valley eucalypt forest and woodland – critically endangered under the EPBC Act • Costal Swamp Oak (Casuarina glauca) Forest of NSW and South East Queensland ecological community – endangered under the EPBC Act • Coastal Swamp Sclerophyll Forest of NSW and South East Queensland – endangered under the EPBC Act • Kurri sand swamp woodland of the Sydney Basin bioregion – endangered under the EPBC Act • Lowland Rainforest of Subtropical Australia – critically endangered under the EPBC Act • River-flat eucalypt forest on coastal floodplains of southern NSW and eastern Victoria – critically endangered under the EPBC Act • Subtropical and temperate coastal saltmarsh – vulnerable under the EPBC Act • Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and South East Queensland bioregions – endangered under the EPBC Act. However, no TECs are located within or in proximity of the indicative project area.

PMST item	Description
Threatened species	A number of threatened flora and fauna species (including marine species) were identified by the PMST search within the biodiversity study area and include: • 23 potential threatened flora species • 66 potential threatened and/or migratory fauna species • 103 potential listed marine species. Of these, 36 species are listed as known to occur (including species, species habitat or roosting presence) within the indicative project area and are listed below. However, a review of BioNet Atlas data on 7 November 2024 (including NSW Bionet Systematic Flora Survey data, Bionet Flora Survey Sites Pcts data, NSW Bionet Koala Species Sightings data, NSW Bionet Superb Parrot Species Sightings data and NSW Bionet Species Sightings data) identified no threatened flora or fauna species records within the indicative project area. • Birds – Australasian Bittern (*Botaurus poiciloptilus*) – endangered under the EPBC Act and BC Act – Curlew Sandpiper (*Falidris ferriginea*) – critically endangered under the EPBC Act and BC Act – Red Knot (*Calidris acuminata*) – vulnerable and migratory under the EPBC Act – Gang-gang cockatoo (*Callocephalon fimbriatum*) – endangered under the EPBC Act and BC Act – South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*) – vulnerable under the EPBC Act and BC Act – Greater Sand Plover (*Charadrius leschenaultia*) – vulnerable and migratory under the EPBC Act and vulnerable under the BC Act – Latham's Snipe, Japanese Snipe (*Gallinago hardwickii*) – vulnerable and migratory under the EPBC Act and vulnerable under the BC Act – White-throated Needletail (*Hirundapus caudacutus*) – vulnerable under the EPBC Act and BC Act – Swift Parrot (*Lathamus discolor*) – critically endangered under the EPBC Act and endangered under the BC Act – Nunivak Bar-tailed Godwit (*Limosa lapponic baueri*) – endangered under the EPBC Act – Eastern Curlew (*Numenius madagacariensis*) – critically endangered and migratory under the EPBC Act – Fairy Prion (southern) (*Pachyptila turtur subantarctica*) – vulnerable under the EPBC Act – Australian Painted Snipe (*Rostratula australis*) – endangered under the EPBC Act and BC Act – Diamond Firetail (*Stagonopleura guttata*) – vulnerable under the EPBC Act and BC Act – White-capped Albatross (*Thalassarche steadi*) – vulnerable and migratory under the EPBC Act

PMST item	Description
	– Common Greenshank (*Tringa nebularia*) – endangered and migratory under the EPBC Act – Sharp-tailed Sandpiper (*Calidrsi acuminata*) – vulnerable under the EPBC Act. • Frogs – Green and Golden Bell Frog (*Litoria aurea*) – vulnerable under the EPBC Act and endangered under the BC Act. • Mammals – Large-eared Pied Bat (*Chalinolobus dwyeri*) – endangered under the EPBC Act and BC Act – Greater Glider (southern and central) – endangered under the EPBC Act and BC Act – Koala (*Phascolarctos cinereus*) – endangered under the EPBC Act – New Holland Mouse, Pookila (*Pseudomys novaeholladiae*) – vulnerable under the EPBC Act – Grey-headed Flying-fox (*Pteropus poliocephalus*) – vulnerable under the EPBC Act and BC Act – Spot-tailed Quoll (*Dasyurus maculatus maculatus*) – endangered under the EPBC Act. • Flora – Dwarf Kerrawang (*Commersonia prostrata*) – endangered under the EPBC Act and BC Act – Camfield's Stringybark (*Eucalyptus camfieldii*) – vulnerable under the EPBC Act and BC Act – *Grevillea shiressii* – vulnerable under the EPBC Act and BC Act – Scrub Turpentine, Brown Malletwood (*Rhodamnia rubescens*) – critically endangered under the EPBC Act and BC Act – Magenta Lilly Pilly (*Szygium paniculatum*) – vulnerable under the EPBC Act and endangered under the BC Act – Black-eyed Susan (*Tetratheca juncea*) – vulnerable under the EPBC Act and BC Act. • Marine species/reptiles – Loggerhead turtle (*Caretta caretta*) – endangered and migratory under the EPBC Act and endangered under the BC Act – Green turtle (*Chelonia mydas*) – vulnerable and migratory under the EPBC Act and vulnerable under the BC Act – Leatherback turtle (*Dermochelys coriacea*) – endangered and migratory under the EPBC Act and endangered under the BC Act – Hawksbill turtle (*Eretmochelys imbricata*) – vulnerable and migratory under the EPBC Act – Flatback turtle (*Natator depressus*) – vulnerable and migratory under the EPBC Act.

PMST item	Description
Migratory species	A number of migratory bird and migratory marine species were identified by the PMST search within the project study area and include: • 55 migratory bird species (terrestrial) • 19 migratory marine species. Of these, 21 species are listed as known to occur (including species, species habitat or roosting) within the indicative project area and are listed below. However, review of BioNet Atlas data on 7 November 2024 (including NSW Bionet Systematic Flora Survey data, Bionet Flora Survey Sites Pcts data, NSW Bionet Koala Species Sightings data, NSW Bionet Superb Parrot Species Sightings data and NSW Bionet Species Sightings data) identified no migratory species records within the indicative project area. • Migratory birds (terrestrial and marine) – Streaked Shearwater (*Calonectris leucomelas*) – Lesser Frigatebird, Least Frigatebird (*Fregata ariel*) – White-tailed Tropicbird (*Phaethon lepturus*) – White-capped Albatross (*Thalassarche steadi*) – vulnerable under the EPBC Act – White-throated needletail (*Hirundapus caudacutus*) – vulnerable under the EPBC Act and BC Act – Yellow Wagtail (*Motacilla flava*) – Common Sandpiper (*Actitis hypoleucos*) – Sharp-tailed Sandpiper (*Calidris acuminata*) – vulnerable under the EPBC Act – Red Knot (*Calidris acuminata*) – vulnerable under the EPBC Act – Curlew Sandpiper (*Calidris ferruginea*) – critically endangered under the EPBC Act – Pectoral Sandpiper (*Calidris melanotos*) – Greater Sand Plover (*Charadrius leschenaultia*) – vulnerable under the EPBC Act and BC Act – Latham's Snipe, Japanese Snipe (*Gallinago hardwickii*) – vulnerable under the EPBC Act and BC Act – Eastern Curlew (*Numenius madagacariensis*) – critically endangered under the EPBC Act – Osprey (*Pandion haliaetus*) – Common Greenshank (*Tringa nebularia*) – endangered under the EPBC Act.

PMST item	Description
	• Migratory marine species – Loggerhead turtle (*Caretta caretta*) – endangered under the EPBC Act and BC Act – Green turtle (*Chelonia mydas*) – vulnerable under the EPBC Act and BC Act – Leatherback turtle (*Dermochelys coriacea*) – endangered under the EPBC Act and BC Act – Hawksbill Turtle (*Eretmochelys imbricata*) – vulnerable under the EPBC Act – Flatback turtle (*Natator depressus*) – vulnerable under the EPBC Act.
Ramsar wetlands	Hunter Estuary Wetland is located around three kilometres to the north of the indicative project area.
Nationally important wetlands	Nationally important wetlands within the biodiversity study area include: • Hexham Swamp – located around six kilometres west • Kooragang Nature Reserve – located around three kilometres north • Lake Macquarie – located around 10 kilometres southwest • Shoreland Wetlands Centre – located around five kilometres west.
Nature reserves	Nature reserves within the biodiversity study area include: • Awabakal Nature Reserve – located around 10 kilometres south • Glenrock State Conservation Area – located around five kilometres south • Hexham Swamp Nature Reserve – located around six kilometres west • Hunter Wetlands National Park – located around three kilometres north • Tilligerry State Conservation Area – located around 10 kilometres north • Worimi Regional Park – located around 4.5 kilometres northeast • Worimi State Conservation Area – located around 10 kilometres northeast.

PMST item	Description
Biologically important areas	Biologically important areas (BIAs) of regionally significant marine species are spatially defined areas where aggregations of individuals of a species are known to display biologically important behaviour such as breeding, foraging, resting or migration. No BIAs are located within the indicative project area. The PMST identified eight BIAs located within the biodiversity study area: • Indo-Pacific Bottle Noise Dolphin (*Tursiops aduncus*) BIA – breeding behaviour likely to occur and foraging behaviour known to occur around four kilometres from the indicative project area (where the Hunter River meets the Pacific Ocean) • Flesh-footed Shearwater (*Ardenna carneipes*) BIA – foraging behaviour known to occur around four kilometres from the indicative project area (where the Hunter River meets the Pacific Ocean) • Sooty Shearwater (*Ardenna grisea*) BIA – foraging behaviour likely to occur around 600 metres from the indicative project area (within the Hunter River) • Short-tailed Shearwater (*Ardenna tenuiostris*) BIA – foraging behaviour likely to occur with known (and mapped) BIA activity over 40 kilometres from the indicative project area • Antipodean Albatross (*Diomedea exulans antipodensis*) BIA – foraging behaviour known to occur around 600 metres from the indicative project area (within the Hunter River) • Black Petrel (*Procellaria parkinsoni*) BIA – foraging behaviour likely to occur (although no mapping of distribution available) • Grey Nurse Shark (*Carcharias taurus*) BIA – foraging behaviour known to occur around four kilometres from the indicative project area (where the Hunter River meets the Pacific Ocean) • Humpback Whale (*Megaptera novaeangliae*) BIA – migration (north and south) known to occur around four kilometres from the indicative project area (where the Hunter River meets the Pacific Ocean).

An ecological assessment of the project site was carried out by an accredited ecologist (refer to Appendix C), which was supported by a site inspection and survey. This assessment concluded that vegetation within the indicative project area does not support significant biodiversity values and is located within a highly disturbed, fragmented urban and industrial environment. Vegetation and built structures within the project area and the immediate vicinity may provide marginal habitat for highly mobile species, such as threatened microbats, avifauna species and the Grey-headed Flying Fox. The assessment also noted that:

- there are no native PCTs within the indicative project area. The sparse presence of Swamp Oak within the indicative project area does not represent an ecological community. This vegetation is subject to ongoing management to maintain the integrity of the remediation infrastructure in accordance with the CSMP
- the project site is highly unlikely to contain threatened species fauna habitat. Targeted surveys for the Green and Golden Bell Frog have confirmed the absence of the species and detailed habitat assessments and dusk emergency surveys showed no evidence of microbat occupancy within the Roll Shop building, or the bicycle shed
- very small amounts of salt marsh species were observed growing along pedestrian footpath along Selwyn Street.

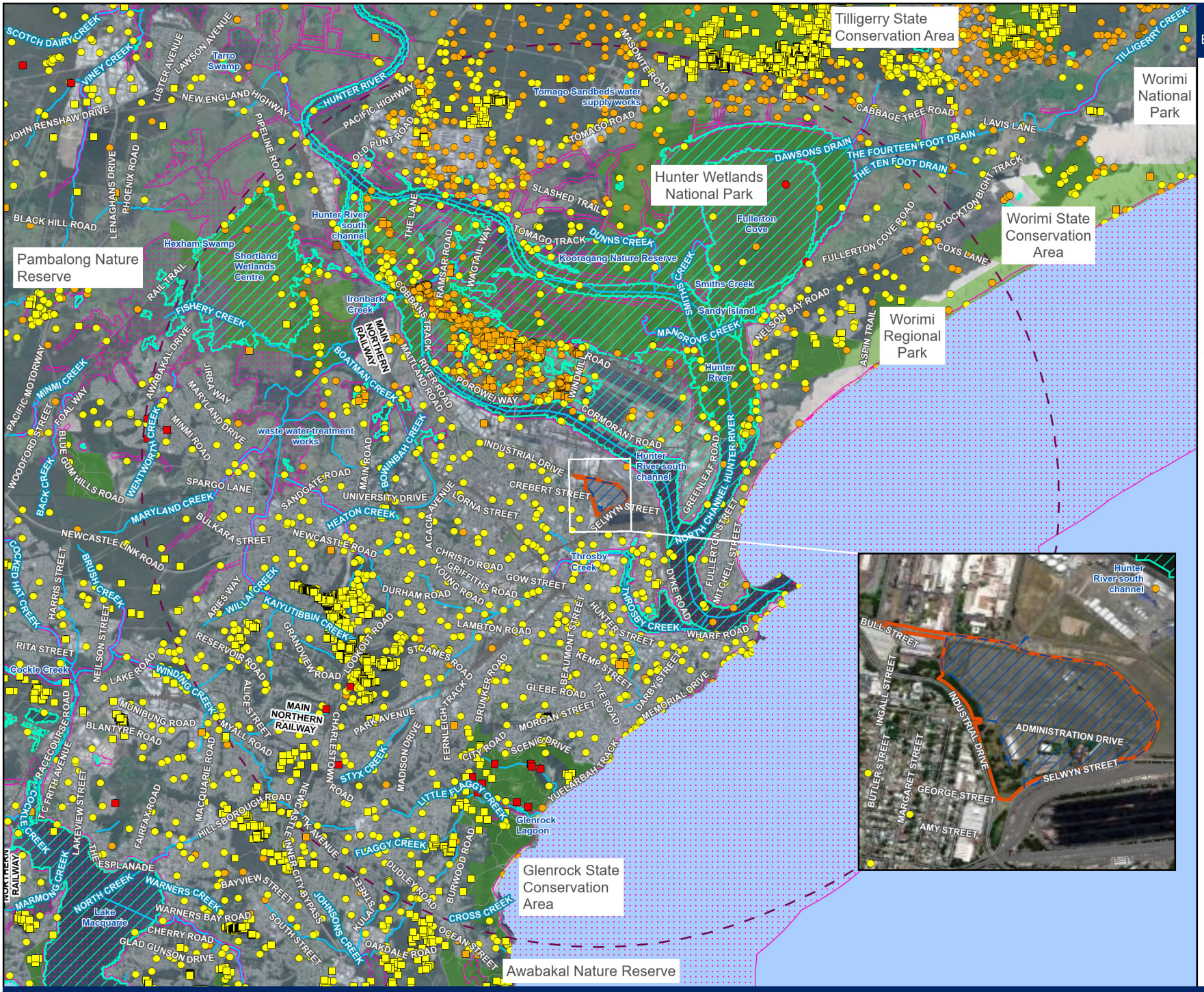

Figure 6.4
BioNet records within the project study area

Legend

- Road
- Railway
- Watercourse
- Project site
- 10 km buffer
- Indicative project area
- Wetlands
- Parks and reserves
- Hunter river key fish habitat

Threatened Flora

- Critically Endangered Species
- Endangered
- Endangered Population
- Vulnerable

Threatened Fauna

- Critically Endangered Species
- Endangered
- Endangered Population
- Vulnerable

0 500 1,000 1,500 2,000 Meters

Coordinate system: GDA2020 MGA Zone 56

Scale ratio correct when printed at A4

1:120,000 Date: 18/03/2025

Data sources: WSP, EnergyCo, NSWSS
World Topographic Map: Esri, TomTom, Garmin, FAO, NOAA, USGS

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Key fish habitat

Key fish habitat within the biodiversity study area includes the Hunter River that is located around 600 metres east of the disturbance.

Coastal wetlands

The Resilience and Hazards SEPP provides an integrated policy for coastal assets. The Coastal Wetlands and Littoral Rainforest Area Map, under the Resilience and Hazards SEPP, provides two categories the 'Coastal Use Area' and 'Coastal Environment Area' (which includes the Coastal Use Area and a 100 metre buffer). Both coastal areas are mapped within the biodiversity study area; however, neither are mapped within the indicative project area under the Resilience and Hazards SEPP.

6.10.2 Potential impacts

As identified in Section 6.10.1, the indicative project area is highly transformed and contains very low biodiversity values with no native PCTs present. It is highly unlikely that the project would indirectly impact retained vegetation within the project site given it is immediately adjacent to Industrial Drive and is subject to noise and light disturbance.

A likelihood of occurrence assessment was completed for BC Act and/or EPBC Act listed threatened fauna species that have been recorded within five kilometres of the indicative project area (refer to Appendix C for further detail). This concluded that:

- the project would not impact any threatened species
- in the unlikely event that threatened microbat species are detected within the Roll Shop building, any potential disturbance can be managed in accordance with an unexpected finds protocol and appropriate mitigation measures
- threatened avifauna and bats may fly over or forage within the project site, however the project would not significantly reduce possible foraging habitat in the locality. Any vegetation removed as part of the project represents low quality potential foraging habitat
- significant behavioural changes for threatened species as a result of the project are not anticipated. Vegetation within the indicative project area and surrounds are already subject to noise and light disturbance.

The project is highly unlikely to have any impact on biodiversity values or threatened entities listed under the BC Act, and any potential prescribed impacts (while highly unlikely) would not require offsetting of biodiversity credits. The likelihood of unanticipated prescribed impacts would be reduced with the implementation of appropriate mitigation measures, such as an unexpected finds protocol and a pre-works inspection.

Further, project site is in close proximity to the Kooragang and Carrington wharves which frequently have bulk carrier ships moving around (around 40 metres above water level), existing cranes in the coal loading facilities (a minimum of eight in Carrington) and large silos. The risk of birds/bats striking a crane in the project site would not be a significant increase over any existing risk of strike. It is anticipated that birds or bats would be able to manoeuvre around any structures without negative consequences to their populations.

No MNES entities listed under the EPBC Act would be significantly impacted by the project. The Grey-headed Flying Fox (*Pteropus poliocephalus*) is listed as Vulnerable under the EPBC Act and may use highly marginal habitat within or adjacent to the project area. A precautionary assessment of significance was completed for this species, which concluded that the project is unlikely to have a significant impact given the minimal clearing proposed and the low quality of this potential foraging habitat (refer to Appendix C).

6.10.3 Proposed further assessments

The project is highly unlikely to have a significant impact on biodiversity values and therefore, a BDAR Waiver request for the project has been submitted as part of this Scoping Report (refer to Appendix C). The request for a BDAR Waiver is in recognition of the heavily disturbed nature of the site, outcomes of recent site surveys, and the need for ongoing trimming of vegetation, a CSMP requirement, to maintain integrity of remediation infrastructure.

Pending approval of the BDAR Waiver request in accordance with section 7.9(2) of the BC Act, no further assessment is proposed to be included in the EIS. A pre-work survey and an unexpected finds procedure for threatened species would be included as a requirement with the Construction Environment Management Plan.

6.11 Aboriginal heritage

6.11.1 Existing environment

The project study area is within the Awabakal LALC with use of the project study area by First Nations peoples extending back tens of thousands of years (City of Newcastle, 2020). This is reflected in the recent archaeological records, that identified the project study area was used for hunting, fishing and gathering activities by Aboriginal people (Dorey, n.d.).

The project study area is within the Hunter subregion of the Sydney Basin bioregion. While the subregion is generally comprised of rolling hills and wide valleys with a meandering river system on a wide flood plain, the indicative project area itself was previously wetlands as part of the Hunter River estuary that has since been reclaimed due to its earlier industrial use.

Aboriginal sites recorded in NSW are registered with geographic coordinates in the Aboriginal Heritage Information Management System (AHIMS) and are protected under the NP&W Act. Information in AHIMS can provide information on Aboriginal site patterning as well as showing if Aboriginal sites occur in the project study area.

An AHIMS search was completed in November 2024 for the project site boundaries with a one kilometre buffer. The search identified no Aboriginal sites or places in or near the indicative project area.

6.11.2 Potential impacts

Construction activities have the potential to interface with capping layer and/or the underlying contaminated material. This may occur during the proposed adjustments to drainage infrastructure and construction of new internal access roads, the foundation and abutment works associated with the proposed bridging structures over existing stormwater channels, and the potential removal or adjustments to the bar mill slab in accordance with the CSMP. However, these activities and their potential disturbance to underlying contaminated material is not expected to harm any unidentified Aboriginal objects as the site is heavily disturbed due to land reclamation and its previous use as the BHP Steelworks site, as well as its subsequent remediation which required extensive earthworks where the VENM caping layer was installed. Further, no AHIMS sites were identified within the indicative project area. As such, the project is unlikely to impact on Aboriginal heritage during construction or operation of the project.

6.11.3 Proposed further assessments

No evidence of Aboriginal objects was identified during the due diligence process in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW, 2010). The indicative project area is heavily disturbed during its prior use as a BHP Steelworks and subsequent remediation. As such, Aboriginal objects are not likely to be present, and the project is not likely to result in harm to any Aboriginal objects or sites and can proceed with caution without further investigations and impact assessment and an AHIP application.

An unexpected finds protocol would be included as a requirement within the Construction Environmental Management Plan for the project to manage any unexpected finds during construction.

6.12 Landscape and visual

6.12.1 Existing environment

The project is within SP1 – Special Activities zone, where surrounding land uses predominantly comprise of port operation and industrial activities. The east of indicative project area is bounded by rail infrastructure, with Steel Works Road to the north, Industrial Drive to the west and Selwyn Street to the south.

Residential properties are located west of Industrial Drive, however, views to the indicative project area from residential areas are generally obstructed by existing landscape mound and vegetation along Industrial Drive.

6.12.2 Potential impacts

Construction

Construction of the project would temporarily alter the visual amenity during various activities such as earthworks, movement of plant and material and construction of the staff facilities building. As construction activities would not create a permanent change to visual amenity and would be seen in the context of the industrial landscape of Port of Newcastle, visual impacts during construction are expected to be minor.

Operation

Operation of the project, including demolition of the bicycle shed and removal of established vegetation within the indicative project area to accommodate the new internal access roads and site accesses, would have a minimal impact on the landscape character and visual amenity of the area due to the existing nature of the surrounding port and industrial land uses and vegetation screening residential properties west of Industrial Drive.

There would be a potential impact from plant used to load and unload components during operation of the project that may be visible from residential areas to the west of the indicative project area. Permanent lighting would be required to enable 24/7 operations at the project site, including at the hardstand area and near the staff amenities buildings. Lighting would be directed away from residents and sensitive receivers where practicable and is expected to have a minor impact on visual amenity.

6.12.3 Proposed further assessments

A standard (qualitative) assessment on landscape character and visual amenity would be included in the EIS.

6.13 Land use and property

6.13.1 Existing environment

The project is within the Newcastle LGA. The indicative project area is within SP1 – Special Activities zoned land (under the Transport and Infrastructure SEPP) which is consistent with port operations and industrial activities associated with the Port of Newcastle.

The project site is the former BHP Steelworks site that has undergone remediation between 2016 and 2018 and is located outside of the port lease area. The project site is currently owned by the NSW Government and contains a wastewater treatment plant and substation, both of which is being removed under a separate planning approval and in accordance with the CSMP.

The zones within the project study area are shown in Figure 6.5 and include:

- SP1 Special Activities
- R2 Low Density Residential
- R3 Medium Density Residential
- MU1 Mixed Use
- E2 Commercial Centre
- RE1 Public Recreation
- C1 National Parks and Nature Reserves (three kilometres north of the project site).

Key land uses within the project study area are summarised in Table 6.3.

Table 6.3 Key land uses within the project study area

Land use	Relevance to indicative project area
Port	The indicative project area is within the Port of Newcastle. Except for some potential road tie in works to Steel Works Road, the indicative project area is outside the Port of Newcastle lease area. The Port of Newcastle comprises shipping and port operations. The nearest berth to the project site is Mayfield Berth 4, a common user berth that would be suitable for delivery of renewable energy components. Other key port users with substantial infrastructure are listed in Section 2.3.4.
Transport infrastructure	The northern edge of the indicative project area is bordered by rail infrastructure used for transporting coal and other goods to and from Port of Newcastle. The indicative project area is also bounded by Steel Works Road and Selwyn Street, both of which are accessed from Industrial Drive (west of the project area).

Land use	Relevance to indicative project area
Electrical and resource infrastructure	The indicative project area contains a substation used by the former BHP Steelworks that would be removed under a separate planning approval to the project. Various electrical utilities are located within and around the indicative project area. Existing transmission infrastructure within the project study area (not located within the indicative project area) includes: • substations: – Waratah West substation – Waratah (Ausgrid) substation – Broadmeadow substation – Maryland substation – Tomago substation • 132 kV transmission lines from: – Mayfield north to Waratah West substation – Tomago 132 substation to Waratah West substation – Tomago 132 substation to Tomago substation – Waratah West substation to Broadmeadow substation – Waratah (Ausgrid) substation to Maryland substation – Broadmeadow substation to Argenton substation • 330 kV transmission lines from: – Tomago substation to Waratah West substation – Tomago substation to Newcastle substation (via Waratah West substation) – a gas line is located on the southern boundary of the indicative project area along Selwyn Street.
Water and wastewater infrastructure	A wastewater treatment plant located in the project area is being decommissioned and would be removed under a separate process and per the CSMP. The pump station and associated infrastructure within the project site may require relocation or adjustment to optimise operational efficiency of the hardstand area. This would occur within the indicative project area. In addition, the indicative project area and surrounds contain various water and wastewater infrastructure, including water, sewer and drainage utilities.
Rivers and waterways	The Hunter River South Channel is located around 600 metres northeast of the indicative project area at its nearest point. The Hunter River comprises a diverse range of important water users including (and not limited to): the Hunter Water Corporation, local councils, mining and industry, agricultural users and recreational users.
Residential	Residential areas of Mayfield East and Mayfield are located on the western side of Industrial Drive. These are supported by a commercial core on the Pacific Highway in the centre of Mayfield. The Newcastle CBD is located around two kilometres southeast of the indicative project area.
Protected environments	The Hunter Estuary Wetland (Ramsar wetland) is located around three kilometres north of the indicative project area on the opposite side of the Hunter River South Channel.

Land use conflicts due to hazardous or potentially hazardous developments in the surrounding area is discussed further in Section 6.6. Soil and land capability mapping shows the project site (and surrounding port land uses) have not been assessed. There is no biophysical strategic agricultural land within or in proximity of the indicative project area.

6.13.2 Potential impacts

Construction

Construction of the project would generally be contained within the project site, which is owned by the NSW Government. Potential impacts on private property and/or any land use and property conflicts would be limited, and most likely associated with utility adjustments or road works along internal port roads or Selwyn Street and Steel Works Road.

The proposed access connections to the road network could cause disruptions or delays to the adjacent roads during construction (refer to Section 6.3.2). Amenity based impacts concerning air (refer to Section 6.14.2) or noise impacts (refer to Section 6.4.2) are addressed in relevant sections.

Operation

The hardstand area for the project is currently vacant land. The site is subject to an interim Section B site audit statement that approves it use for commercial and industrial purposes. The project would make permanent this arrangement under a Section A audit statement. Therefore, while the project would result in a permanent change from a former heavy industry (former BHP Steelworks) to a port facility to support the development of grid-scale renewable energy projects, the approved land use is unchanged. The land use is consistent with the port and industrials and permissibility within the SP1 Special Activities zone. Likewise, the project aligns with the land use recommendations within the Port of Newcastle Land Use and Safety Study (AECOM, 2017), which recommends that light to medium industry should occur at the site.

The upgrade of existing or addition of new access points from the existing road network to facilitate the movement of heavy vehicles to and from the project site would result in traffic impacts (refer to Section 6.3.2) for surrounding land uses.

6.13.3 Proposed further assessments

A standard assessment of land use and property impacts would be included in the EIS.

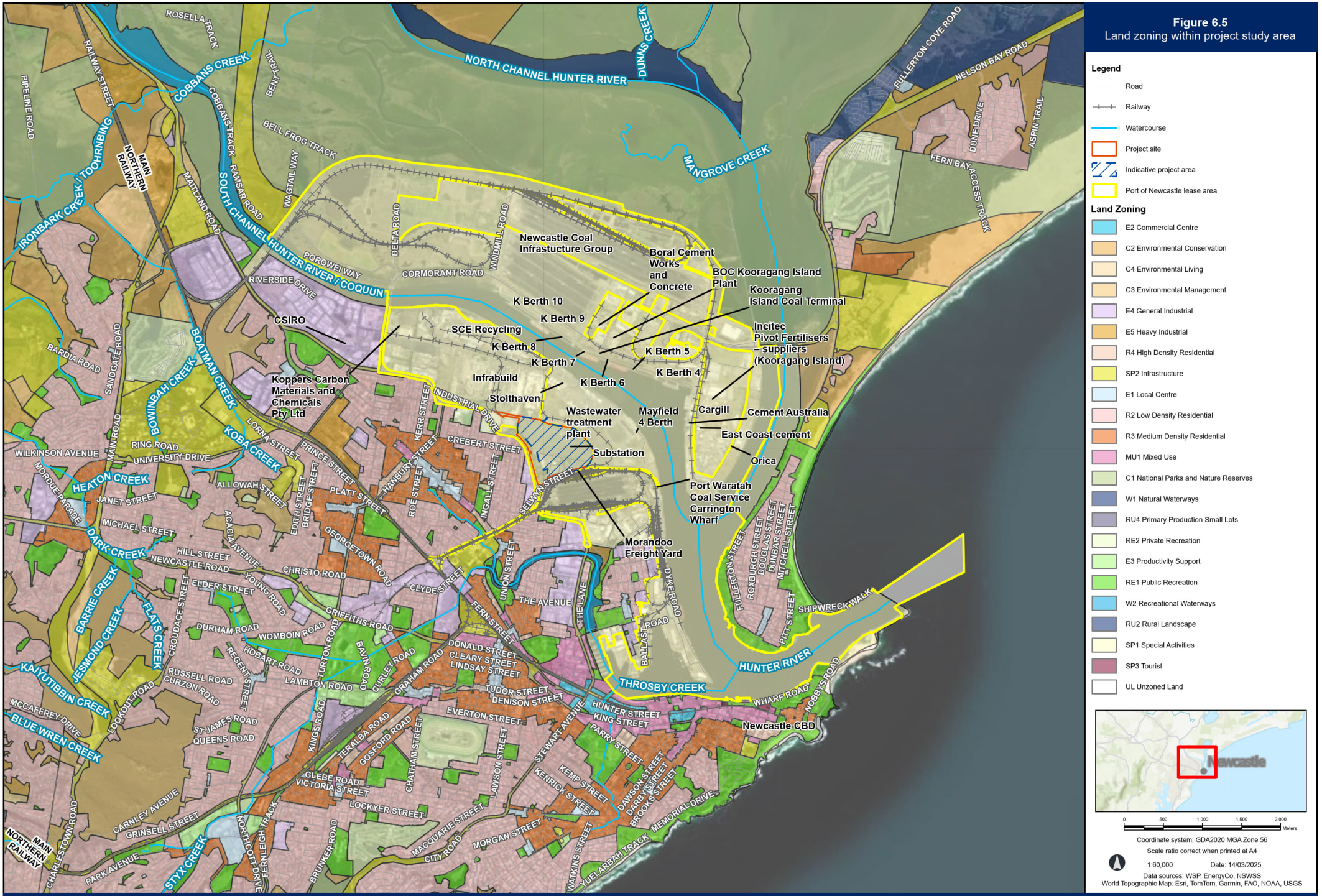

Figure 6.5
Land zoning within project study area

Legend

- Road
- Railway
- Watercourse
- Project site
- Indicative project area
- Port of Newcastle lease area

Land Zoning

- E2 Commercial Centre
- C2 Environmental Conservation
- C4 Environmental Living
- C3 Environmental Management
- E4 General Industrial
- E5 Heavy Industrial
- R4 High Density Residential
- SP2 Infrastructure
- E1 Local Centre
- R2 Low Density Residential
- R3 Medium Density Residential
- MU1 Mixed Use
- C1 National Parks and Nature Reserves
- W1 Natural Waterways
- RU4 Primary Production Small Lots
- RE2 Private Recreation
- E3 Productivity Support
- RE1 Public Recreation
- W2 Recreational Waterways
- RU2 Rural Landscape
- SP1 Special Activities
- SP3 Tourist
- UL Unzoned Land

Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A4
1:60,000 Date: 14/03/2025
Data sources: WSP, EnergyCo, NSWSS
World Topographic Map: Esri, TomTom, Garmin, FAO, NOAA, USGS

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6.14 Air quality

6.14.1 Existing environment

Ambient air quality is generally affected by several factors that include topography, prevailing metrological conditions and potential air pollution sources (both local and regional). Primary industrial sources of air emissions within the project study area include the Infrabuild (formerly OneSteel) and Smorgon Steel facilities in Mayfield, Orica and Incitec plants on Kooragang Island, emissions from various coal and grain storage facilities within Port of Newcastle, logistics through Mayfield Berth 4 and associated hardstand areas, and Stolthaven bulk liquids at Mayfield Berth 7.

Other potential air pollution sources within the project study area would include vehicle and dust emissions from vehicles (light and heavy) that utilise the surrounding road network, as well as emissions generated by commercial and domestic activities within the regional airshed.

The Newcastle Local Air Quality Monitoring Network is a network of three monitoring stations located at Stockton, Carrington and Mayfield (refer to Figure 6.6) that monitor the impacts of industrial activity in and around the Port of Newcastle (EPA, 2023). The stations continuously monitor levels of:

- sulfur dioxide
- nitrogen dioxide
- particulate matter smaller than 10 micrometres in diameter (PM_{10})
- particulate matter smaller than 2.5 micrometres in diameter ($PM_{2.5}$).

The Mayfield monitoring station (around two kilometres west of the indicative project area at its nearest point) within the Lower Hunter air quality region found air quality on 6 November 2024 to be 'good'. This rating comprised of a 'good' air quality rating for both sulfur dioxide and nitrogen oxide, however, no data was available at the time for PM_{10} or $PM_{2.5}$.

The overall air quality for Newcastle on 6 November 2024 was also considered to be 'good'. This score was a combination of each of Newcastle's air quality monitoring stations for the continuously monitored categories above as well as carbon monoxide and ozone – with each category receiving a 'good' rating.

6.14.2 Potential impacts

Construction

During construction, local air quality may be temporarily affected by particulate (dust) and exhaust emissions from activities such as earthworks, stockpile management, use of plant and equipment, civil construction, potential direct and indirect impacts to existing structures within the southern precinct to facilitate access, construction of access points and internal roads and construction vehicle movements.

Dust, vapour and/or odour emissions to air may also occur if the underlying contamination is disturbed. However, the project would be designed (where practicable) to minimise any adjustments to previously installed and validated remediation infrastructure and interaction with the underlying BHP sub grade material.

Air quality impacts from these activities are expected to be short-term and minor if construction activities are appropriately managed.

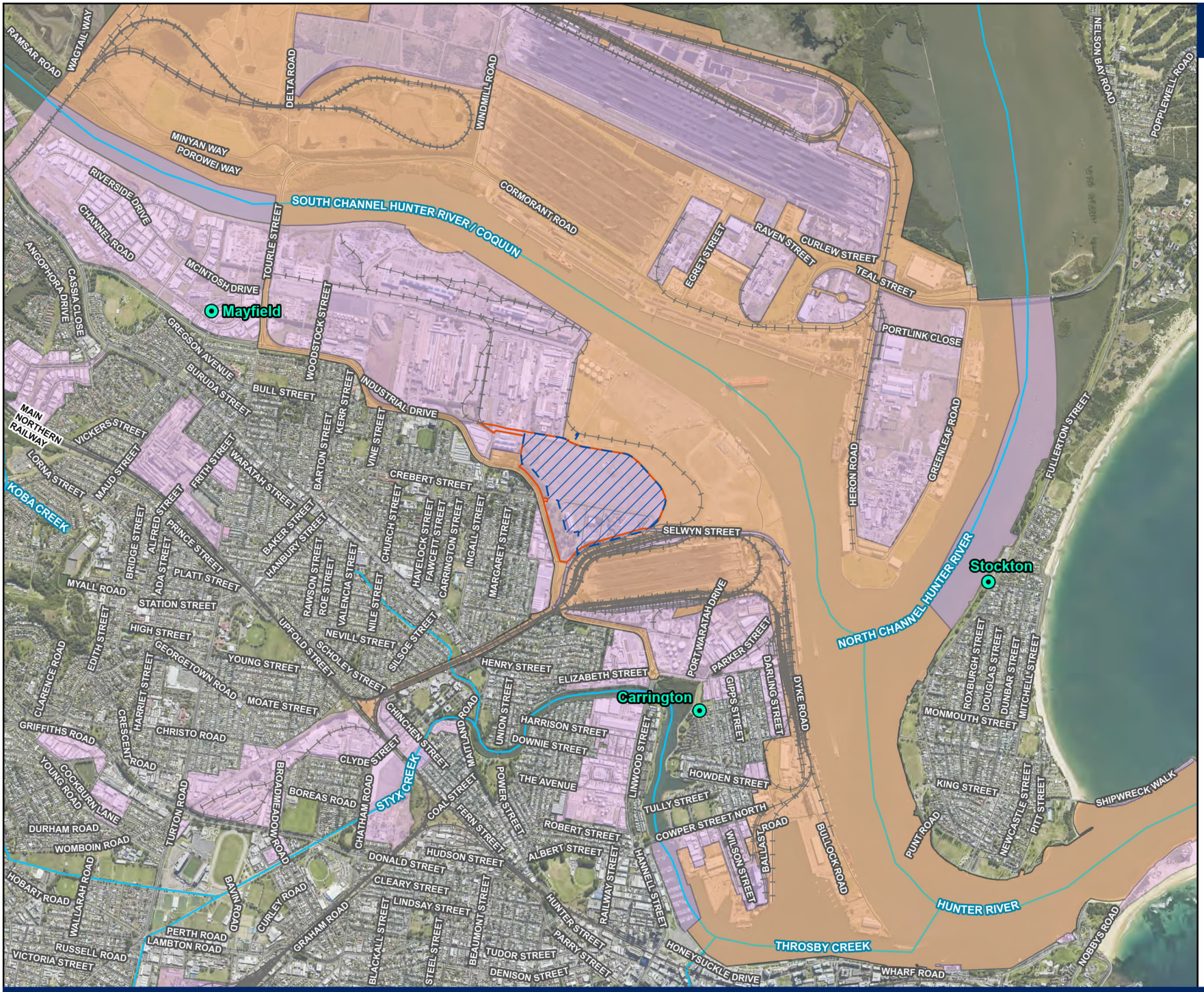

Figure 6.6
Air quality monitoring locations within the project study area

Legend

- Air quality monitoring location
- Road
- Railway
- Watercourse
- Project site
- Indicative project area
- Port of Newcastle lease area
- Industrial areas outside the lease area

Coordinate system: GDA2020 MGA Zone 56

Scale ratio correct when printed at A4

1:35,000 Date: 17/03/2025

Data sources: WSP, EnergyCo, NSWSS MetroMap WMS Services:

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Operation

During operation, the project is not anticipated to significantly impact local air quality. Potential sources of emission would include emissions from plant and vehicles or settlement of particulates on hardstand areas (dust). Potential operational air quality and impacts would be manageable through application of standard environmental management measures.

6.14.3 Proposed further assessments

A standard assessment on air quality would be included in the EIS and would identify:

- existing ambient air quality and meteorological conditions for the indicative project area
- activities that have the potential to impact air quality conditions during construction and operation
- a semi-quantitative risk assessment for particulate matter (i.e. dust), based on guidance provided by the Guidance on the assessment of dust from demolition and construction (Institute of Air Quality Management (IAQM), 2014)
- a qualitative assessment of the release of VOCs, depending on the construction methodology
- a qualitative air quality assessment of air quality impacts during operation
- mitigation measures to avoid, minimise and manage any identified potential impacts.

6.15 Climate change and greenhouse gases

6.15.1 Existing environment

Climate change

Climate is described in terms of long-term weather statistics for a particular location comprising averages, variations and extremes. Since weather records began in 1910, NSW's average temperature has already warmed by 1.4°C (NSW DCCEEW, 2024).

The NSW and Australian Regional Climate Modelling (NARCliM) project provides climate change projections for NSW and southeast Australia. Climate parameters considered in the snapshots include temperature, temperature extremes, rainfall, frost and fire weather.

The indicative project area is located within the Hunter Region of NSW. Table 6.4 provides a summary of the projected climate change in the Hunter Region under low and high emission scenarios. The low emissions scenario (SSP1-2.6) assumes net zero emissions would be met globally in 2075 and projects a global mean surface air temperature increase of 1.3–2.4°C by the year 2100 (Lee et al, 2021). The high emissions scenario assumes no additional climate policies globally and a doubling of CO_2 emissions by 2100 and projects a global mean surface air temperature increase of 2.8–4.6°C by 2100 (Lee et al, 2021).

Table 6.4 Projected climate change in the Hunter region under low and high emission scenarios

Climate parameter	1990–2009	2050		2090	
	Baseline	Low emissions	High emissions	Low emissions	High emissions
Projected change to average annual temperature	16.6°C	17.7°C	18.5°C	17.8°C	20.2°C
Projected change in average annual number of hot days	8.7 days	15.8 days	19.5 days	16.4 days	32.6 days
Projected change in average annual number of cold nights	22.9 days	16.1 days	12.1 days	15.3 days	6.2 days
Projected change average annual change to rainfall	917 mm	~843 mm	~780 mm	~844 mm	~836 mm
Projected change to average number of severe fire weather days	11 days	11.9 days	12.2 days	11.7 days	13.3 days

(NSW DCCEEW, 2024)

Greenhouse gas emissions

Greenhouse gas emissions, primarily from coal-fired electricity generation and transport, are causing unprecedented levels of global warming and climate change (EPA, n.d.).

In NSW, the majority of greenhouse gas emissions are from the energy sector, including emissions from power stations and transport (AdaptNSW, n.d.). Since a peak in 2007, greenhouse gas emissions in NSW have decreased across most economic sectors with the exception of the transport sector (EPA, n.d.). In 2018/2019, NSW emitted around 136.6 million tonnes of carbon dioxide (a greenhouse gas) (EPA, n.d.).

In 2022/2023 the Newcastle LGA emitted around 2.9 million tonnes of greenhouse gas emissions. Over half of these emissions were from electricity use (57 per cent) followed by transport (15 per cent) and industrial processes and product use (16 per cent) (Snapshot, 2024).

As outlined in Chapter 2, the Australian and NSW Governments have various policies and strategies to reduce greenhouse gas emissions to achieve the net zero target by 2050. This includes the delivery of new transmission, generation and storage infrastructure to support low carbon renewable energy and the replacement of coal-fired power station capacity.

6.15.2 Potential impacts

Construction

During construction, climate change risks would be associated with severe weather events, such as extreme temperatures, flooding, changes in rainfall patterns and fire risk, placing increased pressure on control measures to prevent flooding, erosion and sedimentation and bushfire ignition. Extreme weather could delay construction of the project, damage materials and cause adverse health impacts for workers.

Gaseous emissions associated with combustion of fuel and combustion-related pollutants from construction plant and machinery would be managed through maintenance and correct operation of equipment. Greenhouse gas emissions are likely to be generated due to combustion of fuel for transport, consumption of electricity and waste. Use of construction equipment and manufacture of materials for use in the project would also consume resources associated with greenhouse gas emissions.

Operation

During operation, the project would be vulnerable to climate change impacts such as large storm events. Heavy rainfall and wind across the indicative project area could cause damage to hardstands and equipment that would require effort and time to clean up and repair.

Operation of the project is not anticipated to significantly impact greenhouse gas emissions. A minor amount of greenhouse gases would be anticipated due to operation of plant and equipment (including cranes) and maintenance vehicles; however, these impacts are anticipated to be minimal. Greenhouse gas impacts during operation would be manageable through application of standard environmental management measures.

The project would provide critical logistics infrastructure to facilitate and speed up the development of renewable energy projects. The project site is strategically located at the Port of Newcastle, that would reduce the distance heavy vehicles would need to travel (and overall greenhouse gas emissions from transporting OSOM components) to support renewable energy projects and REZs, such as the CWO REZ and New England REZ. As such, the project would play an essential role in contributing to the reduction of greenhouse gas emissions and assist achieving net zero targets.

6.15.3 Proposed further assessments

A standard assessment of climate change would be included in the EIS.

6.16 Waste

6.16.1 Existing environment

Waste management and waste transfer facilities within and near the project study area include the Summerhill Waste Management Centre, which is a solid waste landfill managed by City of Newcastle. Summerhill Waste Management Centre is licensed by the EPA to receive a wide variety of general solid waste (such as building and demolition waste and road base or excavated wastes from uncontaminated sites e.g. sand, gravel and asphalt) and special waste (such as waste that is dusty or odorous, contains asbestos or has other characteristics that would need to be managed).

Contaminated soils within the Newcastle LGA are generally disposed of at appropriately licenced facilities located in Greater Sydney.

6.16.2 Potential impacts

Construction

Construction of the project would result in a range of typical waste materials including:

- vegetation waste from clearing for hardstand areas and internal road construction
- spoil from excavations that cannot be re-used on site
- surplus construction materials
- general domestic waste from construction and maintenance personnel
- waste and wastewater produced at construction compounds
- building and demolition material resulting from any direct impact to non-heritage listed buildings in the southern precinct or removal of below ground structures including the bar mill slab
- contamination waste material excavated as part of the construction works that cannot be reincorporated into the capping layer in accordance with the CSMP
- small quantities of waste oils, greases, chemicals and lubricants from operation of construction plant and equipment.

The disposal of waste generated during construction is not anticipated to result in significant adverse environmental impacts as removal of waste generated would be managed through application of standard environmental management measures.

Operation

During operation, the main source of waste material is expected to be from putrescible and non-putrescible general solid waste from operation and maintenance personnel. Disposal of waste generated during operation of the project is not anticipated to result in significant adverse environmental impacts as removal of waste generated would be managed through application of standard environmental management measures.

6.16.3 Proposed further assessments

A standard assessment on waste management would be included in the EIS.

6.17 Cumulative impacts

6.17.1 Proposed assessment

The Cumulative Impact Assessment Guidelines for State Significant Projects (DPIE, 2022) (the guideline) sets the requirements for the assessment of project level cumulative impacts related to state significant projects. The guideline defines cumulative impacts as those arising as a result of incremental, sustained and combined effects of human action and natural variations over time that can be both positive and negative. They can be caused by the compounding effects of a single project or multiple projects in an area, and by accumulation of effects from past, current and future activities as they arise.

The guideline requires the assessment to focus on key matters that could be materially affected by the cumulative impact of the project and other relevant future projects as a result of the impacts that overlap in timeframes and study areas. Searches to identify relevant future projects (as outlined in section 3.4 of the guideline) included:

- State Significant Development (SSD) or SSI projects
- projects that are classified as designated development and require an EIS
- projects that require assessment under Division 5.1 of the EP&A Act and are likely to significantly affect the environment and require an EIS
- projects that have been declared to be a controlled action under the EPBC Act
- any major greenfield and urban renewal developments that are scheduled for the area (such as new areas zoned for urban development).

The guideline also sets out two types of cumulative impact assessments:

- issue-specific cumulative impact assessment – involving an assessment of the project together with the impacts of other relevant future projects on specific issues (e.g. traffic) within an identified area, including the additional impacts that may occur over time as a result of changes to existing projects (e.g. closures and expansions, increases or decreases to the intensity of operations) or the commencement of new projects
- combined cumulative impact assessment – involving an assessment of the combined effect of the different cumulative impacts of the project (e.g. noise, dust and traffic) with other relevant future projects on key matters in an identified area.

The project study area was used to inform this section of the Scoping Report, including the indicative project area and a five kilometre buffer used for to identify relevant future projects.

6.17.2 Future projects

A search of DPHI's online major projects database (in November 2024) identified several SSD and SSI projects that are listed in Table 6.5 and shown in Figure 6.7.

Table 6.5 Relevant future projects

Relevant future project	Location	Status
Clean Energy Precinct – Infrastructure and ammonia	Kooragang Island	Proposed
Kooragang Island Liquid Waste Facility Expansion	Kooragang Island	Proposed
Orica Ammonium Nitrate Facility – Upgrade	Kooragang Island	Proposed
Steel River East Battery Energy Storage System (BESS)	Mayfield West	Proposed
Lingard Private Hospital Expansion	Merewether	Proposed
Hunter Indoor Sports Centre	New Lambton	Proposed
University of Newcastle City Campus Student Accommodation	Newcastle	Proposed
Newcastle Jockey Club – New Stables Complex	Broadmeadow	Approved
Hunter Valley Hydrogen Hub	Kooragang Island	Approved

Relevant future project	Location	Status
Mayfield Cargo Facility (and relevant modifications)	Mayfield North	Approved (with exception of modification 3 which yet to be approved)
University of Newcastle Honeysuckle Campus	Newcastle	Approved
Newcastle Grammar School – Park Campus	Cooks Hill	Under construction

The City of Newcastle is undergoing broad urban renewal across five renewal corridors:

- Islington
- Mayfield
- Hamilton
- Broadmeadow
- Adamstown.

These renewal corridors align with the Stage 1 Urban Renewal Corridors identified in the Greater Newcastle Metropolitan Plan 2036 (DPE, 2018). Key urban renewal projects within five kilometres of the indicative project area include:

- Newcastle City Centre – renewal commenced in 2012 in accordance with the Newcastle Urban Renewal Strategy to shift the commercial corridor from Newcastle East to Newcastle West.
- Broadmeadow – renewal of Broadmeadow aims to establish a world class sport and entertainment precinct in accordance with the Broadmeadow Place Strategy.
- Callaghan – renewal of areas around the University of Newcastle Callaghan campus including local centres of Jesmond, Waratah and Warabrook.

6.17.3 Potential impacts

The potential for cumulative impacts is dependent on the scale and nature of the potential impacts of the project in combination with relevant future projects, and sensitivity of the receiving environment. Cumulative impacts that have potential to arise for the project based on known proposed or approved projects include:

- traffic and access
- noise and vibration
- social.

Figure 6.7
Relevant future projects within the project study area

6.17.4 Proposed further assessments

An issue-specific and combined cumulative impact assessment (CIA) in accordance with the guideline would be presented in the EIS, which would:

- confirm relevant projects that could be included in the cumulative impact assessment including consideration of:
  - spatial relevance to the project and/or impacts of the project
  - timing (e.g. if works are to occur concurrently)
  - scale and nature of the potential impacts of the relevant projects
- assess potential cumulative impacts, including identification of relevant issues likely to have material cumulative impacts during construction and/or operation of the project (this may include quantitative assessments for certain matters)
- identify suitable mitigation measures to manage potential cumulative impacts.

The environmental risk analysis (see Appendix A) would be supported and is informed by the cumulative impact assessment. The assessment would only consider relevant projects that have publicly accessible information that is sufficient to inform a cumulative impact assessment at the time of preparing the EIS.

The matters requiring an issue specific, or a combined cumulative impact assessment would be informed by the further development of the project and construction methodology, and progression of the EIS.

7 Conclusion

The project is subject to assessment under Part 5, Division 5.2 State significant infrastructure of the EP&A Act and as such, this document supports an application seeking the SEARs for the EIS. The preliminary assessment considered potential impacts during construction and operation of the project and considered the existing environment, scale and nature of the project, ability to avoid, minimise or mitigate impacts, cumulative impacts and the technical assessment of the project. The project is not expected to significantly impact on MNES.

Key environmental issues identified for the project, that would undergo a detailed assessment during the preparation of the EIS, include:

- non-Aboriginal heritage
- traffic and transport
- noise and vibration
- surface water and flooding
- hazard and risk.

Other environmental issues would be subject to a standard environmental assessment as these impacts are minor and/or the issues or the approach to mitigation is well understood. These issues are soils and contamination, groundwater, social, biodiversity, landscape and visual, land use and property, air quality, climate change and waste.

An issue-specific and combined cumulative impact assessment would be undertaken for the project in accordance with the Cumulative Impact Assessment Guidelines for State Significant Projects (DPIE, 2022) during preparation of the EIS.

The project area does not contain vegetation which supports significant biodiversity values and is located within a highly disturbed, fragmented urban and industrial environment. The project is highly unlikely to have any impact on biodiversity values or threatened entities listed by the BC Act and any potential prescribed impacts (while highly unlikely) would not require offsetting of biodiversity credits. As such, a BDAR waiver has been sought as part of this Scoping Report.

Due to the disturbed nature of the indicative project area, Aboriginal objects are not likely to be present, and the project is not likely to result in harm to any Aboriginal objects or sites and should proceed with caution without further investigations, impact assessment, or an AHIP application.

In assessing potential environmental impacts of the project during preparation of the EIS, the key focus would be avoidance and minimisation of impacts on the environment and local communities (where reasonably practicable). The assessment would identify mitigation and management measures to minimise impacts on the environment. Consultation with stakeholders and the local community would continue though the EIS assessment, design and construction phases of the project.

7.1 Next steps

Following receipt of the SEARs, EnergyCo would prepare the EIS for the proposal. The EIS would include:

- a description of the project during construction and operation
- consideration of issues raised by stakeholders and the community during preparation of the EIS
- an analysis of feasible alternatives that were considered to the carrying out of the project
- a description of the existing environment and an assessment of potential direct and indirect impacts on key and other potential environmental issues during construction and operation, including cumulative impacts with other projects
- measures that would be implemented to avoid, minimise and offset potential impacts.

The EIS would be publicly exhibited by the DPHI. During the public exhibition of the EIS, the community, stakeholders, organisations and government agencies would have the opportunity to provide feedback. The EIS is expected to be exhibited later in 2025.

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Appendix A

Scoping summary table

A1 Scoping summary table

A1.1 Approach to assessment

An environmental risk analysis was undertaken as part of the Scoping Report to identify the potential impacts and issues to be considered as part of the EIS.

The project would present its own unique risks that would require assessment in the EIS. Assessment of the project would take a risk-based approach to assessment of impacts such as contamination, surface water, groundwater, traffic and transport, social, noise and vibration and air quality.

To evaluate the potential environmental impacts in the EIS, two broad types of assessment would be undertaken: incremental and cumulative.

Table A.1 defines the risk rating for assessment of potential impacts identified in this Scoping Report.

Table A.1 Risk rating description

Risk grade	Risk	Description
1	Low	• not likely to impact on siting, design, construction or operation stages and can be managed through generic environmental controls • specialist studies not likely to be required • mitigation is likely to show positive results
2	Medium	• will need consideration during either siting, design, construction, or operation stages • specialist studies likely to be required to minimise potential environmental impact • external approval potentially required and is standard
3	High	• critical issue that may have significant impact on siting or be a significant time and cost constraint • extensive specialist studies likely to be required • external approval likely to be required and may be onerous

For each issue, the required level of assessment (detailed or standard) to be carried out as part of the EIS is identified. A detailed level of assessment would be undertaken for matters that are complex or where assessment is needed to design project specific mitigation. A standard level of assessment would be required for matters that are straightforward or where the approach to mitigation is well understood.

A1.2 Impact scoping

Results of impact scoping are presented in Table A.2.

Table A.2 Summary scoping table

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Non-Aboriginal heritage	Detailed	• The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Australia ICOMOS (International Council on Monuments and Sites), 2013) • Guidelines for preparing a statement of heritage item (DPE, 2023a) • Investigating Heritage Significance (Heritage Council of NSW, 2021) • Assessing Heritage Significance (Heritage Office, 2001) • Assessing Significance for Historical Archaeological Sites and 'Relics' (Heritage Branch Department of Planning, 2009)	Two heritage items are listed under 5.31(9) of the Transport and Infrastructure SEPP that are within the southern portion of the indicative project area and include: • BHP Administration Building • Quality Control Laboratory. The closest locally listed heritage items external to the indicative project area are located adjacent to the project area along Ingall Street and Steel Works Road. The internal roads and connections to Selwyn Street would be designed to minimise impacts on built heritage. However, to provide for the required swept paths for vehicles, impacts to the curtilage and gardens of the heritage listed BHP Administration Building and/or the Quality Control Laboratory may occur, alongside the full demolition of the bicycle shed, located within heritage curtilage of the BHP Administration Building.	High	Section 6.2

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Traffic and access	Detailed	• NSW Heavy Vehicle Access Policy Framework (Transport for NSW, 2018) • 2026 Road Safety Action Plan (Transport for NSW, 2022a) • Traffic control at work sites – Technical Manual (Transport for NSW, 2022b) • Guide to Pavement Technology Part 6: Unsealed Pavements (Austroads, 2009) • Austroads Guide to Traffic Management (Austroads, 2020) • Transport Management Plans for oversize and/or overmass movements in NSW (Transport for NSW, 2013) • Additional Access Conditions, Oversize and Overmass Heavy Vehicles and Loads (Transport for NSW, 2020a)	Construction traffic is likely to use the surrounding major road network that is used by heavy vehicles for transportation of key elements of construction plant and equipment and bulk material haulage. Light vehicles would typically be used to transport construction workers. There may be some temporary disruptions to traffic movements along Selwyn Street and Steel Works Road during construction of access to accommodate heavy vehicles. During operation of the project, there would be an increase in heavy vehicles using the surrounding road network that could result in traffic impacts.	High	Section 6.3

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Noise and vibration	Detailed	• Noise Policy for Industry (EPA, 2017b) • Interim Construction Noise Guideline (DECC, 2009) • Draft Construction Noise Guideline (EPA, 2020b) • Environmental Noise Management – Assessing Vibration: A Technical Guideline (DECC, 2006) • German Standard DIN 4150–3:1999 Vibration in Buildings – Part 3: Effects on Structures (German Institute for Standardisation, 1999) • NSW Road Noise Policy (DECCW, 2011)	The indicative project area is adjoined by multiple heavy industrial land uses to the north and south and port operations and associated hardstands to the east with residential receivers to the west (nearest receiver around 90 metres from the indicative project area). Noise and vibration impacts on residential properties would be localised to activities undertaken within the western portion of the indicative project area due to its proximity to sensitive receivers. Heritage buildings within the indicative project area would be within 50 metres of vibration generating works. Operation of the project is unlikely to result in potential road traffic noise impacts due to the primary routes for heavy vehicles to access the indicative project area being existing designated heavy vehicle routes (and where the change in vehicle numbers as a result of the project would be minor).	High	Section 6.4

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Surface water and flooding	Detailed	• Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) • Managing Urban Stormwater: Soils and Construction Volume 2 (DECC, 2008) • Approved methods for the sampling and analysis of water pollutants in NSW (EPA, 2022) • Policy and guidelines for fish habitat conservation and management (DPI, 2013) • Risk-based Framework for Considering Waterway Health Outcomes in Strategic Landuse Planning Decisions (OEH, 2017) • National Water Quality Management Strategy (Department of Agriculture and Water Resources, 2018) • Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000) • NSW Water Quality and River Flow Objectives (DECCW, 2006) • Erosion and Sediment Control on Unsealed Roads – A field guide for erosion and sediment control maintenance practices (OEH, 2012) • Australian Rainfall and Runoff: A Guide to Flood Estimation (Ball et al., 2019) • The NSW Floodplain Development Manual 2005 (NSW Government, 2005)	The Hunter Estuary comprises over 100 kilometres of waterways, including the Hunter River South Channel, which is located around 600 metres northeast of the indicative project area at its closest point. Sedimentation of soil material eroded during ground disturbance, vegetation removal and storm events, if uncontrolled, would have the potential to increase sediment load, organic matter and turbidity of water. Leaks and spills of fuels, chemicals or wastewater impacting surface water quality, if not managed appropriately. Changes to hydrology flow patterns due to the location of earthworks, flow diversions, bunding, material stockpiles and temporary drainage infrastructure and introduction of new non-permeable surfaces. A ‘very low risk’ flood prone area across the indicative project area. However, the Draft ‘Throsby, Styx and Cottage Creek Flood Study’ (Rhelm, 2023) modelled flood depth and elevation of the 2007 Flood Event that identified areas of flooding within indicative project area, with flood depths ranging from 0 to 1.5 metres (Rhelm, 2023).	High	Section 6.5

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
		• Flood risk management guidelines - Practical Consideration of Climate Change (DECC, 2007) • Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009			
Hazard and risk	Detailed	• Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011) • Australian Code for the Transport of Dangerous Goods by Road and Rail (National Transport Commission, 2020) • Guideline for Hazard Analysis; Hazard Industry Planning Advisory Paper No.6 (Department of Planning, 2011) • Risk Criteria for Land Use Safety Planning; Hazard Industry Planning Advisory Paper No.4 (Department of Planning, 2011) • Multi-Level Risk Assessment (Department of Planning, 2011) • Storing and handling liquids: environment protection – participants manual (Department of Environment & Climate Change, 2007) • Large-scale external lithium-ion battery energy storage systems – Fire safety study considerations (NSW Fire and Rescue, 2023)	Multiple hazardous or potentially hazardous activities occur within the Mayfield Precinct. The project would result in the intensification of activities during construction and operation. Conflicts due to surrounding developments would require further consideration during the preparation of the EIS, noting the expected workforce during construction would be around 90 workers and operation would be lower (around 20 workers). During operation, the project would include the interim storage of BESS units, which depending on the chemical composition of the batteries that may include lithium-ion, considered the more hazardous composition, is potentially considered a “hazardous storage establishment” and according to Chapter 3 of the Resilience and Hazards SEPP, could be a “*potentially hazardous industry*”.	Medium	Section 6.6

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Soils and contamination	Standard	• National Environment Protection (Assessment of Site Contamination) Measure (National Environment Protection Council, 2013) • Managing Land Contamination: Planning Guidelines SEPP 55 –Remediation of Land (Department of Urban Affairs and Planning and EPA, 1998) • Consultants reporting on contaminated land – Contaminated Land Guidelines (EPA, 2020a) • Contaminated Land Management – Guidelines for the NSW Site Auditor Scheme (EPA, 2017a) • Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (EPA, 2015) • Urban and regional salinity – guidance given in the Local Government Salinity Initiative booklets which includes Site Investigations for Urban Salinity (DLWC, 2002) • Guidelines for managing salinity in rural areas (OEH, 2015) • Naturally Occurring Asbestos – Asbestos Management Plan Guide (Asbestos Awareness and the Asbestos Education Committee, 2021) • How to manage and control asbestos in the workplace – Code of Practice (Safe Work Australia, 2020)	Construction and operation of the project have potential to impact upon the effectiveness of completed remediation works and cap integrity. Any impact of remediation infrastructure by the project would be carried out in accordance with the CSMP and in consultation with the appointed Site Auditor. The project would be designed so that it is compatible with the existing site conditions and the requirements of the CSMP. Contamination risks would require consideration and/or management during design and construction, where relevant. Potential exposure of acid sulfate soils resulting in off site discharge of acidic water could occur during construction, however, this is unexpected due to the previous heavy disturbance of soils on the indicative project area. Likewise, there are no expected impacts from acid sulfate soils expected during operation of the project.	Medium	Section 6.7

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
		• Managing asbestos in or on soil (WorkCover NSW, 2014) • Soil and Landscape Issues in Environmental Impact Assessment (DLWC, 2000) • Managing Urban Stormwater: Soils and construction – Volume 1 (Landcom, 2004)			
Groundwater	Standard	• NSW Aquifer Interference Policy (NSW DPI, 2012) • Hunter Unregulated and Alluvial Water Sources 2022 • DPE Groundwater Assessment Toolbox for major projects in NSW, including: – Groundwater assessment toolbox for major projects in NSW – Overview document (DPE, 2022c) – Guidelines for Groundwater Documentation for SSD/SSI Projects – Technical guideline (DPE, 2022d) – Minimum Groundwater Modelling Requirements for SSD/SSI Projects – Technical guideline (DPE, 2022e) – Cumulative Groundwater Impact Assessment Approaches – Information paper (DPE, 2022f) – Guidelines for groundwater quality protection in Australia National Water Quality Management Strategy (Australian Government, 2013)	The project study area is within the Hawkesbury to Hunter Coastal Sands groundwater source. Groundwater within the indicative project area has known contamination from its former use as BHP Steelworks. No active groundwater remediation was conducted during remediation works (between 2016 and 2018). Key potential impacts include: • construction works could alter groundwater levels, flows and connectivity and groundwater chemistry • potential leaks and spills during operation of the project could result in impacts to groundwater from runoff into drainage systems.	Medium	Section 6.6

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
		– Guidelines for the Assessment and Management of Groundwater Contamination (Department of Environment and Conservation, 2007)	Installation of permanent non-impervious surfaces are unlikely to result in a change of local recharge of groundwater due to the existing remediation capping installed across the project site. Surface water runoff is expected to infiltrate into the regional groundwater system regardless of the increased non-impervious area.		
Social	Standard (Basic Phase 2 SIA)	• Social Impact Assessment Guideline for State Significant Projects (DPE, 2023b) • Technical Supplement: Social Impact Assessment Guideline for State Significant Projects (DPIE, 2021b) • Undertaking Engagement Guidelines for State Significant Projects (DPIE, 2021c)	The project is within the Newcastle LGA of the Hunter region. The social locality for the project includes a total population of around 179,269 people (ABS, 2021). There would be potential impacts on way of life (increased traffic) and on potential impacts to cultural historical significance associated with site being the former BHP Steelworks site, including demolition of the bicycle shed. The project has a capital investment value greater than $30 million that would be spent within the local, regional and NSW economies during the construction phase. Construction and operation of the project would generate opportunities for local employment, with around 90 construction jobs and 20 full-time positions during operation of the project.	Medium	Section 6.9

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Biodiversity	Not applicable (BDAR waiver request)	• NSW Threatened Species Survey and Assessment Guidelines (various) • Matters of National Environmental Significance Significant Impact Guidelines 1.1 (Commonwealth of Australia, 2013) • Commonwealth Department of the Environment – Nationally Threatened Ecological Communities and Threatened Species Guidelines (various) • Commonwealth Department of the Environment – Survey Guidelines for Nationally Threatened Species (various) • NSW Groundwater Dependent Ecosystem Policy (Department of Land and Water Conservation, 2002) • Policy and guidelines for fish habitat conservation and management (DPI, 2013) • Aquatic Ecology in Environmental Impact Assessment (Department of Planning, 2003) • Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (Fairfull and Witheridge, 2003)	The indicative project area is heavily disturbed from its former use as the BHP Steelworks site. Vegetation within the indicative project area does not support significant biodiversity values and is located within a highly disturbed, fragmented urban and industrial environment. There are no PCTs within the indicative project area and no PCTs would be removed. Vegetation and built structures within the project area and the immediate vicinity may provide marginal habitat for highly mobile species, such as threatened microbats, avifauna species and the Grey-headed Flying Fox. The project is highly unlikely to have any impact on biodiversity values or threatened entities listed under the BC Act, and any potential prescribed impacts (while highly unlikely) would not require offsetting of biodiversity credits. On this basis, a BDAR Waiver request for the project has been submitted as part of this Scoping Report (refer to Appendix C).	Nil	Section 6.10

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Aboriginal heritage	Not applicable	• Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH, 2011) • Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010a) • Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010b)	The project study area is within the Awabakal LALC. An AHIMS search was completed in November 2024 for the project site with a one kilometre buffer (that includes the entirety of the indicative project area). The search identified nil Aboriginal sites or places in or near the indicative project area. The project site has also been heavily disturbed due to prior industrial use as the land reclamation, BHP Steelworks site and subsequent remediation. There it is unlikely that the project would encounter potential impacts on Aboriginal heritage during construction or operation of the project.	Nil	Section 6.11

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Landscape and visual	Standard (qualitative)	• Guideline for Landscape Character and Visual Impact Assessment - Environmental impact assessment practice note EIA-N04 (Transport for NSW, 2020b) • Guidelines for Landscape and Visual Impact Assessment (GLVIA3) Third Edition (Landscape Institute and Institute of Environmental Management and Assessment (LIIEMA), 2013) • Guidance Note for Landscape and Visual Assessment (Australian Institute of Landscape Architects, 2018)	The project is within SP1 Special Activities zone, where surrounding land uses predominantly comprise of port operation and industrial activities. Residential properties are located west of Industrial Drive, however, views to the project site from residential areas are generally obstructed by existing landscape mound and vegetation along Industrial Drive. Construction activities would not create a permanent change to visual amenity and would be seen in the context of the industrial landscape of Port of Newcastle, visual impacts during construction are expected to be minor. Operation of the project would have a minimal long-term impact due to the existing nature of the surrounding port and industrial land uses and vegetation screening residential properties west of Industrial Drive.	Low	Section 6.12

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Land use and property	Standard	N/a	The indicative project area is within SP1 – Special Activities zoned land (under the Transport and Infrastructure SEPP) which is consistent with the proposed project. The project site is currently owned by the NSW Government (Property and Development NSW). The project site is currently vacant land. Operation of the project would result in a permanent change from former heavy industry (BHP Steelworks) (now vacant) to a port facility (logistics precinct) to support the development of grid-scale renewable energy projects. As such, the land use is consistent with the port and industrials and permissibility within the SP1 Special Activities zone.	Low	Section 6.13
Air quality	Standard	• Guidance on the assessment of dust from demolition and construction (Institute of Air Quality Management (IAQM), 2014)	During construction, local air quality may be temporarily affected by particulate (dust) and exhaust emissions from activities such as earthworks, stockpile management, use of plant and equipment, access point and internal road construction, staff facilities building construction and increases in light and heavy vehicle road movements. Excavation during construction could encounter soil vapour risk.	Low	Section 6.14

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Climate change and greenhouse gas	Standard	• ISO 14064-1:2018 Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removal (ISO, 2018a) • National Greenhouse Accounts Factors (DISER, 2021) • Climate Change in Australia Technical Report 2015 (CSIRO, 2015) • Climate change impact and risk management – A guide for business and government (Australian Greenhouse Office, 2006) • ISO 31000-2018; Risk Management – Principles and Guidelines (ISO, 2018b) • AS 5334:2013 – Climate Change Adaptation for Settlements and Infrastructure – A risk based approach (Standards Australia, 2013)	Potential increase in greenhouse gas emissions during construction. However, these are not expected to be significant. Operation of the project is not anticipated to significantly impact greenhouse gas emissions. A minor amount of greenhouse gas would be anticipated due to operation of plant and equipment (including reach stackers and cranes) and maintenance vehicles. The project would support development of REZs such as CWO REZ and New England REZ that would assist with the energy transition to renewable energy in the National Electricity Market and provide an essential role in contributing to the reduction of greenhouse gas emissions.	Low	Section 6.15
Waste	Standard	• *Waste Avoidance and Resource Recovery Act 2001* • Waste Classification Guidelines (EPA, 2014) • NSW Waste avoidance and resource recovery strategy 2003 (Resource NSW, 2003) • NSW Waste and Sustainable Materials Strategy – Stage 1: 2021-2027 (DPIE, 2021d)	Construction waste from the project would include vegetation waste (if required), general domestic waste, wastewater, and small quantities of waste oils, greases, chemicals and lubricants. Potential contaminated spoil would be handled and disposed in accordance with the work plans required to satisfy the CSMP. Any disposal offsite will be disposed of at an appropriately licenced facility. Operation of the project is not expected to result in a significant amount of waste.	Low	Section 6.16

Matter	Level of assessment	Relevant government plans, policies and guidelines	Potential constraints	Preliminary risk rating	Reference in Scoping Report
Cumulative	Detailed (Issue-specific CIA)	• Cumulative Impact Assessment Guidelines for State Significant Projects (DPIE, 2021b)	Cumulative impacts may arise during construction with other nearby known or foreseeable future developments. Potential overlap in impacts include social, traffic and transport and noise and vibration.	Medium	Section 6.17

Appendix B
Social Impact Assessment

Design
for a better
future /

EnergyCo

Newcastle Logistics Precinct – Intertrade Project

Social Impact Assessment Scoping Report

March 2025

Question today
Imagine tomorrow
Create for the future

Newcastle Logistics Precinct – Intertrade Project
Social Impact Assessment Scoping Report

EnergyCo

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WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Glossary

Project area	Area of land that would potentially be disturbed by the project during construction and operation. The estimated indicative project area is around 46 hectares. The indicative project area contains a hardstand area in the northern portion, staff facilities buildings, staff carparking, possible re-use of nonheritage listed buildings in the southern portion (such as the Roll Shop building), internal access roads that would connect to Selwyn Street and Steel Works Road (and any required adjustments to those roads). The indicative project area would be subject to further design development and would be refined during the preparation of the EIS.
Phase 1 SIA (SIA Scoping Report)	The phase of Social Impact Assessment (SIA), also referred to as the SIA Scoping Report, for the project in which likely social impacts are scoped, next steps and opportunities for community engagement are identified, and the required complexity for Phase 2 SIA is determined.
Phase 2 SIA	The phase of SIA, also referred to as the SIA Report, for the project in which the identified issues at the Phase 1 SIA (SIA Scoping Report) are further assessed and if required management measures/responses are identified.
Project site	A 52 hectare property located at 99 Selwyn Street, Mayfield North adjacent to Port of Newcastle's Mayfield 4 Berth.
Renewable Energy Zone (REZ)	A geographic area of high renewable energy resource potential that has been identified and declared under the *Electricity Infrastructure Investment Act 2020.*
Social locality	The social locality is the geographical areas in which direct and indirect impacts (positive and negative) are likely to occur. It includes the Statistical Areas Level (SAL) 3 area of Newcastle and the Urban Centres and Localities (UCL) area of Tomago.
SIA Scoping Worksheet	The SIA scoping worksheet is a support tool to assist in identifying and considering the likely social impacts of a project. This tool can be used to demonstrate how scoping has informed the level of assessment undertaken.
The project	Newcastle Logistics Precinct – Intertrade project that would facilitate the unloading, loading and storage of materials and equipment for renewable energy projects.

Abbreviations

ABS	Australian Bureau of Statistics
CBD	Newcastle Central Business District
CLG	The Port of Newcastle Community Liaison Group
CWO REZ	Central-West Orana Renewable Energy Zone
DPE	Department of Planning and Environment NSW, currently the Department of Planning, Housing, and Infrastructure (DPHI)
EIS	Environmental impact statement
EnergyCo	Energy Corporation of NSW
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
IRSAD	The Index of Relative Socio-economic Advantage and Disadvantage
LALC	Local Aboriginal Land Council
LGA	Local Government Area
NSW	New South Wales
OSOM	Over-size and over-mass components of the project
REZ	Renewable Energy Zone
SAL	Suburbs and Localities
SIA	Social Impact Assessment
SSI	State Significant Infrastructure
The Roadmap	NSW Electricity Infrastructure Roadmap
UCL	Urban Centres and Localities
The project	The proposed Newcastle Logistics Precinct – Intertrade Project

1 Introduction

This chapter provides an overview of the Newcastle Logistics Precinct – Intertrade Project (the project). This chapter also outlines the purpose and structure of this Phase 1 Social Impact Assessment (SIA) (SIA Scoping Report).

1.1 Project overview

New South Wales (NSW) is currently undergoing an energy sector transformation that would change how we generate and use energy. A key part of this energy transition is the Newcastle Logistics Precinct – Intertrade Project (the project), identified as the 'Intertrade Industrial Park' under the State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) as it:

- mitigates the shortage of existing portside storage by providing additional storage areas near Port of Newcastle lease area to support the supply chain for critical transmission, generation, firming and storage projects under the NSW Electricity Infrastructure Roadmap (the Roadmap) (Department of Planning and Environment [DPE], 2020)
- reduces reliance on the well-used Mayfield 4 hardstand area within the Port of Newcastle and almost doubles the existing storage capacity for Renewable Energy Zone (REZ) and non-REZ projects
- gives the NSW Government greater certainty over logistics and storage capacity for critical REZ projects and greater confidence in achieving the targets set out in the Roadmap.

The project site is located at 99 Selwyn Street, Mayfield North (the project site). The project site is owned by the NSW Government and located within the Newcastle local government area (LGA) and Awabakal Local Aboriginal Land Council (LALC).

The indicative project area depicted in Figure 1.1 would be confirmed during the preparation of the environmental impact statement (EIS). The indicative project area totals around 46 hectares and includes the majority of the project site as well as sections of Selwyn Street (managed by the City of Newcastle Council) and Steel Works Road (an internal road).

Key components of the project include:

- construction of hardstand and internal roads used for the unloading, loading and storage of materials and equipment for renewable energy projects
- operation of mobile equipment comprising of forklifts, cranes, reach stackers and road trucks for movement of materials and equipment for renewable energy projects
- associated stormwater drainage to manage stormwater flows and water quality across and around impervious surfaces
- construction of bridges over existing stormwater channels, for the provision of access and egress from the hardstand area
- internal roads, staff amenity buildings, carpark and other ancillary infrastructure to facilitate operation of the project
- utility adjustments and provisions within the indicative project area to maximise operational efficiencies of the hardstand area and minimise possible upgrades in future.

It is expected that construction of the project would commence in late 2026 and take around nine months to complete with initial operations commencing in 2027.

The project has been developed to avoid environmental impacts as far as reasonably practicable. This approach would continue throughout further design development and would be detailed in the environmental impact statement (EIS).

Further detail on the project is provided in Chapter 2 of the Scoping Report, to which this paper is appended.

Figure 1.1
Project site location

Note: Heritage items listed under section 5.31(9) of the Transport and Infrastructure SEPP within the project area are depicted.

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1.2 Project objectives

The project supports the NSW Government's objectives to accelerate the energy transition by providing critical infrastructure to support the development of large-scale renewable energy projects within and outside the REZs. The objectives of the project include:

- improve availability of sufficient port side storage required to support the supply chain of materials and equipment to be used on renewable energy, REZ transmission, firming and storage projects
- maximise efficiency of logistical movements given limited hardstand available within the Port of Newcastle
- support the build out of REZs within regional and state context
- provide facilities for storage and domestic distribution
- minimise potential adverse impacts on the environment.

1.3 The proponent

Under the *Electricity Infrastructure Investment Act 2020*, the Minister for Energy and the Environment has appointed the Energy Corporation of NSW (EnergyCo) as the Infrastructure Planner for NSW REZs.

In its capacity as Infrastructure Planner, EnergyCo is responsible for coordinating transmission, generation, firming and storage projects for the NSW REZs, commencing with the CWO REZ, to deliver efficient, timely and coordinated investment. EnergyCo's functions in respect of the project include:

- working with developers of proposed wind, solar and storage projects to understand their logistic needs and plan for efficient solutions that encourage investment in grid-scale renewable projects and minimise cumulative impacts on the community
- maintaining the land within the Intertrade project site
- leading the environmental planning approval process
- contributing to strategic planning to support the development of NSW REZs.

1.4 About this document

This SIA Scoping Report represents the initial phase of conducting a SIA for NSW State Significant Infrastructure (SSI), following the *Social Impact Assessment Guideline* from the Department of Planning, Infrastructure and Environment (DPIE, 2023a).

The SIA Scoping Report identifies potential social impacts and proposes preliminary recommendations to maximise benefits and to avoid, minimise or mitigate identified negative impacts. The SIA Scoping Report also determines the required complexity for the next phase of the SIA (Phase 2) proportionate to the expected magnitude of impacts identified in Phase 1.

The SIA Scoping Report's key objectives are to:

- determine the preliminary local and regional social locality (Chapter 4)
- identify key communities and potentially affected stakeholders (Chapter 4)
- identify potential social impacts and their level of assessment requiring further investigation in the Phase 2 SIA (Chapter 6)
- determine the complexity of Phase 2 SIA and research methods required (Chapter 7).

This document is to be read in conjunction with the Scoping Report, particularly Chapter 5 which details the engagement completed to date by EnergyCo and engagement activities that will occur during the preparation of the EIS.

2 Strategic context

2.1 Strategic planning and policy context

2.1.1 Australian and NSW Government policy context

The Australian and NSW governments has put in place the following plans and policies to support the energy market transition:

- Australia's Long Term Emissions Reduction Plan (DISER, 2021)
- 2024 Integrated Systems Plan (AEMO, 2024)
- 2023 Infrastructure Investment Objectives Report (AEMO, 2023)
- NSW Electricity Infrastructure Roadmap (DPE, 2020)
- NSW Network Infrastructure Strategy (EnergyCo, 2023)
- State Infrastructure Strategy (Infrastructure NSW, 2022).

The project is consistent with these plans and policies. An overview of how the project would be consistent with the aims and objectives of these plans and policies is provided in Section 2.2 of the Scoping Report.

2.1.2 Regional and local strategic planning

The following regional and local plans have been put in place to support the energy market transition and regional economic growth:

- Hunter Regional Plan 2041 (NSW DPE, 2022), which provides a 20-year land use plan and identifies the need to take advantage of transport links, such as the Port of Newcastle, to support the development of REZs.
- Greater Newcastle Metropolitan Plan 2036 (NSW DPE, 2018), which identifies the need for the Mayfield Freight and Logistics Precinct finalisation of remediation to allow for the development of freight and logistics, intermodal and warehousing.
- Newcastle Community Strategic Plan: Newcastle 2040 (City of Newcastle, 2021) identifies four key priorities over next 10 years and beyond.: sustainability, liveability, creativity and achieving together. The priority most relevant to the project is sustainable Newcastle, which includes achieving net zero emissions and encourage clean technology and future ready initiatives and industries.

The project is consistent with these plans. Refer to Section 2.2 of the Scoping Report for further information about the consistency of the project with the objectives of these plans.

3 Methodology

The methodology of this report was informed by the *Social Impact Assessment Guideline* (NSW DPIE, 2023a) (the SIA Guideline) and the *Technical Supplement Social Impact Assessment Guideline for State Significant Projects* (NSW DPE, 2023c), including the Scoping Worksheet. As per the guideline, the scoping of social impacts considers and reflects the following relevant SIA Principles:

- Life-cycle focus: exploring the likely impacts at all project stages, including pre-construction, construction, and operation.
- Proportionate: ensuring the scope and scale of the SIA corresponds to the scope and scale of the likely social impacts.
- Material: focusing on those impacts that matter most for people and/or pose the greatest risk/opportunity to those expected to be affected.
- Integrated: using and referencing information from other assessments.
- Distributive equity: considering how different groups will experience social impacts differently.

3.1 Preliminary scoping of social impacts

The SIA Scoping Worksheet (DPIE, 2023b) has been completed to inform this SIA Scoping Report and determine the required assessment level for each social impact for the Phase 2 SIA. The SIA Scoping Worksheet was completed in an iterative process to inform this report. The initial scoping of likely social impacts was informed by:

- understanding the project and it's legislative and policy context
- review of Scoping Report for the Clean Energy Precinct Concept Plan, project within the Port of Newcastle.

The scoping of social impacts was further refined by:

- a desktop review of the existing environment and outcomes of preliminary assessments completed as part of the Scoping Report for the project
- a review of project related engagement activities (Chapter 5 of the Scoping Report).

Scoped social impacts and their required level of assessment are outlined in Chapter 6, and the SIA Scoping Worksheet can be found in the Appendix A.

3.2 Determining the social locality and describing the social baseline

The social locality is the geographical areas in which direct and indirect impacts (positive and negative) are likely to occur. The social locality has been determined by considering stakeholders most likely to experience direct and indirect socio-economic impacts, and their geographic location (Chapter 4).

The social locality provides the geographical boundaries that will inform data collection to develop the social baseline and support the identification of the potential impacts of the project during this Phase 1 SIA. The social locality will be further refined during the Phase 2 SIA.

The social locality considers Australian Bureau of Statistics (ABS) statistical geography boundaries, including ABS Suburbs and Localities (SALs), and Urban Centres and Localities (UCLs) that intercept and surround the project.

An description of social baseline of the direct and local social localities surrounding the project is provided in Chapter 5. It includes quantitative (ABS data) and qualitative indicators to describe current and future demographic and economic trends in the existing environment.

3.3 Proposed approach to undertake a Phase 2 SIA

Following completion of the SIA Scoping Worksheet, the overall complexity of the SIA assessment was reviewed against the criteria outlined in Table 3.1. The level of assessment required for the Phase 2 SIA is described in Chapter 7.

The criteria adopted is informed by Appendix C of the Technical Supplement of SIA Guideline (DPIE, 2023c) and by the SIA Guideline.

Table 3.1 Level of assessment criteria

Complexity of SIA Report	Level of assessment	Criteria
Complex	Detailed	The project may result in significant social impacts, including cumulative impacts
	Standard	The project is unlikely to result in significant social impacts, including cumulative impacts
Basic	Minor	The project may result in minor social impacts
	Not relevant	The project will have no social impact, or the social impacts of the project will be so small that they do not warrant consideration

3.4 SIA team and lead author

This SIA Scoping Report was developed by an experienced team of social scientists.

Carla Martinez is the technical reviewer of this report. Carla Martinez holds a Master of Development Practice major in Planning for Social Development from the University of Queensland. Carla has also completed an SIA course from the University of Strathclyde, is a member of the Environmental Institute of Australia and New Zealand (EIANZ) and an Industry Fellow of the Centre for Social Responsibility in Mining from The University of Queensland.

Carla Martinez is a Certified Environmental Practitioner – Social Impact Assessment Specialist by the Environmental Institute of Australia and New Zealand (EIANZ).

Maite Reyes is the leading author of this report. Maite holds a degree in Anthropology from the University of Chile and holds a Master of Development from the University of Queensland. Maite is a member of the EIANZ.

Kim-Cherie Davidson is the supporting author of this report. Kim-Cherie brings 15 years' experience in community engagement around regional NSW. Kim-Cherie has completed the Critical perspectives in Social Impact Assessment Certificate Course from The University of Queensland, Social Impact Assessment Certificate with the International Association of Impact Assessment (IAIA) and is a member of IAIA.

4 Social locality

The social locality considers the geographical areas expected to experience direct and indirect impacts (positive and negative) as a result of the project (refer to Section 3.2). The social locality consists of a direct and local social locality.

The project site is located in the Hunter region of NSW within the Newcastle LGA.

The direct social locality includes the residents located within approximately five kilometres of the indicative project area; these groups of people are expected to experience most social change. This area includes the project workers and the workers of Port of Newcastle, as well as the residents located in Mayfield West, Mayfield, Mayfield East, Tighes Hills, Carrington and Stockton.

The direct social locality also considers built and natural features on and near the project, and the values that people associate to these areas, including values associated with built features in Mayfield North and natural features in Kooragang Island (refer to Section 5.6).

The local social locality includes the broader geographical areas where increased traffic might affect residents and where increased employment, and procurement activities would result in benefits. The local social locality comprises:

- Newcastle Statistical Area Level 3 (SA3) (referred in this report as Newcastle), which includes the suburbs of Warabrook, Sandgate, Mayfield West, Mayfield North, Mayfield East, Mayfield, Tighes Hill, Maryville, Islington, Hamilton North, Carrington, Georgetown, Waratah, Waratah West, Callaghan and North Lambton.
- Tomago Urban Centre and Localities (UCL) (referred in this report as Tomago), which includes a section of the Hunter Wetlands to the north of the project and is located within approximately five kilometres of the indicative project area. This area recognises where vulnerable groups are located as Tomago shows a high levels of socio-economic disadvantage (refer to Section 5.1.2).

Data from NSW is provided for comparison. The social locality will be further refined during the Phase 2 SIA.

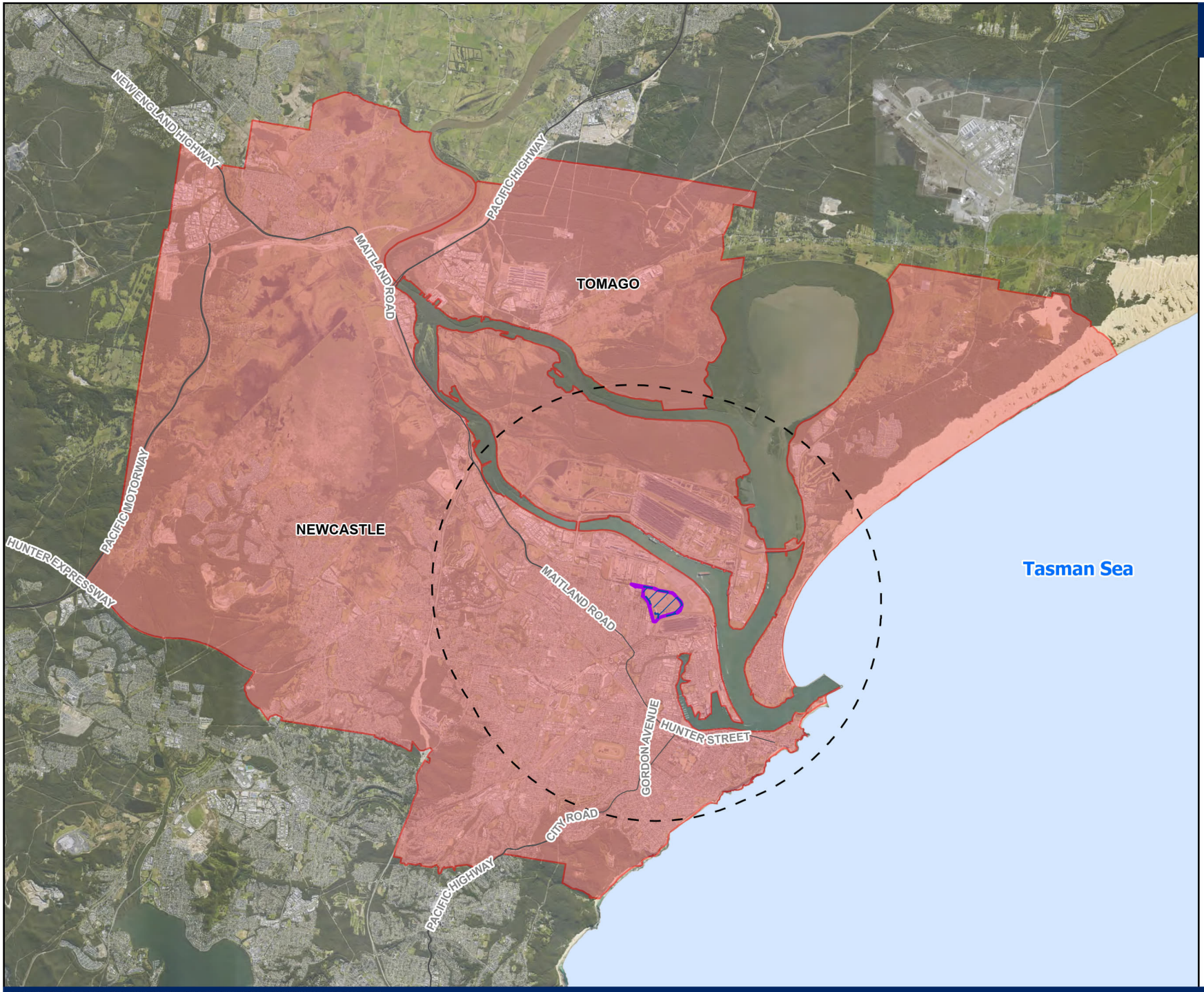

Figure 4.1
Map of social locality

Legend

- Road
- Indicative project area
- Project site
- Directly affected area
- Social locality

0 500 1,000 1,500 2,000 Meters

Coordinate system: GDA2020 MGA Zone 56

Scale ratio correct when printed at A4

1:130,000 Date: 4/02/2025

Data sources: WSP, EnergyCo, NSWSS MetroMap WMS Services:

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5 Social baseline

This chapter provides an overview of the socio-economic characteristics of the social locality determined for the project.

5.1 Demographic overview

The Newcastle and Tomago area have a total population of 179,269 people. Family structures in Newcastle revealed an even distribution of couple families with children (40 per cent), which is lower than the NSW average (44.7 per cent). Conversely, couple families without children made up 40.7 per cent of the population, higher than NSW 37.9 per cent (refer to Table 5.1).

The demographics of Tomago differ significantly from those of Newcastle. For example, only 14.3 per cent of families in Tomago have children, and the average age of residents is 60 years, compared to 37 years in Newcastle. With a small population of just 269 people, Tomago accounts for approximately 0.1 per cent of the social locality's population, thus having a minimal impact on the overall demographic profile of the region (refer to Table 5.1).

Table 5.1 Demographic overview of the social locality

Indicator	Social locality			State
	Newcastle SAL	Tomago UCL	Total	NSW
Population				
All people	179,000	269	179,269	8,072,161
Male	87,900	174	88,074	3,984,166
Female	91,097	101	91,198	4,087,995
Families				
Couple family without children	40.7%	48.2%	18,606	37.9%
Couple family with children	40%	14.3%	18,259	44.7%
One parent family	17.3%	33.9%	7,925	15.8%
Median age	37	60	n/a	39

Source: 2021 ABS Census

5.1.1 Cultural diversity

The social locality has a higher proportion of Aboriginal and Torres Strait Islander residents, with 4.6 per cent in Newcastle and 8.9 per cent in Tomago, compared to a 3.4 per cent in NSW (refer to Table 5.2).

Additionally, the social locality is generally less culturally and linguistically diverse than NSW. In Newcastle, only 12.1 per cent of households speak a language other than English at home, and in Tomago, this figure is just 4.7 per cent. This contrasts with the 29.5 per cent of households at the State level that speak a language other than English at home (refer to Table 5.2). The most common languages spoken in Newcastle, aside from English, are Mandarin and Macedonian, whereas in Tomago, 1.9 per cent of households speak Thai.

Table 5.2 Cultural and linguistic diversity of the social locality

Indicator	Social locality		State
	Newcastle SAL	Tomago UCL	NSW
Cultural and Linguistic Diversity			
Aboriginal or Torres Strait Islander peoples	4.6%	8.9%	3.4%
Households where a non-English language is spoken	12.1%	4.7%	29.5%

Source: 2021 ABS Census

5.1.2 Household income and socioeconomic advantage and disadvantage

The median weekly household income is $1,740, which is slightly lower than the NSW median of $1,829. The unemployment rate is 4.9 per cent for both the social locality and NSW.

The Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) is another indicator used for understanding the socio-economic conditions in which people live. A low IRSAD score shows higher levels of disadvantage, while a high score indicates low levels of disadvantage (and, consequently, higher levels of advantage).

Newcastle presents a IRSAD score of 1012 and is located in the fifth quintile, indicating a relatively high level of socio-economic advantage.

Tomago shows a IRSAD score of 806 and is located in the first quintile, indicating a relatively high level of socio-economic disadvantage.

This indicates that in comparison, Newcastle LGA is more socio-economically advantaged than Tomago.

5.2 Education

Educational attainment in Newcastle is similar to the overall rates for NSW, with a slightly higher proportion of 27.7 per cent of residents holding a bachelor's degree or higher, compared to the State rate of 27.8 per cent. Additionally, Newcastle has comparable rates for those with Certificate Level IV and III qualifications. In contrast, Tomago has a significantly lower percentage of residents with a bachelor's degree or higher, at just 3.2 per cent (refer to Table 5.3).

Table 5.3 Education in the social locality

Indicator	Social locality			State
	Newcastle SAL	Tomago UCL	Total	NSW
Level of highest educational attainment				
Bachelor's degree level and above	27.7%	3.2%	41,488	27.8%
Advanced Diploma and Diploma Level	8.8%	5.3%	13,213	9.3%
Certificate Level IV	4.2%	None	6,306	3.3%
Certificate Level III	13.2%	13%	19,715	11.7%
Year 12	14.1%	8.9%	21,086	14.5%
Year 10	11%	16.6%	16,538	10.6%

Source: 2021 ABS Census

5.3 Health

Residents in the social locality experience higher rates of long-term health conditions compared to the general population of NSW.

In Newcastle, only 55.9 per cent of people report having no long-term health conditions, and this figure drops to 36.1 per cent in Tomago, compared to 61 per cent across NSW. Mental health conditions are notably common in Newcastle, affecting 12.4 per cent of the population (refer to Table 5.4).

In the case of Tomago, asthma is one of the most widespread health issues affecting 12.3 per cent of residents (refer to Table 5.4). This aligned with the median age of 60, suggests that the population may be more prone to age-related health conditions.

Table 5.4 Long-term health conditions in the social locality

Indicator	Social locality			State
	Newcastle SAL	Tomago UCL	Total	NSW
Type of long-term health condition				
Asthma	9.6%	12.3%	17,273	7.8%
Cancer (including remission)	3%	5.2%	5,362	2.8%
Lung condition	2%	3%	3,511	1.7%
Mental health condition	12.4%	11.9%	22,297	8%
Any other long term health condition	8.9%	8.6%	15,897	7.8%
No long-term health condition stated	55.9%	36.1%	100,233	61%

Source: 2021 ABS Census

5.4 Surroundings

Newcastle is the urban centre of the Hunter Region in NSW, Australia. It is the second most populated area in the state and serves as a major hub for economic, cultural, and educational activities. The city is known for its rich industrial history, particularly in coal mining and steel production, which has shaped its development over the years.

It is also famous for its coastline, in particular the beaches, which are important because of their natural beauty, recreational opportunities, and cultural significance. These beaches serve as popular spots for swimming, surfing, and family outings. The Newcastle beaches located near the project are Newcastle Beach, Nobbys Beach, Horseshoe Beach, Bogey Hole, and Stockton Beach.

Additionally, the Hunter Wetlands National Park is a wildlife sanctuary located approximately 3.5 km north of the project, across the Hunter River. It is used by nearby residents as a natural place for activities such as walking, cycling, fishing, and birdwatching. The park is part of the internationally recognised Hunter Estuary Wetlands, designated under the Ramsar Convention for its ecological significance. It plays a vital role in conservation efforts, protecting various species and habitats. Key features of the park include birdwatching, fishing, and the second largest area of mangroves in NSW.

5.5 Way of life

The Port of Newcastle (PON) is an economic hub, primarily recognised for its extensive coal export operations and diverse cargo handling capabilities. Section 5.5.1 provides details about the PON activities and future developments. Further discussion on the key employment industries within the local social locality is provided in Section 5.5.1.

The Mayfield neighbourhood, adjacent to the port and where the project will develop, offers a strategic residential area for professionals working in the region. The area has undergone extensive redevelopment, transforming from its industrial past into a modern precinct that supports a variety of port-related activities. Mayfield has a mix of housing options, including heritage homes and modern apartments. The neighbourhood provides essential services such as schools, healthcare facilities, and retail centres.

The project would use several major roads and secondary roads that are already used by the Port of Newcastle operations. This includes Industrial Drive which connects to the Pacific Highway (Maitland Road) to the east of the project site at Mayfield West. Primary road access to the project would be via Selwyn Street via George Street and Industrial Drive, that joins the Pacific Highway and New England Highway to the west. Along Industrial Drive, there are marked bicycle lanes in the road shoulder with pedestrian paths provided along some sections of Industrial Drive. A bus route uses part of Industrial Drive, George Steet and Ingall Street in Mayfield East.

Recreational fishing is a key activity in the area. Fishing in Newcastle Bay is popular due to its proximity to the city, access to sheltered waters, and the variety of fish species available. The bay itself is part of the larger Newcastle Harbour area, which includes several fishing hotspots. The bay provides ample opportunities for both shore and boat fishing, with species like bream, flathead, whiting, and tailor commonly caught (NSW Department of Primary Industries, n.d.). The area is also known for its clean waters and well-maintained fishing facilities.

Key places within the social locality for recreational fishing are the North Channel Hunter River, Stockton Breakwall, Honeysuckle Wharf, Nobbys Beach, Throsby Creek and the Newcastle Harbour.

Main community organisations and groups associated with recreational fishing in the social locality area are:

- Stockton Fishing and Conservation Club: located near Stockton Beach, this club is great for those interested in both recreational and competitive fishing.
- Local Facebook Groups: there are several active Facebook groups where local anglers share tips, organise meetups, and discuss fishing conditions. Examples include “Newcastle Fishing” and “Newcastle Fishing Hotspots”.

5.5.1 Port of Newcastle activities

The Port of Newcastle is a major seaport located in Newcastle, NSW, Australia. It is the largest port on the East Coast of Australia and the world’s largest coal export port. The port plays a crucial role in the local and national economy. It supports over 9,000 jobs and contributes approximately $1.6 billion to the regional economy annually.

The port’s deepwater shipping channel can accommodate large vessels, making it a vital gateway for international trade. With a capacity to handle 10,000 ship movements and over 200 million tonnes of cargo annually, the Port of Newcastle enables Australian businesses to compete globally (Port of Newcastle, n.d.).

The Port of Newcastle currently operates 20 berths, with nine dedicated to coal and 11 available as common user berths for general and bulk cargoes (Port of Newcastle, 2019). Its deepwater shipping channel is operating at 50 per cent capacity (Port of Newcastle, n.d.). The Port of Newcastle is transforming a 220-hectare industrial area into a Clean Energy Precinct, positioning the region as a leading hub for clean energy products and technologies including hydrogen and green ammonia. This initiative will support local projects by providing necessary infrastructure and is expected to create over 5,800 jobs, new educational pathways, and economic growth.

The project is in an area identified as the Mayfield Precinct in the *Port Master Plan 2040* (2019). This precinct is located between the South Arm of the Hunter River and Industrial Drive, bounded by Tourle Street in the west and Selwyn Street in the east. It contains large areas of freehold land developed for heavy industry, as well as the Port of Newcastle's Mayfield Site.

The Mayfield Precinct contains:

- Mayfield 4 Berth: It is a common user berth that operates on a project-by-project basis. It is well connected to national rail and road networks. The berth is equipped with two Liebherr 550 tonne mobile harbour cranes.
- Mayfield 7 Berth: a dedicated Bulk Liquids Berth designed for long-range tanker vessels up to LR1 and LR2. Stolthaven operates a terminal and distribution facility. Koppers Australia import and export high-temperature coal, tar and pitch products, which are piped to processing plant located two kilometres to the west.

5.5.2 Key employment industries and occupations

Newcastle's main export industry is coal, with the Port of Newcastle being the largest coal exporting harbour in the world. The Port of Newcastle exported 144.5 million tonnes of coal in 2023 (The Coalface, 2024). Global demand for Australian coal that comes from the Upper Hunter region has slightly declined in recent years. However, new figures for 2024 reveal an increasing demand for diversified trade including wheat, fertiliser, steel, cement, fuels, project cargo and aluminium (Port of Newcastle, 2022; Newcastle Weekly, 2024).

Newcastle has a long history centred on heavy industries and especially steel. Following the closure of the BHP Steelworks in 1999, the city experienced significant economic diversification, with growth in digital technology, service industries, and advanced manufacturing (City of Newcastle, 2021).

As a result, professionals now constitute 28.7 per cent of the workforce, with 6.5 per cent working in hospitals, 4.2 per cent in social assistance services and 2.5 per cent in higher education. These proportions are all higher than those in NSW (refer to Table 5.5). Neither the coal industry nor any of the industries associated with its production and transport appear in the list of top industries for Newcastle.

Tomago has 9.9 per cent of residents working in road freight transport, 9.9 per cent in social assistance services and 4.2 per cent in accommodation (refer to Table 5.5).

Table 5.5 Top three employment industries in the social locality

Indicator	Social locality		State
	Newcastle SAL	Tomago UCL	NSW
Hospitals (except psychiatric)	6.5%		4.2%
Other social assistance services	4.2%	9.9%	2.4%
Higher Education	2.5%		1.3%
Road Freight Transport		9.9%	1%
Accommodation		4.2%	4.2%

5.6 Culture

5.6.1 BHP Steelworks site: history and heritage

BHP operated a major steelworks in the suburb of Mayfield, within the Port of Newcastle, from 1915 to 1999, specifically in the area known as Port Waratah (Hunter Development Corporation, 2009). The steelworks were vital to both regional and national economies, employing thousands of people and producing millions of tonnes of steel each year for distribution across Australia and overseas (Hunter and Central Coast Development Corporation, n.d.).

This long industrial history led to contaminated soil and groundwater throughout the project site. Following the steelworks' closure, the land was transferred from BHP to the NSW Government for management and remediation in accordance with Environment Protection Authority (EPA) requirements (Hunter and Central Coast Development Corporation, n.d.). BHP Billiton completed the demolition of the steel plant structures in 2004 (Port of Newcastle and EJE Heritage, 2014).

The remediated site includes memorials dedicated to those who worked at the former steelworks. The first, called Muster Point, is a large steel art installation paying tribute to the steel-working skills of the BHP workers. Another memorial installation, unveiled on the centenary of the plant's official opening on 2 June 1915, pays tribute to those who lost their lives at the steelworks. This sculpture, a moving "mourning circle," was created by Branxton artist and blacksmith Will Maguire (Hunter and Central Coast Development Corporation, n.d.).

In 2014, the Port of Newcastle developed a Heritage and Conservation Register and a Heritage Asset Management Strategy, in line with the Heritage Act 1977, which requires government agencies to prepare a Heritage and Conservation Register to assist in the care of heritage assets (Port of Newcastle and EJE Heritage, 2015a). According to the Heritage Register (2015b), two sites are particularly relevant to the old BHP Steelworks site: the Master Mechanic's Office and the Pattern Store, both items demolished around 2015 prior to the remediation of the project site. The Newcastle Industrial Heritage Association attempted to prevent the demolition of these buildings, but they were ultimately demolished due to the remediation works (ABC News, 2015).

There are two heritage items listed under section 5.31(9) of the Transport and Infrastructure SEPP within the southern portion of the indicative project area: BHP Administration Building and Quality Control Laboratory (refer to Figure 5.1 for location of heritage items). The internal roads and connections to Selwyn Street would be designed to minimise impacts on built heritage. However, to provide for the required swept paths for OSOM vehicles, impacts to the curtilage and gardens of the heritage listed BHP Administration Building and/or the Quality Control Laboratory may occur, alongside the full demolition of the bicycle shed.

Beyond the indicative project area, the closest heritage items comprise several Transport and Infrastructure SEPP listed heritage items that are adjacent to the indicative project area. These are located along Ingall Street and Steel Works Road. Further afield, the closest locally listed heritage items are Mayfield East Public School (I282) 300 metres west of the indicative project area, Ingall House Group (I283), residence (I288) and residence (I287) 300 metres west of the indicative project area and Australia Wire Rope Building (I286) 350 metres south of the indicative project area.

Figure 5.1
Non-Aboriginal heritage within one kilometre of the project area

Legend

- Railway
- Watercourse
- Project site
- Indicative project area
- Local heritage
- SEPP heritage items*
- SEPP heritage curtilage*

Note : Heritage items listed under section 5.31(9) of the Transport and Infrastructure SEPP. The curtilage for items outside the project area have been identified by Lot/DP only. Several items are within the same property boundary.

Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A4
1:15,500 Date: 17/03/2025
Data sources: WSP, EnergyCo, NSWSS
World Hillshade: Esri, CGIAR

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5.6.2 *First Nations Culture*

The First Nations within the Newcastle area the Awabakal and Worimi peoples (City of Newcastle, 2020) (refer to Figure 5.2).

- Awabakal people: the Awabakal territory covers about 1,800 square kilometres. Natural landscape features and known sacred sites include Whibayganba, Newcastle's famous landmark Nobbys. The Awabakal people were the first inhabitants of the project area, living around the harbour and foreshores where there was an abundance of fish and wildlife.
- Worimi people: the Worimi (Warrimay) have always been and remain today the traditional custodians of a large area of land "The Worimi Nation". Oral history passed down by the Elders record that the Worimi Nation was originally bounded by four rivers, Hunter River to the south, Manning River to the north, the Allyn and Patterson Rivers to the west. The Worimi Nation was home to 18 clan groups or 'ngurras', with the Worimi Conservation Lands falling within the area of the Maiangal ngurra. All spoke the Gathang language. Traditionally, the Worimi people used Stockton Bight to travel between the northern and southern parts of the Worimi Conservation Lands (WCL). These areas are known today as Birubi Point to the north and Stockton to the south (Worimi Conservation Lands, n.d.).
- Hunter Wetlands National Park: the park is part of the Country for both the Awabakal (south from the Hunter River that includes Newcastle) and Worimi (north and east of the Hunter River) peoples. The park is considered important due to a local language dictionary including the estuary's marine, terrestrial and plant life as well as associated activities. There are limited archeologic sites recorded in the park, this is believed to be due to the nature of the wetland, and historical development and modifications on the site (Hunter Wetlands National Park Plan of Management).

Figure 5.2 Extract from Map of Indigenous Australia Aboriginal Peoples in the Newcastle Area

Source: AIATSIS

5.7 Decision-making

This section provides an overview of how the local community has organised to provide feedback and seek information about developments at Port of Newcastle.

5.7.1 The Port of Newcastle Community Liaison Group

The Port of Newcastle Community Liaison Group (CLG) was established in 2014 to foster strong relationships between the port and its surrounding communities of Carrington, Honeysuckle, Maryville, Mayfield, Newcastle West, Stockton, Tighes Hill and Wickham. This 20-member group serves as a vital communication channel, ensuring that the voices of local residents, businesses, and stakeholders are heard.

The purpose of the CLG is to provide the opportunity for the community to develop an increased understanding about the Port of Newcastle, specifically how operations connect with the community and provide a means for community members and other key stakeholders to receive information about how Port of Newcastle operations, projects and initiatives may impact the community. The CLG also supports the identification and comment on concerns raised by the community and suggest actions to minimise the concerns, discusses issues and suggest ways to minimise the impact to the Port of Newcastle community.

The CLG is composed of representatives from various community groups, local government, and businesses, ensuring a diverse range of perspectives. Members are selected based on their ability to represent the interests of their communities and their understanding of local issues. The group meets regularly to discuss matters affecting the port and its neighbours, working collaboratively to find solutions that align with the Port of Newcastle's values of community, wellbeing, integrity, and curiosity.

5.7.2 Newcastle Industrial Heritage Association

The Newcastle Industrial Heritage Association (NIHA) is a community group formed in May 2000 to promote the role that industries have played in Australia's development. The association focuses on preserving and presenting the industrial heritage of the Hunter Region, highlighting the significant contributions of local industries to the nation's growth. NIHA facilitates research, supports conservation efforts, and encourages the adaptive reuse of industrial heritage sites, buildings, and artifacts. The group also aims to promote tourism by showcasing the region's rich industrial history.

6 Scoped social impacts

This chapter outlines the potential impacts and benefits of the project.

Section 6.17 of the Scoping Report identifies relevant future projects that in combination with the project could result in cumulative impacts. These future projects have been considered in the analysis of potential cumulative impacts. For further details refer to Appendix A.

Section 6.1 details the potential benefits, while Section 6.2 lists the possible negative impacts.

6.1 Benefits

Table 6.1 outlines the project activities that have the potential to result in a benefit (positive impact) during construction and/or operation, and the level of assessment required in the EIS.

Table 6.1 Scoping of potential social benefits

Primary impact category	Project activity	Potential impacts on people	Who is likely to benefit	Phase	Level of assessment
Livelihoods	Employment and procurement opportunities from construction and operation of the project	Positive direct and indirect economic opportunities for local and regional employment and businesses. This benefit might be maximised by other developments at Port of Newcastle.	Newcastle and Hunter Valley workforce and businesses within the local social locality	Construction and operation	Minor assessment of the impact

6.2 Negative impacts

Table 6.2 outlines the project activities that have the potential to result in a negative impact during construction and/or operation, and the level of assessment required in the EIS.

Table 6.2 Scoping of potential social impacts

Primary impact category	Project activity	Potential impacts on people	Who is likely to be impacted	Phase	Level of assessment
Way of life	Transport of materials to and from the project site during construction	Increased traffic impacting how people experience their daily routines, travel and sense of road safety. This impact might be exasperated by other developments at Port of Newcastle. However, the potential for this social impact would depend on the contribution of this project to existing or future vehicle volumes along the Industrial Drive, which is a major arterial road that services the Port of Newcastle. It is anticipated that the contribution of this project to the cumulative impacts will be minor given the number of vehicle movements generated by the project.	People living nearby project site. Commuters and other road users	Construction	Minor assessment of the impact
Culture	Development on the former BHP Steelworks site	The repurposing of part of the former BHP Steelworks site as a port facility may have an impact on the community's historical connection with site and association as the former BHP Steelworks site.	Local community and Newcastle's Industrial Heritage Association	Construction and operation	Minor assessment of the impact

7 Complexity of SIA Phase 2

To further understand the magnitude and likelihood of the impacts and benefits identified in this SIA Scoping Report, a **Basic Phase 2 SIA** will be required in accordance with the NSW SIA Guideline (DPIE, 2023a).

The key objectives of the Basic SIA Phase 2 report would be to:

- predict and analyse the extent and nature of likely social impacts against baseline conditions using accepted social science methods
- evaluate, draw attention to and prioritise the social impacts that are important to people
- integrate the findings of technical reports supporting the EIS, such as noise and vibration, traffic and transport, air quality, non-Aboriginal heritage, and hazard and risk to determine the magnitude of social impacts
- develop appropriate and justified responses (e.g., avoidance, mitigation and enhancement measures) to social impacts, and identify and explain residual social impacts
- propose arrangements to monitor and manage residual social impacts, including unanticipated impacts, over the life of the project (DPIE, 2023a).

7.1 Consultation and research methods

The Phase 2 SIA will be developed by the following primary and secondary research methods, along with consultation activities:

- Targeted primary SIA data will be collected through the following activities:
  - targeted consultation via individual and group semi-structured interviews, with key stakeholder groups, including:
    - residents in close proximity to the project and PON Community liaison group
    - local government representatives
    - First Nations people.
- Secondary SIA data will be collected through reviews and analysis of the following:
  - broad consultation findings from EIS engagement activities led by the project team
  - targeted consultation findings from engagement activities conducted by specialists to inform technical reports supporting the EIS, such as noise and vibration, traffic and transport, air quality, non-Aboriginal heritage, and hazard and risk
  - secondary information sources, including relevant census and demographic data from the ABS datasets
  - regional and local strategic plans and SIA reports prepared for other projects in the local area.

7.2 Further communication and engagement for the EIS

For the development of the EIS, it is recommended that engagement activities include:

- key stakeholders such as the City of Newcastle Council, PON Community liaison group, Port of Newcastle Industrial Heritage Association, local residents, and local services to better understand issues such as:
  - community values for resident (both environmental and aesthetic)
  - amenity and traffic impacts during construction
  - sites of historical heritage significance
  - proposed management, monitoring and mitigation measures to prevent social impacts resulting from the implementing of the project
- promote information sharing to enhance understanding of the project and its future development phases
- proactively share key activities and safety considerations related with the project, particularly with the directly affected community.

8 Limitations

The information presented in this report has been based on desktop research and the ABS Census data 2021.

Targeted engagement with key stakeholders is proposed to be undertaken during the preparation of the Phase 2 SIA and EIS for the project.

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Appendix A

Scoping of potential impacts

Social Impact Assessment (SIA) Worksheet

Project name: Newcastle Logistics Precinct - Intertrade Project

Date: 17/12/24

CATEGORIES OF SOCIAL IMPACTS	POTENTIAL IMPACTS ON PEOPLE		PREVIOUS INVESTIGATION OF IMPACT		CUMULATIVE IMPACTS		ELEMENTS OF IMPACTS - Based on preliminary investigation					ASSESSMENT LEVEL FOR EACH IMPACT				PROJECT REFINEMENT	MITIGATION / ENHANCEMENT MEASURES
what **social impact categories** could be affected by the project activities	What impacts are likely, and what concerns/aspirations have people expressed about the impact? Summarise how each relevant stakeholder group might experience the impact. NB. Where there are multiple stakeholder groups affected differently by an impact, or more than one impact from the activity, please add an additional row.	Is the impact expected to be **positive or negative**	Has this impact previously been investigated (on this or other project/s)?	If "yes - this project," briefly describe the previous investigation. If "yes - other project," identify the other project and investigation	Will this impact combine with others from this project (think about when and where), and/or with impacts from other projects (cumulative)?	If yes, identify which other impacts and/or projects	Will the project activity (without mitigation or enhancement) cause a material social impact in terms of its: You can also consider the various magnitudes of these characteristics					Level of assessment for each social impact	What methods and data sources will be used to investigate this impact?			Has the project been refined in response to preliminary impact evaluation or stakeholder feedback?	What **mitigation / enhancement measures** are being considered?
							extent i.e. number of people potentially affected?	**duration** of expected impacts? (i.e. construction vs operational phase)	**intensity** of expected impacts i.e. scale or degree of change?	**sensitivity** or vulnerability of people potentially affected?	**level of concern/interest** of people potentially affected?		Secondary data	Primary Data - Consultation	Primary Data - Research		
way of life	Increased traffic impacting how people experience their daily routines, travel and sense of road safety. This impact might be exasperated by other developments at Port of Newcastle.	Negative	Yes - this project	The Scoping Report determined that there may be some temporary disruptions to traffic movements along roads within the Port of Newcastle, including Selwyn Street to the south, and Ingall Street and Bull Street to the north during construction and upgrade of site access points to the road network. Construction may require temporary traffic management of lane closures; however, where practicable this would be scheduled to minimise impacts during peak traffic periods. Any impacts associated with this are expected to be short term and unlikely	Yes	—Clean Energy Precinct – Infrastructure and ammonia in Kooragang Island —Kooragang Island Liquid Waste Facility Expansion in Kooragang Island —Orica Ammonium Nitrate Facility – Upgrade in Kooragang Islandaa —Hunter Valley Hydrogen Hub in Kooragang Island	No	Yes	No	No	No	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required		Mitigation measures will be identified in the next phase.
culture	Concern due to potential risks to heritage sites within the project site, including demolition of the bike shed. This impact might be exasperated by other developments at Port of Newcastle.	Negative	Yes - this project	The Scoping Report determined that project site may have historical significance as the former BHP Steelworks site. In addition to the two heritage items within the indicative project area, other buildings and structures within the project site's southern precinct (south of Administration Drive) exist and may have significance given their connection to the BHP Steelworks. However, with the exception of the Roll Shop building, the other buildings and structures are not proposed to be used or repurposed as part of the proposal.	Yes	—Clean Energy Precinct – Infrastructure and ammonia in Kooragang Island —Kooragang Island Liquid Waste Facility Expansion in Kooragang Island —Orica Ammonium Nitrate Facility – Upgrade in Kooragang Islandaa —Hunter Valley Hydrogen Hub in Kooragang Island	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required		Mitigation measures will be identified in the next phase.
Health and wellbeing	Potential community distress due to perceived exposure of workers and nearby residents to due to the disturbance to the remediated site, affecting people who work and live within the vicinity of project site.	Negative	Yes - this project	The project would be designed to minimise any disturbance to the underlying material. Further, the Scoping Report determined that where disturbance of the existing remediated infrastructure, such as the capping layer, is to be undertaken that plans of management be prepared to set out the control measures to be implemented to be protective of the health of works, the surrounding users and community and the environment. The project would prepare any plans required by the CSMP and these plans would be subject to review and	No	Not required	No	No	No	No	No	Not relevant	Not required	Not required	Not required		
Accessibility	Concern that this could change drainage that could affect roads, affecting people who work and live within the vicinity of project site.	Negative	Yes - this project project	Changes to surface water management within the project site would designed to be minimial. Flood prone areas are within the project site and drain away from residential areas to the east. Changes to ground levels (and therefore flood levels) would be minimial and any change to flood behvaiour is likely to be localised in the vicinity of the new internal bridges.	No	Not required	No	No	No	No	No	Not relevant	Not required	Not required	Not required		
Surroundings	Diminished aesthetic values resulting from construction of new infrastructure	Negative	Yes - this project project	The Scoping Report determined that construction activities and operational activities would be seen in the context of the industrial landscape of Port of Newcastle, visual impacts are expected to be minor.	No	Not required	No	No	No	No	No	Not relevant	Not required	Not required	Not required		
livelihoods	Positive direct and indirect economic opportunities for local and regional employment and businesses. This benefit might be maximised by other developments at Port of Newcastle.	Positive	Yes - other project	Employment opportunities and procurement within the locality as a result of the project.	Yes	—Clean Energy Precinct – Infrastructure and ammonia in Kooragang Island —Kooragang Island Liquid Waste Facility Expansion in Kooragang Island —Orica Ammonium Nitrate Facility – Upgrade in Kooragang Islandaa —Hunter Valley Hydrogen Hub in Kooragang Island	No	Yes	No	No	No	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required		Mitigation measures will be identified in the next phase.
INSERT NEW ROWS ABOVE THIS ROW																	

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Appendix C

BDAR waiver request

Level 4, Suite 403, 45 Watt Street, Newcastle, NSW 2300
t: (02) 4064 8421

28 March 2025

Our ref: 24NEW10108

Priority Projects
Project Interface & Strategic Coordination
Energy Corporation of NSW (EnergyCo)

Attention: Lexie Tieman

Dear Lexie,

Newcastle Logistics Precinct - Biodiversity Development Assessment Report (BDAR) Waiver Request

Eco Logical Australia Pty Ltd (ELA) was engaged by EnergyCo (the proponent) to provide an ecological assessment for the project site associated with the Newcastle Logistics Precinct – Intertrade Project (the project). The project site is located in Mayfield North, NSW within the City of Newcastle Local Government Area (LGA). The project will provide additional storage areas near Port of Newcastle lease area to support the supply chain for critical transmission, generation, firming and storage projects under the NSW Electricity Infrastructure Roadmap.

The project is being assessed and determined as State Significant Infrastructure (SSI). Major projects including SSI typically require a Biodiversity Development Assessment Report (BDAR); alternatively, a BDAR waiver may be sought. Outcomes of the ecological assessment by ELA (Appendix A) indicate that a BDAR waiver is appropriate for this project. This letter is seeking a BDAR waiver.

This letter assesses potential impacts to biodiversity as a result of the proposal, in accordance with the NSW Department of Planning, Industry & Environment's *How to apply for a biodiversity development assessment report waiver for a major project application document* (DPIE, 2019). Information to support the application is outlined in Table 1 and Table 2 below. To inform this letter, a desktop review and site assessment was completed by ELA which is attached in Appendix A.

The project area does not contain vegetation which supports significant biodiversity values and is located within a highly disturbed, fragmented urban and industrial environment. The vegetation and built structures within the project area and the immediate vicinity may provide marginal habitat for highly mobile species such as threatened microbats (such as Southern Myotis), avifauna species and the Grey-headed Flying Fox. No native Plant Community Types (PCTs) are within the project area, and no removal of PCTs are proposed.

The assessment concluded that the proposed development is highly unlikely to have any impact on biodiversity values or threatened entities listed under the *Biodiversity Conservation Act 2016* (BC Act), and any potential prescribed impacts (while highly unlikely) would not require offsetting of biodiversity credits. The likelihood of unanticipated prescribed impacts would be reduced with the implementation of appropriate mitigation measures such as pre-works surveys and an Unexpected Finds Protocol. No

Matters of National Environmental Significance (MNES) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) would be impacted by the proposed development.

The proponent requests a waiver from the need to submit a BDAR based on the assessment outcomes.

Regards,

Liam Scanlan
Senior Ecologist & BAM Accredited Assessor (BAAS23026)

Figure 1: Location map

Figure 2: Site map

1. Biodiversity Development Assessment Report Waiver Request

1.1. Introduction

This BDAR Waiver Request is submitted on behalf of EnergyCo to support an application for a proposed logistics precinct for materials and equipment for renewable energy projects. The proposed facility is located at 99 Selwyn Street, Mayfield North (Lot 332/DP 1176879) on land zoned as SP1 – Special Activities. All land within the Port of Newcastle Land Application Map is zoned SP1.

1.2. Site location and context

The development information requirements for a BDAR waiver request, in accordance with Attachment A of the BDAR report waiver guidelines (DPIE 2019), are addressed in Table 1. Table 2 provides information regarding the impacts of the proposed development on biodiversity values in accordance with the Attachment B of the guidelines (DPIE 2019).

Additional results and methods of the site inspections are provided in Appendix A.

Relevant terms used in this report as follows:

- Project site is the area of land (Lot 332 in DP1176879) that is the subject of the assessment; it includes areas of land proposed for development and areas of land to be retained (Figure 1 and Figure 2).
- Project area is the area of land within the project site that is proposed to facilitate the logistics precinct development and associated works. The project area also includes sections of Selwyn Street (managed by the City of Newcastle Council) and Steel Works Road (an internal road that extends into the Port of Newcastle (PoN) lease area and managed by PoN).
- Retained land is the vegetated area of land within the project site that is not proposed for development and will be managed as per current maintenance practices.

1.2.1. Sources of information

The assessment included a literature and database review of relevant information concerning potential impacts to biodiversity values as a result of the proposed SSI. The following datasets were reviewed:

- NSW State Vegetation Type Map (SVTM) (DCCEEW 2020)
- NSW Government Biodiversity Values (BV) Map (DCCEEW 2025a)
- High Ecological Value Aquatic Ecosystems (HEVAE GDE) (DCCEEW 2025b)
- BioNet Atlas Database species sightings records - 5 km radius (DCCEEW 2025c)
- NSW BioNet Threatened Biodiversity Data Collection (TBDC) (DCCEEW 2025d)
- High Environmental Value for Hunter Regional Growth Planning area (HEV) (OEH 2015)
- BioNet Threatened Species to Plant Community Types Association data spreadsheet (DPE 2022).

Table 1: BDAR waiver request information requirements

Requirement	Information
Administration	**Proponent:** Energy Corporation of NSW (EnergyCo) **Completed by**: Liam Scanlan – Senior Ecologist (ELA), BSc (Hons) (Botany), BAM Accredited Assessor (BAAS23026) **Reviewed by:** Meredith Henderson – Senior Principal Ecologist (ELA), PhD, BSc (Hons), BAM Accredited Assessor (BAAS17001)
Site Details	**Street Address:** 99 Selwyn Street, Mayfield North. The project area also includes sections of Selwyn Street (managed by the City of Newcastle Council) and Steel Works Road (an internal road that extends into the PoN lease area managed by PoN). **Lot and DP Number:** 332//1176879 **Local Government Area (LGA):** City of Newcastle **Land use zoning:** The land use zone is SP1 – Special Activities. All land within the Port of Newcastle Land Application Map is zoned SP1. **Existing Environment:** The project site is approximately 46 ha in size and contains seven disused structures and approximately 33 ha of unoccupied site remediation infrastructure consisting of hard stand with crusher dust substrate. The project site occurs in an industrial area within the Port of Newcastle. The project site has been used for industrial purposes since pre-1931, supporting activities including smelter and coal loading operations, BHP iron and steelworks (Figure 3).
Proposed Development	Key components of the proposed development include: • construction of hardstand and internal roads used for the unloading, loading and storage of materials and equipment for renewable energy projects • operation of mobile equipment comprising forklifts, cranes, reach stackers and road trucks for movement of materials and equipment for renewable energy projects • associated stormwater drainage to manage stormwater flows and water quality across and around impervious surfaces • construction of bridges over existing stormwater channels, for the provision of access and egress from the hardstand area • internal roads, staff amenity buildings, carpark and other ancillary infrastructure to facilitate operation of the project • utility adjustments and provisions within the indicative project area to maximise operational efficiencies of the hardstand area and minimise possible upgrades in future. It is expected that construction of the project would commence in late 2026 and take around nine months to complete with initial operations commencing in 2027.
Impacts on biodiversity values	The project site is not mapped under the NSW Government Biodiversity Values (BV) Map (Figure 4) (accessed February 2025) (DCCEEW 2025a). Further assessment provided in Table 2 and in the attached ecological assessment (Appendix A).

Table 2: Criteria to assess biodiversity under the BC Act and BC Regulation

Biodiversity Value	Meaning	Relevant (✓ or N/A)	Explain and document potential impacts including additional impacts prescribed under the BC Regulation Attach additional supporting documentation where appropriate
Vegetation abundance - **1.4(b) BC Regulation**	Occurrence and abundance of vegetation at a particular site	✓	Five vegetation zones have been identified on the project site (Figure 5). Detailed descriptions and photographs of each vegetation zone are provided in Appendix A. The current proposal seeks the development of Vegetation Zone 1 and a small portion of Vegetation Zone 2. Vegetation Zone 1 occurs on capped, hardstand land that is dominated by exotic grasses, and contains sparse occurrence of native species with overall very low native species richness and cover. Vegetation Zone 2 comprises planted exotic trees in garden beds and landscaped lawns around buildings. Zones 3-5 do not occur within the proposed project area; however, these areas were included in the assessment to determine if any indirect impacts are likely to occur to biodiversity values. It was determined that the proposed development would not have indirect impacts to biodiversity values. ● Vegetation Zone 1 – Virgin Excavated Natural Material (VENM) cap site remediation infrastructure (33.18 ha) (Within project area) ● Vegetation Zone 2 - Planted garden beds and mown lawn (2.02 ha) (Within project area) ● Vegetation Zone 3 - Planted native parkland (4.21 ha) (Retained land) ● Vegetation Zone 4 - Planted Fig trees (0.90 ha) (Retained land) ● Vegetation Zone 5 - Unmanaged exotic forest (0.95 ha) (Retained land). No native PCTs occur within the project area. Planted native species in a parkland setting (VZ-3), which is outside of the project area and not proposed to be impacted, was assigned to the 'best fit' PCT for the purpose of identifying potential threatened species associations relevant to the project land.
Vegetation Integrity **1.5(2)(a) BC Act**	Degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near-natural state.	✓	The project site has been used for industrial purposes since pre-1931, supporting activities including smelter and coal loading operations, BHP iron and steelworks, and has more recently been the subject of intensive contamination remediation works (Figure 3). Site remediation infrastructure has been applied across all parts of the site. The hardstand substrate present in VZ-1 is designed to minimise infiltration of underlying contaminated soils. The substrate consists of virgin excavated natural materials (VENM) which is a low permeability capping material with an overlay of crusher dust (i.e. fine gravel <5 mm). Site remediation infrastructure is managed in accordance with a notice issued by the NSW EPA under section 28 of the *Contaminated Land Management Act 1997*. Routine management of this area includes removal of trees and shrubs to maintain integrity of remediation infrastructure. The VENM cap site remediation infrastructure (VZ-1) is dominated by exotic grasses *Melinis repens* (Red Natal Grass) and *Chloris gayana* (Rhodes Grass) and also includes sparse occurrences of *Casuarina glauca* (Swamp Oak) seedlings/saplings, *Chrysanthemoides monilifera* subsp. *rotundata* (Bitou Bush), *Acacia saligna* (Golden Wreath Wattle), *Acacia longifolia* (Sydney Golden Wattle) and *Cynodon dactylon* (Couch) (Photograph 1).

Biodiversity Value	Meaning	Relevant (✓ or N/A)	Explain and document potential impacts including additional impacts prescribed under the BC Regulation Attach additional supporting documentation where appropriate
			One vegetation integrity plot was undertaken in this vegetation zone (data provided in Appendix A) however the lack of native species (n=3) meant that selection of best fit PCT could not be accurately undertaken as PCT selection requires a distinct native species assemblage, usually with soil type or landscape position. Due to the sparse presence of Swamp Oak in Vegetation Zone 1, an assessment has been made to demonstrate that vegetation on site is not representative of Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions TEC (Appendix A). This vegetation zone is considered to contain negligible biodiversity value, does not contain significant native vegetation or habitat for threatened species.  Photograph 1: Site remediation infrastructure with exotic grass colonisation

Biodiversity Value	Meaning	Relevant (✓ or N/A)	Explain and document potential impacts including additional impacts prescribed under the BC Regulation Attach additional supporting documentation where appropriate
			The majority of established vegetation in the project area comprises planted exotic trees in garden beds and landscaped lawns around buildings (Photograph 2). Plant species identified in this zone include *Platanus orientalis* (Oriental Plane), *Nerium oleander* (Oleander), *Jacaranda mimosifolia* (Blue Jacaranda), and limited planted native species *Melaleuca viminalis* (Weeping Bottlebrush), *Melaleuca quinquenervia* (Broad-leaved Paperbark). Naturalised exotic species are also present including *Acacia saligna* and *Chrysanthemoides monilifera* subsp. *rotundata*. *Acacia saligna* is native to WA and not native in NSW. Land around buildings and garden beds consist of hardstand concrete roads and carparks. Neither of the two vegetation zones within the project area contain significant native vegetation or habitat for threatened species such as hollow bearing trees.

Biodiversity Value	Meaning	Relevant (✓ or N/A)	Explain and document potential impacts including additional impacts prescribed under the BC Regulation Attach additional supporting documentation where appropriate
			 **Photograph 2: Example of planted garden vegetation around buildings** One PCT has been mapped on the project site on the NSW SVTM, however, ground-truthing and sampling of this community concluded that this vegetation has been planted and contains a mix of native, non-indigenous and exotic tree species which do not conform to a naturally occurring Plant Community Type. Further details of this assessment are provided in Appendix A.
Habitat Suitability 1.5(2)(b) BC Act	Degree to which the habitat needs of threatened species are present at a particular site	✓	No records on the project site of threatened flora or fauna species, are currently held in NSW BioNet species sighting database (DCCEEW 2025a) (Figure 5; Figure 6). Threatened flora is very highly unlikely to occur within or

Biodiversity Value	Meaning	Relevant (✓ or N/A)	Explain and document potential impacts including additional impacts prescribed under the BC Regulation Attach additional supporting documentation where appropriate
			adjacent to the project site given the historical land clearing and industrial land use, recent capping with VENM substrate and lack of connectivity with natural areas or areas with threatened species records. Planted vegetation within the project area (VZ-2) is considered to be highly marginal, potential foraging habitat for highly mobile species, such as *Pteropus poliocephalus* (Grey-headed Flying-fox) and this resource would not support the habitat needs for this species. Planted fig trees located outside of the project area likely provide better quality foraging resources (located in VZ-4). No impacts are proposed to VZ-4, and it is not anticipated that the proposed development will adversely affect the foraging behaviour of any species which may utilise VZ-4. Six structures varying in size are located in the project site south of Administration Drive as shown in Figure 2. The Bicycle Shed is proposed to be removed. This structure was inspected, and it was determined that it does not support favourable conditions for microbat roosting habitat. One building (Roll Shop) is proposed to be utilised as part of the proposed development. This building represents low quality, potential roosting habitat for microbats. Due to the large size of this building, with sections that could not be accessed, their presence cannot be ruled out entirely. A detailed inspection was undertaken within the Roll Shop and a dusk emergence survey was completed utilising an infra-red camera. No evidence of microbats has been recorded to date. There are no major structural changes proposed to this building. This building is currently vacant but has recently been utilised for industrial-scale storage and supporting remediation works. It is not suspected that microbats are currently utilising this structure, however, to decrease the risk of any unanticipated impacts to fauna, mitigation measures will be employed such as the preparation of an Unexpected Finds Protocol and a pre-works survey for evidence of microbats. Further details of the Bicycle Shed and Roll Shop assessment and proposed mitigation measures are provided in Appendix A.
Threatened Species Abundance **1.4(a) BC Regulation**	Occurrence and abundance of threatened species or threatened ecological communities, or their habitat, at a particular site	✓	There are 417 records of Grey-headed Flying-fox within a 5 km radius of the project site (DCCEEW 2025a) (Figure 6). Planted vegetation adjacent to the project site contains marginal foraging habitat which is unlikely to be heavily relied upon by this species. The development is unlikely to impact on the local occurrence and abundance of this species. The following eight threatened microbat species have been recorded within a 5 km radius of the project site (Figure 5). ● *Falsistrellus tasmaniensis* (Eastern False Pipistrelle) 2 records ● *Micronomus norfolkensis* (Eastern Coastal Free-tailed Bat) 25 records ● *Miniopterus australis* (Little Bent-winged Bat) 35 records ● *Miniopterus orianae oceanensis* (Large Bent-winged Bat) 30 records ● *Myotis macropus* (Southern Myotis) 15 records ● *Saccolaimus flaviventris* (Yellow-bellied Sheathtail-bat) 4 records

Biodiversity Value	Meaning	Relevant (✓ or N/A)	Explain and document potential impacts including additional impacts prescribed under the BC Regulation Attach additional supporting documentation where appropriate
			• *Scoteanax rueppellii* (Greater Broad-nosed Bat) 14 records. No microbat species have been recorded within the project area to date, and no structures are suspected to contain roosting microbats. This is based on targeted site assessments and surveys of the Bicycle Shed and Roll Shop. Details including methods and results of these assessments, as well as mitigation measures to address unexpected finds are provided in Appendix A. It is known that Green and Golden Bell Frog may occur in degraded habitat including areas capped for contamination remediation (i.e. at Kooragang Island). For this reason, targeted surveys for Green and Golden Bell Frog and any suitable habitat were undertaken, which confirmed the absence of this species and minimal potential suitable breeding habitat within the project area. The implementation of an Unexpected Finds Protocol will help to minimise any potential impacts to fauna which have been identified to have a low potential to occur in the project area, even though are not suspected to occur within the project site. It is also recommended that a pre-works inspection and ultrasonic microbat emergence surveys of the structures are undertaken.
Habitat Connectivity 1.4(c) BC Regulation	Degree to which a particular site connects different areas of habitat of threatened species to facilitate the movement of those species across their range	N/A	The project site exists in a highly urbanised industrial landscape with heavily disturbed and fragmented vegetation. Vegetation within the project area does not contribute to habitat connectivity of native vegetation patches within the greater landscape (Figure 1 and Figure 2).
Threatened Species Movement 1.4(d) BC Regulation	Degree to which a particular site contributes to the movement of threatened species to maintain their lifecycle	✓	Vegetation within the project area does not contribute to habitat connectivity of native vegetation patches within the greater landscape (Figure 1 and Figure 2). It is highly unlikely that the site contributes to the movement of threatened species to maintain their lifecycle, and any potential movement through the site (such as movement by highly mobile aerial species) would be maintained in the future. Vegetation within the project site does not contain suitable breeding habitat or habitat that is critical to maintaining the life cycle of any threatened species. It is a very small component of a larger matrix of urban vegetation but is unlikely to be relied upon by any threatened species. Potential microbat habitat (not suspected to currently be occupied by microbats) was identified as disused buildings within the project area. One building (Roll Shop) is proposed to be utilised as part of the proposed development. As previously identified, the implementation of an Unexpected Finds Protocol, a pre-works inspection including ultrasonic and infra-red microbat emergence surveys of the buildings prior to works being undertaken will minimise any potential impacts to fauna which have low potential to occur and are not currently suspected to occur within the project site.

Biodiversity Value	Meaning	Relevant (✓ or N/A)	Explain and document potential impacts including additional impacts prescribed under the BC Regulation Attach additional supporting documentation where appropriate
Flight Path Integrity **1.4(e) BC Regulation**	Degree to which the flight paths of protected animals over a particular site are free from interference	N/A	Given the lack of natural resources within the development footprint, it is highly unlikely that the site is used as a significant stop over point in the flight path of any threatened or migratory species. Construction of high-rise buildings or structures is not proposed as part of the development. It is unlikely that the proposal would substantially change or interfere with the flight paths of any threatened or migratory species over the project site. Flight paths of protected animals over the site are currently free from interference and these conditions would be preserved.
Water Sustainability **1.4(f) BC Regulation**	Degree to which water quality, water bodies and hydrological processes sustain threatened species and threatened ecological communities at a particular site	✓	One intertidal drainage line within 200 m of the project site was precautionarily identified as potential *Myotis macropus* (Southern Myotis) habitat. One building within the project site occurs within 200 m of this drainage line. The site inspection concluded that the building is highly unlikely to support favourable conditions for Southern Myotis roosting habitat, and additionally, there are no plans to use or modify this building for the proposed development. Further details of this assessment are included in Appendix A. Targeted surveys for Green and Golden Bell Frog have confirmed the absence of this species. Further details of Green and Golden Bell Frog habitat assessment and targeted surveys are provided in Appendix A.

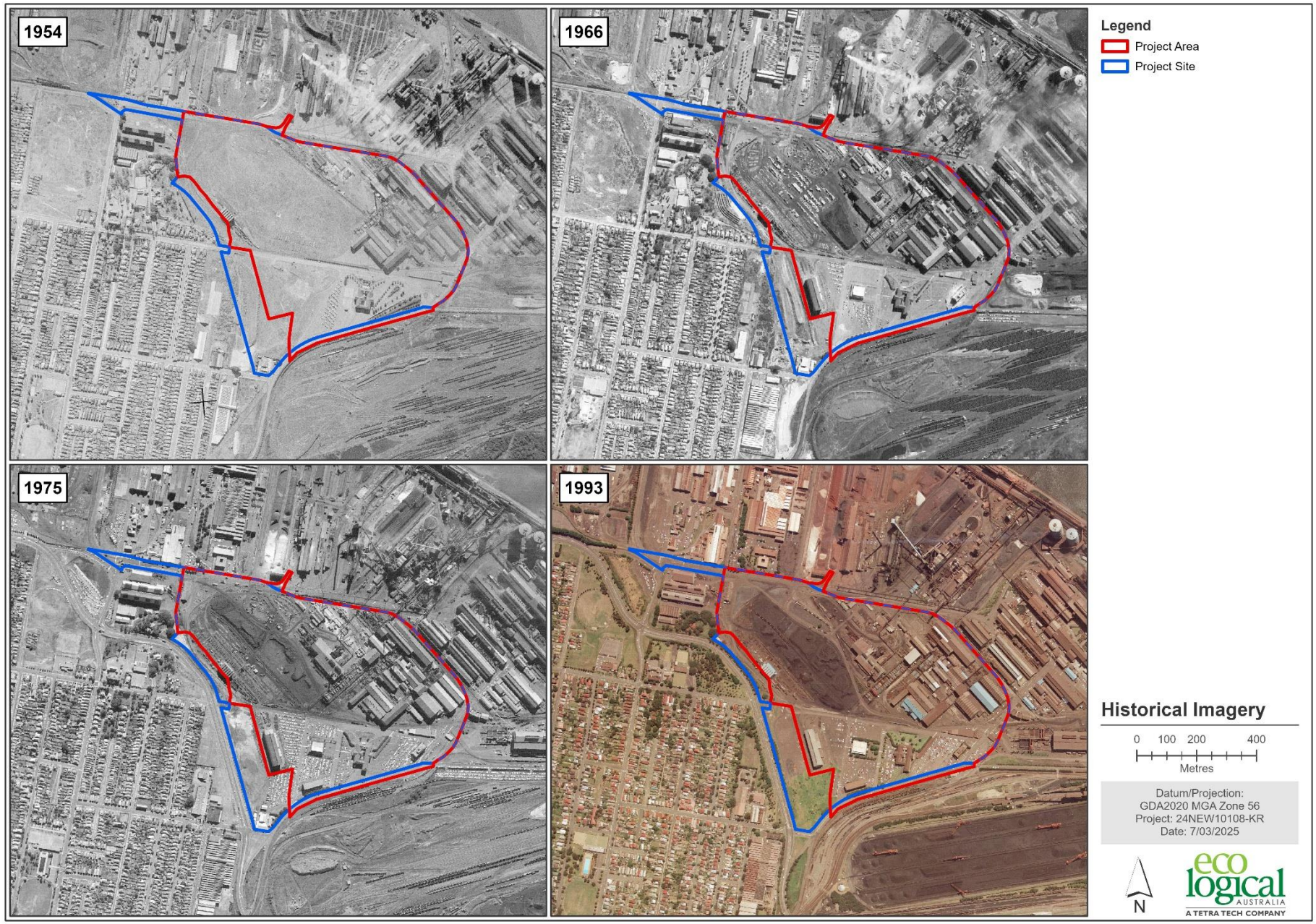

Figure 3: Historical imagery

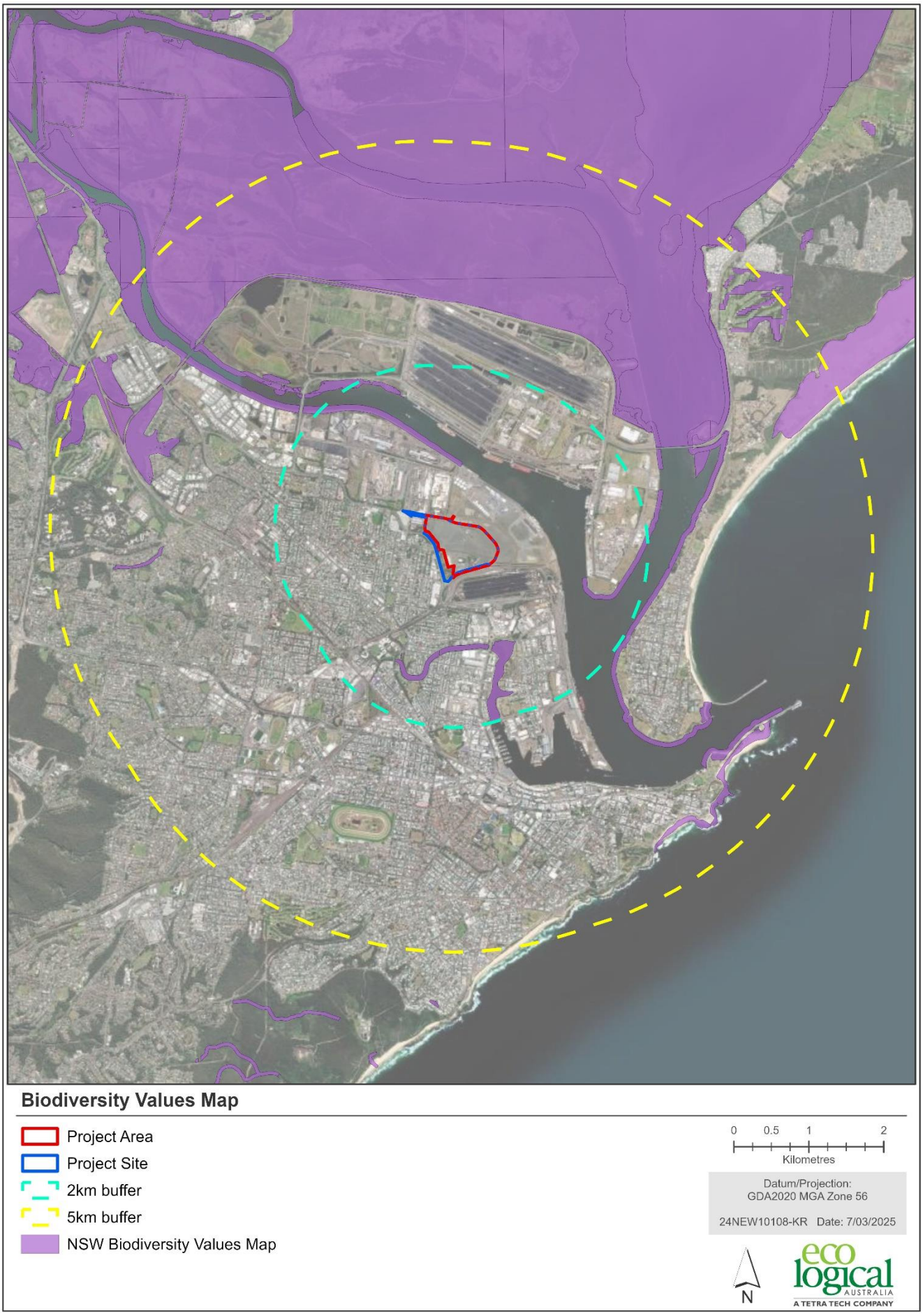

Figure 4: Biodiversity Values Map

Figure 5: Distribution of vegetation zones across the project site

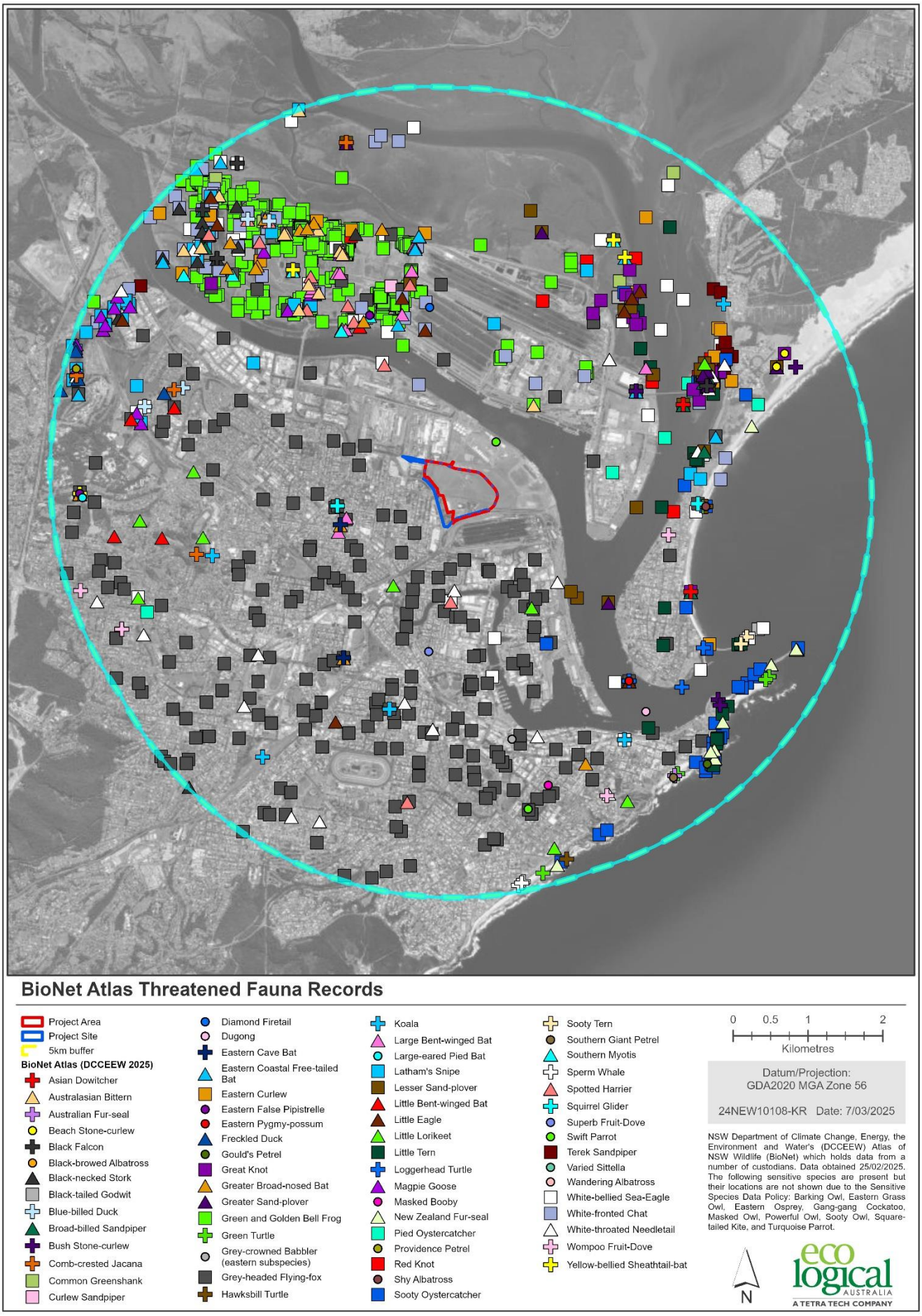

Figure 6: BioNet Atlas Threatened Fauna Records

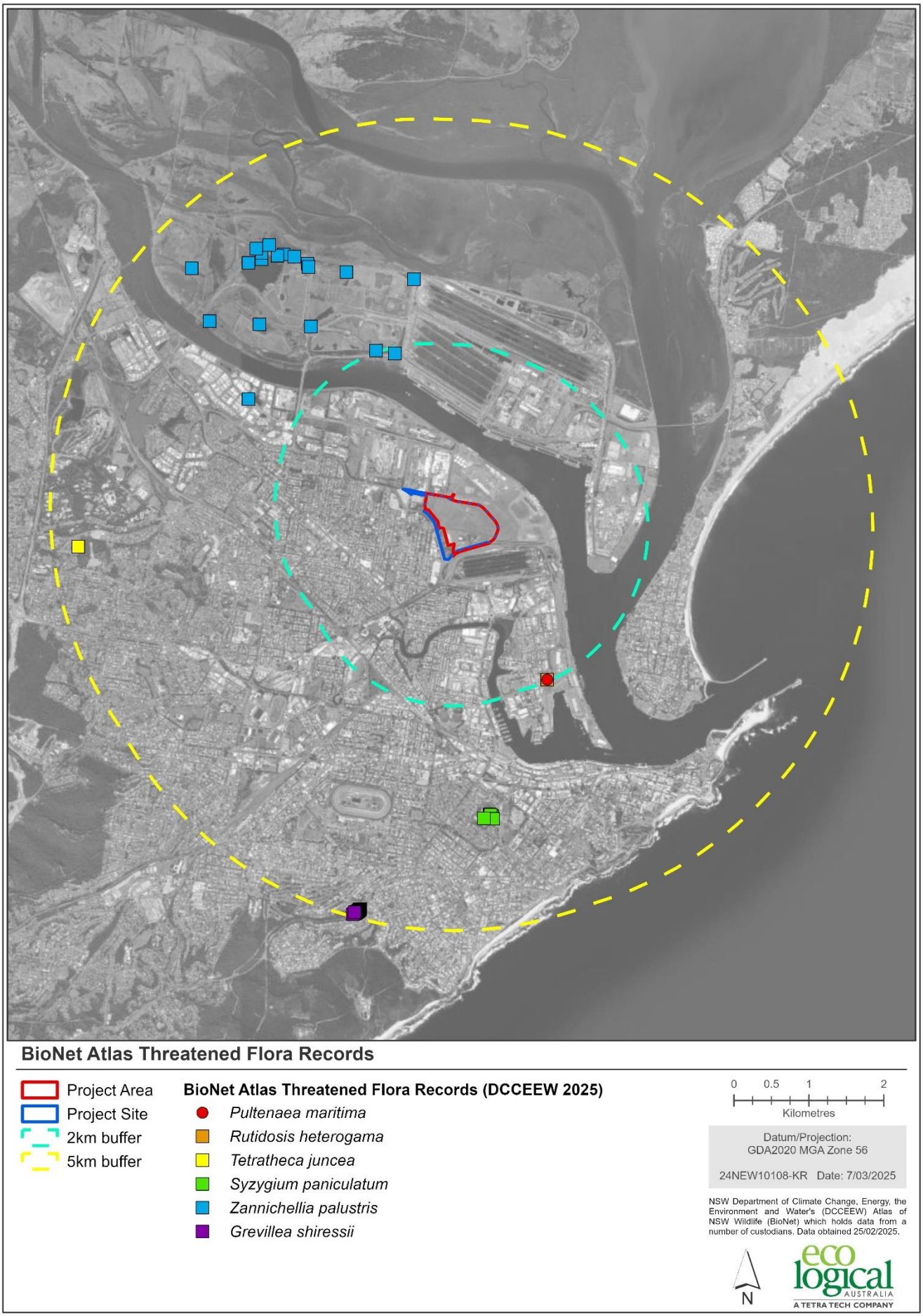

Figure 7: BioNet Atlas Threatened Flora Records

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OEH (2015). Developing maps of High Environmental Value for strategic planning - mapping and governance guide (OEH – Environmental Programs Branch (EPB))

Appendix A – Ecological assessment report

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t: (02) 4064 8421

28 March 2025

Our ref: 24NEW10108

Priority Projects
Project Interface & Strategic Coordination
Energy Corporation of NSW (EnergyCo)

Attention: Lexie Tieman

Dear Lexie

Ecological assessment report for the Newcastle Logistics Precinct – Intertrade project

Please find below our report on the field and desktop ecological investigations for the Newcastle Logistics Precinct – Intertrade project, as part of its State significant infrastructure application.

Regards,

Frank Lemckert
Senior Principal Ecologist

1. Introduction

Eco Logical Australia were engaged by Energy Corporation of NSW (EnergyCo) to conduct the following works for the Newcastle Logistics Precinct Intertrade project (proposed development) located in Mayfield North, Newcastle as part of its State significant infrastructure (SSI) application:

- Assess the availability and quality of breeding and non-breeding habitat present for *Litoria aurea* (Green and Golden Bell Frog)
- Complete an ecology survey focused on vegetation mapping, identified of habitat features and a targeted Green and Golden Bell Frog survey
- Completion of a brief survey report summarising survey findings that will include the methods used, all site observations, photos and mapping of any important features and any recommendations for next steps, with specific reference to the need for a Biodiversity Development Assessment Report (BDAR) or alternatively a BDAR Waiver, or recommendations on the need for an *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Referral.

Relevant terms used in this report as follows:

- Project site is the area of land (Lot 332 in DP1176879) the subject of the assessment; it includes areas of land proposed for development (project area) and areas of land to be retained (retained land).
- Project area is the area of land within the project site proposed to facilitate the Newcastle Industrial precinct and associated works. The project area also includes sections of Selwyn Street (managed by the City of Newcastle Council) and Steel Works Road (an internal road that extends into the Port of Newcastle (PoN) lease area and managed by PoN)
- Retained land is the landscaped area within the project site along its western boundary that is outside the Project area

The project site for the study is located in Mayfield North, NSW within the City of Newcastle Local Government Area (LGA). The regional context for the project is shown in Figure 1 and the project site and project area boundaries indicated in Figure 2.

Figure 1: Location map (regional context)

Figure 2: Project Site, site features and land zoning

1.1. Proposed development

Key components of the proposed development include:

- construction of hardstand and internal roads used for the unloading, loading and storage of materials and equipment for renewable energy projects.
- operation of mobile equipment comprising of forklifts, cranes, reach stackers and road trucks for movement of materials and equipment for renewable energy projects.
- associated stormwater drainage to manage stormwater flows and water quality across and around impervious surfaces.
- construction of bridges over existing stormwater channels, for the provision of access and egress from the hardstand area
- internal roads, staff amenity buildings, carpark and other ancillary infrastructure to facilitate operation of the project.
- utility adjustments and provisions within the indicative project area to maximise operational efficiencies of the hardstand area and minimise possible upgrades in future.

It is expected that construction of the project would commence in late 2026 and take around nine months to complete with initial operations commencing in 2027.

This assessment has been undertaken in the context of the following anticipated works:

- the proposed development as outlined above.
- Removal of the Bicycle Shed to facilitate access between Selwyn Street and the proposed hardstand area (north of Administration Drive shown in Figure 2)
- Removal of planted regrowth and exotic vegetation within Vegetation Zone 2 to facilitate the access required between Selwyn Street and the proposed hardstand area. Examples of impacted vegetation include but are not limited to the patch of planted exotic trees located between the Admin building and Administration Drive, directly west of the Bicycle Shed (Figure 2) and vegetation shown in Photograph 1.
- Repurposing of the Roll Shop building to support operations by providing all weather storage
- Maintain existing remediation infrastructure in accordance with the site contaminated site management plan (Hunter & Central Coast Development Corporation, 2018).

1.2. BDAR Waiver advice

Advice from NSW Department of Planning, Industry and Environment (DPIE) (2019) states that a BDAR waiver will only be issued in limited circumstances where it is clearly demonstrated that the proposed development is not likely to have any significant impact on biodiversity values.

A proposed development could be considered as unlikely to have any significant impact on biodiversity values if it:

- will not clear or remove native vegetation, other than a few single-standing trees with no native understorey in an urban area.
- will not clear or remove native vegetation, other than planted native vegetation that is not consistent with a plant community type known to occur in the same Interim Biogeographic

Regionalisation of Australia (IBRA) subregion, such as street trees, trees in a car park, or landscaping.

- will have negligible adverse impact on threatened species and ecological communities, considering habitat suitability, abundance, habitat connectivity, movement of species, water sustainability, and non-natural features such as non-native vegetation and human-built structures.
- will have negligible adverse impact on protected animals because of impacts on flight path integrity.

All native vegetation proposed to be affected by a proposal must be considered in a BDAR Waiver request.

Native vegetation is defined in section 60B of *Local Land Services Act 2013* (NSW) as any of the following types of plants that are native to New South Wales:

- trees (including any sapling or shrub or any scrub)
- understorey plants
- ground cover (being any type of herbaceous vegetation)
- plants occurring in a freshwater wetland.

Native vegetation may exist as grassland, herb land and low shrublands that do not have trees or large shrubs. Native vegetation is trees, shrubs, herbs and grasses that are indigenous to New South Wales. Native vegetation extends to any planted vegetation that meets the definition of native vegetation.

1.3. EPBC Act referral

The EPBC Act protects Matters of National Environmental Significance (MNES), such as threatened species and ecological communities, migratory species (protected under international agreements), and National Heritage places (among others). Any actions that will or are likely to have a significant impact on MNES requires referral and approval from the Australian Government Environment Minister.

2. Methods

2.1. Desktop assessment

2.1.1. Review of biodiversity mapping

The following existing vegetation and biodiversity mapping layers were reviewed:

- NSW State Vegetation Type Map (SVTM) (Department of Climate Change, Energy, the Environment, and Water (DCCEEW), 2020)
- Biodiversity Values Map (DCCEEW, 2025a)
- BioNet Atlas Database species records (DCCEEW, 2025c)
- NSW BioNet Atlas Database 'Sightings Search' (DCCEEW, 2024c)
- High Environmental Value for Hunter Regional Growth Planning area (HEV) (Office of Environment and Heritage (OEH), 2015)
- High Ecological Value Aquatic Ecosystems (HEVAE GDE) (DCCEEW, 2025b).

2.1.2. Selection of plant community type

To identify potential plant community types (PCTs) on site and potential associated threatened entities, selection of PCTs was undertaken using a manual filtering method. Potential PCTs were downloaded from the "Export Bulk Data" feature from the NSW BioNet Vegetation Classification. Floristic data collected in vegetation integrity plots were used to identify and select PCTs. The filtering process is detailed in Section 3.4.

2.1.3. Threatened species likelihood of occurrence

To ensure all threatened species with potential to occur within the project site and project area would be adequately considered, a list of threatened species was generated based on BioNet Atlas Database species records (DCCEEW, 2025c), as well as PCT associations.

Threatened species records within 5 km of the project area were downloaded from NSW BioNet Atlas Database 'Sightings Search' (DCCEEW, 2024c).

A list of threatened species associated with PCT4006 (Northern Paperbark-Swamp Mahogany Saw-sedge Forest) (based on 'best fit' PCT selection, details provided in Section 3.4) within the Hunter IBRA (Interim Biogeographic Regionalisation for Australia) Subregion was taken from the BioNet Threatened Species to Plant Community Types Association data spreadsheet (DPE 2022, refreshed March 2025).

This list was used to undertake a likelihood of occurrence assessment which considered the environment in the 5 km locality, species occurrence records, and habitat constraints and descriptions that are specified in the Threatened Biodiversity Data Collection (TBDC) (DCCEEW, 2025d).

2.2. Green and Golden Bell Frog habitat assessment and targeted survey

Dr Frank Lemckert completed a Green and Golden Bell Frog habitat survey within the project area on Wednesday 22 January and aural-visual surveys for this frog on the nights of 22 and 30 January and 3 and 5 February 2025. Areas of potential breeding habitat that required nocturnal survey for the Green and Golden Bell Frog were mapped during the inspection. The targeted survey for the Green and

Golden Bell Frog was completed as per the NSW Survey Guide for Threatened Frogs (DPIE, 2020) as well as the EPBC Act Survey guidelines for Australia's threatened frogs (Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA), 2010).

The survey consisted of four separate nocturnal aural visual surveys (with call playbacks) covering identified potential breeding sites, starting with an initial 2-5 minutes of listening for calling frogs followed by call playbacks for 2-5 minutes and completed with visual survey of the banks of the water body using headlamp torches to look for active frogs. The timing of the four nights of survey allowed the minimum 14 day difference between the first and last surveys required in the Biodiversity Assessment Method (BAM) Guidelines. Maximum temperature, rainfall on the day and rainfall over the previous seven days for each of these dates is provided in Table 1. The first survey was also conducted 4 days after > 50 mm of rain had fallen and within 7 days of nearly 100 mm, as is preferred under the EPBC Act Survey Guidelines (DEWHA, 2010). Rainfall over the period was relatively constant and conditions were judged to be very good for frog activity.

No suitable reference site was available but contact with the University of Newcastle staff monitoring the Green and Golden Bell Frog on Kooragang Island indicated that calling activity was occurring around the time of the first and second surveys (C. McHenry Pers. Comm.).

Table 1: Weather conditions for GGBF survey dates (from Nobbys Signal Station 7 km east)

Date	Max. Temp.	Min. Temp.	24 hr Rainfall	Rainfall last 7 days	Wind	Cloud Cover
22/1/2025	34.7° C	20.0° C	0.0 mm	98.8 mm	Moderate	100%
30/1/2025	24.4° C	20.7° C	0.6 mm	4.0 mm	Light	70%
3/2/2025	26.9° C	21.9° C	0.0 mm	15.4 mm	Light	70%
5/2/2035	32.1° C	22.0° C	0.0 mm	12.0 mm	Moderate	100%

2.3. Flora and fauna assessment and mapping

Vegetation and habitat assessment and mapping was completed on 3 February and 17 February 2025 to determine the presence, condition and extent of vegetation within the project area. This work was conducted by Liam Scanlan (ELA Senior Ecologist and BAM accredited assessor) who completed a visual inspection of the project site and completed two BAM vegetation integrity plots (Figure 8) to provide required data for assessments under BAM. Rapid data points were collected to complete vegetation validation of the site, as well as photo reference points, to allow for the observed vegetation to be mapped into vegetation zones (Figure 8). Vegetation zones were established based on the presence of characteristic vegetation which is related to site history and current land use and management.

The focus of the assessment focused on identifying flora and fauna species potentially impacted by the project, both directly and indirectly, as well as ground-truthing PCT 4020 Coastal Creekflat Layered Grass-Sedge Swamp Forest, which is mapped in the project site on the SVTM (DCCEEW 2020) (Figure 8). This PCT is associated with the Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and Southeast Corner Bioregions Threatened Ecological Community, which is listed as Endangered under the NSW *Biodiversity Conservation Act 2016* (BC Act).

2.4. Microchiropteran bat habitat assessment

It is known that some threatened microchiropteran bats (microbat) including, but not limited to, *Miniopterus australis* (Little Bent-winged Bat), *Miniopterus orianae oceanensis* (Large Bent-winged Bat) and *Myotis macropus* (Southern Myotis) will roost in human-made structures, including buildings (2025d).

There are six built structures within the project area (Figure 2; Figure 7). The Roll Shop is proposed to re-purposed as part of the proposed development for all weather storage during operation and the Bicycle Shed is proposed to be removed to facilitate access requirements. The Roll Shop may require adjustments, minor repair works due to vandalism such as replacement of broken glass windows, repainting/removal of graffiti, and disposal of disused equipment. The remaining structures on the project site are not proposed to be used by the development and the buildings will remain boarded up and barred to minimise accessibility to their interiors.

Due to the proposed development resulting in possible prescribed impact, a detailed assessment of microbat habitat focused on the Bicycle Shed and Roll Shop. An inspection of the internal and external structure of the Roll Shop was undertaken by Liam Scanlan on 3 March 2025. The inspection included a foot traverse targeting dark areas, looking for bats or signs of bats (urine stains, droppings, remains and bat fly castings). A handheld torch was shone into potential locations of holes, cracks and crevices. A handheld ultrasonic bat call detector (Wildlife Acoustics EchoMeter 3) was carried during the inspection, as well as a thermal imagining camera (FLIR T530) which was used to check dark areas.

An emergence survey of the eastern side of the Roll Shop was undertaken by Liam Scanlan on 12 March 2025 from approximately 7:15 – 8:30 pm, with sunset recorded at 7:15 pm and last light recorded at 7:39 pm. The emergence survey utilised a thermal imaging camera and handheld spotlight and targeted potential roost exit points located around the Roll Shop.

2.5. Vegetation integrity plots

Two Vegetation Integrity (VI) plots were undertaken by Liam Scanlan on 3 February 2025.

The following data was collected at each site:

- A list of plant species present within each floristic plot (provided in Appendix A), including details for each species;
    - stratum
    - cover
    - abundance
    - growth form group
    - high threat weed status.
- Following data collected within the functional plot (provided in Appendix B);
    - litter cover in five subplots (1 m^2) conducted on alternating sides of the 50 m transect at 5 m, 15 m, 25 m, 35 m and 45 m
    - presence of stem size classes at 1.3 m above ground height (5-9, 10-19, 20-29, 30-49, and 50-79 cm)
    - number of large trees (greater than 50 cm)
    - number of hollow bearing trees (HBT) present (hollow size recorded in three groups: <100, 100-200, and >200 mm)
    - tree regeneration (presence of living tree with maximum stem diameter of <5cm, regardless of height
    - total length of fallen logs (m).

Further details for each attribute is available in the BAM Subsection 4.3.4 (DPIE, 2020).

3. Results

3.1. Desktop review

3.1.1. Biodiversity mapping

The Biodiversity Values Map (DCCEEW 2025a) and the HEV (OEH 2015) did not contain mapped biodiversity features within the project site (Figure 3).

HEVAE GDE mapping (DCCEEW 2025b) indicates several patches of *Sporobolus virginicus* (Sand Couch) Saltmarsh within the project area (Figure 4).

3.1.2. Threatened species records

A total of 99 threatened flora and fauna species were identified for consideration in the habitat assessment and likelihood of occurrence assessment. Seven-three threatened flora and fauna species are recorded in NSW BioNet as occurring within 5 km of the project site (Figure 5; Figure 6). An additional 26 threatened flora and fauna species are associated with PCT 4006 (Northern Paperbark-Swamp Mahogany Saw-sedge Forest). The habitat requirements of each species were assessed in the context of the project site.

The results of the assessment are provided in Appendix D. Due to a lack of habitat in the project site, lack of connectivity to patches of intact native vegetation, only highly mobile threatened species such as avifauna and microbats were regarded as having potential to occur in the proposed project site.

No threatened flora or fauna species were observed during the field survey and no threatened flora species were considered to have potential to occur within the project area and or retained land of the project site.

Note that marine species (whales, dugongs, turtles) were not assessed due to the project site not containing marine habitat.

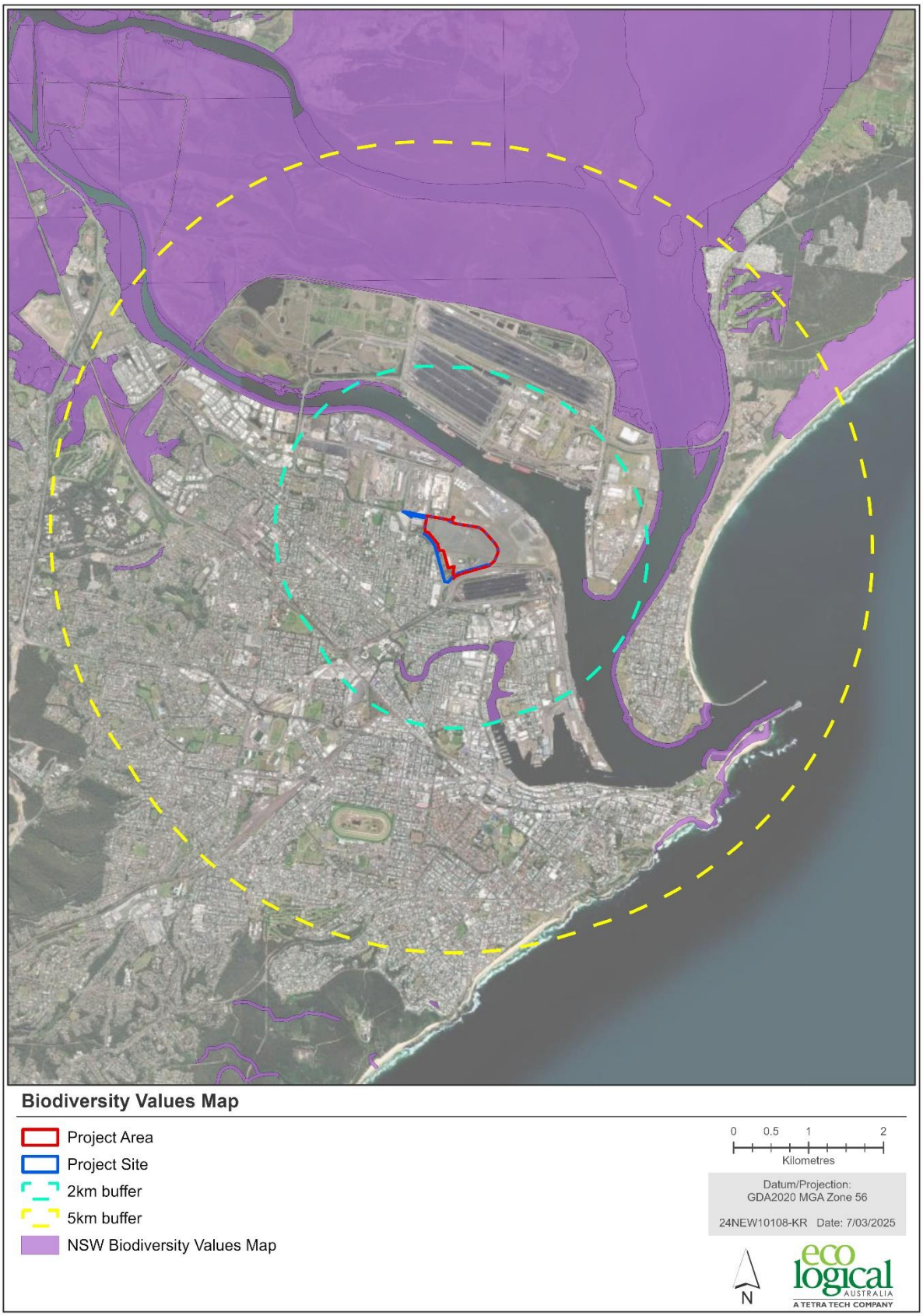


Figure 3: Biodiversity values map

Figure 4: High Ecological Value Aquatic Ecosystems mapping

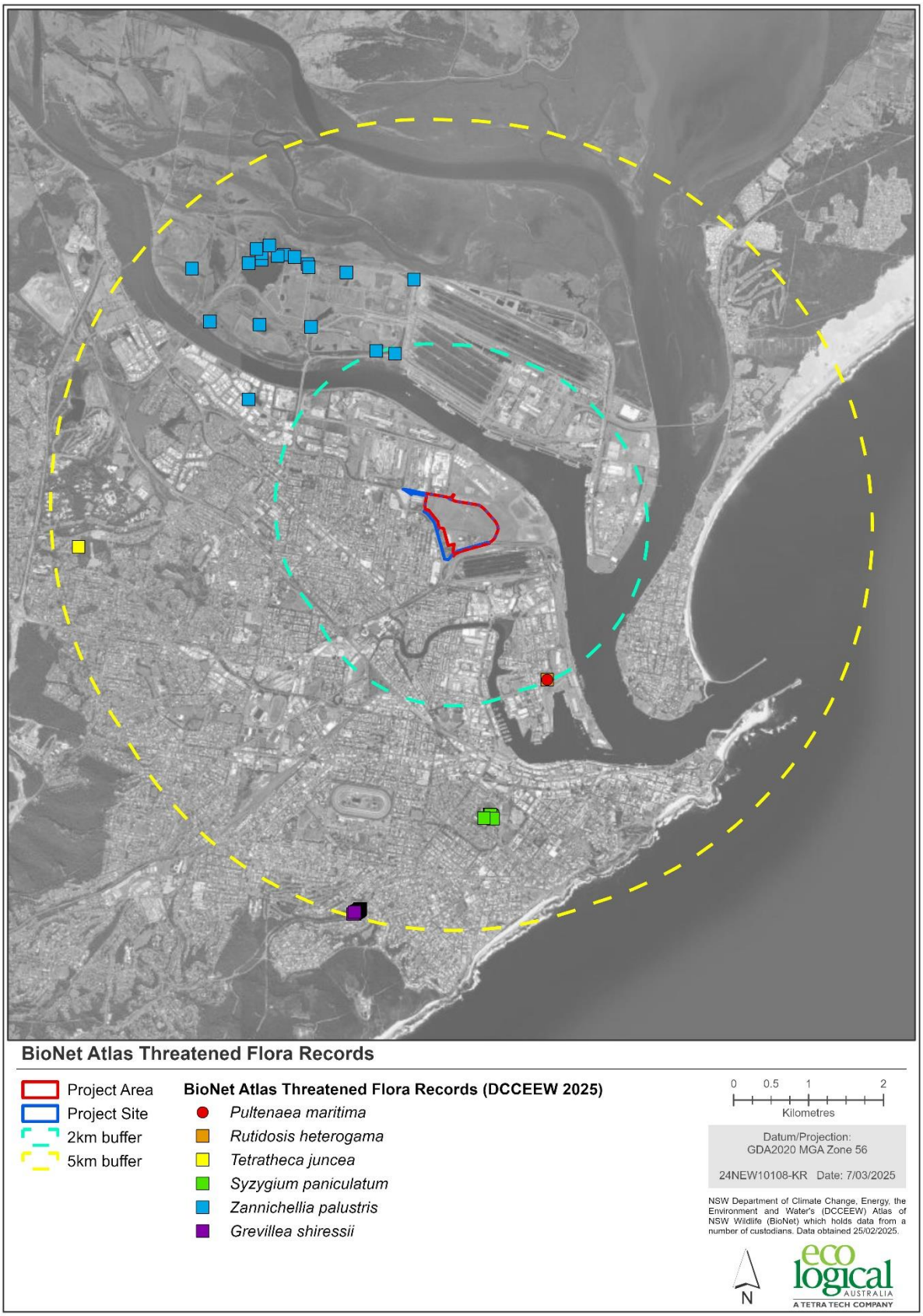


Figure 5: BioNet Atlas threatened fauna records

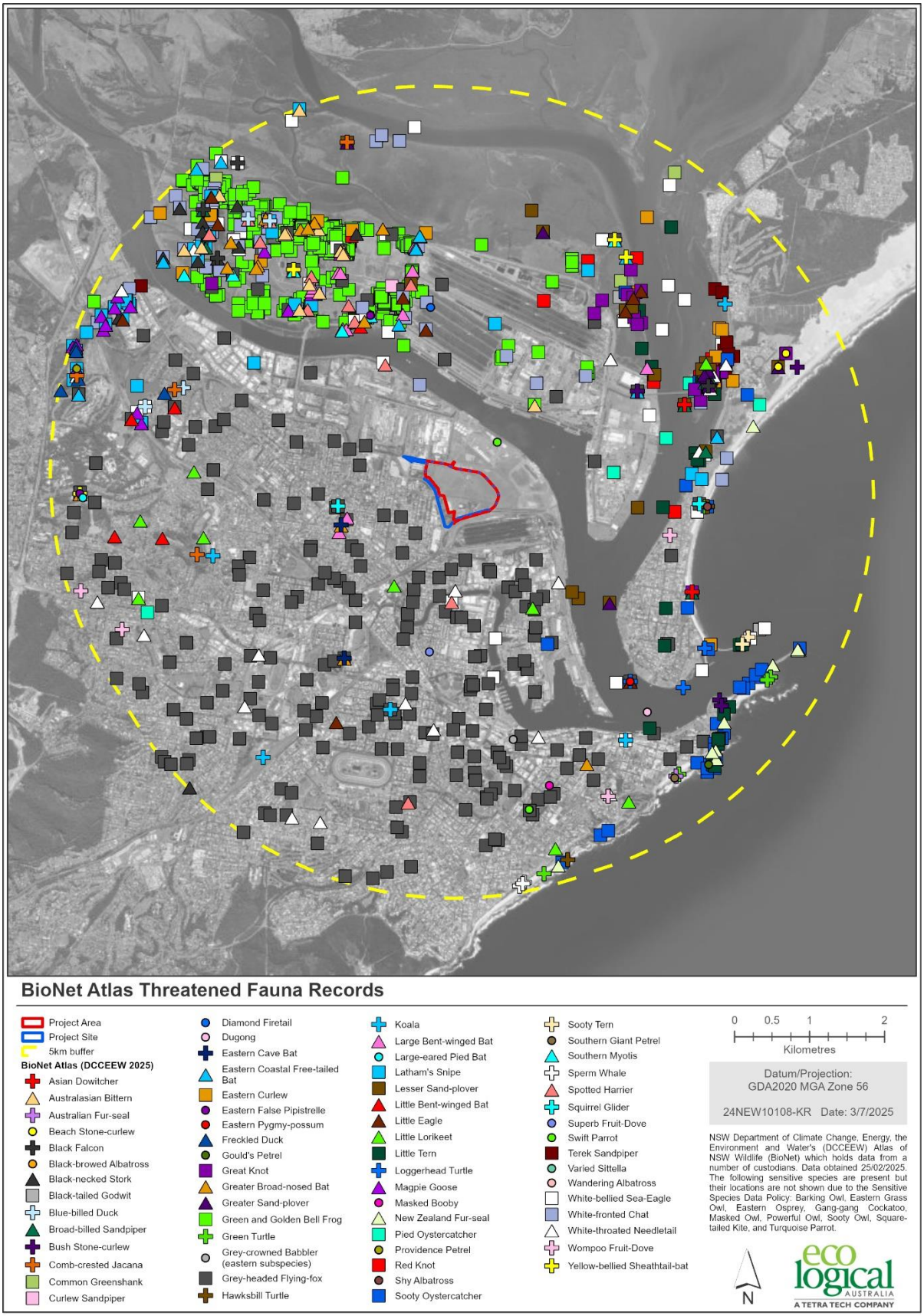


Figure 6: BioNet Atlas threatened flora records

3.2. Assessment of vegetation zones

Five vegetation zones were identified in the project site (Figure 7). Descriptions and photographs for each vegetation zone are provided in the sections below. Zones 3-5 do not occur within the proposed Project Area; however, these areas have been included in the assessment to determine if any indirect impacts are likely to occur to biodiversity values.

- Vegetation Zone 1 - Site remediation infrastructure (Virgin Excavated Natural Material (VENM) cap)) (Within Project Area)
- Vegetation Zone 2 - Planted garden beds and lawns (Within Project Area)
- Vegetation Zone 3 - Planted native parkland (landscape cap) (Retained land)
- Vegetation Zone 4 - Planted Fig trees (landscape cape) (Retained land)
- Vegetation Zone 5 - Unmanaged exotic forest (landscape cap) (Retained land).

Occurrences of plant species that made up an area of <200 m^2 (the area of a BAM plot) that do not fit into the zone descriptions above were not mapped due to their negligible biodiversity value and vegetation integrity. Examples of this include two small individual *Avicennia marina* (Grey Mangrove) stems occurring in an intertidal concrete drain, and scattered *Sarcocornia quinqueflora* (Samphire) growing on a disused concrete sidewalk along Selwyn Street (Photograph 1).


Plot 2
Plot 1
Legend
Project Area
Project Site
Vegetation Integrity Survey Plot location
Vegetation Zones
VZ 1 - Site remediation infrastructure
VZ 2 - Planted garden beds
VZ 3 - Planted native parkland
VZ 4 - Planted Fig trees
VZ 5 - Unmanaged exotic forest
Hard stand
Built structures
Vegetation Zones
0 50 100 200
Metres
Datum/Projection:
GDA2020 MGA Zone 56
24NEW10108-KR Date: 3/7/2025
N
eco logical AUSTRALIA
A TETRA TECH COMPANY

Figure 7: Distribution of vegetation zones across the project site

3.2.1. Presence of Sand Couch Saltmarsh

No *Sporobolus virginicus* was observed during site assessments, including within areas that are mapped as *Sporobolus virginicus* Saltmarsh by DCCEEW (2019).

The base vegetation mapping for the HEVAE GDE mapping appears to be related to NSW Native Vegetation Extent v1.4 (DCCEEW 2019). DCCEEW (2019) attributed these patches as "Tree Cover". For comparison, known areas of saltmarsh (e.g. on Kooragang Island) were viewed and most were attributed as "Other Native Non Woody", "Water", or not mapped.

DCCEEW (2019) appears to base vegetation cover on aerial imagery from approximately 2014. This is around the time when site remediation occurred, and shrubby regrowth vegetation was removed.

The HEVAE GDE mapping of *Sporobolus virginicus* Saltmarsh on the site appears to be inaccurately attributed to woody vegetation based on imagery from 2014. The vegetation that was mapped (likely consisting of *Acacia saligna*) was removed in approximately 2014 for site remediation and capping of contamination.

For this reason, as well as a lack of native saltmarsh species observed within the project area, it has been concluded that the project site does not contain *Sporobolus virginicus* Saltmarsh.

It is noted that very small amounts of saltmarsh plant species were observed growing on the disused concrete roadside sidewalk along Selwyn Street, including stunted *Casuarina glauca* (Swamp Oak), *Sarcocornia quinqueflora* (Samphire), exotic species *Juncus acutus* (Spiny Rush), and exotic species *Limonium hyblaeum* (Sicilian Sea Lavender) (Photograph 1). This very small occurrence of saltmarsh species is not mapped by HEVAE GDE mapping (DCCEEW 2025b).

Photograph 1: Isolated occurrence of Samphire, Spiny Rush and Swamp Oak on the roadside was not mapped due to small patch size and negligible vegetation integrity

3.2.2. Vegetation Zone 1 – Site remediation infrastructure (VENM Cap)

The site remediation infrastructure makes up the majority of land within the project site (approximately 33.18 ha). The hardstand substrate is designed to minimise infiltration of underlying contaminated soils. The substrate consists of low permeability capping material with an overlay of crusher dust (i.e. fine gravel <5 mm). Site remediation infrastructure is managed in accordance with a notice issued by the NSW EPA under section 28 of the *Contaminated Land Management Act 1997*. Routine management of this area includes removal of trees and shrubs to maintain integrity of remediation infrastructure.

The site remediation infrastructure contains a high proportion of bare ground, with groundcover vegetation including exotic grasses *Melinis repens* (Red Natal Grass) and *Chloris gayana* (Rhodes Grass) and also includes sparse occurrences of *Casuarina glauca* (Swamp Oak) seedlings/saplings, *Chrysanthemoides monilifera* subsp. *rotundata* (Bitou Bush), *Acacia saligna* (Golden Wreath Wattle), *Acacia longifolia* (Sydney Golden Wattle) and *Cynodon dactylon* (Couch) (Photograph 2; Photograph 3).

One vegetation integrity plot was undertaken in this vegetation zone however the lack of native species (n=3) meant that selection of best fit PCT could not be accurately undertaken as PCT selection relies on native species.

Due to the sparse presence of Swamp Oak in VZ-1, an assessment has been made to demonstrate that vegetation on the project site is not representative of Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions TEC (Section 3.3).

This vegetation zone is considered to contain negligible biodiversity value, as it does not contain significant native vegetation or habitat for threatened species.

Photograph 2: VENM site remediation infrastructure with exotic grass cover

Photograph 3: Site remediation infrastructure with crusher dust substrate and Swamp Oak removed as routine maintenance

3.2.3. Vegetation Zone 2 – Planted garden beds and lawns

The majority of established woody vegetation in the Project Area is made up of planted exotic trees in garden beds and landscaped lawns around buildings (approximately 2.02 ha) (Photograph 4). Plant species identified in this zone include *Platanus orientalis* (Oriental Plane), *Nerium oleander* (Oleander), *Jacaranda mimosifolia* (Blue Jacaranda), and few planted native species *Melaleuca viminalis* (Weeping Bottlebrush), *Melaleuca quinquenervia* (Broad-leaved Paperbark).

Naturalised exotic species are also present including *Acacia saligna* and *Chrysanthemoides monilifera* subsp. *rotundata*.

Land around buildings and garden beds consist of hardstand concrete roads and carparks. This vegetation zone does not contain significant native vegetation or habitat for threatened species such as hollow bearing trees.

Planted trees in this area predominantly consist of *Platanus orientalis* (Oriental Plane) and *Nerium oleander* (Oleander) and have an understorey of mown lawn.

Photograph 4: Example of planted garden vegetation around buildings and proposed to be removed.

3.2.4. Vegetation Zone 3 – Planted native parkland

This zone consists of scattered, or clusters of trees and exotic grassland and covers an area approximately 4.21 ha that is located outside of the proposed project area (Photograph 5). The tree species are predominantly native however the species assemblage is not representative of a naturally occurring plant community. Species include *Eucalyptus camaldulensis* (River Red Gum), *Syzygium paniculata* (Magenta Lilly Pilly), *Hymenosporum flavum* (Native Frangipani), *Casuarina glauca*, *Eucalyptus robusta* (Swamp Mahogany), *Brachychiton acerifolius* (Flame Tree), *Angophora costata* (Smooth-barked Apple), and *Melaleuca quinquenervia* (Broad-leaved Paperbark). Planted native trees include species that are not indigenous to the local area such as *Corymbia citriodora* (Lemon-scented Spotted Gum) and *Grevillea robusta* (Silky Oak).

The groundcover is dominated by exotic grasses *Megathyrsus maximus* (Guinea Grass) and *Ehrharta erecta* (Panic Veldtgrass).

This area is partially mapped as PCT 4020 in the NSW SVTM (Figure 7), and one vegetation integrity plot was undertaken to verify the identification of this PCT. Floristic plot data is provided in Appendix A and functional plot data is provided in Appendix B. Although it was determined that no PCT matches this zone due to the high number of planted tree species, vegetation plot data suggests that PCT 4006 (Northern Paperbark-Swamp Mahogany Saw-sedge Forest) is the 'best fit'. Details of plant community type selection for this vegetation zone is provided in Section 3.6.

No impacts are proposed to this vegetation zone; however, it is noted that this area is managed as site remediation infrastructure and tree removal may be undertaken if deemed necessary for maintenance of capping infrastructure. This vegetation zone does not contain significant native vegetation or

habitat for threatened species such as hollow bearing trees. It is highly unlikely that the proposed development would result in indirect impacts to any biodiversity values present in this zone. For example, foraging resources for nectivorous birds would not be affected by the proposed development. Development of the adjacent project area is unlikely to significantly alter behavior of highly mobile threatened fauna species, should any ever be actually present.

Photograph 5: Planted native parkland vegetation.

3.2.5. Vegetation Zone 4 – Planted Fig trees

This vegetation zone occurs primarily along the south-western boundary of the lot along Industrial Drive covering approximately 0.90 ha.

The most conspicuous aspects of this zone are the *Ficus macrophylla* (Moreton Bay Fig) trees, and the numerous large *Ficus microcarpa* (Small Fruited Fig) trees which were planted along Industrial Drive around 1974 (Photograph 6; Photograph 7).

The garden beds below the canopy are not regularly maintained and numerous exotic species have become established including *Cinnamomum camphora* (Camphor Laurel), *Tecoma stans* (Yellow Bells), *Schefflera actinophylla* (Umbrella Tree), *Ochna serrulata* (Ochna), *Melia azedarach* (White Cedar), *Celtis sinensis* (Chinese Hackberry), *Archontophoenix cunninghamiana* (Bangalow Palm) and *Asparagus africanus* (Climbing Asparagus). The groundcover is sparse due to high leaf litter of the *Ficus* species, however there is high cover of *Nephrolepis cordifolia* (Fishbone Fern) and *Megathyrsus maximus* (Guinea Grass).

No impacts are proposed to this vegetation zone. This vegetation zone does not contain significant native vegetation or habitat for threatened species such as hollow bearing trees. It is highly unlikely that the proposed development would result in indirect impacts to any biodiversity values present in this zone. For example, foraging resources for nectivorous birds would not be affected by the proposed development. Development of the adjacent project area is unlikely to significantly alter

behavior of highly mobile threatened fauna species that may be present. The vegetation is immediately adjacent to a busy road and so is already subject to noise and light disturbance.

Photograph 6: Planted Fig trees lacking native understorey vegetation.

Photograph 7: Planted Fig trees with exotic species in the understorey.

3.2.6. Vegetation Zone 5 - Unmanaged exotic forest

This vegetation zone occurs primarily along the north-western boundary of the lot along Industrial Drive covering approximately 0.09 ha (Photograph 8). Historical aerial imagery suggests that the vegetation in this zone became established sometime prior to 1993.

The vegetation is predominantly made up of woody weeds including *Tecoma stans*, *Acacia saligna*, *Ricinus communis* (Castor Oil Plant), *Lantana camara* (Lantana). The exotic vine *Anredera cordifolia* (Madeira Vine) has smothered the vegetation in some areas. *Corymbia citriodora* is present as a limited number of individuals along the Industrial Drive roadside and as emergent above the exotic shrubs.

No disturbance is proposed to this vegetation zone. This vegetation zone does not contain significant native vegetation or habitat for threatened species such as hollow bearing trees. It is highly unlikely that the proposed development would result in indirect impacts to any biodiversity values present in this zone. For example, foraging resources for nectivorous birds would not be affected by the proposed development. Development of the adjacent project area is unlikely to significantly alter behavior of highly mobile threatened fauna species that may be present.

Photograph 8: Unmanaged exotic forest

3.3. Identification of an ecological community

Sparse presence of Swamp Oak in VZ-1 requires further assessment to determine if this occurrence is representative of the Swamp Oak Floodplain Forest which is listed as an Endangered Ecological Community under the NSW BC Act.

Section 1.6 of the BC Act defines 'ecological community' as "*an assemblage of species occupying a particular area*". Section 4 of the *Guidelines for interpreting listing criteria for species, populations and ecological communities under the NSW BC Act 2016* (TSSC 2018) provides further details in relation to what constitutes an 'assemblage', where it states:

"*an important aspect of co-occurrence [central to the existence of an assemblage] is the notion that a common, albeit variable, group of species occur within the distribution of a community…. The occurrence of one or two dominant species of itself, is not evidence of the existence of an ecological community*".

This suggests that presence of Swamp Oak with sparse occurrence of Couch, does not constitute an ecological community, therefore is not representative of Swamp Oak Floodplain Forest TEC.

Section 4.1.3 of TSSC (2018) also provides further details regarding the meaning of 'a particular area' where it states, "*the natural habitat in which the assemblage of species occurs or has historically occurred and is capable of recurring if measures are taken to restore or allow the habitat to recover*".

Site remediation infrastructure located within the project area is managed in accordance with a notice issued by the NSW EPA under section 28 of the *NSW Contaminated Land Management Act 1997*, which involves removal of trees and shrubs to ensure integrity of remediation infrastructure.

In recognition of the legal requirement to manage and ensure the integrity of site remediation infrastructure, the site is not capable of maintaining conditions in which a vegetation community is allowed to become established.

3.3.1. Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions (Endangered Ecological Community, BC Act).

As demonstrated in Section 3.3, the vegetation on site does not qualify as an ecological community in accordance with the guidelines provided by TSSC (2008). To further demonstrate that the vegetation does not conform to the Swamp Oak Floodplain Forest TEC, an assessment has been made against the Final Determination for this community (DEH 2011) and the "Identification Guidelines for Swamp Oak Floodplain Forest" (DECC 2007).

There are no indications of minimum condition thresholds for this community in the Final Determination other than the following excerpt:

> *"There have also been anecdotal reports of recruitment by Casuarina glauca in pastures during extended dry periods, though not necessarily by other components of the community."*

It is assumed that this description refers to an environment with an intact soil profile and natural flooding regime, where the community would be allowed to continue to regenerate and become established. This differs from the colonising vegetation on hardstand remediation infrastructure as it occurs on an engineered substrate designed to minimise infiltration of underlying contaminated soils. Although there is a low possibility of flooding on the site (<1% chance annually) (CoN 2025) the surrounding landscape is dominated by industrial and residential land uses where drainage is highly modified to prevent and limit impacts of flooding. The low flooding occurrence on the site in combination with the artificial soil profile is highly unlikely to support Swamp Oak Floodplain Forest

beyond the sparse presence of Swamp Oak saplings (notwithstanding the capping management which requires that trees and shrubs are routinely removed).

An additional assessment against the "identification guidelines for Swamp Oak Floodplain Forest" (DECC 2007) was undertaken below, which shows the vegetation on site does not conform with the TEC, despite containing sparse Swamp Oak.

3.3.1.1. Identification Guidelines for Swamp Oak Floodplain Forest

The "identification guidelines for Swamp Oak Floodplain Forest" (DECC 2007) provides additional descriptions about the characteristic features of the TEC.

The guidelines provide the following variations of Swamp Oak Floodplain Forest:

1. Dense regrowth stand after disturbance with limited understorey;
2. Tree canopy intact with an understorey of introduced weed species and few natives due to disturbance;
3. Recolonised patches of Swamp Oak in areas that may not have previously supported the community due to changes in drainage regime; **(Potentially consistent with VZ-1, but deemed inconsistent due to lack of key indicators, lack of characteristic species, and unviability of community persistence)**;
4. Tree canopy absent due to prior clearing, grazing or fire, occurrence of regrowth of native understorey species along with herbaceous and/or woody weeds.

The above variations are suggestive that the sparse presence of Swamp Oak may be indicative of the TEC, therefore further assessment against the guidelines indicators of the TEC, based on landscape position, soil, flooding and floristics was undertaken which demonstrate the site is not consistent with the TEC (Table 1; Table 2).

The characteristics of vegetation located within the project area is considered representative of only three out of five indicators for Swamp Oak Floodplain forest, as shown in Table 1, with two of those indicators being highly marginal and is therefore, not representative of TEC

Further, Table 2 shows that only two out of 46 indicator species were recorded in the project site (including Couch which is described as very common and widely cultivated (PlantNET 2025)). Further details of the assessment are provided in Table 1 and Table 2.

Table 1: Key indicators of Swamp Oak Floodplain Forest

Key indicator	Response
Is the site on the coastal floodplain of the NSW North Coast, Sydney Basin or South East Corner bioregion	Yes
Is the site associated with humic clay or sandy loams soils	No – VZ-1 is capped with low permeability capping material with an overlay of crusher dust
Is the site subject to waterlogging and/or below the highest flood level	Partially – The project area is not subject to waterlogging. The site is within the mapped flood prone area, however, it is outside of the 1% Annual Exceedance Probability (CoN 2025).
Is the site dominated by Swamp Oak or Swamp Paperbark?	No – Project Site is dominated by bare ground and exotic grasses such as *Melinis repens* (Red Natal Grass) and *Chloris gayana* (Rhodes Grass). Swamp Oak occurs as patchy colonization of saplings and seedlings which are periodically removed as part of remediation infrastructure maintenance.
Are any characteristic shrub and/or ground layer species present (see table)?	Yes – one out of 42 characteristic shrub and/or ground layer species are present on the Project Site (*Cynodon dactylon* (Couch)). The distribution of this species is described on PlantNET

Key indicator	Response
	(2025) as "Widespread and very common; widely cultivated as a lawn grass and for pasture."
"If you answered yes to the above questions your site is likely to be Swamp Oak Floodplain Forest"	**Answered yes to three out of five indicators. Not indicative of the TEC.**

Table 2: Characteristic species associated with Swamp Oak Floodplain Forest TEC

Scientific name	Key indicator species	Recorded in VZ-3	Recorded in VZ-1
Tree Canopy Species (>6 m)			
Alphitonia excelsa	--	No	No
Casuarina glauca	Yes	Yes – Four planted Swamp Oak present. May be removed as part of capping maintenance.	Yes - recorded as sparse presence of small seedlings/saplings (0.25-2m).
Cupaniopsis anacardiodes	--	No	No
Lophostemon suaveolens	--	No	No
Melaleuca ericifolia	Yes	No	No
Melaleuca quinquenervia	--	No	No
Melaleuca styphelioides	--	No	No
Small trees / Shrubs (1.5 – 6 m)			
Acmena smithii	--	No	No
Callistemon salignus	--	No	No
Glochidion ferdinandi	Yes	No	No
Homalanthus populifolius	--	No	No
Myopoprum acuminatum	--	No	No
Groundcover species (0 – 1.5 m)			
Alternanthera denticulata	--	No	No
Blechnum indicium	--	No	No
Centella asiatica	Yes	No	No
Commelina cyanea	Yes	No	No
Enydra fluctuans	--	No	No
Hypolepis muelleri	--	No	No
Lobelia anceps	--	No	No
Persicaria decipiens	--	No	No
Persicaria strigosa	--	No	No

Scientific name	Key indicator species	Recorded in VZ-3	Recorded in VZ-1
Selliera radicans	--	No	No
Viola banksii	--	No	No
Baumea juncea	--	No	No
Carex appressa	Yes	No	No
Cynodon dactylon	Yes	No	Yes - occurs as sparse but widespread groundcover. PlantNET (2025) describes this species distribution as "Widespread and very common; widely cultivated as a lawn grass and for pasture."
Crinum pedunculatum	--	No	No
Dianella caerulea	--	No	No
Entolasia marginata	--	No	No
Gahnia clarkei	--	No	No
Imperata cylindrica	--	No	No
Isolepis inundata	--	No	No
Juncus kraussii	Yes	No	No
Juncus planifolius	--	No	No
Juncus usitatus	--	No	No
Lomandra longifolia	--	No	No
Maundia triglochinoides	--	No	No
Oplismenus imbecillis	--	No	No
Phragmites australis	Yes	No	No
Parsonsia straminea	Yes	No	No
Stephania japonica	--	No	No
Flagellaria indica	--	No	No
Total count	**42**	**1**	**2**

The above review of DECC (2007) demonstrates that the vegetation within VZ-1 is not a consistent match for the Swamp Oak Floodplain Forest TEC. Further, the highly transformed soil profile consisting of low permeability capping material with an overlay of VENM crusher dust is not consistent with humic clay or sandy loams soils associated with the TEC.

3.3.2. Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland (Endangered Ecological Community, EPBC Act).

Floristic data collected in VZ-1 (Plot 1) shows that the groundcover contains 99% non-native species and does not meet the minimum condition threshold of less than 80% non-native understorey species.

Plot 2 (undertaken in VZ-3) found that the groundcover contains 83% non-native species and does not meet the minimum condition threshold of less than 80% non-native understorey species.

Additionally, the colonising vegetation in VZ-1 does not meet the key diagnostic characteristics of the EPBC Act listed TEC. The canopy within VZ-1 zone is absent and *Casuarina glauca* is only present as saplings and seedlings sparsely colonise the site remediation infrastructure. Therefore, it does not meet the requirement to have "an open woodland, woodland, forest, or closed forest structure, with a tree canopy that has a total crown cover of at least 10%".

An EPBC Act referral would not be required for impacts to this vegetation as it does not meet the condition threshold for the Coastal Swamp Oak Forest TEC.

3.4. Selection of Plant Community Type

For the purpose of identifying potential threatened entity associations, selection of "best fit" PCT was undertaken for VZ-3. The PCT selection process was not applied to other vegetation zones as there were insufficient levels of native plant species diversity, which prevented comparison with naturally occurring communities. The process and results for the selection of PCTs is outlined below.

3.4.1. Vegetation Zone 3 - Planted native parkland

Although no PCT was found to be a match, PCT 4006 (Northern Paperbark-Swamp Mahogany Saw-sedge Forest) was selected as the best fit based on floristic data collected in Plot 1 (Appendix A).

The PCT selection process included the following steps:

- Download "Export Bulk Data" from NSW BioNet Vegetation Classification
- Filter Authority column to "Eastern NSW PCT Classification"
- Filter IBRA Subregion column to "Hunter"
- Filter Tree Growth Form Group Species column to *Casuarina glauca* (33 results)
- Filter Tree Growth Form Group Species column to *Brachychiton acerifolius* (5 results)
- Filter Tree Growth Form Group Species column to *Eucalyptus robusta* (no change)
- Filter Tree Growth Form Group Species column to *Angophora costata* (no change)
- Filter Tree Growth Form Group Species column to *Corymbia maculata* (no change)
- Filter Tree Growth Form Group Species column to *Grevillea robusta* (3 results).

Justification for selection between the remaining PCTs is provided in Table 3.

Table 3: Justification for PCT selection

PCT Name	PCT Description (excerpts)	Justification
3171 - Northern Lowland Viney Wet Forest	The most frequent five species however, which collectively occur often in various combinations and usually with no single species dominant, include occasionally *Eucalyptus saligna, Eucalyptus microcorys, Corymbia intermedia* and *Lophostemon confertus*; and rarely *Eucalyptus grandis*. At low elevations of up to 80 metres asl	**Excluded** - Does not list *C. glauca* or *E. robusta* as a frequent canopy species. Occurs up to 80 m ASL.
4006 - Northern Paperbark-Swamp Mahogany Saw-sedge Forest	The tree canopy very frequently includes both *Melaleuca quinquenervia* and *Eucalyptus robusta*, rarely with other eucalypts. The mid-stratum is otherwise sparse, however often layered with small trees that very frequently includes *Glochidion ferdinandi*, occasionally *Livistona australis* and *Casuarina glauca*, and rarely *Melaleuca linariifolia*. Almost always below 20 metres asl	**Best fit -** Canopy very frequently includes *Eucalyptus robusta*. Suggests *C. glauca* occurs occasionally. Low elevation is consistent with the Project Area.
4044 - Northern Creekflat Eucalypt-Paperbark Mesic Swamp Forest	Species very frequently include a patchy cover of *Melaleuca linariifolia*, commonly *Callistemon salignus*, occasionally *Melaleuca styphelioides* and rarely *Casuarina glauca.* It occurs below 90 metres asl, however unlike other coastal swamp forests it is distributed most extensively, however not exclusively, in the coastal lowlands more than 10 kilometres from the coastline. It is almost always exclusively dominated by *Eucalyptus robusta.*	**Excluded** - Description states that this community rarely contains *C. glauca* and is almost exclusively dominated by *E. robusta*. Occurs over 10 km from coastline, and up to 90 m ASL.

It is noted that *Grevillea robusta* does not naturally occur south of the Coffs Harbour region. However, this species was recorded within the vegetation integrity plot and was used to filter PCTs due to the lack of other native trees within the vegetation integrity plot. Due to the low number of native species recorded, this approach is considered acceptable in identifying a 'best fit' PCT, as it indicates the site conditions are capable of supporting this species assemblage.

It is also noted that *Brachychiton acerifolius, Eucalyptus robusta, Angophora costata* and *Corymbia maculata* were not recorded within the vegetation integrity plot, but were observed directly adjacent, and were used for the PCT selection.

3.4.2. Non-native vegetation communities

VZ-1 (site remediation infrastructure) contains very low levels of native plant species diversity (n=3) and native plant cover (total of 6.3%) and therefore selection of PCT based on species composition could not be accurately undertaken based on floristic data collected in Plot 2 (Appendix A).

3.5. Habitat Survey

The habitat survey indicated little in the way of intact native vegetation is present within the project area and as such, very little potential habitat for any threatened flora and fauna species to be present and use the land for significant biological processes. There are lines of trees present around the buildings retained on the south end of the project area that included some fig trees, bottlebrushes and paperbarks that were planted to create gardens. No hollows or stick nests were observed in these trees. Details of habitat assessments for GGBF and microchiropteran bats are provided below.

3.5.1. Green and Golden Bell Frog habitat assessment

Only three potential Green and Golden Bell Frog breeding sites were located on site; specifically a decommissioned water treatment plant (Photograph 9), a drainage pit associated with that plant (Photograph 9) and ponding under a substation (Photograph 10). The locations of these points are provided in Figure 8. These sites all held water after the heavy rainfall event prior to the first survey

and were large enough to potentially used as breeding habitat by the species, although they represented only marginal habitat. The main tank of the treatment plant was highly elevated (>3 m walls), and the site had a strong smell of chemicals that may have rendered the water unsuitable for tadpoles. The smaller pit was only around 2 m x 2 m and had steep flat sides and looked to only hold shallow (<30 cm) water. The ponding under the substation was no more than 4 m x 4 m and dried up by the 5 February and so is realistically too ephemeral for use. A drainage area adjacent to a culvert present on the northeast boundary was also noted to contain water (Photograph 10), but this area was clearly tidally flooded and contained mangroves as well as numerous estuarine fish and no emergent vegetation. As the area is saline, it is not suitable breeding habitat.

The main capped area was criss-crossed and surrounded by drainage channels (Photograph 11), but contained no retained water at any time, even after the heavy rainfall event just prior to the first survey. Therefore, it is not breeding habitat for the Green and Golden Bell Frog. No other ponding or stream habitat was seen anywhere on the project area.

Photograph 9: Treatment plant (left) and pool under substation (right).

Photograph 10: Pit adjacent to treatment plant (left) and saline culvert with mangroves (right).

Photograph 11: Examples of two drainage lines running in and around the project area.

3.5.2. Microchiropteran bat habitat assessment

3.5.2.1. Roll Shop

The Roll Shop has been assessed as unlikely to constitute suitable microbat habitat. However, due to the large size of the structure and inaccessible spaces, presence of microbats cannot be ruled out entirely. No bat calls or chatter were identified on the Echo Meter during the site inspection. No signs of bats such as urine stains, droppings, remains and bat fly castings were detected.

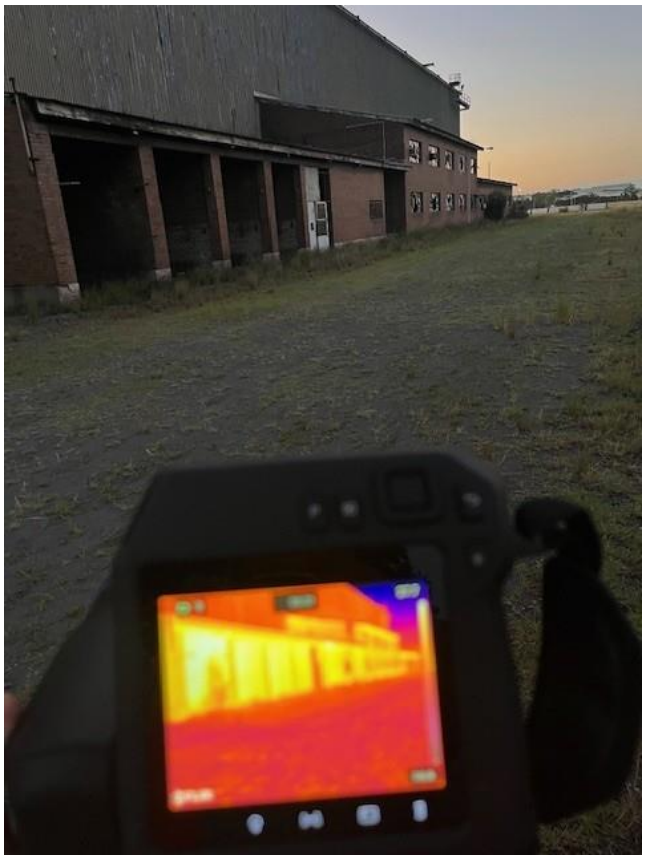
The majority of the Roll Shop consists of a large open space with disused industrial equipment such as an overhead gantry crane. The structure consists of a single layer of sheet metal, with the main building lacking an internal cavity on the rooves and walls (Photograph 12 - Photograph 14). The Roll Shop has previously been used for storing construction materials and supporting the site remediation works.

The Roll Shop through its main space looks to have maximised natural light and open space as part of its design. The eastern side of the Roll Shop does contain darkened rooms with disused cabinets, equipment, ducts and crevices which represent potential, low quality habitat for microbat species. There is also an underground confined space (signage indicating confined space registered number 4 - basement of 11kv substation) which was not entered due to safety restrictions, however, represents potential microbat habitat. This confined space is accessible through the building via a hatchway and also has direct openings via small ventilation ducts (approximately 12 x 45 cm) (Photograph 15 - Photograph 20). These are all narrow entrances and likely represent very challenging access points for bats to use given that bats are known to be sensitive to entrances of 125 mm in width during mine gating studies (Slade and Law 2008).

One exotic species of bird, Rock Dove (*Columba livia*), was observed to be roosting within the Roll Shop during the inspection. No microbat species were observed during the emergence survey, either visually or on the thermal camera. Along with the absence of any signs of roosting bats, this further indicates that the Roll Shop is not being used as a roost site by microbats in any significant way. Infra-red video footage recorded during the emergence survey has been retained by ELA and is available to be reviewed.

Demolition of the Roll Shop is not proposed, and any potential habitat would likely remain intact (excluding items that may be removed such as cupboards and disused equipment). If present, any potential impacts to microbat species due to increased use of the Roll Shop, can be managed with appropriate mitigation measures. Out of an abundance of precaution, it is recommended that an Unexpected Finds Protocol is prepared that includes an emergence survey undertaken prior to any major structural works to record if any individual bats could are using the Roll Shop at the time and includes specific actions to manage and mitigate any prescribed impacts that may occur if a bat/s is/are found to be present.

Photograph 12: Eastern exterior of the Roll Shop



Photograph 13: Emergence survey of the Roll Shop

Photograph 14: Interior of Roll Shop

Photograph 15: Exterior of Roll Shop with entrance to confined space indicated by yellow circle.

Photograph 16: Entrance to confined space indicated by yellow circle in Photograph 14.

Photograph 17: The confined space via the entrances.

Photograph 18: The confined space via the entrances

Photograph 19: Ventilation duct within dark room

Photograph 20: Hatchway into confined space

3.5.2.2. Bicycle Shed

The Bicycle Shed is an open shed structure with a roof consisting of a single layer of sheet-metal and does not contain enclosed cavity spaces. There are very minor crevices between the roof and structural beams, however, the structure is not suspected to represent suitable habitat for microbats due to high light levels, exposure to the open outdoor environment, easy access for predators such as rats and lack of crevices suitable for roosting.

The Bicycle Shed is proposed to be removed to facilitate access between Selwyn Road and the proposed hardstand area and it is not anticipated that removal of the shed would place any fauna species at risk of injury or death.

Photograph 21: Bicycle Shed inspected for microbats and potential habitat

3.5.2.3. Southern Myotis potential habitat

According to the TBDC (DCCEEW 2025c), potential habitat for Southern Myotis includes waterbodies with permanent pools/stretches 3 m or wider, including rivers, large creeks, billabongs, lagoons, estuaries, dams and other waterbodies, on or within 200 m of the site.

There are two intertidal drainage lines on or within 200 m of the project site.

One unnamed intertidal concrete drain, approximately 80 square metres, is located in the north-west portion of the project area. There is no significant woody vegetation or potential roosting structures within 200 m of this drain (Figure 8). Woody vegetation around this drain consists predominantly of *Acacia saligna* and there are two small mangrove stems within the drain (Photograph 22).

There is a second intertidal concrete drain, outside of the south-east corner of the project area, along Selwyn St. There is one building (Office building) within 200 m of this drainage channel (Figure 8).

There are no proposed modifications to the Office building. Vegetation around this building consists predominantly of small shrubs including *Acacia saligna* which may be removed as part of regular maintenance. If this species does utilise the concrete drainage channels for foraging, there are no anticipated direct, indirect impacts or prescribed impacts to this species.

Photograph 22: Concrete drain in the north-west portion of the project site

Photograph 23: Area between the Office building and the south-east drain

3.6. Green and Golden Bell Frog survey

No Green and Golden Bell Frogs were seen or located through the surveys, determining the species to be absent from the project area. Furthermore, the available breeding habitat is likely unsuitable for any use by the species but was surveyed as a precaution. No frogs of any species were detected anywhere on the project area. No suitable potential breeding sites were evident within 200 m of the boundary of the project area that Green and Golden Bell Frogs might use for breeding and then migrate from post-breeding to use the project area as non-breeding habitat.

Figure 8: Boundary of project area, inspection points, potential GGBF habitat, potential Southern Myotis habitat and SVTM mapping

3.7. Assessment of potential prescribed impacts

The Roll Shop has been assessed as unlikely to constitute suitable microbat habitat. No evidence of microbat occupation was observed within the building, and no microbats were observed during emergence surveys. However, due to the large size of the structure and inaccessible spaces, presence of microbats cannot be ruled out entirely. In accordance with the BAM, impacts to threatened entities associated with human-made structures are considered to be a prescribed impact which are managed and minimised through the implementation of appropriate mitigation measures.

In this case, any residual impacts can be avoided entirely by the implementation of suitable mitigation measures.

Cranes are proposed to be operated on the site. The project site is in close proximity to the Kooragang and Carrington wharves which frequently have bulk carrier ships moving around (around 40m above water level), existing cranes in the coal loading facilities (a minimum of eight in Carrington) and large silos. The risk of birds/bats striking a crane in the development site would not be a significant increase over any existing risk of strike. It is anticipated that birds/bats will be able to manoeuvre around any structures without negative consequences to their populations.

Additionally, there are no native vegetation communities within the project area, and therefore no native vegetation communities are proposed to be impacted, and a species polygon cannot be generated for microbat species that may inhabit the buildings, and under the BAM, credits would not require offsetting for the potential presence of microbats within buildings.

For this reason, a BDAR is not considered necessary to address potential prescribed impacts to microbats, and any risk to microbats associated with works undertaken on buildings can be managed with appropriate mitigation measures.

Further details on the assessment of prescribed impacts are outlined in Table 4 below.

Table 4: Identified prescribed impacts

Feature	Present	Description of feature characteristics and location
Karst, caves, crevices, cliffs, rocks or other geological features of significance	☐Yes ☒No	Not applicable - there are no karst, caves, crevices, cliffs, rocks and other geological features of significance identified within the project land.
Human-made structures	☒Yes ☐No	Describe the nature, extent and duration of short-term and long-term impacts The Roll Shop building is proposed to be repurposed to support operations by providing all weather storage. No evidence of microbat occupation was observed within the building, no microbats were observed during emergence surveys and microbats are not currently suspected to utilise the building. However, due to the large size of the structure and inaccessible spaces, presence of microbats cannot be ruled out entirely. Repurposing the Roll Shop will likely involve removal and disposal of disused industrial equipment and waste, and refurbishment and repair of the building which is required due to disuse and vandalism. Works associated with repurposing the building is estimated to take 6-12 months to complete. Once complete, the Roll Shop will be utilised primarily for storage for the life of the project. Potential impacts include: • Direct disturbance of microbats (the presence of workers close to habitat) • Indirect disturbance through impacts such as noise, vibration, lighting, microclimate and air-quality impacts

Feature	Present	Description of feature characteristics and location
		• Loss or modification of potential roosting habitat (when structures are removed or roosts within them are no longer accessible). Cranes are proposed to be operated on the site. The project site is in close proximity to the Kooragang and Carrington wharves which frequently have bulk carrier ships moving around (around 40m above water level), existing cranes in the coal loading facilities (a minimum of eight in Carrington) and large silos. The risk of birds/bats striking a crane in the development site would not be a significant increase over any existing risk of strike. It is anticipated that birds/bats will be able to manoeuvre around any structures without negative consequences to their populations.
		Predict the consequences of impacts on threatened entities The consequences to threatened entities (specifically threatened microbat species) are considered to be negligible, due to the low suitability of the potential habitat within the Roll Shop, minimal changes to the structure and absence of microbat occupancy detected to date. To reduce any further consequences, an unexpected finds protocol will be employed with mitigation measures, which would be activated in the instances of threatened microbat activity being detected prior to works being undertaken.
		Justify predictions of impacts with relevant literature and other published sources of information, or advice from experts. The Hunter Water Balickera Remediation Project recently demonstrated that a highly significant threatened microbat roost site can be appropriately managed to avoid significant impacts to threatened entities. Unlike Balickera Remediation Project, the proposed development involves no removal or disturbance to native plant communities, and the Roll Shop building is not suspected to contain significant roosting or breeding habitat. However, Balickera Remediation Project demonstrates that mitigation measures (such as emergence surveys, bat box installation and exclusion) can be employed to successfully address prescribed impacts to microbats and remove any residual impacts. Similar mitigation measures would be included in the unexpected finds protocol for the proposed development. Microbat management guidelines have been prepared by Transport for NSW (2023). Transport for NSW (2023) frequently undertakes maintenance works on structures that contain known threatened microbat habitat. The guidelines provide a framework to manage potential impacts of works on microbats. A risk-based approach has been applied to support decision-making about whether microbats are likely to be impacted by an activity and who should be involved in developing the management strategy. Further details on proposed mitigation and management recommendations are provided in Section 3.8.
Non-native vegetation	☒Yes ☐No	Assessment of the impacts of the proposal on the habitat of threatened entities associated with human-made structures or non-native vegetation must: **Describe the nature, extent and duration of short-term and long-term impacts** Removal of planted, regrowth and exotic vegetation within Vegetation Zone 2. Planted trees in this area predominantly consist of *Platanus orientalis* (Oriental Plane) and *Nerium oleander* (Oleander) and have an understorey of mown lawn. This would result in a very minor, permanent decrease in potential foraging resources for species such as Grey-headed Flying Fox. The Grey-headed Flying-fox is highly mobile and utilises a range of foraging resources within 20 km of camps. The potential foraging habitat in the subject land is not considered to be significant and do not represent any identified important feed tree species (such as winter-flowering Eucalypt species) and is a very minor component of a wider network of resources that extend beyond the project area. **Predict the consequences of impacts on threatened entities identified**

Feature	Present	Description of feature characteristics and location
		Consequences are considered to be negligible due to the low quality and very small extent of this potential foraging resources.
Habitat connectivity	☐Yes ☒No	Not applicable - the subject land does not provide connectivity to patches of native vegetation or habitat.
Waterbodies, water quality and hydrological processes	☐Yes ☐No	There are two waterbodies within 200 m of the project area footprint which are concrete drainage channels which are connected to the Hunter River. Southern Myotis are known to occur on the Hunter River, and it is reasonable to assume that this species may forage over these waterbodies occasionally. There are no native plant communities within the 200 m buffer of the drainage channels, and therefore no species polygon is able to be mapped, and no credits would be generated for Southern Myotis. There is one building within this radius, however the building appears to be in good condition with very little habitat available such as crevices or openings into the building structure. This structure, and the surrounding planted garden is not considered to provide any roosting or foraging habitat for Southern Myotis. No impacts of changes to this building are proposed. No impacts to water quality and hydrological processes are anticipated to occur as a result of the proposed development.
Wind turbine strikes (wind farm development only)	☐Yes ☒No	Not applicable - the proposed subdivision is not a wind farm development.
Vehicle strikes	☐Yes ☒No	Not applicable – the subject land is located in Mayfield North adjacent to Industrial Drive which is frequently subjected to high levels of traffic. Increased levels of traffic associated with the proposed development would be insignificant compared to existing levels.

3.8. Mitigation and management of potential prescribed impacts

The following mitigation and management assessment pathway demonstrates the pathway undertaken to date and provides guidance for future pre-works surveys (Figure 9). The flowchart has been adapted from Transport for NSW (2023).

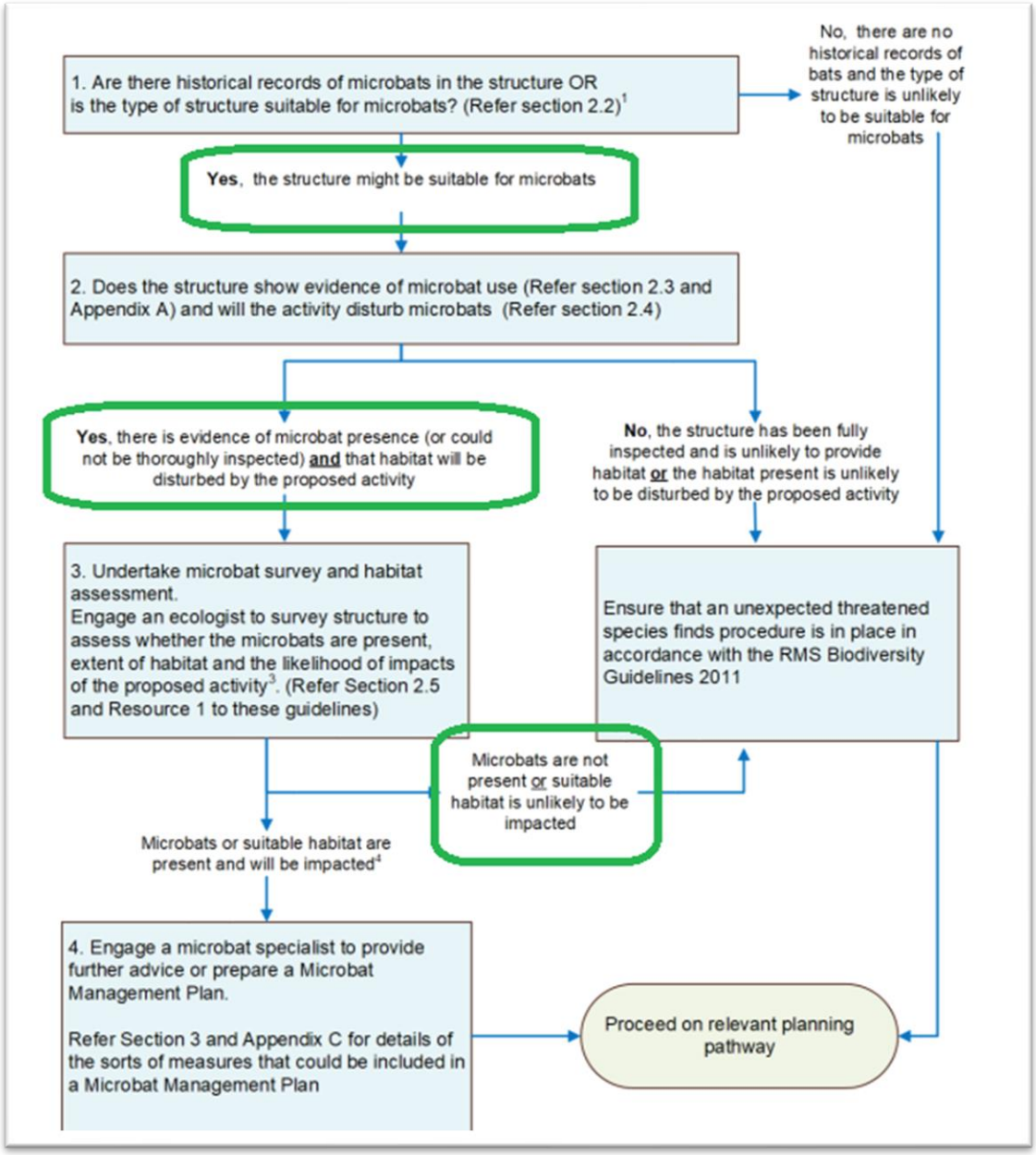


Figure 9: Mitigation and management assessment flowchart from Transport for NSW (2023).

3.8.1. Pre-works microbat survey and habitat assessment

The following pre-works microbat survey methods are taken from Transport for NSW (2023). An ecologist is expected to undertake surveys using the most appropriate survey method for the site to ensure the survey is comprehensive. This may include:

- A thorough inspection of the structure including an assessment of habitat (may include use of thermal imagining camera if available)
- Monitoring for microbat calls using acoustic detectors (such as Songmeter or Anabat), which may assist in the assessment/identification of the species present.
- Undertaking fly-out (emergence) survey, typically using a thermal camera (observation when microbats exit the roost at dusk)

- Consideration of the likely impact (and proposed timing) of the activity on any microbats.

3.8.2. Unexpected threatened species finds procedure

In the event of an unexpected discovery of a threatened species all works in the associated location must stop, the relevant Government agencies must be notified, and works cannot recommence without approval from the Planning Secretary.

The following procedure table has been adapted from the "Unexpected Threatened Species and Threatened Ecological Communities Finds Protocol - M1 Pacific Motorway Extension to Raymond Terrace SSI 7319" (Transport for NSW 2023) (Table 5).

Table 5: Overview of unexpected threatened species finds procedure adapted from Transport for NSW (2023).

Step	Details
--	Unexpected find of threatened species.
1.	Stop work, protect threatened species and inform all relevant project staff and Government agencies.
2.	Engage Ecologist to undertake assessment and provide recommendations for management, consult with Government agencies to seek concurrence on management measures.
3.	Can impacts be avoided? Yes – Undertake avoidance measures and resume work. No – Go to Step 4.
4.	Consult with relevant agencies, prepare microbat management plan, submit microbat management plan for approval.
5.	Review CEMP and approval conditions.
6.	Resume work with implementation of management measures.
7.	Ongoing mitigation measures and monitoring, if required.

3.8.3. Mitigation measures

If the survey determines that microbats are not present or unlikely to be impacted, then no further consideration of microbats is recommended. The details of this investigation and outcome of this process should be outlined in the assessment documentation.

If the survey determines that microbats are present and are likely to be impacted, then the unexpected threatened species finds procedure would be activated, and a microbat management plan should be prepared by a suitably qualified microbat specialist.

Depending on the specific circumstances in the event of an unexpected find, appropriate mitigation measures must be employed. An overview of potential mitigation measures is provided in Table 6, which have been adapted from Transport for NSW (2023).

Table 6: Overview of potential mitigation measures

Mitigation measure	Description	Timing and duration	Considerations
Southern Myotis: Seasonal restrictions	Where Southern Myotis is present, activities should not occur that will disturb habitat during the breeding period from October to April without additional measures being taken to reduce impacts (including an MMP).	While works are being done on structure that impact Southern Myotis.	Where 10 or more Southern Myotis are present OR there is any confirmed breeding

Mitigation measure	Description	Timing and duration	Considerations
Southern Myotis: Hours of work restrictions	Adult Southern Myotis will leave the roost at dusk to forage, flying in and out of roosts all night. Activities undertaken at night may reduce the impacts on microbats present in the structure, as individuals can relocate to roosts that are less disturbed. This measure is not appropriate where juvenile Myotis are present	While works are being done on structures that impact Southern Myotis.	Where 10 or more Southern Myotis are roosting (and not breeding) in the structure.
Bent-winged Bats: Hours of work restrictions	Where Bent-winged bats are present, this restriction would only apply from March to October because both Bent-winged bat species are likely to leave the structures for their maternity caves from October to February each year.	While works are being done between March and October on structures that impact Bent-winged bats.	Where 10 or more Bent-winged bats are roosting in the structure noting a small number of male bats may still be present in the structure during the breeding season
Project staging	Careful staging of project activities can minimise impacts to target microbats and their habitat particularly where indirect impacts are anticipated. This measure requires careful monitoring to ensure that unintended impacts to threatened microbat species are not occurring.	Throughout the project	When impacts to target microbats are possible.
Pre-construction microbat survey	Undertaking microbat surveys to determine if target microbats are present prior to the activity commencing can allow application of mitigation measures to avoid and minimise impacts.	Same timing as pre-clearing surveys.	All projects where target microbats or suitable habitat is present.
Site induction	This involves training construction personnel on the microbat mitigation measures, including their responsibilities, how to identify microbats (e.g., signs), what to do if microbats are encountered within the work area (e.g., unexpected finds procedure) and personal safety practices when working around microbats.	Induction package prepared prior to works commencing.	Microbat presence confirmed or anticipated within a structure
Daily inspection of structures	Work areas should be inspected everyday where microbat habitat is present, but not in active use or where construction activities are being undertaken in close proximity to known habitat. This would ensure that microbats are not present in the structure before starting the activity.	Prior to commencement of works every day for the duration of the project.	Microbat presence confirmed within a structure.
Microbat welfare	Where injured microbats are found during the activity, contact should be made with a suitably accredited wildlife care organisation such as WIRES. The contact details of the relevant organisation should be known by the site supervisor and ecologist. Injured animals should not be handled by construction staff.	Have contact details available prior to commencement of works (where microbats are present).	Microbats present or after unexpected finds.
Exclusion	Involves preventing microbats from returning to the structure by installing exclusion devices. This strategy is only	Outside of the breeding period for the species (for Myotis).	Where significant impact is otherwise expected to microbats in a structure.

Mitigation measure	Description	Timing and duration	Considerations
	suitable in certain situations and requires careful management and monitoring.		
Capture and removal	This involves capturing microbats in bat boxes installed near roost sites in order to move them to a new (safer) location nearby.	Outside of the breeding period for the species (for Myotis).	Where significant impact is otherwise expected to microbats in a structure.
Containment	This involves preventing bats from leaving a roost site during the day and is used where planned disturbance (usually noise) may cause microbats to abandon a roost during the day (which increases predation risk).	Outside of the breeding period for the species (for Myotis).	Can reduce ventilation or create hot/humid microclimate.
Supplementing habitat	This measure can be provided alongside exclusion measures and involves supplementing the habitat excluded or lost with artificial roost boxes installed on the structure or in the surrounding environment.	Prior to microbat exclusion or impact, until impacts to habitat have concluded.	When exclusion (above) is taking place or existing microbat habitat within a structure is being removed.
Creating habitat	Incorporating recesses and roughened surfaces within a structure can provide long-lasting habitat opportunities for microbats.	Considered during project design, implemented during construction.	When existing microbat habitat within a structure is being removed.
Noise minimisation	Efforts to reduce noise should be applied where noise levels are expected to significantly exceed what can be typically expected at a structure. This could include undertaking works at night (and outside the breeding period) or by installing measures to dampen noise	Prior to commencement of works if noise impacts are likely.	Work must stop if Microbats observed leaving roosts in large numbers in immediate response to the activity. Mitigation must then be reconsidered
Monitoring	Monitoring is a critical component of any MMP. Depending on the circumstances, monitoring can occur before, during and after disturbance, and include other populations / structures in the locality.	Project ecologist/microbat specialist to determine.	Whenever habitat in a structure is removed and new habitat is provided.

3.9. Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

A list of identified MNES and whether they may be impacted is described in the likelihood of occurrence assessment in Appendix D.

It has been determined that no impacts are likely to occur to the MNES considered in the likelihood of occurrence assessment, however, out of an abundance of precaution the Assessment of Significance criteria have been applied to Grey-headed Flying-fox (*Pteropus poliocephalus*) as it is known to fly-over the site, may utilise highly marginal foraging habitat within the project site (VZ-2) and is likely to utilise the fig trees that are planted directly adjacent to the project site (VZ-4).

3.9.1. Significant Impact Criteria

3.9.1.1. Grey-headed Flying-fox (Pteropus poliocephalus)

The Grey-headed Flying-fox is listed as Vulnerable under the EPBC Act and Vulnerable under the BC Act. Grey-headed Flying Fox are typically medium to dark grey with many light-tipped hairs with fur extending to the feet. Its defining feature is an orange or russet-coloured collar which encircles the neck. This species occupies the coastal lowlands and slopes of south-eastern Australia from Bundaberg to Geelong and inland NSW to the tablelands and western slopes. The Grey-headed Flying-fox is a highly mobile, partially migratory species with a distribution that is highly varied between seasons and years. The Grey-headed Flying-fox forms part of one single, interbreeding population. The species breeds once a year between October and December (Department of Agriculture, Water and the Environment; DAWE 2021).

Grey-headed Flying-foxes typically roost in camps which are used as a daytime refuge. Camps are generally stable sites, however numbers and occupation can vary over time, depending on the availability of foraging resources within the locality (DAWE 2021).

This species primarily feeds on blossom and fruit in the canopy and will occasionally supplement this with leaves. This species tends to favour *Eucalyptus* sp., *Corymbia* sp., *Angophora* sp., *Melaleuca* sp., *Banksia* sp. and *Ficus* sp. and will migrate in response to flowering events and the availability of food. This species will forage between 20 km and 40 km in a feeding foray from a camp site, with most distances <20 km. Up to 20 km is considered the average foraging distance and has been used in this assessment (DAWE 2021).

Threats to the Grey-headed Flying-fox include loss of foraging and roosting habitat, competition with Black Flying-foxes, negative public attitude and conflict with humans, electrocution, entanglement in netting and on barbed-wire, climate change and disease (DAWE 2021).

There is suitable foraging habitat present within the Development site and no targeted survey was undertaken for this species, therefore a significant impact criteria assessment has been undertaken in Table 7 below.

Table 7: Significant impact criteria assessment for Grey-headed Flying-fox

Criterion	Assessment
An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility of the following:	
Lead to a long-term decrease in the size of an important population of a species	The project involves the proposed removal of low-quality potential foraging habitat for the species. The proposed works will not lead to a long-term decrease in the size of an important population of the species given that the potential foraging habitat proposed for removal is minimal and primarily consists of planted species that would not make up a significant part of this species diet including *Platanus orientalis* (Oriental Plane), *Nerium oleander* (Oleander), *Jacaranda mimosifolia* (Blue Jacaranda).
Reduce the area of occupancy of an important population	The project involves the proposed removal of potential low-quality foraging habitat for the species. While this work will reduce the area of low quality potential foraging resources, the minimal amount of clearing required will not reduce the area of occupancy for this highly mobile species.
Fragment an existing important population into two or more populations	Grey-headed Flying Foxes are a highly mobile species that forages throughout a wide variety of habitats as well as urban areas where feed resources are present. The project involves the removal of low-quality potential foraging habitat for the species and will not fragment an existing population of the species.
Adversely affect habitat critical to the survival of a species	The project involves the proposed removal of potential, low-quality foraging habitat for the species. Actions that would adversely affect habitat critical to the survival of the species includes loss of foraging habitat, disturbance to camps and impacts of climate

Criterion	Assessment
	change. Loss of foraging habitat is relevant to this proposal. The Grey-headed Flying-fox is highly mobile and utilises a range of foraging resources within 20 km of camps. The foraging habitat in the project site forms part of a wider network of resources that extend beyond the project area into the locality. The proposed works will not adversely affect habitat critical to the survival of a species
Disrupt the breeding cycle of an important population	No roosting habitat in the form of camps would be removed or disturbed for the Grey-headed Flying-fox.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The project involves the proposed removal of potential, low-quality foraging habitat for the species. While the project will remove potential foraging habitat availability, the small scale of the impacts will not cause the species to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The major threats to the Grey-headed Flying-fox are related to vegetation clearance, camp disturbance, mortality in commercial fruit crops, heat stress, entanglement, climate change, bushfire, conflict with humans and electrocution. These threats are not associated with the increased presence of an invasive species. The proposed development is unlikely to result in invasive species becoming established in Grey-headed Flying-fox habitat.
Introduce disease that may cause the species to decline, or	The Grey-headed Flying-fox is susceptible to Lyssavirus. Increases of the Lyssavirus typically occurs when a population is undergoing stress. The project site would provide limited, low quality foraging habitat that would make up a mosaic of resources that would be utilised in the region. The habitat within the project site would not provide the primary foraging resource, nor does the project area contain known camps for this species. The removal of potential, low quality foraging habitat is unlikely to cause a level of distress such that the Grey-headed Flying-fox is likely to see increased disease and a decline.
Interfere substantially with the recovery of the species.	The proposed works are not located within a known area containing a breeding camp of the species and is located in an industrial area within the Port of Newcastle. The project area does not contain high quality foraging habitat and there are more intact and less disturbed high-quality habitats in urban areas, reserves and national parks within the region. The minimal area of potential habitat requiring removal is unlikely to interfere with the recovery of the species.
Conclusion	While the project is proposing the removal of low quality potential foraging habitat there is unlikely to be a significant impact to this species given the minimal amount of clearing required and low quality potential foraging habitat.

3.10. Summary and recommendations

The project area is a brownfield site and is considered to contain no significant biodiversity values. The project area does not contain any significant native vegetation and is located within a highly disturbed, fragmented urban and industrial landscape within the Port of Newcastle.

The project site is highly unlikely to contain threatened fauna species habitat. Targeted surveys for Green and Golden Bell Frog have confirmed the absence of this species, and detailed habitat assessments and a dusk emergence survey showed no evidence of microbat occupancy.

It has been determined that sparse presence of Swamp Oak on site remediation infrastructure (VZ-1) does not represent an ecological community, and therefore is not indicative of the Swamp Oak Floodplain Forest TEC. Assessment of the vegetation on site has been assessed against the Identification Guidelines for Swamp Oak Floodplain Forest which also concluded that the vegetation is not consistent with the TEC.

Further, due to vegetation removal requirements of the site remediation infrastructure, regeneration of an ecological community is not feasible.

VZ-3 (Planted native parkland) was determined to be a 'best fit' for PCT 4006. This zone is located outside of the project area but was included for assessment to identify potential indirect impacts. A list of threatened species associated with this PCT, and threatened species recorded within 5 km of the project area was used to undertake a likelihood of occurrence assessment, and no significant impacts were identified for any species.

Based on results of the likelihood of occurrence, no threatened species are likely to be impacted by the proposed development.

Due to the large size of the Roll Shop, presence of microbats could not be ruled out, even after an emergence survey did not record any exiting bats. However, in the unlikely event that threatened microbats are detected during pre-works surveys, any potential disturbance (prescribed impact) will be managed in accordance with an Unexpected Finds Protocol and appropriate mitigation measures.

Threatened avifauna and megabats may fly over or forage over the project site, however the proposed development will not significantly reduce possible foraging habitat in the locality as no disturbance to VZ-3 is proposed, and only low quality potential foraging resources are proposed to be removed from V2-2. The proposed development is not anticipated to result in significant changes to the behaviour of threatened species that may occur in the locality.

No MNES listed under the Commonwealth EPBC Act would be affected by the proposed development and a referral is not recommended for biodiversity matters.

A request for a BDAR Waiver is appropriate for the proposed development and may be prepared with the inclusion of the above information that demonstrates that the site has been historically cleared, is highly transformed, and does not contain significant biodiversity values for threatened species with no native plant community types present. Further, in the unlikely event that threatened microbats are detected within the Roll Shop during pre-works surveys, any potential disturbance is a prescribed impact and will be managed in accordance with appropriate unexpected finds mitigation measures.

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Appendix A Floristic Plot Data

Table 8: Floristic plot data

Species	Growth Form Group	Plot 1 (VZ-3)			Plot 2 (VZ-1)		
		Stratum	Cover	Abundance	Stratum	Cover	Abundance
Megathyrsus maximus var. *maximus*	Exotic	G	70	2000	--	--	--
Ehrharta erecta	Exotic	G	25	1000	--	--	--
Casuarina glauca	Tree (TG)	U	30	4	--	--	--
Grevillea robusta	Tree (TG)	U	15	1	--	--	--
Hymenosporum flavum	Shrub (SG)	U	5	1	--	--	--
Sida rhombifolia	Exotic	G	0.1	10	--	--	--
Oxalis perennans	Forb (FG)	G	0.1	1	--	--	--
Bromus catharticus	Exotic	G	0.1	5	--	--	--
Melinis repens	Exotic	--	--	--	G	20	1000
Chloris gayana	Exotic	--	--	--	G	10	500
Cynodon dactylon	Grass & grasslike (GG)	--	--	--	G	5	100
Bidens pilosa var. *pilosa*	Exotic	--	--	--	G	0.1	50
Hypochaeris radicata	Exotic	--	--	--	G	0.1	20
Conyza bonariensis	Exotic	--	--	--	G	0.1	10
Verbena rigida var. *rigida*	Exotic	--	--	--	G	0.1	10
Cyperus brevifolius	Exotic	--	--	--	G	0.5	5
Chloris truncata	Grass & grasslike (GG)	--	--	--	G	0.3	20
Plantago lanceolata	Exotic	--	--	--	G	0.1	20
Aster subulatus	Exotic	--	--	--	G	0.1	10
Euphorbia hyssopifolia	Exotic	--	--	--	G	0.2	500
Portulaca pilosa	Exotic	--	--	--	G	0.1	100
Gamochaeta americana	Exotic	--	--	--	G	0.1	10
Eragrostis benthamii	Grass & grasslike (GG)	--	--	--	G	1	20
Petrorhagia dubia	Exotic	--	--	--	G	0.1	10
Lysimachia arvensis	Exotic	--	--	--	G	0.1	20
Juncus acutus	Exotic	--	--	--	G	0.2	3

Appendix B Functional Plot Data

Table 9: Functional plot data

Plot	LargeTrees	Hollow trees	LitterCover	Fallen Logs	TreeStem5to9	TreeStem 10to19	TreeStem 20to29	TreeStem 30to49	TreeStem 50to79	TreeRegen	HighThreatExotic
1	0	0	3.6	0	0	1	0	1	1	0	25.0
2	0	0	0.4	0	0	0	0	0	0	0	10.0

Appendix C Plot photographs

Photograph 24: Plot 1 – Start (VZ-3)

Photograph 25: Plot 1 – End (VZ-3)

Photograph 26: Plot 2 – Start (VZ-1)

Photograph 27: Plot 2 – End (VZ-1

Appendix D Likelihood of occurrence

Table 10: Likelihood of occurrence assessment

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
Crinia tinnula	Wallum Froglet	Vulnerable	Not Listed	--	Wallum Froglets are found in a wide range of habitats, usually associated with acidic swamps on coastal sand plains. They typically occur in sedgelands and wet heathlands. They can also be found along drainage lines within other vegetation communities and disturbed areas, and occasionally in swamp sclerophyll forests. The species breeds in swamps with permanent water as well as shallow ephemeral pools and drainage ditches. Breeding is thought to peak in the colder months, but can occur throughout the year following rain. Eggs of 1.1-1.2mm are deposited in water with a pH of <6 and tadpoles take 2-6 months to develop into frogs. Wallum Froglets shelter under leaf litter, vegetation, other debris or in burrows of other species. Shelter sites are wet or very damp and often located near the water's edge. Males may call throughout the year and at any time of day, peaking following rain.	0	✓	No suitable habitat. Targeted surveys undertaken for Green and Golden Bell Frog, no species of frogs detected. No connectivity to areas known to support this species.
Uperoleia mahonyi	Mahony's Toadlet	Endangered	Not Listed	--	Current observations indicate Mahony's Toadlet inhabits ephemeral and semi-permanent swamps and swales on the coastal fringe of its range. Known records occur in heath or wallum habitats almost exclusively associated with leached (highly nutrient impoverished) white sand. Commonly associated with acid paperbark swamps, Mahony's Toadlet also is known to occur in wallum heath, swamp mahogany-paperbark swamp forest, heath shrubland and Sydney red gum woodland. Recent studies suggest intact vegetation adjacent to and within water bodies is an important habitat feature for this species. Known records are associated with shallow ephemeral/semi-permanent water bodies with limited flow of water. Aquatic vegetation at breeding sites includes sedges (*Shoenoplectus* spp., *Baumea* spp. and *Lepironia articulata*) and Broadleaf Cumbungi (*Typha orientalis*). Females have been recorded up to 400m from water-bodies indicating moderate dispersal distances and use of multiple habitat types. Tadpoles have been observed using leaf litter in the shallow verges of water bodies on sandy substrate. Rocks, logs and leaf litter may also be used for shelter and provide important foraging areas for invertebrate prey items.	0	✓	No suitable habitat. Targeted surveys undertaken for Green and Golden Bell Frog, no species of frogs detected. No connectivity to areas known to support this species.
Litoria aurea	Green and Golden Bell Frog	Endangered	Vulnerable	Semi-permanent/ephemeral wet areas; Within 1km of wet areas. Swamps; Within 1km of swamp. Waterbodies; Within 1km of waterbody	Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (*Typha* spp.) or spikerushes (*Eleocharis* spp.). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (*Gambusia holbrooki*), have a grassy area nearby and diurnal sheltering sites available. Some sites, particularly in the Greater Sydney region occur in highly disturbed areas. The species is active by day and usually breeds in summer when conditions are warm and wet. Males call while floating in water and females produce a raft of eggs that initially float before settling to the bottom, often amongst vegetation. Tadpoles feed on algae and other plant-matter; adults eat mainly insects, but also other frogs. Preyed upon by various wading birds and snakes.	4421	✓	No suitable habitat. Targeted surveys undertaken for Green and Golden Bell Frog, no species of frogs detected. Records are primarily associated with population on Kooragang Island which has no line of connectivity to the project area.
Zannichellia palustris	Horned Pondweed	Endangered	Not Listed	Waterbodies; Freshwater or slightly brackish estuarine areas (1%)	Grows in fresh or slightly saline stationary or slowly flowing water. Flowers during warmer months. NSW populations behave as annuals, dying back completely every summer.	23	No	No suitable semi-permanent waterbodies (freshwater or slightly brackish) that are proposed to be removed in the project area.
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Listed	--	Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. Breeding has been recorded from December to mid-March, when single young is born. Seasonal movements are unknown; there is speculation about a migration to southern Australia in late summer and autumn.	4	✓	Potential habitat in the Roll Shop, occurrence cannot be ruled out.
Myotis macropus	Southern Myotis	Vulnerable	Not Listed	Waterbodies; Waterbodies with permanent pools/stretches 3m or wider, including rivers, large creeks, billabongs, lagoons, estuaries, dams and other waterbodies, on or within 200m of the site.	Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, wharves, bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface. In NSW females have one young each year usually in November or December.	15	✓	There is one concrete drain on the subject land that is subject to tidal inundation. There is no significant woody vegetation or potential roosting structures within 200m of this drain. There is a second inter-tidal drain on the south-east corner of the project area, along Selwyn St. There are no proposed modifications to the building within 200 m of this drain. Vegetation around this building consists predominantly of small shrubs including *Acacia saligna* which may be removed as part of

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
								regular maintenance and would not impact this species.
Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Listed	Caves; Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records in BioNet with microhabitat code 'IC – in cave'; observation type code 'E nest-roost'; with numbers of individuals >5; or from the scientific literature.	Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas. Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats. They often share roosting sites with the Common Bentwing-bat and, in winter, the two species may form mixed clusters. In NSW the largest maternity colony is in close association with a large maternity colony of Eastern Bentwing-bats (*Miniopterus schreibersii*) and appears to depend on the large colony to provide the high temperatures needed to rear its young. Maternity colonies form in spring and birthing occurs in early summer. Males and juveniles disperse in summer. Only five nursery sites /maternity colonies are known in Australia.	35	✓	Potential habitat in the Roll Shop, occurrence cannot be ruled out.
Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Vulnerable	Cliffs; Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, or crevices, or within two kilometres of old mines or tunnels.	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (*Petrochelidon ariel*), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in caves, overhangs, mine adits and concrete structures such as derelict buildings. They remain loyal to the same cave over many years. Found in well-timbered areas containing gullies. The relatively short, broad wing combined with the low weight per unit area of wing indicates manoeuvrable flight. This species probably forages for small, flying insects below the forest canopy. Likely to hibernate through the coolest months. It is uncertain whether mating occurs early in winter or in spring.	1	✓	Potential habitat in the Roll Shop, occurrence cannot be ruled out.
Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Listed	Caves; Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records with microhabitat code "IC - in cave;" observation type code "E nest-roost;" with numbers of individuals >5	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. Maternity caves have very specific temperature and humidity regimes. At other times of the year, populations disperse within about 300 km range of maternity caves. Cold caves are used for hibernation in southern Australia. Breeding or roosting colonies can number from 100 to 150,000 individuals. Hunt in forested areas, catching moths and other flying insects above the treetops.	30	✓	Potential habitat in the Roll Shop, occurrence cannot be ruled out.
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Vulnerable	Other; Breeding camps	Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young. Annual mating commences in January and conception occurs in April or May; a single young is born in October or November. Site fidelity to camps is high; some camps have been used for over a century. Can travel up to 50 km from the camp to forage; commuting distances are more often <20 km. Feed on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops.	417	✓	Species observed flying over the project site during inspections. No colonies or breeding camps detected during site inspections. May forage within the project area, no significant behavioural changes anticipated, and no significant removal of forage sources.
Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Listed	--	Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species. Little is known of its reproductive cycle, however a single young is born in January; prior to birth, females congregate at maternity sites located in suitable trees, where they appear to exclude males during the birth and raising of the single young.	14	✓	Potential habitat in the Roll Shop, occurrence cannot be ruled out.
Phoniscus papuensis	Golden-tipped Bat	Vulnerable	Not Listed	--	Found in rainforest and adjacent wet and dry sclerophyll forest up to 1000m. Also recorded in tall open forest, Casuarina-dominated riparian forest and coastal Melaleuca forests. Bats will fly up to two kilometres from roosts to forage in rainforest and sclerophyll forest on mid and upper slopes. Roost mainly in rainforest gullies on small first- and second-order streams in usually abandoned hanging Yellow-throated Scrubwren and Brown Gerygone nests modified with an access hole on the underside. Bats may also roost under thick moss on tree trunks, in tree hollows, dense foliage and epiphytes. Bats will use multiple roost and change roosts regularly. Bats roost individually or in small colonies which can contain up to approximately 20 bats of both males and females or just a single sex. Maternity roots may occur away from water sources with one maternity roost found 450m upslope of the nearest water course in a broken bough. Specialist feeder on small web-building spiders. There is one breeding cycle per year.	0	✓	Very low roosting habitat suitability within the project area and subject area. Species may fly over site or forage over the project area and subject area, no significant behavioural changes anticipated due to development.
Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Listed	--	Prefers moist habitats, with trees taller than 20 m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. Hunts beetles, moths, weevils and other flying insects above or just below the tree canopy. Hibernates in winter. Females are pregnant in late spring to early summer.	2	✓	Potential habitat in the Roll Shop, occurrence cannot be ruled out.
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Listed	--	Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures. Usually solitary but also recorded roosting communally, probably insectivorous.	25	✓	Potential habitat in the Roll Shop, occurrence cannot be ruled out.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
Vespadelus troughtoni	Eastern Cave Bat	Vulnerable	Not Listed	Caves; Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, crevices or boulder piles, or within two kilometres of old mines, tunnels, old buildings or sheds."	Very little is known about the biology of this uncommon species. A cave-roosting species that is usually found in dry open forest and woodland, near cliffs or rocky overhangs; has been recorded roosting in disused mine workings, occasionally in colonies of up to 500 individuals. Occasionally found along cliff-lines in wet eucalypt forest and rainforest. Little is understood of its feeding or breeding requirements or behaviour.	2	✓	Potential habitat in the Roll Shop, occurrence cannot be ruled out.
Ptilinopus magnificus	Wompoo Fruit-Dove	Vulnerable	Not Listed	--	Occurs in, or near rainforest, low elevation moist eucalypt forest and brush box forests. Feeds on a diverse range of tree and vine fruits and is locally nomadic - following ripening fruit. Thought to be an effective medium to long-distance vector for seed dispersal. Feeds alone, or in loose flocks at any height in the canopy. Despite its plumage, can be remarkably cryptic as it feeds, with the call and falling fruit being an indication of its presence. The nest is a typical pigeon nest - a flimsy platform of sticks on a thin branch or a palm frond, often over water, usually 3 - 10 m above the ground. Breeds in spring and early summer; a single white egg is laid. Most often seen in mature forests, but also found in remnant and regenerating rainforest. Aspects of its behaviour such as social behaviour and structure, movements and breeding biology have not been well-studied.	4	✓	Highly marginal foraging habitat present as fig trees in the landscape cap area. Species may fly over project area, no significant behavioural changes anticipated due to development.
Hirundapus caudacutus	White-throated Needletail	Vulnerable	Vulnerable	--	Migratory and usually seen in eastern Australia from October to April. Breeds in forests in south-eastern Siberia, Mongolia, the Korean Peninsula and northern Japan June-August. Most often seen in eastern Australia before storms, low pressure troughs and approaching cold fronts and occasionally bushfire. These conditions are often used by insects to swarm (e.g. termites and ants) or tend to lift insects away from the surface which favours sighting of White-throated Needletails as they feed. More common in coastal areas, less so inland.	31	✓	Species may fly over site or forage over the site, no significant behavioural changes anticipated due to development.
Epthianura albifrons	White-fronted Chat	Vulnerable	Not Listed	--	Gregarious species usually found foraging on bare or grassy ground in wetland areas, singly or in pairs. They are insectivorous, feeding mainly on flies and beetles caught from or close to the ground. Have been observed breeding from late July through to early March, with 'open-cup' nests built in low vegetation. Nests in the Sydney region have also been seen in low isolated mangroves. Nests are usually built about 23 cm above the ground (but have been found up to 2.5 m above the ground). Two to three eggs are laid in each clutch, and the complete nesting cycle from nest-building to independent young is approximately 50 days. Birds can breed at one year of age and are estimated to live for five years.	350	No	Vast majority of species records within 5 km are located on Kooragang Island and Ash Island. Minimal suitable foraging habitat within project area. Marginal foraging habitat would be considered for drainage lines in the VENM cap area. Species may fly over site, no significant behavioural changes anticipated due to development.
Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Listed	Waterbodies; Within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines Other; Living or dead mature trees within suitable vegetation within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines	Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or seashore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts. Nests are large structures built from sticks and lined with leaves or grass. Feed mainly on fish and freshwater turtles, but also waterbirds, reptiles, mammals and carrion. Hunts its prey from a perch or whilst in flight (by circling slowly, or by sailing along 10–20 m above the shore). Prey is usually carried to a feeding platform or (if small) consumed in flight, but some items are eaten on the ground. May be solitary or live in pairs or small family groups consisting of a pair of adults and dependent young. Typically lays two eggs between June and September with young birds remaining in the nest for 65-70 days.	535	✓	May fly-over project area. No suitable foraging habitat within project area. No significant behavioural changes anticipated due to development.
Diomedea exulans	Wandering Albatross	Endangered	Vulnerable	--	Wandering albatross spend the majority of their time in flight, soaring over the southern oceans. They breed on a number of islands just north of the Antarctic Circle: South Georgia Island (belonging to the UK), Prince Edward and Marion Islands (South Africa), Crozet and Kerguelen Islands (French Southern Territories) and Macquarie Island (Australia). Breeding takes place on exposed ridges and hillocks, amongst open and patchy vegetation. Wandering albatross pairs mate for life; these long-lived birds do not reach sexual maturity until 9-11 years of age. Wandering Albatross breed biennially in small, loose colonies among grass tussocks, using a large mud nest. A single egg is laid; both parents incubate the egg (that hatches after two months) and feed the growing chick, which remains on the nest for around 9 months. They feed in pelagic, offshore and inshore waters, often at night, taking fish and cephalopods such as squid, crustaceans and carrion, and will often follow ships feeding on the refuse they trail.	1	No	May fly-over project area. No suitable foraging habitat within project area. No significant behavioural changes anticipated due to development.
Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Listed	--	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy. Builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years. Generation length is estimated to be 5 years.	1	✓	May fly-over project area. Highly marginal foraging habitat within project area. No significant behavioural changes anticipated due to development.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
Xenus cinereus	Terek Sandpiper	Vulnerable	Not Listed	Other; As per Important Habitat Map	In Australia, has been recorded on coastal mudflats, lagoons, creeks and estuaries. Favours mudbanks and sandbanks located near mangroves but may also be observed on rocky pools and reefs, and occasionally up to 10 km inland around brackish pools. Generally, roosts communally amongst mangroves or dead trees, often with related wader species. Breaks up into smaller flocks or even solitary birds when feeding in open intertidal mudflats. The diet includes worms, crabs and other crustaceans, small shellfish and the adults and larvae of various flies, beetles and water-bugs. Feeding is undertaken by moving rapidly and erratically over soft, wet mud, pecking or probing at the surface.	388	✓	No Important Habitat Map in project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Lathamus discolor	Swift Parrot	Endangered	Critically Endangered	Other; As per Important Habitat Map	Migrates to the Australian south-east mainland between February and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Forest Red Gum *E. tereticornis*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. Commonly used lerp infested trees include Inland Grey Box E. microcarpa, Grey Box *E. moluccana*, Blackbutt *E. pilularis*, and Yellow Box *E. melliodora*. Return to some foraging sites on a cyclic basis depending on food availability. Following winter, they return to Tasmania where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum Eucalyptus globulus.	2	No	No Important Habitat Map in project area. Minimal suitable foraging resources within project area. Potential foraging habitat would be considered for the landscape cap area. Species may fly over site, no significant behavioural changes anticipated due to development.
Ptilinopus superbus	Superb Fruit-Dove	Vulnerable	Not Listed	--	Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees. Part of the population is migratory or nomadic. There are records of single birds flying into lighted windows and lighthouses, indicating that birds travel at night. At least some of the population, particularly young birds, moves south through Sydney, especially in autumn. Breeding takes place from September to January. The nest is a structure of fine interlocked forked twigs, giving a stronger structure than its flimsy appearance would suggest, and is usually 5-30 metres up in rainforest and rainforest edge tree and shrub species. The male incubates the single egg by day, the female incubates at night.	1	No	Highly marginal foraging habitat present as fig trees in the landscape cap area. Species may fly over project area, no significant behavioural changes anticipated due to development.
Lophoictinia isura	Square-tailed Kite	Vulnerable	Not Listed	Other; Nest trees	Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. In arid north-western NSW, has been observed in stony country with a ground cover of chenopods and grasses, open acacia scrub and patches of low open eucalypt woodland. Is a specialist hunter of passerines, especially honeyeaters, and most particularly nestlings, and insects in the tree canopy, picking most prey items from the outer foliage. Appears to occupy large hunting ranges of more than 100 square km. Breeding is from July to February, with nest sites generally located along or near watercourses, in a fork or on large horizontal limbs.	12	✓	No stick nests observed in the project area or subject area. Species may fly or forage over site, no significant behavioural changes anticipated due to development.
Circus assimilis	Spotted Harrier	Vulnerable	Not Listed	--	Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. Builds a stick nest in a tree and lays eggs in spring (or sometimes autumn), with young remaining in the nest for several months. Preys on terrestrial mammals (egg bandicoots, bettongs, and rodents), birds and reptile, occasionally insects and rarely carrion.	20	✓	No stick nests observed in the project area or subject area. Species may fly or forage over site, no significant behavioural changes anticipated due to development.
Macronectes giganteus	Southern Giant Petrel	Endangered	Endangered	--	Over summer, the species nests in small colonies amongst open vegetation on Antarctic and subantarctic islands, including Macquarie and Heard Islands and in Australian Antarctic territory. A single chick is raised and although breeding occurs annually, approximately 30% of the potential breeding population does not nest. It is an opportunistic scavenger and predator, and scavenges from fishing vessels and animal carcasses on land. It is also an active predator of cephalopods and euphausiids, as well as smaller birds (particularly penguins) both at land and at sea. Birds will desert their nests if disturbed at the breeding colony.	2	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Onychoprion fuscata	Sooty Tern	Vulnerable	Not Listed	--	Large flocks can be seen soaring, skimming and dipping but seldom plunging in off shore waters. Breeds in large colonies in sand or coral scrapes on offshore islands and cays including Lord Howe and Norfolk Islands.	2	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Listed	Other; Within 1m of estuarine areas and the ocean	Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries. Forages on exposed rock or coral at low tide for foods such as limpets and mussels. Breeds in spring and summer, almost exclusively on offshore islands, and occasionally on isolated promontories. The nest is a shallow scrape on the ground, or small mounds of pebbles, shells or seaweed when nesting among rocks.	236	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Thalassarche cauta	Shy Albatross	Endangered	Endangered	--	This pelagic or ocean-going species inhabits subantarctic and subtropical marine waters, spending the majority of its time at sea. While at sea, it soars on strong winds and when calm, individuals may rest on the ocean, in groups during the breeding season or as individuals at other times. Occasionally the species occurs in continental shelf waters, in bays and harbours. The species feeds on fish, crustaceans, offal and squid and may forage in mixed-species flocks. Food may be caught by seizing prey from the water's surface while swimming, by landing on top of prey, diving for prey beneath the water and by scavenging behind fishing vessels. Known breeding locations include Albatross Island off Tasmania, Auckland Island, Bounty Island and	1	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
					The Snares, off New Zealand, where nesting colonies of 6-500 nests occur and may contain other species such as the Australian Gannet. Located on sheltered sides of islands, on cliffs and ledges, in crevices and slopes, nests are used annually and consist of a mound of mud, bones, plant matter and rocks. Parents are territorial while nesting, having both defensive and mating displays. Breeding occurs September-December, when a single egg is laid and incubated for 72 days. Both parents feed and guard the young for approximately 5 months before they fledge and become independent.			
Ptilinopus regina	Rose-crowned Fruit-Dove	Vulnerable	Not Listed	--	Rose-crowned Fruit-doves occur mainly in sub-tropical and dry rainforest and occasionally in moist eucalypt forest and swamp forest, where fruit is plentiful. They are shy pigeons, not easy to see amongst the foliage, and are more often heard than seen. They feed entirely on fruit from vines, shrubs, large trees and palms, and are thought to be locally nomadic as they follow the ripening of fruits. Some populations are migratory in response to food availability - numbers in north-east NSW increase during spring and summer then decline in April or May.	0	✓	Highly marginal foraging habitat present as fig trees in the landscape cap area. Species may fly over project area, no significant behavioural changes anticipated due to development.
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Critically Endangered	Other; As per Important Habitat Map	The Regent Honeyeater is a flagship threatened woodland bird whose conservation will benefit a large suite of other threatened and declining woodland fauna. The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. Every few years non-breeding flocks are seen foraging in flowering coastal Swamp Mahogany and Spotted Gum forests, particularly on the central coast and occasionally on the upper north coast. Birds are occasionally seen on the south coast. In the last 10 years Regent Honeyeaters have been recorded in urban areas around Albury where woodlands tree species such as Mugga Ironbark and Yellow Box were planted 20 years ago. The Regent Honeyeater is a generalist forager, although it feeds mainly on the nectar from a relatively small number of eucalypts that produce high volumes of nectar. Key eucalypt species include Mugga Ironbark, Yellow Box, White Box and Swamp Mahogany. Other tree species may be regionally important. For example, the Lower Hunter Spotted Gum forests have recently been demonstrated to support regular breeding events. Flowering of associated species such as Thin-leaved Stringybark *Eucalyptus eugenioides* and other Stringybark species, and Broad-leaved Ironbark *E. fibrosa* can also contribute important nectar flows at times. Nectar and fruit from the mistletoes *Amyema miquelii*, *A. pendula* and *A. cambagei* are also utilised. When nectar is scarce lerp, and honeydew can comprise a large proportion of the diet. Insects make up about 15% of the total diet and are important components of the diet of nestlings. Colour-banding of Regent Honeyeater has shown that the species can undertake large-scale nomadic movements in the order of hundreds of kilometres. However, the exact nature of these movements is still poorly understood. It is likely that movements are dependent on spatial and temporal flowering and other resource patterns. To successfully manage the recovery of this species a full understanding of the habitats used in the non-breeding season is critical. There are several known key breeding areas, four of them in NSW - Capertee Valley, Lower Hunter Valley, Mudgee/Wollar and Bundarra-Barraba regions. The species breeds between July and January in Box-Ironbark and other temperate woodlands and riparian gallery forest. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and Sheoaks. Also nest in mistletoe haustoria. An open cup-shaped nest is constructed of bark, grass, twigs and wool by the female. Two or three eggs are laid and incubated by the female for 14 days. Nestlings are brooded and fed by both parents at an average rate of 23 times per hour and fledge after 16 days. Fledglings fed by both parents 29 times per hour.	0	✓	No Important Habitat Map in project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Calidris canutus	Red Knot	Not Listed	Endangered	Other; As per Important Habitat Map	In NSW the Red Knot mainly occurs in small numbers on intertidal mudflats, estuaries, bays, inlets, lagoons, harbours and sandflats and sandy beaches of sheltered coasts. It is occasionally found on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms and is a rare visitor to terrestrial saline wetlands and freshwater swamps. It usually forages near the water's edge, with feeding activity regulated by the tide as birds closely follow the tide-edge. The diet consists of worms, bivalves, gastropods, crustaceans and echinoderms. The birds roost on sandy beaches, spits, islets and mudflats close to feeding grounds, usually in open areas. It is rarely found on inland lakes or swamps.	479	✓	No Important Habitat Map in project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Erythrotriorchis radiatus	Red Goshawk	Critically Endangered	Vulnerable	--	Red Goshawks inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers. Adults appear to occupy territories throughout the year and breeding territories are traditionally used from year to year. Adults have large home-ranges, estimated in the Northern Territory to be as great as about 120 km2 for females and 200 km2 for males. Red Goshawks mainly eat medium to large birds, including species as large as Australian Brush-turkeys, Kookaburras, Tawny Frogmouths, Sulphur-crested Cockatoos and Rainbow Lorikeets, but they also take mammals, reptiles and insects. Red Goshawks usually hunt from concealed or, less often, exposed perches, but also fly close above or through forest or woodland searching for prey. They often hunt from perches early in the morning and late in the day and tend to hunt more on the wing at other times of the day. The breeding behaviour of Red Goshawks is not well known. Breeding is likely to be in spring and summer in southern Queensland and NSW. The birds lay clutches of 1-2 eggs between July and September, in a stick nest in a tall	0	✓	No stick nests observed in the project area or subject area. Species may fly or forage over site, no significant behavioural changes anticipated due to development.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
					tree (>20 m tall) within 1 km of a watercourse or wetland. Young fledge around November and December. In winter in eastern Australia, the birds appear to move from nesting sites in the ranges to coastal plains, where they are associated with permanent wetlands. The age at which Red Goshawks first breed is not known, nor is the life expectancy. Young remains with their parents for at least 70-80 days after they leave the nest and may remain with their parents for 4-5 months.			
Pterodroma solandri	Providence Petrel	Vulnerable	Not Listed	--	Marine. Nest on the tops of Mount Gower and Mount Lidgbird and to a less extent, on the lower slopes of the mountains. The nest is a grass lined chamber at the end of a burrow, 1 - 2 metres in length.	2	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Ninox strenua	Powerful Owl	Vulnerable	Not Listed	Hollow bearing trees; a living or dead tree with a hollow >2 cm diameter that occurs >4 metres above the ground	The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. The species breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. It roosts by day in dense vegetation comprising species such as Turpentine *Syncarpia glomulifera*, Black She-oak *Allocasuarina littoralis*, Blackwood *Acacia melanoxylon*, Rough-barked Apple *Angophora floribunda*, Cherry Ballart *Exocarpus cupressiformis* and a number of eucalypt species. The main prey items are medium-sized arboreal marsupials, particularly the Greater Glider, Common Ringtail Possum and Sugar Glider. There may be marked regional differences in the prey taken by Powerful Owls. For example, in southern NSW, Ringtail Possum make up the bulk of prey in the lowland or coastal habitat. At higher elevations, such as the tableland forests, the Greater Glider may constitute almost all of the prey for a pair of Powerful Owls. Flying foxes are important prey in some areas; birds comprise about 10-50% of the diet depending on the availability of preferred mammals. As most prey species require hollows and a shrub layer, these are important habitat components for the owl. Pairs of Powerful Owls demonstrate high fidelity to a large territory, the size of which varies with habitat quality and thus prey densities. In good habitats a mere 400 ha can support a pair when prey is dense. Where hollow trees and prey have been depleted, the owls need up to 4000 ha. Powerful Owls nest in large tree hollows (at least 0.5 m deep), in large eucalypts (diameter at breast height of 80-240 cm) that are at least 150 years old. While the female and young are in the nest hollow the male Powerful Owl roosts nearby (10-200 m) guarding them, often choosing a dense "grove" of trees that provide concealment from other birds that harass him. Powerful Owls are monogamous and mate for life. Nesting typically occurs from May to October, being variable between pairs and among years. Fledging can occur as late as December if a pair re-nests after a failed first attempt. Clutches consist of two dull white eggs and incubation lasts approximately 38 days.	22	✓	Species may fly over site or forage over the site, no significant behavioural changes anticipated due to development.
Haematopus longirostris	Pied Oystercatcher	Endangered	Not Listed	Other; Within 1m of estuarine areas and the ocean	Favours intertidal flats of inlets and bays, open beaches and sandbanks. Forages on exposed sand, mud and rock at low tide, for molluscs, worms, crabs and small fish. The chisel-like bill is used to pry open or break into shells of oysters and other shellfish. Nests mostly on coastal or estuarine beaches although occasionally they use saltmarsh or grassy areas. Nests are shallow scrapes in sand above the high tide mark, often amongst seaweed, shells and small stones. Two to three eggs are laid between August and January. The female is the primary incubator and the young leave the nest within several days.	572	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Grantiella picta	Painted Honeyeater	Vulnerable	Vulnerable	Other; Mistletoes present at a density of greater than five mistletoes per hectare	Inhabits Boree/ Weeping Myall (*Acacia pendula*), Brigalow (*A. harpophylla*) and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus *Amyema*. Insects and nectar from mistletoe or eucalypts are occasionally eaten. Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, she-oak, paperbark or mistletoe branches.	0	✓	Species may fly over site or forage within the landscape cap area, no significant behavioural changes anticipated due to development.
Tyto novaehollandiae	Masked Owl	Vulnerable	Not Listed	Hollow bearing trees; a living or dead tree with a hollow >2 cm diameter that occurs >4 metres above the ground	Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 1000 hectares or more, depending on prey availability. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	2	✓	No hollow bearing trees occur in the project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Sula dactylatra	Masked Booby	Vulnerable	Not Listed	--	Marine. Remain at Lord Howe Island year round but range widely for food and some juveniles wander before returning to breed. Young birds banded on Lord Howe Island have been recovered as far away as the Solomon Islands. Breed on high open areas where they can take off directly into the wind. Breeding sites on Lord Howe Island include King Point and Muttonbird Point on the main Island and also Ball's Pyramid, Muttonbird Island and the Admiralty Islets. The nest is a rough platform of trodden grass.	1	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Anseranas semipalmata	Magpie Goose	Vulnerable	Not Listed	--	Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges. Equally at home in aquatic or terrestrial habitats; often seen walking and grazing on land; feeds on grasses, bulbs and rhizomes. Activities are centred on wetlands, mainly those on floodplains of rivers and large shallow wetlands formed by run-off; breeding can occur in both summer and winter dominated rainfall areas and is strongly influenced by water level; most breeding now occurs in monsoonal areas; nests are formed in trees over deep water; breeding is unlikely in south-eastern NSW. Often seen in trios or flocks on shallow wetlands, dry ephemeral swamps, wet grasslands and floodplains; roosts in tall vegetation.	52	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
Sternula albifrons	Little Tern	Endangered	Not Listed	--	Almost exclusively coastal, preferring sheltered environments; however may occur several kilometres from the sea in harbours, inlets and rivers (with occasional offshore islands or coral cay records). Nests in small, scattered colonies in low dunes or on sandy beaches just above high tide mark near estuary mouths or adjacent to coastal lakes and islands. The nest is a scrape in the sand, which may be lined with shell grit, seaweed or small pebbles. Both parents incubate up to three well-camouflaged eggs for up to 22 days, aggressively defending the nest against intruders until the young fledge at 17 - 19 days. Often seen feeding in flocks, foraging for small fish, crustaceans, insects, worms and molluscs by plunging in the shallow water of channels and estuaries, and in the surf on beaches, or skipping over the water surface with a swallow-like flight.	225	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Listed	--	Forages primarily in the canopy of open Eucalyptus Forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards. Gregarious, travelling and feeding in small flocks (<10), though often with other lorikeets. Flocks numbering hundreds are still occasionally observed and may have been the norm in past centuries. Roosts in treetops, often distant from feeding areas. Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Entrance is small (3 cm) and usually high above the ground (2–15 m). These nest sites are often used repeatedly for decades, suggesting that preferred sites are limited. Riparian trees often chosen, including species like *Allocasuarina*. Nesting season extends from May to September. In years when flowering is prolific, Little Lorikeet pairs can breed twice, producing 3-4 young per attempt. However, the survival rate of fledglings is unknown.	12	✓	No hollow bearing trees observed in the study area. Species may fly over site or forage over the site, no significant behavioural changes anticipated due to development.
Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Listed	Other; Nest trees - live (occasionally dead) large old trees within vegetation.	Occupies open eucalypt forest, woodland or open woodland. Sheoak or *Acacia* woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. Lays two or three eggs during spring, and young fledge in early summer. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.	14	✓	No stick nests observed in the project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Charadrius mongolus	Lesser Sand-plover	Vulnerable	Endangered	Other; As per Important Habitat Map	Almost entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats; occasionally occurs on sandy beaches, coral reefs and rock platforms. Highly gregarious, frequently seen in flocks exceeding 100 individuals; also often seen foraging and roosting with other wader species. Roosts during high tide on sandy beaches, spits and rocky shores; forage individually or in scattered flocks on wet ground at low tide, usually away from the water's edge. Diet includes insects, crustaceans, molluscs and marine worms. Prey is usually detected visually with the birds making short, quick runs, with abrupt stops to lunge at the ground or look for prey.	70	✓	No Important Habitat Map in project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Gallinago hardwickii	Latham's Snipe	Vulnerable	Vulnerable	--	--	95	No	Minimal suitable foraging habitat within project area. Marginal foraging habitat would be considered for drainage lines in the VENM cap area. Species may fly over site. No significant behavioural changes anticipated due to development.
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Listed	--	Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey. Territories range from around 10 ha during the breeding season, to 30 ha in the non-breeding season. May breed any time between July and November, often rearing several broods. The nest is a small, neat cup of bark and grasses bound with webs, in a tree fork or crevice, from less than 1 m to 5 m above the ground. The nest is defended by both sexes with displays of injury-feigning, tumbling across the ground. A clutch of two to three is laid and incubated for fourteen days by the female. Two females often cooperate in brooding.	0	✓	Species may fly over site or forage over the site, no significant behavioural changes anticipated due to development.
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Listed	--	Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions. Flight is laborious so birds prefer to hop to the top of a tree and glide down to the next one. Birds are generally unable to cross large open areas. Live in family groups that consist of a breeding pair and young from previous breeding seasons. A group may consist of up to fifteen birds. All members of the family group remain close to each other when foraging. A soft 'chuck' call is made by all birds as a way of keeping in contact with other group members. Feed on invertebrates, either by foraging on the trunks and branches of eucalypts and other woodland trees or on the ground, digging and probing amongst litter and tussock grasses. Build and maintain several conspicuous, dome-shaped stick nests about the size of a football. A nest is used as a dormitory for roosting each night. Nests are usually located in shrubs or sapling eucalypts, although they may be built in the	1	✓	Species may fly over site or forage over the site, no significant behavioural changes anticipated due to development.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
					outermost leaves of low branches of large eucalypts. Nests are maintained year round, and old nests are often dismantled to build new ones. Breed between July and February. Usually two to three eggs are laid and incubated by the female. During incubation, the adult male and several helpers in the group may feed the female as she sits on the nest. Young birds are fed by all other members of the group. Territories range from one to fifty hectares (usually around ten hectares) and are defended all year. Territorial disputes with neighbouring groups are frequent and may last up to several hours, with much calling, chasing and occasional fighting.			
Charadrius leschenaultii	Greater Sand-plover	Vulnerable	Vulnerable	Other; As per Important Habitat Map	Almost entirely restricted to coastal areas in NSW, occurring mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks. Roosts during high tide on sandy beaches and rocky shores; begin foraging activity on wet ground at low tide, usually away from the edge of the water; individuals may forage and roost with other waders. Diet includes insects, crustaceans, polychaete worms and molluscs. Prey is detected visually by running a short distance, stopping to look, then running to collect the prey.	15	✓	No Important Habitat Map in project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Calidris tenuirostris	Great Knot	Vulnerable	Critically Endangered	Other; As per Important Habitat Map	Occurs within sheltered, coastal habitats containing large, intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons. Often recorded on sandy beaches with mudflats nearby, sandy spits and islets and sometimes on exposed reefs or rock platforms. Migrates to Australia from late August to early September, although juveniles may not arrive until October-November. Most birds return north in March and April, however some individuals may stay over winter in Australia. Forages for food by methodically thrusting its bill deep into the mud to search for invertebrates, such as bivalve molluscs, gastropods, polychaete worms and crustaceans.	200	✓	No Important Habitat Map in project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Pterodroma leucoptera leucoptera	Gould's Petrel	Vulnerable	Endangered	--	The first arrival of Gould's petrel on cabbage tree Island occurs from mid to late September. Principal nesting habitat is located within two gullies which are characterised by steeply, sloping rock scree with a canopy of Cabbage Tree Palms. They nest predominantly in natural rock crevices among the rock scree and also in hollow fallen palm trunks, under mats of fallen palm fronds and in cavities among the buttresses of fig trees. They breed colonially and the nests are clumped and often less than 1 m apart. Egg laying takes place over a six week period commencing in early November.	1	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Not Listed	Other; Presence of *Allocasuarina* and casuarina species Hollow bearing trees; Living or dead tree with hollows greater than 15cm diameter and higher than 8m above ground.	Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foods. Inland populations feed on a wide range of sheoaks, including Drooping Sheoak, *Allocasuarina diminuta*, and *A. gymnathera*. Belah is also utilised and may be a critical food source for some populations. In the Riverina, birds are associated with hills and rocky rises supporting Drooping Sheoak, but also recorded in open woodlands dominated by Belah (*Casuarina cristata*). Feeds almost exclusively on the seeds of several species of she-oak (*Casuarina* and *Allocasuarina* species), shredding the cones with the massive bill. Dependent on large hollow-bearing eucalypts for nest sites. A single egg is laid between March and May.	0	✓	No hollow bearing trees occur in the project area. Species may forage on Swamp Oak in landscape capped area. Species may fly over site, no significant behavioural changes anticipated due to development.
Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Endangered	Hollow bearing trees; Eucalypt tree species with hollows at least 3 m above the ground and with hollow diameter of 7 cm or larger	In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. May also occur in sub-alpine Snow Gum (*Eucalyptus pauciflora*) woodland and occasionally in temperate rainforests. Favours old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 7 cm in diameter or larger in eucalypts and 3 metres or more above the ground.	1	✓	No hollow bearing trees occur in the project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Stictonetta naevosa	Freckled Duck	Vulnerable	Not Listed	--	Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. Generally, rest in dense cover during the day, usually in deep water. Feed at dawn and dusk and at night on algae, seeds and vegetative parts of aquatic grasses and sedges and small invertebrates. Nesting usually occurs between October and December but can take place at other times when conditions are favourable. Nests are usually located in dense vegetation at or near water level.	25	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Pandion cristatus	Eastern Osprey	Vulnerable	Not Listed	Other; Presence of stick-nests in living and dead trees (>15m) or artificial structures within 1m of a floodplain for nesting	Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. Feed on fish over clear, open water. Breed from July to September in NSW. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea. Incubation of 2-3 eggs, usually by the female, is about 40 days. Female remains with young almost until they fly, usually after about nine weeks in the nest.	97	✓	No stick nests observed in the project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Numenius madagascariensis	Eastern Curlew	Critically Endangered	Critically Endangered	Other; As per Important Habitat Map	It generally occupies coastal lakes, inlets, bays and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed. It roosts on sandy spits and islets, especially on dry beach sand near the high-water mark, and among coastal vegetation including low saltmarsh or mangroves. May also roost on wooden oyster leases or other similar structures. The Eastern Curlew is carnivorous, mainly eating crustaceans (including crabs,	247	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
					shrimps and prawns), small molluscs, as well as some insects. The birds may delay breeding until three to four years of age. Within Australia, immature birds, which do not migrate, move northward in winter.			
Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Listed	--	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and groundcover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland. Primarily eats invertebrates, mainly insects, which are captured whilst hovering or sallying above the canopy or over water. Also, frequently hovers, sallies and pounces under the canopy, primarily over leaf litter and dead timber. Also occasionally take nectar, fruit and seed. Depending on location and local climatic conditions (primarily temperature and rainfall), the dusky woodswallow can be resident year round or migratory. In NSW, after breeding, birds migrate to the north of the state and to southeastern Queensland, while Tasmanian birds migrate to southeastern NSW after breeding. Migrants generally depart between March and May, heading south to breed again in spring. There is some evidence of site fidelity for breeding. Although dusky woodswallows generally breed as solitary pairs or occasionally in small flocks, large flocks may form around abundant food sources in winter. Large flocks may also form before migration, which is often undertaken with other species. Nest is an open, cup-shape, made of twigs, grass, fibrous rootlets and occasionally casuarina needles, and may be lined with grass, rootlets or infrequently horsehair, occasionally unlined. Nest sites vary greatly, but generally occur in shrubs or low trees, living or dead, horizontal or upright forks in branches, spouts, hollow stumps or logs, behind loose bark or in a hollow in the top of a wooden fence post. Nest sites may be exposed or well concealed by foliage.	0	✓	Species may fly over site or forage over the site, no significant behavioural changes anticipated due to development.
Stagonopleura guttata	Diamond Firetail	Vulnerable	Vulnerable	--	Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season). Usually encountered in flocks of between 5 to 40 birds, occasionally more. Groups separate into small colonies to breed, between August and January. Nests are globular structures built either in the shrubby understorey, or higher up, especially under hawk's or raven's nests. Birds roost in dense shrubs or in smaller nests built especially for roosting. Appears to be sedentary, though some populations move locally, especially those in the south. Has been recorded in some towns and near farmhouses.	1	No	Single record associated with Kooragang Island. Minimal suitable foraging habitat within project area. Marginal foraging habitat would be considered for drainage lines in the VENM cap area. Species may fly over site, no significant behavioural changes anticipated due to development.
Calidris ferruginea	Curlew Sandpiper	Endangered	Critically Endangered	Other; As per Important Habitat Map	It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland. It forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed. It roosts on shingle, shell or sand beaches; spits or islets on the coast or in wetlands; or sometimes in salt marsh, among beach-cast seaweed, or on rocky shores. Curlew Sandpipers are omnivorous, feeding on worms, molluscs, crustaceans, insects and some seeds. Birds breed at 2 years of age and the oldest recorded bird is 19 years old. Most birds caught in Australia are between 3 and 5 years old.	1389	✓	No Important Habitat Map in project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Tringa nebularia	Common Greenshank	Endangered	Endangered	--	#N/A	797	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Irediparra gallinacea	Comb-crested Jacana	Vulnerable	Not Listed	Waterbodies; Freshwater wetlands with a good surface cover of floating aquatic vegetation	Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation. Forage on floating vegetation, walking with a characteristic bob and flick. They feed primarily on insects and other invertebrates, as well as some seeds and other vegetation. Breed mainly in spring and summer in NSW, with clutches recorded from September to April. The nest is a platform or shallow cup of vegetable material, though eggs sometimes laid directly onto a large leaf with no nest built. The male builds the nest, incubates the eggs and broods the young. Eggs that roll into the water from a nest are usually retrieved. The young are precocial, but the adult male can carry one or two under each wing if they are threatened and drop them in separate places. Young birds will dive and stay submerged with just their nostrils exposed for a very long time. Adults will also dive for safety on occasion. Comb-crested Jacanas are dispersive, moving about in response to the condition of wetlands, and occasionally turn up well beyond normal range.	4	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Burhinus grallarius	Bush Stone-curlew	Endangered	Not Listed	Fallen/standing dead timber including logs; Null	Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. Largely nocturnal, being especially active on moonlit nights. Feed on insects and small vertebrates, such as frogs, lizards and snakes. Nest on the ground in a scrape or small bare patch. Two eggs are laid in spring and early summer.	4	✓	No Fallen/standing dead timber including logs. Species may fly over site, no significant behavioural changes anticipated due to development.

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Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Listed	--	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (Eucalyptus camaldulensis) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded, though less commonly, in similar woodland habitats on the coastal ranges and plains. Sedentary, considered to be resident in many locations throughout its range; present in all seasons or year-round at many sites; territorial year-round, though some birds may disperse locally after breeding. Gregarious and usually observed in pairs or small groups of 8 to 12 birds; terrestrial and arboreal in about equal proportions; active, noisy and conspicuous while foraging on trunks and branches of trees and amongst fallen timber; spend much more time foraging on the ground and fallen logs than other treecreepers. When foraging in trees and on the ground, they peck and probe for insects, mostly ants, amongst the litter, tussocks and fallen timber, and along trunks and lateral branches; up to 80% of the diet is comprised of ants; other invertebrates (including spiders, insects larvae, moths, beetles, flies, hemipteran bugs, cockroaches, termites and lacewings) make up the remaining percentage; nectar from Mugga Ironbark (*Eucalyptus sideroxylon*) and paperbarks, and sap from an unidentified eucalypt are also eaten, along with lizards and food scraps; young birds are fed ants, insect larvae, moths, craneflies, spiders and butterfly and moth larvae. Hollows in standing dead or live trees and tree stumps are essential for nesting. The species breeds in pairs or co-operatively in territories which range in size from 1.1 to 10.7 ha (mean = 4.4 ha). Each group is composed of a breeding pair with retained male offspring and, rarely, retained female offspring. Often in pairs or cooperatively breeding groups of two to five birds.	0	✓	Species typically occurs further inland. Species may fly over site or forage within the landscape cap area, no significant behavioural changes anticipated due to development.
Limicola falcinellus	Broad-billed Sandpiper	Vulnerable	Not Listed	Other; As per Important Habitat Map	Broad-billed Sandpipers favour sheltered parts of the coast such as estuarine sandflats and mudflats, harbours, embayment's, lagoons, saltmarshes and reefs as feeding and roosting habitat. Occasionally, individuals may be recorded in sewage farms or within shallow freshwater lagoons. Broad-billed Sandpipers roost on banks on sheltered sand, shell or shingle beaches. The species is an active forager, typically feeding by rapidly and repeatedly jabbing its bill into soft wet mud. Feeding also occurs while wading, often in water so deep that they have to submerge their heads and necks in order to probe the underlying mud. Their diet includes insects, crustaceans, molluscs, worms and seeds. Individuals are strongly migratory and only mildly gregarious when not breeding. Large flocks are seldom recorded, and birds are often either encountered alone or feeding with other waders such as Red-necked Stints or Curlew Sandpipers.	30	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Oxyura australis	Blue-billed Duck	Vulnerable	Not Listed	--	The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. It will fly if disturbed but prefers to dive if approached. Blue-billed Ducks will feed by day far from the shore, particularly if dense cover is available in the central parts of the wetland. They feed on the bottom of swamps eating seeds, buds, stems, leaves, fruit and small aquatic insects such as the larvae of midges, caddisflies and dragonflies. Blue-billed Ducks are partly migratory, with short-distance movements between breeding swamps and overwintering lakes with some long-distance dispersal to breed during spring and early summer. Blue-billed Ducks usually nest solitarily in Cumbungi over deep water between September and February. They will also nest in trampled vegetation in Lignum, sedges or Spike-rushes, where a bowl-shaped nest is constructed. The most common clutch size is five or six. Males take no part in nest-building or incubation. Young birds disperse in April-May from their breeding swamps in inland NSW to non-breeding areas on the Murray River system and coastal lakes.	5	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Limosa limosa	Black-tailed Godwit	Vulnerable	Endangered	Other; As per Important Habitat Map	Primarily a coastal species. Usually found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats. Further inland, it can also be found on mudflats and in water less than 10 cm deep, around muddy lakes and swamps. Individuals have been recorded in wet fields and sewerage treatment works.Forages for insects, crustaceans, molluscs, worms, larvae, spiders, fish eggs, frog eggs and tadpoles in soft mud or shallow water. Roosts and loafs on low banks of mud, sand and shell bars. Frequently recorded in mixed flocks with Bar-tailed Godwits.	711	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Listed	Swamps; Shallow, open freshwater or saline wetlands or shallow edges of deeper wetlands within 3m of these swamps. Waterbodies; Shallow lakes, lake margins and estuaries within 3m of these waterbodies	Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries. Storks usually forage in water 5-30cm deep for vertebrate and invertebrate prey. Eels regularly contribute the greatest biomass to their diet, but they feed on a wide variety of animals, including other fish, frogs and invertebrates (such as beetles, grasshoppers, crickets and crayfish). Black-necked Storks build large nests high in tall trees close to water. Trees usually provide clear observation of the surroundings and are at low elevation (reflecting the floodplain habitat). In NSW, breeding activity occurs May - January; incubation May - October; nestlings July - January; fledging from September. Parents share nest duties and in one study about 1.3-1.7 birds were fledged per nest. The NSW breeding population has been estimated at about 75 pairs. Territories are large and variable in size. They have been estimated to average about 9,000ha, ranging from 3,000-6,000ha in high quality habitat and 10,000-15,000ha in areas where habitat is poor or dispersed.	57	✓	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
Thalassarche melanophris	Black-browed Albatross	Vulnerable	Vulnerable	--	Inhabits Antarctic, subantarctic, subtropical marine and coastal waters over upwellings and boundaries of currents. Can tolerate water temperatures between 0ºC and 24ºC.Spends most of its time at sea, breeding on small isolated islands. When at sea, individuals soar on strong winds and rest on the ocean, when calm, often in groups. This species feeds on fish, crustaceans, offal and squid and often forages in flocks with other seabirds. Individuals seize prey from the surface while swimming or landing, sometimes submerging their head and body to capture prey underwater, and they scavenge in large flocks behind fishing vessels. This species nests annually on a mound of soil and vegetation, on the cliffs or steep slopes of vegetated Antarctic and subantarctic islands. Colonies of up to 100,000 nests are formed, occasionally containing other species such as the Grey-headed Albatross, during which time the birds are territorial while nesting. Breeding occurs September-December, when a single egg is laid and incubated for 65-72 days by both parents. Both parents feed and guard the young for 4-5 months before they fledge and become independent. After breeding, the fledgling and adults leave the breeding colony, with the young reaching breeding age at approximately 11 years of age.	1	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Falco subniger	Black Falcon	Vulnerable	Not Listed	--	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. Some reports of 'Black Falcons' on the tablelands and coast of New South Wales are likely to be preferable to the Brown Falcon. In New South Wales there is assumed to be a single population that is continuous with a broader continental population, given that falcons are highly mobile, commonly travelling hundreds of kilometres (Marchant & Higgins 1993).	5	✓	No stick nests observed in the project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Listed	Waterbodies; Land within 4 m of freshwater and estuarine wetlands, in areas of permanent water and dense vegetation	Inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation. Where permanent water is present, the species may occur in flooded grassland, forest, woodland, rainforest and mangroves. Feeds on frogs, reptiles, fish and invertebrates, including snails, dragonflies, shrimps and crayfish, with most feeding done at dusk and at night. During the day, roosts in trees or on the ground amongst dense reeds. When disturbed, freezes in a characteristic bittern posture (stretched tall, bill pointing up, so that shape and streaked pattern blend with upright stems of reeds), or will fly up to a branch or flush for cover where it will freeze again. Generally solitary, but occurs in pairs during the breeding season, from December to March. Like other bitterns, but unlike most herons, nesting is solitary. Nests, built in spring are located on a branch overhanging water and consist of a bed of sticks and reeds on a base of larger sticks. Between three and five eggs are laid and both parents incubate and rear the young.	0	✓	Species may fly over site. Highly marginal foraging habitat on site. No significant behavioural changes anticipated due to development.
Esacus magnirostris	Beach Stone-curlew	Critically Endangered	Not Listed	--	Beach Stone-curlews are found exclusively along the coast, on a wide range of beaches, islands, reefs and in estuaries, and may often be seen at the edges of or near mangroves. They forage in the intertidal zone of beaches and estuaries, on islands, flats, banks and spits of sand, mud, gravel or rock, and among mangroves. Beach Stone-curlews breed above the littoral zone, at the backs of beaches, or on sandbanks and islands, among low vegetation of grass, scattered shrubs or low trees; also among open mangroves. Beach Stone-curlews are usually seen alone or in pairs, but sometimes occur in small groups. Birds forage by stalking slowly like a heron or with quicker dashes after prey. The diet consists of crabs and other marine invertebrates. They are mainly active at dawn, dusk and at night, but birds are often seen when they shift or move about sedately during the day. Less strictly nocturnal than the related Bush Stone-curlew (*Burhinus grallarius*). In NSW, clutches have been recorded from early October to late March, but elsewhere in temperate Australia, breeding has been recorded from September. Their nests are just a shallow scrape in sand or gravel, above the tidal zone at the backs of beaches, or on sandbanks and islands or among open mangroves. Only one egg is laid, but birds will re-lay after the failure of a breeding attempt. Both parents defend the nest and care for the young. The young are precocial but appear not to be independent until they are 7-12 months old.	2	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Limosa lapponica baueri	Bar-tailed Godwit (baueri)	Endangered	Vulnerable	Other; As per Important Habitat Map	It is found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. Less frequently it occurs in salt lakes and brackish wetlands, sandy ocean beaches and rock platforms. It often occurs around beds of seagrass, and sometimes in nearby saltmarsh or the outer margins of mangrove areas. It forages at low to mid tide in shallow water or along the water's edge on sandy substrates on intertidal flats, banks and beaches or on soft mud substrates. Its diet consists of worms, molluscs, crustaceans, insects and some plant material. In NSW its high tide roost areas on sandy beaches, sandbars, spits and near-coastal saltmarsh are frequently shared with other shorebirds. It is rarely found on inland wetlands or in areas of short grass such as farmland, paddocks and airstrips. In large part, the observed decline in Bar-tailed Godwit (Western Alaskan) numbers across Australia stems from ongoing loss of intertidal mudflat habitat at key migration staging sites in the Yellow Sea.	0	✓	No Important Habitat Map in project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Ninox connivens	Barking Owl	Vulnerable	Not Listed	Hollow bearing trees; a living or dead tree with a hollow >2 cm diameter that occurs >4 metres above the ground	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g. western NSW) due to the higher density of prey found on these fertile riparian soils. Roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as Acacia and Casuarina species. During nesting season, the male perches in a nearby tree overlooking the hollow entrance. Preferentially hunts small arboreal mammals such as Squirrel Gliders and Common Ringtail Possums, but when loss of tree hollows decreases these prey populations the owl becomes more reliant on birds, invertebrates and terrestrial	1	✓	No hollow bearing trees occur in the project area. Species may fly over site, no significant behavioural changes anticipated due to development.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
					mammals such as rodents and rabbits. Can catch bats and moths on the wing, but typically hunts by sallying from a tall perch. Requires very large permanent territories in most habitats due to sparse prey densities. Monogamous pairs hunt over as much as 6000 hectares, with 2000 hectares being more typical in NSW habitats. Two or three eggs are laid in hollows of large, old trees. Living eucalypts are preferred though dead trees are also used. Nest sites are used repeatedly over years by a pair, but they may switch sites if disturbed by predators (e.g. goannas). Nesting occurs during mid-winter and spring, being variable between pairs and among years. As a rule of thumb, laying occurs during August and fledging in November. The female incubates for 5 weeks, roosts outside the hollow when chicks are 4 weeks old, then fledging occurs 2-3 weeks later. Young are dependent on their parents for several months. Territorial pairs respond strongly to recordings of Barking Owl calls from up to 6 km away, though humans rarely hear this response farther than 1.5 km. Because disturbance reduces the pair's foraging time and can pull the female off her eggs even on cold nights, recordings should not be broadcast unnecessarily nor during the nesting season.			
Rostratula australis	Australian Painted Snipe	Endangered	Endangered	--	Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds. The nest consists of a scrape in the ground, lined with grasses and leaves. Breeding is often in response to local conditions; generally, occurs from September to December. Incubation and care of young is all undertaken by the male only. Forages nocturnally on mudflats and in shallow water. Feeds on worms, molluscs, insects and some plant-matter.	0	✓	Species may fly over site. Highly marginal foraging habitat on site. No significant behavioural changes anticipated due to development.
Botaurus poiciloptilus	Australasian Bittern	Endangered	Endangered	Waterbodies; Brackish or freshwater wetlands	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (*Typha* spp.) and spikerushes (*Eleocharis* spp.). Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. Feeding platforms may be constructed over deeper water from reeds trampled by the bird; platforms are often littered with prey remains. Breeding occurs in summer from October to January; nests are built in secluded places in densely vegetated wetlands on a platform of reeds; there are usually six olive-brown eggs to a clutch.	19	✓	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Limnodromus semipalmatus	Asian Dowitcher	Vulnerable	Vulnerable	--	--	6	No	No suitable foraging habitat within project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Neophema pulchella	Turquoise Parrot	Vulnerable	Not Listed	--	Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland. Usually seen in pairs or small, possibly family, groups and have also been reported in flocks of up to thirty individuals. Prefers to feed in the shade of a tree and spends most of the day on the ground searching for the seeds or grasses and herbaceous plants or browsing on vegetable matter. Forages quietly and may be quite tolerant of disturbance. However, if flushed it will fly to a nearby tree and then return to the ground to browse as soon as the danger has passed. Nests in tree hollows, logs or posts, from August to December. It lays four or five white, rounded eggs on a nest of decayed wood dust.	4	No	Species may fly over site or forage over the site, no significant behavioural changes anticipated due to development.
Tyto longimembris	Eastern Grass Owl	Vulnerable	Not Listed	--	Eastern Grass Owls are found in areas of tall grass, including grass tussocks, in swampy areas, grassy plains, swampy heath, and in cane grass or sedges on flood plains. They rest by day in a 'form' - a trampled platform in a large tussock or other heavy vegetative growth. If disturbed they burst out of cover, flying low and slowly, before dropping straight down again into cover. Always breeds on the ground. Nests are found in trodden grass, and often accessed by tunnels through vegetation. Breeding season is highly variable and dependent on environmental conditions, but in NSW nesting most typically occurs in autumn or winter.	4	No	No suitable habitat. VENM cap area is likely to sparse and open to represent foraging habitat.
Tyto tenebricosa	Sooty Owl	Vulnerable	Not Listed	Caves. Cliffs; including cliff lines/ledges Escarpments; including cliff lines/ledges. Hollow bearing trees: a living or dead tree with a hollow >20 cm diameter that occurs >4 metres above the ground	Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests. Roosts by day in the hollow of a tall forest tree or in heavy vegetation; hunts by night for small ground mammals or tree-dwelling mammals such as the Common Ringtail Possum (*Pseudocheirus peregrinus*) or Sugar Glider (*Petaurus breviceps*). Nests in very large tree-hollows.	1	No	No hollow bearing trees occur in the project area. Species may fly over site, no significant behavioural changes anticipated due to development.
Persicaria elatior	Tall Knotweed	Vulnerable	Vulnerable	Semi-permanent/ephemeral wet areas; or within 5 m. Swamps; or within 5 m. Waterbodies; including Wetlands, or within 5 m	This species normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	0	✓	Highly marginal habitat associated with the VENM cap drainage lines. Considered highly marginal due to use of virgin excavated material lacking natural soil structure, soil seed bank and lack of waterlogging in the soil. Species not observed during site surveys. Located in an industrial location isolated from intact remnant patches of vegetation.

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
Rutidosis heterogama	Heath Wrinklewort	Vulnerable	Vulnerable	--	Grows in heath on sandy soils and moist areas in open forest and has been recorded along disturbed roadsides.	1	No	Highly marginal habitat marginal, located in an urban/industrial location isolated from intact remnant patches of vegetation. Species not observed during site surveys.
Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Listed	--	Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum Forest west of the Great Dividing Range and Blackbutt-Bloodwood Forest with heath understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey. Live in family groups of a single adult male one or more adult females and offspring. Require abundant tree hollows for refuge and nest sites. Diet varies seasonally and consists of Acacia gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein.	2	✓	No hollow bearing trees occur in the project area. No connectivity to areas with Squirrel Glider, landscaped cap area too small and degraded to support an isolated population
Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Endangered	--	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Quolls use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites. Mostly nocturnal, although will hunt during the day; spend most of the time on the ground, although also an excellent climber and will hunt possums and gliders in tree hollows and prey on roosting birds. Use communal 'latrine sites', often on flat rocks among boulder fields, rocky cliff-faces or along rocky stream beds or banks. Such sites may be visited by multiple individuals and can be recognised by the accumulation of the sometimes characteristic 'twisty-shaped' faeces deposited by animals. A generalist predator with a preference for medium-sized (500g-5kg) mammals. Consumes a variety of prey, including gliders, possums, small wallabies, rats, birds, bandicoots, rabbits, reptiles and insects. Also eats carrion and takes domestic fowl. Females occupy home ranges of 200-500 hectares, while males occupy very large home ranges from 500 to over 4000 hectares. Are known to traverse their home ranges along densely vegetated creek lines. Average litter size is five; both sexes mature at about one year of age. Life expectancy in the wild is about 3-4 years.	0	✓	No connectivity to areas with Spotted-tailed Quoll, landscaped cap area too small and degraded to support an isolated population
Phascolarctos cinereus	Koala	Endangered	Endangered	Other; Presence of koala use trees - refer to Survey Comments field in TBDC	Inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Inactive for most of the day, feeding and moving mostly at night. Spend most of their time in trees but will descend and traverse open ground to move between trees. Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size. Generally solitary but have complex social hierarchies based on a dominant male with a territory overlapping several females and sub-ordinate males on the periphery. Females breed at two years of age and produce one young per year.	11	✓	No connectivity to areas with koala, landscaped cap area too small and degraded to support a. isolated population
Petauroides volans	Greater Glider	Endangered	Vulnerable	--	Feeds exclusively on eucalypt leaves, buds, flowers and mistletoe. Shelter during the day in tree hollows and will use up to 18 hollows in their home range. Recorded using hollows with a minimum diameter of 8 cm. Occupy a relatively small home range with an average size of 1 to 3 ha. Give birth to single young in late autumn or early winter which remains in the pouch for approximately 4 months and is independent at 9 months of age. Usually solitary, though mated pairs and offspring will share a den during the breeding season and until the young are independent. Can glide up to a horizontal distance of 100m including changes of direction of as much as 90 degrees. Very loyal to their territory.	0	✓	No hollow bearing trees occur in the project area. No connectivity to areas with Greater Glider, landscaped cap area too small and degraded to support an isolated population
Cercartetus nanus	Eastern Pygmy-possum	Vulnerable	Not Listed	--	Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. They may occupy small patches of vegetation in fragmented landscapes and although the species prefers habitat with a rich shrub understory, they are known to occur in grassy woodlands and the presence of Eucalypts alone is sufficient to support populations in low densities. Feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes; an important pollinator of heathland plants such as banksias; soft fruits are eaten when flowers are unavailable. Also feeds on insects throughout the year; this feed source may be more important in habitats where flowers are less abundant such as wet forests. Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum (*Pseudocheirus peregrinus*) dreys or thickets of vegetation, (e. g. grass-tree skirts); nest-building appears to be restricted to breeding females; tree hollows are favoured but spherical nests have been found under the bark of eucalypts and in shredded bark in tree forks. Appear to be mainly solitary, each individual using several nests, with males having non-exclusive home-ranges of about 0. 68 hectares and females about 0. 35 hectares. Young can be born whenever food sources are available, however most births occur between late spring and early autumn. Agile climbers, but can be caught on the ground in traps, pitfalls or postholes; generally nocturnal. Frequently spends time in torpor especially in winter, with body curled, ears folded and internal temperature close to the surroundings.	1	✓	No connectivity to areas with Eastern Pygmy-possum, landscaped cap area too small and degraded to support an isolated population
Planigale maculata	Common Planigale	Vulnerable	Not Listed	--	Common Planigales inhabit rainforest, eucalypt forest, heathland, marshland, grassland and rocky areas where there is surface cover, and usually close to water. They are active at night and during the day shelter in saucer-shaped nests built in crevices, hollow logs, beneath bark or under rocks. They are fierce carnivorous hunters and agile climbers, preying on insects and small vertebrates, some nearly their own size. They breed from October to January. The female builds a nest lined with grass, eucalypt leaves or shredded bark.	0	✓	No connectivity to areas with Common Planigale, landscaped cap area too small and degraded to support an isolated population

Scientific name	Common name	BC Act	EPBC Act (MNES)	Constraints	Habitat and Ecology	Records within 5km	PCT 4006	Assessment
Phascogale tapoatafa	Brush-tailed Phascogale	Vulnerable	Not Listed	--	Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. Also inhabit heath, swamps, rainforest and wet sclerophyll forest. Agile climber foraging preferentially in rough barked trees of 25 cm DBH or greater. . Feeds mostly on arthropods but will also eat other invertebrates, nectar and sometimes small vertebrates. Females have exclusive territories of approximately 20 - 40 ha, while males have overlapping territories often greater than 100 ha. Nest and shelter in tree hollows with entrances 2. 5 - 4 cm wide and use many different hollows over a short time span. Mating occurs May - July; males die soon after the mating season whereas females can live for up to three years but generally only produce one litter.	0	✓	No connectivity to areas with Brush-tailed Phascogale, landscaped cap area too small and degraded to support an isolated population
Hoplocephalus stephensii	Stephens' Banded Snake	Vulnerable	Not Listed	Hollow bearing trees; Or within 5 m of this habitat. Other; Within 5 m of arboreal vine tangles. Fallen/standing dead timber including logs; Or within 5 m of this habitat	Rainforest and eucalypt forests and rocky areas up to 950 m in altitude. Stephens' Banded Snake is nocturnal, and shelters between loose bark and tree trunks, amongst vines, or in hollow trunks limbs, rock crevices or under slabs during the day. At night it hunts frogs, lizards, birds and small mammals.	0	✓	No hollow bearing trees occur in the project area. Cannot be ruled out from occurring within landscape capped area (planted fig trees) although this habitat is considered highly marginal. However, no direct impacts to this vegetation are proposed and indirect impacts would be anticipated.
Pseudomys novaehollandiae	New Holland Mouse	Not Listed	Vulnerable	--	Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes It is a social animal, living predominantly in burrows shared with other individuals Distribution is patchy in time and space, with peaks in abundance during early to mid-stages of vegetation succession typically induced by fire	0	✓	No connectivity to areas with New Holland Mouse, landscaped cap area too small and degraded to support an isolated population. No indirect impacts would be anticipated.
Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Vulnerable	Not Listed	--	In NSW the Eastern Chestnut Mouse is mostly found, in low numbers, in heathland and is most common in dense, wet heath and swamps. In the tropics it is more an animal of grassy woodlands. Optimal habitat appears to be in vigorously regenerating heathland burnt from 18 months to four years previously. By the time the heath is mature, the larger Swamp Rat becomes dominant, and Eastern Chestnut Mouse numbers drop again. Feeds at night via runways through the grassy and sedge understorey, within an area of less than half a hectare. It has a broad diet of grass stems, invertebrates, fungi and seeds, with the relative significance of each component varying seasonally. Up to three litters are produced from spring to autumn; this strategy allows rapid build-up of numbers in years following fire.	0	✓	No connectivity to areas with Eastern Chestnut Mouse, landscaped cap area too small and degraded to support an isolated population. No indirect impacts would be anticipated.
Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Critically Endangered	--	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils. This species is characterised as highly to extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.	0	✓	No naturally occurring native trees in the subject land. Not observed during site inspections.
Rhodomyrtus psidioides	Native Guava	Critically Endangered	Not Listed	--	Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines. This species is characterised being extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts.	0	✓	No naturally occurring native trees in the subject land. Not observed during site inspections.
Grevillea shiressii	Mullet Creek Grevillea	Vulnerable	Vulnerable	--	Grows along creek banks in wet sclerophyll forest with a moist understorey in alluvial sandy or loamy soils. Flowers mainly late winter to Spring (July-December), with seed released at maturity in October. Flowers are bird pollinated and seeds are dispersed by ants. A fire sensitive obligate seeder that is highly susceptible to local extinction due to frequent fire, however, fire is likely to be relatively infrequent in the habitat of *G. shiressii*. Seed germination does occur in the absence of fire, however some physical disturbance is likely to promote seed germination.	40	No	Record within 5 km has the status listed as "Vagrant or Escaped Animal or Planted Specimen", not naturally occurring.
Pultenaea maritima	Coast Headland Pea	Vulnerable	Not Listed	--	The species occurs in grasslands, shrublands and heath on exposed coastal headlands and adjoining low coastal heath. Found on clay or sandy loam or clay loam over sandstone at altitude 5–30 m. Associated with Banksia integrifolia and *Themeda australis*. Flowers from (June) August to March; fruit occurs from January to March.	1	No	Habitat highly marginal, located in an urban/industrial location isolated from intact remnant patches of vegetation. Species not observed during site surveys.
Tetratheca juncea	Black-eyed Susan	Vulnerable	Vulnerable	--	It is usually found in low open forest/woodland with a mixed shrub understorey and grassy groundcover. However, it has also been recorded in heathland and moist forest. Most populations occur on low nutrient soils associated with the Awaba Soil Landscape. While some studies show the species has a preference for cooler southerly aspects, it has been found on slopes with a variety of aspects. It generally prefers well-drained sites below 200m elevation and annual rainfall between 1000 - 1200mm. The preferred substrates are sandy skeletal soil on sandstone, sandy-loam soils, low nutrients, and clayey soil from conglomerates, pH neutral. It usually spreads via underground stems which can be up to 50 cm long. Consequently, individual plants may be difficult to identify. It also reproduces sexually but this requires insect pollination. Large populations of this species are particularly important.	3	No	Habitat highly marginal, located in an urban/industrial location isolated from intact remnant patches of vegetation. Species not observed during site surveys.

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Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Vulnerable	--	On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest. On the central coast Magenta Lilly Pilly occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities.	13	✓	One planted individual identified in landscape cap area. No naturally occurring native trees in the subject land.
Eucalyptus parramattensis subsp. decadens	Eucalyptus parramattensis subsp. decadens	Vulnerable	Vulnerable	--	Generally, occupies deep, low-nutrient sands, often those subject to periodic inundation or where water tables are relatively high. It occurs in dry sclerophyll woodland with dry heath understorey. It also occurs as an emergent in dry or wet heathland. Often where this species occurs, it is a community dominant. In the Kurri Kurri area, *E. parramattensis* subsp. *decadens* is a characteristic species of 'Kurri Sand Swamp Woodland in the Sydney Basin Bioregion', an endangered ecological community under the TSC Act. In the Tomago Sandbeds area, the species is usually associated with the 'Tomago Swamp Woodland' as defined by NSW NPWS (2000). Very little is known about the biology or ecology of this species. Flowers from November to January. Propagation mechanisms are currently poorly known. Seed dispersal is likely to be affected by wind and animals. Likely to be sensitive to over-frequent fire, however there is evidence (i. e. coppicing, epicormic shoots) that the species may be tolerant of low intensity fires. The species has a canopy stored seed bank for dispersal after fire events.	0	✓	No naturally occurring native trees in the subject land. Habitat highly marginal, located in an urban/industrial location isolated from intact remnant patches of vegetation. Species not observed during site surveys.
Angophora inopina	Charmhaven Apple	Vulnerable	Vulnerable	--	This species is a member of the *A. bakeri* complex, which also includes *A. crassifolia*, *A. paludosa* and *A. exul*. It is most similar to *A. crassifolia* from which it is distinguished by the broader leaves with shorter petioles. None of these related species are known from the same area as A. inopina, although A. bakeri does occur sporadically in the ranges to the west, and near Kurri Kurri. Occurs most frequently in four main vegetation communities: (i) *Eucalyptus haemastoma–Corymbia gummifera–Angophora inopina* woodland/forest; (ii) *Hakea teretifolia–Banksia oblongifolia* wet heath; (iii) *Eucalyptus resinifera–Melaleuca sieberi–Angophora inopina* sedge woodland; (iv) *Eucalyptus capitellata–Corymbia gummifera–Angophora inopina* woodland/forest. Ecological knowledge about this species is limited. Is lignotuberous, allowing vegetative growth to occur following disturbance. However, such vegetative reproduction may suppress the production of fruits/seeds, necessary for the recruitment of new individuals to a population, and the time between such disturbance and the onset of sexual reproduction is not known. Flowering appears to take place principally between mid-December and mid-January but is generally poor and sporadic. Preliminary experiments indicate that neither pollination or seed viability are limiting factors in the life cycle.	0	✓	No naturally occurring native trees in the subject land. Habitat highly marginal, located in an urban/industrial location isolated from intact remnant patches of vegetation. Species not observed during site surveys.

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