NATIONAL INTERMODAL

Moorebank Avenue Realignment Works

Construction Biodiversity Management Plan

SSI - 10053

22 January 2025

NATIONAL INTERMODAL CORPORATION

MOOREBANK AVENUE REALIGNMENT WORKS

CONSTRUCTION BIODIVERSITY MANAGEMENT PLAN

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Checker

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H	22/01/2025	Update to reflect revised construction footprint and EPBC variation approval	[redacted]	

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ACRONYMS AND DEFINITIONS

Acronym	Definition
ABLV	Australian Bat Lyssavirus
BDAR	Biodiversity Development Assessment Report
BC Act	*Biodiversity Conservation Act 2016 (NSW)*
BioBanking	BioBanking was a voluntary biodiversity offset scheme aimed at helping to address the loss of biodiversity values by habitat degradation and loss
Biodiversity Stewardship Site	The Biodiversity Offset Area within the Boot Land, specially the 'Wattle Grove' Offset Area, adjacent to the Project Site
Biosecurity Act	*Biosecurity Act 2015 (NSW)*
BoM	Bureau of Meteorology
Boot Land	The area located to the south and east of the MPE site. Part of the Boot Land is designated as a registered biodiversity stewardship site under the Biobanking Biodiversity Offset Scheme.
CBMP	Construction Biodiversity Management Sub-Plan
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
Construction	Includes all work required to construct the Project as described in the EIS and RtS (NSW CoA A1) including commissioning trials of equipment and temporary use of any part of the Project but excluding Low Impact Work which is carried out or completed before approval of the CEMP
CSWMP	Construction Soil and Water Management Sub-Plan
CTTMP	Construction Traffic and Transport Management Sub-Plan
CWRMP	Construction Waste and Resources Management Sub-Plan
DAWE	Department of Agriculture, Water and Environment (now DCCEEW)
DCCEEW	Department of Climate Change, Energy, Environment and Water (formerly DAWE)
DPE	Department of Planning and Environment
DPE E&H	Department of Planning and Environment – Environment and Heritage
DPI – Fisheries	Department of Primary Industries – Fisheries
DPIE	Department of Planning, Industry and Environment (now DPE)
EEC	Endangered Ecological Community
EES	NSW Environment, Energy and Science
EIS	Environmental Impact Statement:
EP&A Act	*Environmental Planning and Assessment Act 1979 (NSW)*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)*
EPL	Environment Protection Licence
ER	Environmental Representative

Acronym	Definition
EWMS	Environmental Work Method Statements
GDEs	Groundwater Dependent Ecosystems
GIS	Geographic Information System
KTP	Key Threatening Process
LCC	Liverpool City Council
MARW	Moorebank Avenue Realignment Works
MIP	Moorebank Intermodal Precinct, which includes Moorebank Precinct East (MPE) and Moorebank Precinct West (MPW)
MPE	Moorebank Precinct East
MPE Site	Comprises the MPE Stage 1 Project as approved by SSD 14-6766 for the development of the intermodal terminal facility (IMT) at Moorebank and MPE Stage 2 as approved under SSD 7628 (as modified) and MPE Concept Approval (MP 10_0193) for the construction and operation of warehousing and distribution facilities and upgrades to approximately 2.1 kilometres of Moorebank Avenue.
MPW	Moorebank Precinct West
MPW Site	Comprises the MPW Stage 2 Project which is the second stage of development under the MPW Concept Approval (SSD 5066) and SSD 7709. The Project involves the construction and operation of a multi-purpose intermodal terminal facility, Rail link connection, warehousing and upgraded intersection on Moorebank Avenue.
National Intermodal	National Intermodal Corporation
NPWS	National Parks and Wildlife Service
OEH	NSW Office of Environment and Heritage (now NSW EES, a part DPIE)
PCT	Plant Community Type
Planning Secretary	Secretary to the Department
Project Site	Refers to the construction footprint area which is approximately 18.96 hectares and includes access for the construction of road embankments and cuttings, temporary and permanent fencing, temporary and permanent water quality control basins, ancillary facilities, access roads and construction side roads. It is generally bounded by the Defence Joint Logistics Unit (DJLU), MPE, Boot Land and the Sydney Trains owned land adjacent to the East Hills Railway.
Rail link	Part of MPE Stage 1 (SSD 6766), connecting the MPE site to the Southern Sydney Freight Line. The Rail link is utilised for the operation of the Facility.
RALP	Rail Access Land Package for the MPE Stage 1 Project, as approved by SSD 14-6766. The Project included construction of a 2.8 kilometre rail link and the required infrastructure, to connect the Intermodal Terminal to the Southern Sydney Freight Line. This Project is now operational
REMMs	Revised Environmental Management Measures
RtS	Response to Submissions
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSI	State significant infrastructure

Acronym	Definition
Study Area	As defined by the BDAR – area slightly larger than the Project Site.
TEC	Threatened Ecological Community
The Project	Moorebank Avenue Realignment Works
TPZ	Tree Protection Zone
TSC Act	Threatened Species Conservation Act 1995
VEC	Vulnerable Ecological Community

1 INTRODUCTION

1.1 Context

This Construction Biodiversity Management Plan (CBMP) forms part of the Construction Environmental Management Plan (CEMP) for the Moorebank Avenue Realignment Works (MARW) (the Project).

This CBMP has been prepared to address the requirements of the NSW Minister's Conditions of Approval (CoA), Commonwealth CoA, the Revised Environmental Management Measures (REMMs) detailed in the Response to Submissions (RtS) and the applicable legislation.

1.2 Background and Project Description

National Intermodal Corporation (National Intermodal) plans to realign and upgrade a section of Moorebank Avenue. The Project involves the realignment of an existing two-kilometre section of Moorebank Avenue, from a point approximately 130 meters south of the Anzac Road/Moorebank Avenue intersection to immediately north of the East Hills Railway. Moorebank Avenue currently divides the Moorebank Intermodal Precinct (MIP) into the Moorebank East Precinct (MPE site) and the Moorebank West Precinct (MPW site) (refer to Figure 1.1).

The Project is about three kilometres of additional road which ties in with the existing Moorebank Avenue at the northern and southern extremities. From its northernmost point, the realigned Moorebank Avenue follows the northern boundary of the MPE site, before continuing south along the MPE site eastern boundary. This section of the realignment comprises four lanes (i.e. two lanes in each direction). At the south-western corner of MPE, the additional road section merges to become a dual lane road (i.e. one lane in each direction) before continuing in a south-west direction, crossing Anzac Creek, and re-joining the existing Moorebank Avenue alignment near the East Hills Railway, (refer to Figure 1.1). At completion and commissioning of the realigned road section, the public through traffic using Moorebank Avenue will be redirected onto the upgraded alignment. The existing road alignment will be decommissioned and modified to function as a restricted access to the MIP.

The Project Site is about 18.96 hectares and includes access for the construction of road embankments and cuttings, temporary and permanent fencing, temporary and permanent water quality control basins, ancillary facilities, access roads and construction side roads. It is generally bounded by the Defence Joint Logistics Unit (DJLU), MPE, Boot land and the Sydney Trains owned land adjacent to the East Hills Railway (refer to Figure 1.1).

A detailed description of the Project is provided in Section 2 of the CEMP and is also shown on Figure 1.2.

The Project will not be staged but is anticipated to be undertaken in phases. Construction is expected to take approximately 16 months to complete.

An Environmental Impact Statement (EIS) for the Project was prepared in March 2021 to describe and assess the Project and recommend management measures to address impacts. The EIS was exhibited by the then NSW Department of Planning, Industry and Environment (DPIE) from 17 March 2021 to 13 April 2021 to give the community and stakeholders the opportunity to provide comment. A RtS was submitted in May 2021 to address the identified issues.

The Project was approved by the NSW Minister for Planning on 14 October 2021 as State Significant Infrastructure (SSI-10053) (Infrastructure Approval) under Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Project is also a controlled action under Section 130(1) and 133(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and

was approved by the Minister for the Environment on 7 December 2021 (EPBC Approval 2020-8839). On 14 January 2025 a variation to EPBC 2020-8839 was approved by the Minister for the Environment and Water.

The EIS assessed the impacts of construction of the Project on flora and fauna. As part of EIS development, a detailed Biodiversity Development Assessment Report (BDAR) was prepared in accordance with the legislation. The BDAR was prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued by the DPIE and the Commonwealth EIS Guidelines issued by the then Commonwealth Department of Agriculture, Water and Environment (DAWE). The BDAR was included as Appendix B in the EIS.

Further assessment of flora and fauna impacts was undertaken subsequent to exhibition of the EIS and incorporated into the RtS as an updated BDAR. The additional assessment considered the impacts on flora and fauna due to the Project footprint. The updated BDAR was included in the RtS as Appendix B.

Revised Environmental Management Measures (REMMs) were provided within the RtS. Where applicable, the REMMs from the RtS have been included in this CBMP (refer to Section 6 and Appendix C).

1.3 Scope of the Plan

This CBMP is applicable to the construction stage of the Project. The CBMP describes how potential flora and fauna impacts will be managed during construction of the Project. Operational flora and fauna impacts and operational measures do not fall within the scope of this CBMP and therefore are not included within the processes contained herein.

1.4 Environmental Management System Overview

The environmental management framework for the Project is described in Section 3 of the CEMP. This CBMP forms part of the framework for the Project. The identified NSW and Commonwealth CoA and the REMMs will be complied with during construction.

Management measures identified in this CBMP may also be incorporated into site or activity specific Environmental Work Method Statements (EWMS). EWMS incorporate appropriate mitigation measures and controls and identify key procedures to be used during construction activities. A template EWMS for use is provided in Appendix E of the CEMP.

1.5 CBMP Endorsement and Approval

This CBMP has been prepared to satisfy the NSW and Commonwealth CoA's in relation to flora and fauna management during construction of the Project.

This CBMP will be reviewed by the Project Manager / Delivery Team and will be endorsed by the Environmental Representative (ER) at least one month prior to the commencement of construction. Construction of the Project will not commence prior to approval of the CEMP by the Secretary and endorsement of the CBMP by the ER. As required by Commonwealth CoA 14 the CBMP must be submitted electronically for the information of and/or consultation with the Department of Climate Change, Energy, the Environment and Water (DCCEEW). The final approved Plan will be available on the MIP and/or National Intermodal website and be submitted to the Commonwealth for information.

The ER can approve minor amendments to this CBMP if they do not increase impacts to nearby receivers, are of an administrative nature and are consistent with the conditions of the Infrastructure Approval. This does not include any modifications to the conditions of the Infrastructure Approval.

1.5.1 Interactions with other Management Plans

This CBMP has the following interrelationships with other management plans and documents:

- Vegetation to be retained within construction worksites are detailed on Sensitive Area Plans (Appendix D of the CEMP)
- Construction Soil and Water Management Sub-Plan (CSWMP) addresses the erosion and sedimentation impacts associated with vegetation clearing
- Construction Traffic and Transport Management Sub-Plan (CTTMP) addresses the traffic management associated with fauna management and impacts associated with vegetation fragmentation
- Construction Waste and Resources Management Sub-Plan (CWRMP) provides a framework for waste management including the disposal of cleared vegetation and appropriate disposal and management of weeds
- Urban Design and Landscape Plan (UDLP) contextualises the Project within the local environment and provides detail of the built form and landscaping requirements including trees to be removed, revegetation provisions and rehabilitation.

1.6 Consultation

The following government agencies and stakeholders have been consulted with during the development of this CBMP:

- Department of Primary Industries – Fisheries (DPI – Fisheries)

A summary of the outcomes of the consultation with various agencies and stakeholders as provided in Table 1.1. Supplementary information demonstrating the consultation undertaken is included in Appendix A.

Table 1.1: Consultation Summary

Agency	Date	Person Contacted	Comment	Status
DPI – Fisheries	22/12/2022	Carla Ganassin	Telephoned DPI Fisheries and left a voicemail. A follow up email introducing the project was sent.	Closed
	24/03/2023	DPE Portal Carla Ganassin	CBMP submitted for consultation through DPE portal. Consultation to close 20 April 2023. Courtesy email sent to DPI Fisheries informing them the plan had been uploaded	
	12/04/2023	DPE Portal	Comments on CBMP received though DPE Portal	
	14/04/202	NA	Updates to CBMP made to address comments received. See Appendix A	

1.6.1 Ongoing Consultation during Construction

Consultation with stakeholders, the community and relevant agencies regarding the management of biodiversity within the Project site will be undertaken during the construction of the Project as required. The process for the consultation is documented in the CCS.

Specific requirements of relevance to the management of biodiversity, which have emerged through consultation under the EIS and RtS are evident in the CoA and REMMs included in Section 6.8.

In accordance with the NSW CoA E9, consultation will be carried out during construction as required prior to clearing vegetation.

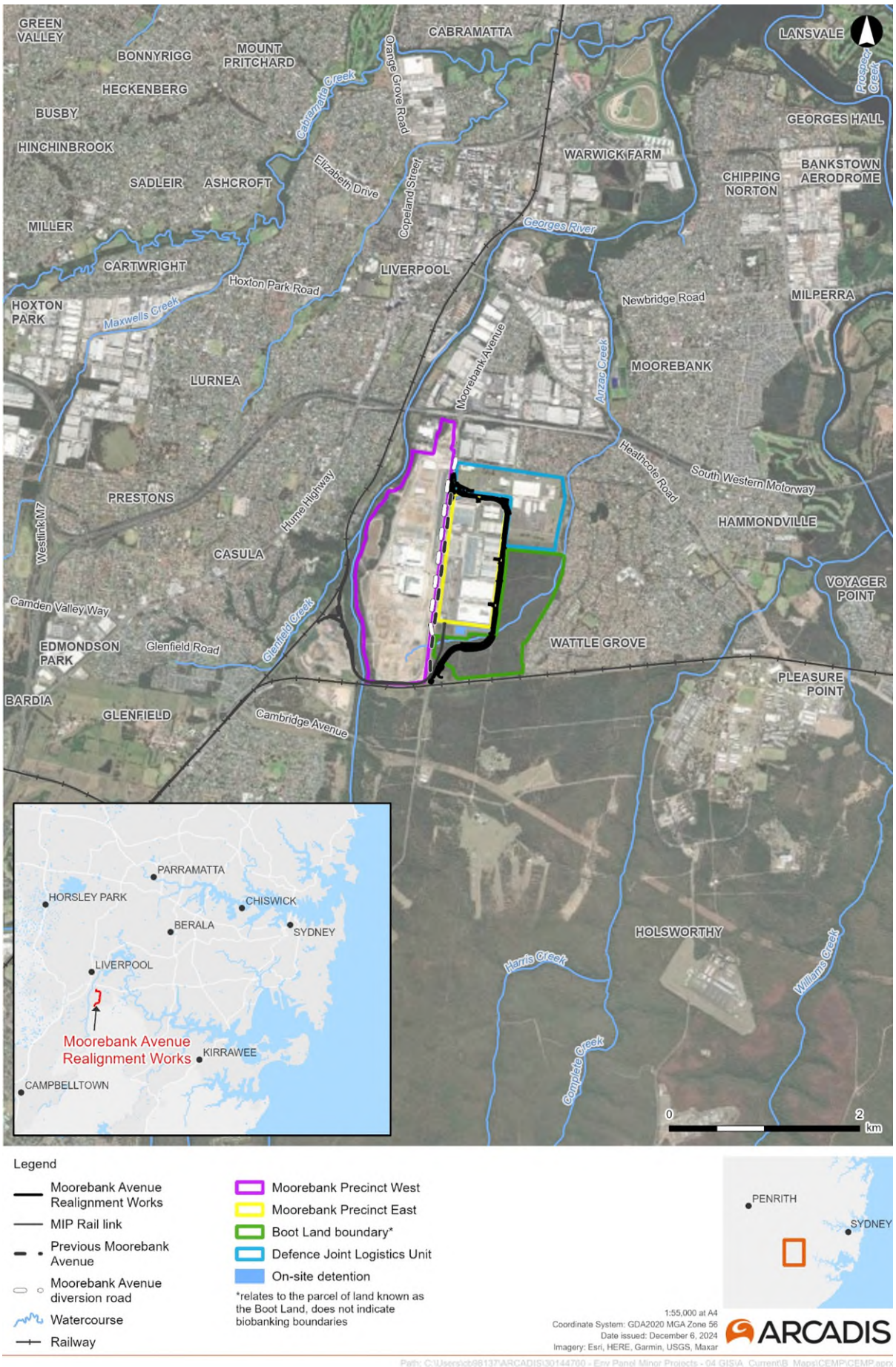


Figure 1.1: Project Location

Figure 1.2: Project overview

2 PURPOSE AND OBJECTIVES

2.1 Purpose

The purpose of this CBMP is to describe how construction impacts on flora and fauna will be minimised and managed during the construction of the Project.

2.2 Objectives

The key objective of the CBMP is to ensure that impacts to native flora and fauna including threatened species and threatened ecological community impacts are managed appropriately throughout the construction of the Project and to consider the mitigation and management measures referred to in:

- NSW Minister's Infrastructure Approval dated 14 October 2021 (SSI-10053)
- Federal Minister for the Environment Approval dated 7 December 2021 (EPBC 2020-8839), as varied on 14 January 2025
- *Moorebank Avenue Realignment Environmental Impact Statement Volume 1* and *Volume 2* prepared by EMM for Sydney Intermodal Terminal Alliance dated March 2021 (EIS) (EMM 2021a)
- *Moorebank Avenue Realignment Biodiversity Development Assessment Report* prepared by EMM (EMM 2021b)
- *Moorebank Avenue Realignment Response to Submissions* prepared by EMM for Sydney Intermodal Terminal Alliance dated May 2021 (RtS) (EMM 2021c).
- *Moorebank Avenue Realignment Revised Biodiversity Development Assessment Report* prepared by EMM (EMM 2021d)

2.3 Targets

Table 2.1 details the following targets established for the management of flora and fauna impacts during construction of the Project.

Table 2.1: Project environmental targets for flora and fauna

Objective	Target	Timeframe	Responsibility
Ensure compliance with relevant NSW and Commonwealth CoA and applicable legislation	No written warnings or infringement notices Zero non-compliance	Throughout construction	Construction Contractor
Avoid, minimise or manage potential adverse flora impacts within and adjacent to the Project corridor	No impact to the adjacent biodiversity offset area (BA 341) No additional weeds to be introduced to the Project Site No transfer of plant diseases or pathogens to or from the Project Site	Throughout construction	Construction Contractor

Objective	Target	Timeframe	Responsibility
Avoid, minimise or manage potential adverse fauna impacts within and adjacent to the Project corridor	No vegetation to be removed within adjacent biodiversity offset area (BA 341) No pollution or siltation of aquatic ecosystems, wetlands, endangered ecological communities or threatened species habitat All fauna species encountered during construction are handled humanely in accordance with industry standards	Throughout construction	Construction Contractor
Minimise impacts to nearby sensitive receivers.	Rehabilitation / revegetation carried out in accordance with the design	Throughout construction	Construction Contractor

3 ENVIRONMENTAL REQUIREMENTS

3.1 Relevant Legislation and Guidelines

3.1.1 Legislation

All legislation relevant to the Project is included in Appendix B of the CEMP. Legislation considered during the development of this CBMP includes:

- *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*
- *Environmental Planning and Assessment Act 1979*
- *Biodiversity Conservation Act 2016 (Under Part 7 (Clause 27) of the Threatened Species Conservation Act*
- *Biosecurity Act 2015*
- Biosecurity Regulation 2017
- *Pesticides Act 1999*
- *Fisheries Management Act 1994*
- *Protection of the Environment Operations Act 1997.*

3.1.2 Additional Approvals, Licences, Permits and Requirements

Refer to Appendix B of the CEMP.

3.1.3 Guidelines and Standards

The main guidelines, specifications and policy documents relevant to this CBMP include:

Guidelines and policies

- Department of Primary Industries *Policy and Guidelines for Fish Habitat Conservation and Management* (DPI 2013)
- *Hygiene protocol for the control of disease in frogs* (DECCW, 2008)
- Roads and Maritime Environmental Direction No.25 – *Management of Tannins from Vegetation Mulch* (Roads and Maritime (RMS), 2012)
- Roads and Maritime Biodiversity Guidelines (RMS, 2011))
- *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft* (NSW Department of Environment and Conservation (DEC), 2004)
- *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians* (NSW Department of Environment and Climate Change (DECC), 2009)
- *Framework for Biodiversity Assessment* (OEH, 2014)
- *Policy and Guidelines for Fish Friendly Waterway Crossings* (DPI, 2004)
- *Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003)
- *NSW Guide to Surveying Threatened Plants* (OEH, 2016)

- *Noxious and Environmental Weed Control Handbook*, 4th Edition, NSW Industry & Investment Management Guide
- *Rehabilitation of Protected Native Animals Policy* (DPIE 2020a)
- *Hygiene guidelines. Protocols to protect priority biodiversity areas in NSW from Phytophthora innamomic, myrtle rust, amphibian chytrid fungus and invasive plants* (DPIE 2020b)
- *Arrive clean, leave clean. Guidelines to help prevent the spread of invasive plant diseases and weeds threatening our native plants, animals and ecosystems* (DoE, 2015)
- Background document: *Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomic* (DoEE, 2018).

Specifications and Code of Practice

- Australian Standard 4970 – 2009 Protection of Trees
- Australian Standard AS 4373 Pruning of Amenity Trees
- Australian Code of Practice for the Care of Animals for Scientific Purposes (NHMRC, 2013)
- Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH, 2011)

3.2 Commonwealth Approval

The Project is considered a controlled action under the EPBC Act and is therefore subject to Commonwealth CoA's. These are defined as 'primary Commonwealth CoA' and specifically relate to the development of the CBMP. 'Secondary Commonwealth CoA' relevant to, but not specific to the development of this CBMP, have been listed in Appendix C. The requirements of the Commonwealth CoA and where they are met in this CBMP are detailed in Table 3.1.

Table 3.1: Primary Commonwealth CoA relevant to the CBMP

No.	Requirements	Document reference
9	The approval holder must comply with conditions C1 – C11 of the NSW Approval as they relate to the preparation and implementation of a Construction Environmental Management Plan, to avoid, mitigate, and manage impacts on protected matters during construction.	Table 3.2 Section 1.4 and Table 1.2 of the CEMP
10	The Construction Environmental Management Plan must include measures in accordance with Table A.1 of the Response to Submissions to manage environmental impacts during construction, including to protected matters	Table 6.2
14	Plans required under NSW Approval in accordance with this approval must be submitted electronically for the information of and/or consultation with the department.	Section 1.5
15	Each plan must be published on the website within 20 business days of the date the plan is approved by the NSW Planning Secretary, and until the end date of this approval	Section 1.5 of this CBMP and Section 1.5 of the CEMP

3.3 NSW Infrastructure Approval

The requirements of the Infrastructure Approval conditions relevant to the development of this CBMP are detailed in Table 3.2. These are defined as 'primary NSW CoA' and specifically relate to the development of the CBMP. Secondary CoA relevant to, but not specific to the development of this CBMP, have been listed in

Appendix C. A cross reference is also included to indicate where the CoA is addressed in this CBMP or other Project management plans.

Table 3.2: Primary NSW CoA relevant to the CBMP

No.	Requirements	Document reference
A5	Where the terms of this approval require a document or monitoring program to be prepared or a review to be undertaken in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Planning Secretary with the document. The evidence must include:	Table 1.1
(a)	documentation of the engagement with the party identified in the condition of approval that has occurred before submitting the document for approval;	Appendix A
(b)	a log of the dates of engagement or attempted engagement with the identified party;	Appendix A
(c)	documentation of the follow-up with the identified party where engagement has not occurred to confirm that they do not wish to engage or have not attempted to engage after repeated invitations;	Appendix A
(d)	outline of the issues raised by the identified party and how they have been addressed; and	Table 1.1
(e)	a description of the outstanding issues raised by the identified party and the reasons why they have not been addressed.	Table 1.1
C6	CEMP Sub-plans as identified in documents listed in Condition A1 must be prepared in consultation with relevant government agencies and stakeholders. Relevant government agencies and stakeholders must be nominated in the risk assessment matrix submitted to the Planning Secretary require in accordance with Condition A14 or A19. Details of all information requested by an agency during consultation must be provided to the Planning Secretary as part of any submission of the relevant CEMP Sub-plan, including copies of all correspondence from those agencies as required by Condition A5.	Section 1.6
C7	The CEMP Sub-plans must state how:	
(a)	the environmental performance outcomes identified in the documents listed in Condition A1 will be achieved;	Table 6.2 Sections 2.2 Section 2.3
(b)	the mitigation measures identified in the documents listed in Condition A1 will be implemented;	Table 6.2
(c)	the relevant terms of this approval will be complied with; and	Table 3.1 Table 3.2 Table 3.3
(d)	issues requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed through SMART principles.	Sections 5 Section 8.1 Appendix C
C8	With the exception of any CEMP Sub-plans expressly nominated by the Planning Secretary to be endorsed by the ER, all CEMP sub-plans must be submitted to the Planning Secretary for approval. *Note: The Planning Secretary will consider the assessment of the predicted level of environmental risk and potential level of community concern required under Condition A14(e) when deciding whether any CEMP Sub-plans may be endorsed by the ER.*	Section 1.5 Appendix B

No.	Requirements	Document reference
C9	The CEMP Sub-plans not requiring the Planning Secretary's approval must obtain the endorsement of the ER as being in accordance with the conditions of approval and all relevant undertakings made in the documents listed in Condition A1. Any of these CEMP Sub-plans must be submitted to the ER with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before construction or where construction is staged no later than one (1) month before the commencement of that stage	Section 1.5 Appendix B
C10	Any of the CEMP Sub-plans to be approved by the Planning Secretary must be submitted to the Planning Secretary with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before construction or where construction is staged no later than one (1) month before the commencement of that stage.	Section 1.5 Appendix B
C11	Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary or endorsed by the ER (whichever is applicable), unless otherwise agreed by the Planning Secretary. The CEMP and CEMP Sub-plans, as approved by the Planning Secretary or endorsed by the ER (whichever is applicable), including any minor amendments approved by the ER, must be implemented for the duration of construction.	Section 1.5 Appendix B

3.4 Revised Environmental Management Measures

The REMMs relevant to the development of this CBMP, defined as 'primary REMMs' are detailed in Table 3.3. A cross reference is also included to indicate where the REMM is addressed in this CBMP or other Project plans. Secondary REMMs relevant to, but not specific to the development of this CBMP, have been listed in Appendix C.

Table 3.3: Primary REMMs relevant to the development of this CBMP

No.	Requirements	Timing	Document reference
BIO01	A biodiversity management plan (BMP) will be developed for the Project post-approval and will be encompassed within the CEMP. The BMP will provide details for the ongoing management and maintenance of biodiversity protection measures during the construction phase of the Project.	Pre-construction and construction	This CBMP

4 EXISTING ENVIRONMENT

4.1 Key References

The sources of data and information for biodiversity assessment carried out and used to develop this CBMP are Section 7.2 and Appendix B of the Project EIS and Section 4.4 and Appendix B of the Project RtS.

The Project boundary and relevant ecological data is shown on the Sensitive Area Plans included in Appendix D of the CEMP.

Key components of the BDAR methodology included:

- Desktop review of:
  - Protected Matters Search Tool, managed by DAWE (now DCCEEW)
  - BioNet Vegetation Classification data collection managed by NSW Environment, Energy and Science (EES)
  - BioNet Threatened Species data collection, managed by EES
  - Groundwater Dependent Ecosystems Atlas, managed by Bureau of Meteorology (BoM)
  - NSW Flora Online, managed by PlantNET
  - Other relevant environmental and strategic planning documents.
- Detailed vegetation mapping and habitat assessments was undertaken in January 2020 when Project area was traversed on foot with the vegetation mapped and aligned with NSW PCTs.
- The preliminary vegetation mapping was revised and refined in February 2020 using plots.
- Additional mapping was undertaken in April, May and August 2020 to include additional plots containing suitable condition PCTs.

The following sections summarise existing flora and fauna, including species, communities and habitats, within and adjacent to the Project.

4.2 Environmental Aspects

4.2.1 Biodiversity Stewardship Site

The Project Site sits adjacent to a large area of intact remnant vegetation of approximately 93 hectares (ha), some of which is a registered Biodiversity Stewardship Site (the Biodiversity Offset Area – specially the 'Wattle Grove' Offset Area) (refer to Figure 1.2). The Wattle Grove Offset area is one of three identified offset sites adjacent to the Project and MIP (Moorebank Offset Area and Casula Offset Area; see Figure 1.1) established as a Biobank Offset site under an executed Biobanking Agreement (ID number BA341).

The Wattle Grove Offset Area was initially established as a Biobank Offset site under the *Threatened Species Conservation Act 1995* (TSC Act) to meet the offset requirements of the MIP. When the TSC Act was repealed and replaced by the *Biodiversity Conservation Act 2016* (BC Act), the Wattle Grove Offset Area became a Biodiversity Stewardship Site and remains in force as a conservation site under the BC Act. The Wattle Grove Offset Area is adjacent to and outside of the Project Site.

Responsibility for the environmental management of areas covered by the Biobanking Agreement sits outside of the operational area of the Project, and as such, is not covered by this CBMP. Further information has been provided for context only.

The Wattle Grove Offset Area supports known habitat for six threatened flora species, two threatened fauna species and six threatened ecological communities (TECs) that are listed under the BC Act and/or EPBC Act. These are summarised in Table 4.1.

Table 4.1: Biodiversity Stewardship Site threatened species and communities

Scientific name	Common name	BC Act status	EPBC Act status
Threatened flora			
Hibbertia puberula subsp. puberula	-	E	-
Hibbertia fumana	-	CE	-
Persoonia nutans	Nodding Geebung	E	E
Grevillea parviflora subsp. parviflora	Small-flowered Grevillea	V	V
Acacia bynoeana	Bynoe's wattle	E	V
Acacia pubescens	Downy Wattle	V	V
Threatened fauna			
Cercartetus nanus	Eastern Pygmy Possum	V	-
Pteropus poliocephalus	Grey-headed Flying Fox	V	V
Threatened ecological communities			
Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion		VEC	EEC
Castlereagh Swamp Woodland		EEC	-
Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion		EEC	CEEC
Shale Gravel Transition Forest in the Sydney Basin Bioregion		EEC	CEEC
River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions		EEC	CEEC
Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions.		EEC	-

Note: E= endangered, CE = critically endangered, V = vulnerable, EEC = endangered ecological community, CEEC = critically endangered ecological community, VEC = vulnerable ecological community

The Wattle Grove Biodiversity Offset Area provides potential habitat for several threatened flora and fauna species listed under the BC Act and EPBC Act, that have not been recorded during any surveys completed to date. A portion of the Wattle Grove Biodiversity Offset Area is mapped as coastal wetlands under the *State Environmental Planning Policy (Resilience and Hazards) 2021* previously the *Coastal Management SEPP 2018*. The Project does not interact with these mapped wetlands.

4.2.2 Project Site

4.2.2.1 Threatened Ecological Communities

Vegetation within the Project Site has been identified as either being of a derived grassland or relatively intact dry sclerophyll forest. Appendix D1 details the four native plant community types (PCTs) identified within the Project Site. These include:

- PCT – 724 - Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion

- PCT – 725 - Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion
- PCT – 883 - Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion
- PCT–1067 - Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion.

All these native PCTs are commensurate with the TECs listed under the BC Act and/or EPBC Act. These PCTs were mostly found to be in high and medium condition.

4.2.2.2 Groundwater Dependent Ecosystems

Three terrestrial Groundwater Dependent Ecosystems (GDEs) were identified as occurring in the Project Site including Castlereagh Swamp Woodland, Castlereagh Scribbly Gum Woodland, and Castlereagh Ironbark Forest. These identified GDEs align with three of the four PCTs identified within the Project Site.

4.2.2.3 Threatened Flora

A full list of threatened flora species and likelihood of occurrence within the Project Site is provided in Appendix D2.

Table 4.2 summarises the five threatened flora species identified during the targeted threatened flora surveys undertaken in February 2020 as part of the EIS. The surveys indicated that 56 threatened flora individuals would be directly impacted[1] by the Project and 87 individuals would be indirectly impacted.

Table 4.2: Threatened flora Project impacts

Species	Common name	BC Act Status	EPBC Act Status	Number of individuals recorded (EMM Feb 2020)	
				Direct impacts	Indirect impacts
Acacia bynoeana	Bynoe's Wattle	E	V	Nil	21
Acacia pubescens	Downy Wattle	V	V	19	41
Grevillea parviflora subsp. parviflora	Small-flower Grevillea	V	V	19	20
Hibbertia puberula subsp. *puberula*	-	E	-	16	5
Persoonia nutans	Nodding Geebung	E	E	2	Nil
			TOTAL	56	87

Note: E = Endangered, V = Vulnerable

4.2.2.4 Threatened Fauna

A full list of threatened fauna species and likelihood of occurrence within the Project Site is provided in Appendix E1. Six threatened fauna species recorded in the Project Site and a further three species were assumed to be present. These are summarised in Table 4.3 and Table 4.4 respectively.

[1] Direct impacts are those that would occur within the boundary of the Project Site as a result of the Project. Indirect impacts may occur outside the boundary of the Project Site as a result of the Project.

Table 4.3: Threatened fauna recorded within the Project Site

Scientific name	Common name	BC Act status	EPBC Act Status	Record
Meridolum corneovirens	Cumberland Plain Land Snail	E	-	Present
Pandion haliaetus	Eastern Osprey	V	Migratory	Present
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Present
Lophoictinia isura	Square-tailed Kite	V	-	Present
Rhipidura rufifrons	Rufous Fantail	-	Migratory	Present
Hirundapus caudacutus	White-throated Needletail	-	V, Migratory	Present

Note: E = Endangered, V = Vulnerable

The Grey-headed Flying-fox (*Pteropus poliocephalus*) was recorded flying over the Project Site and is likely to forage in the Project Site on occasion. No roost camps were observed within the Project Site.

The Square-tailed Kite (*Lophoictinia isura*) and Eastern Osprey (*Pandion haliaetus*) were recorded flying over the Project Site. The area assessed for the BDAR contained mature trees that would be suitable as nest sites, however no large stick nests or breeding activity was observed during field surveys.

The White-throated Needletail (*Hirundapus caudacutus*) was recorded flying over the Project Site. This species is an aerial forager but may roost in the Project Site on occasion.

The migratory Rufous Fantail (*Rhipidura rufifrons*) was recorded in the Project Site and could breed in the area.

Cumberland Plain Land Snails were recorded during target surveys at several locations within the Project Site, specifically located within PCTs 725, 883 and 1067 (refer to Section 4.2.2). Both shells and live snails were sighted (refer to Appendix D).

Table 4.4: Threatened fauna assumed to be present within the Project Site

Scientific name	Common name	BC Act status	EPBC Act Status	Record
Phascolarctos cinereus	Koala	E	V, E	Assumed present
Cercartetus nanus	Eastern Pygmy-possum	V	-	Assumed present
Burhinus grallarius	Bush Stone-curlew	E	-	Assumed present

A Koala was recorded within the Wattle Grove Offset Area but not within the Project Site during targeted surveys conducted in November 2018 and was assumed to be present throughout all suitable habitat in the Project Site.

The Bush Stone-curlew was assumed to be present within the Project Site, within suitable habitat. There are two recent records of the species within seven kilometres of the Project. Similarly, the Eastern Pygmy possum was assumed to be present as Project Site contains Banksias and other suitable feed species, as well as several tree hollows that could be used for breeding.

All three threatened fauna species are associated with the PCTs identified in Section 4.2.2.1.

4.2.2.5 Fauna Habitat

In the northern portion of the Project Site, there is abundant woody debris and leaf litter, providing good habitat for ground dwelling fauna and invertebrates.

The BDAR (2021) (Appendix B of the Project EIS) identified 18 hollow bearing trees within the Project Site, with a higher density observed in the southern portion of the Project Site. Both Sugar Gliders (*Petaurus breviceps*) and Sulphur-crested Cockatoos (*Cacatua galerita*) were observed using hollows at the Project Site.

A portion of the Project Site to the south of Anzac Creek was burnt by bushfire in 2018 about 18 months prior to the field surveys taking place. The field surveys carried out in late 2019 and 2020 identified that the tree layer is still intact, with regrowth well underway in the lower strata, and there is some woody debris present.

Some of the flora species present have the potential to be used as feed species for threatened fauna species, such as *Allocasuarina spp*. for the Glossy Black-Cockatoo (*Calyptorhynchus lathami*) and *Banksia spp*. for the Eastern Pygmy-possum (*Cercartetus nanus*). The feed species in the southern portion of the Project Site are regrowing since the fire, and few flowers were observed during field surveys.

One first-order watercourse, Anzac Creek, intersects the Project Site. During field surveys in December 2019 and January 2020, the creek line did not contain any water. The BDAR indicated that given the lack of permanent water or the presence of any pools, fish species are unlikely to be supported. However, given that intermittent streams can support fish species they therefore may be identified should future surveys be required in Anzac Creek. Field surveys in February of 2020 followed a period of significant rainfall, with the channel of Anzac Creek flooded to a depth of approximately 50 cm. Ten frog species were observed in the creek during frog surveys.

During field surveys, a total of 40 bird species were observed, including the Sulphur-crested Cockatoos (*Cacatua galerita*) using a hollow, the Painted Button-quail (*Turnix varius*), as well as numerous other woodland birds, finches, and ducks. One Red-bellied Black Snake (*Pseudechis porphyriacus*), and mammal species such as the Eastern Grey Kangaroos (*Macropus giganteus*) and the Common Wallaroo (*Macropus robustus*) were also sighted. Introduced species, including European Hare (*Lepus europaeus*) and Red Fox (*Vulpes vulpes*) were observed within the Project Site. Some indirect evidence of fauna, e.g., macropod scats, snail shells, and Button-quail platelets (circular cleared areas of ground created when Button-quails forage) was recorded during field surveys.

4.2.2.6 Weeds

A total of seven priority weed species identified by the *Biosecurity Act 2015* were recorded in the Project Site (refer to Table 4.5). One recorded weed species, *Alternanthera philoxeroides* (Alligator Weed) is a weed of national significance (WoNS). The table identifies strategic weed management of State determined priorities (A1.1) and regional priorities (A1.2) or species that require strategic responses in the region.

Table 4.5: Weeds identified as a state determine priority species (A1.1) and/or a regional priority species (A1.2)

Species name	Strategic Weed Management		Regional concern	*Biosecurity Act 2017*	WoNS
	A1.1	A1.2			
Ageratina adenophora (Crofton Weed)	-	-	Environmental / agricultural	General biosecurity duty	-
Ageratina riparia (Mistflower)	-	-	-	General biosecurity duty	-

Species name	Strategic Weed Management		Regional concern	*Biosecurity Act 2017*	WoNS
	A1.1	A1.2			
Alternanthera philoxeroides (Alligator Weed) – observed upstream of the Project	Yes	Yes	-	General biosecurity duty Prohibition on dealings Regional Recommended Measure	Yes
Araujia sericifera (Moth Vine)	-	-	Environmental	General biosecurity duty	-
Conyza bonariensis (Fleabane)	-	-	-	General biosecurity duty	-
Eragrostis curvula (African Lovegrass)	-	-	Environmental	General biosecurity duty	-
Senecio madagascariensis (Fireweed)	Yes	-	-	General biosecurity duty Prohibition on dealings	-

Notes:

- A1.1 - Biosecurity Act 2015 and regulations provide specific legal requirements. These specific regulatory requirements include Prohibited Matter, Biosecurity Zones, Mandatory Measures, Control Orders.
- A1.2 - "outcomes to demonstrate compliance with the General Biosecurity Duty" and "Strategic responses in the region" to achieve the relevant management objective (i.e. Prevention, Eradication, Containment or Asset Protection).

Key weed species of concern within the Project Site include Crofton Weed, Moth Vine, African Lovegrass and Fireweed. These species were recorded within and/or within proximity to existing areas of disturbance such as the powerline easement, adjacent to the drainage line along the north eastern boundary of the MPE site and adjacent Moorebank Avenue. There is potential for these species to be transported further into the southern section of the Wattle Grove Offset Area during construction activities.

Alligator Weed was observed within Anzac Creek upstream from the Project Site near the disused rail line and the MIP Rail link.

Photographs of the key weed species are provided below as guidance, should these species be encountered. More details can be obtained from the NSW WeedWise (https://weeds.dpi.nsw.gov.au/).

Ageratina adenophora (Crofton Weed)

Ageratina riparia (Mistflower)

Alternanthera philoxeroides (Alligator Weed)

Araujia sericifera (Moth Vine)

Conyza bonariensis (Fleabane)

Eragrostis curvula (African Lovegrass)

Senecio madagascariensis (Fireweed)

4.2.3 Matters of National Environmental Significance

An assessment of potential Project impacts was undertaken against the EPBC Act. A full list of species and TECs identified through the Protected Matters Search Tool (DCCEEW) is provided in Appendix F.

- Two TECs previously recorded in the Project Site will be impacted by the Project.
  - Shale Sandstone Transition Forest of the Sydney Basin Bioregion
  - Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion.

- One fauna species (Koala) will possibly be impacted by the Project
  - *Phascolarctos cinereus (Koala).*

No flora species and no migratory fauna species listed under the EPBC Act are likely to be impacted.

5 ENVIRONMENTAL ASPECTS AND IMPACTS

5.1 Construction Activities

Section 2.3 of the CEMP provides an overview of the construction activities that have the potential for environmental impact. The potential environmental risks have been identified based on the outcomes of the risk assessment provided in Appendix C of the CEMP. Potential environmental aspects and impacts associated with construction are identified in Table 4.1 of the CEMP.

Key aspects of the Project that could result in impacts to terrestrial and aquatic flora and fauna include:

- Clearing of native vegetation (including habitat)
- Works around and within watercourses, including disturbance of riparian vegetation
- Noise, vibration, dust and light impacts
- General earthworks near vegetation, resulting in disturbance of soils, consequential erosion and the mobilisation of sediment
- Establishment of ancillary facilities
- Demolition of built structures
- Vehicle movements
- Excavation works
- Drainage works
- Use of chemicals / fuels (potential for spills).

5.2 Ecological Impacts

Construction of the Project will result in direct impacts with potential to also result in indirect impacts to biodiversity, including:

- Loss of biodiversity as a result of construction
- Unauthorised clearance of vegetation outside of the approved development footprint
- Loss of threated species habitat and threatened ecological communities
- Disturbance of waterway beds and banks including scouring and erosion and disturbance of riparian vegetation
- Spread of weeds across the Project Site potentially impacting upon neighbouring property
- Failure to comply with biosecurity obligations
- Increase in predatory pest species as a result of the construction of the Project
- Light, vibration, dust, water and noise pollution leading to a modification of animal behaviour
- Changes to runoff regimes and sedimentation having impacts on waterways
- Habitat fragmentation and fauna movement restrictions and exclusion within the Project Site as a result of the construction of the Project
- Injury and/or death of native fauna through interactions with construction vehicles/plant.

The aim of the environmental management measures provided in Section 6.8 is to minimise the potential impacts on flora and fauna of the Project.

5.2.1 Direct Impacts

5.2.1.1 Vegetation Clearing

Native vegetation will be cleared to allow for the construction of the Project including clearing of 10 hollow bearing trees. Complete clearing of vegetation, including dead wood and dead trees will occur. As shown in Table 4.2, five threatened flora species (comprising 56 threated flora individuals) would be directly impacted. PCTs identified within the study area including direct and indirect impact areas are show in Table 5.1.

Table 5.1: Impacts to vegetation

PCT	Direct Impacts (ha)	Indirect Impacts (ha)
0 – Cleared and exotic grassland	10.45	8.44
724 - Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion	2.73	1.98
725 - Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	0.62	0.52
883 - Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion description	5.66	2.98
1067 - Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion	0.15	0.14
Total	**19.61**	**14.06**

5.2.1.2 Impacts to Aquatic Biodiversity

During construction, the direct disturbance of waterway beds and banks, would occur at the culvert crossing which will be constructed within Anzac Creek.

Direct disturbance of waterway beds and banks has the potential to impact up to 0.05 ha of ephemeral aquatic habitat. While this impact is unavoidable, the area to be disturbed is relatively small in relation to the remainder of the habitat available within Anzac Creek. The removal of subsurface habitat is also considered unavoidable.

5.2.2 Indirect Impacts

The indirect impact area is delineated as a 20 m buffer from the Project Site and is anticipated to be subject to indirect impacts relating to weeds, pathogens, predators, habitat fragmentation, injury and mortality of fauna, noise, vibration, dust, lighting and erosion and sediment, (refer to figures in Appendix D).

5.2.2.1 Weeds

Increased movement of vehicles and people into the Project Site have the potential to transport weeds and pathogens into the Project Site. Weeds can potentially result in degradation of retained vegetation and fauna habitat. Additionally, there is potential for weed species to be transported further into the southern section of the Wattle Grove Offset Area during construction activities.

5.2.2.2 Pathogens

Infection of native plants by *Phytophthora cinnamomi* is listed as a Key Threatening Process (KTP) under the BC Act and EPBC Act and could be introduced to the Project Site during construction activities. *Phytophthora cinnamomi* is a soil borne pathogen that spreads in plant roots in warm, moist conditions and can lead to death of trees and shrubs, resulting in devastation of native ecosystems (DoEE 2018b and DoE 2014a).

Chytrid fungus (*Batrachochytrium dendrobatidis*) is known to cause Chytridiomycosis, an infectious disease that affects amphibians worldwide (DSEWPaC 2013) and could be introduced to the Project Site during construction activities. Chytrid is listed as a KTP under the BC Act and EPBC Act and has been linked to extinction and declines in several frog species across Australia and is listed as a key threat to the Green and Golden Bell Frog (NPWS 2003).

5.2.2.3 Predators

Increased human activity also has the potential to attract feral animals. Of key concern is an increase in feral Cat (*Felis catus*) and Red Fox (*Vulpes vulpes*) activity and consequent impacts on native animals. Predation by feral Cats and Red Foxes are listed as KTPs under the BC Act and EPBC Act (NPWS 2001, DEWHA 2008, DoE 2015). Introduced predators are also considered a threat to the Eastern Pygmy-possum (NSWSC 2001).

5.2.2.4 Habitat Fragmentation

The Project will partially fragment the southern section of the Boot Land. This partial fragmentation will occur to areas of vegetation between the MPE site southern boundary, MIP Rail link and the Project Site western boundary. Fragmentation of these areas will result in a restriction of fauna species movements, potentially reducing fauna reproduction and gene flow, as well as influencing opportunities of pollination by reducing movements of pollinating vectors.

Culverts will be installed within Anzac Creek and will provide some connectivity for local fauna such as frogs, small mammals and reptiles in accordance with the approved design.

5.2.2.5 Injury and Mortality of Fauna

Construction activities will temporarily introduce a large amount of construction vehicles and plant to the vicinity of the Project Site. This increase in vehicle and plant movement will increase the risk for fauna strikes and near misses.

5.2.2.6 Noise, Vibration, Dust and Lighting

Construction activities may result in increased levels of noise and vibration. Noise has been observed to modify animal behaviour, including calling behaviour in frog species (Hoskin and Goosem 2010) and bird species. Seven hollow-bearing trees adjacent to the Project Site may be indirectly impacted due to noise impacts.

Construction activities may also result in increased dust levels, covering adjacent vegetation and inhibiting growth.

Lighting required for Out-Of-Hours-Works has potential to affect local ecological populations. These effects derive from changes in orientation, disorientation, or misorientation, and attraction or repulsion from the altered light environment, which in turn may affect foraging, reproduction, migration, and communication. Artificial light has the potential for species to abandon habitat due to these impacts (Longcore and Rich 2004, Schroer and Hölker 2016).

5.2.2.7 Erosion and Sediment

Construction of the Anzac Creek culvert as well as bulk earthworks in relation to road construction, if unmitigated, can cause erosion, runoff and sedimentation which has the potential to smother ephemeral aquatic habitat, ephemeral aquatic vegetation and reduce the quality of habitat available for use by aquatic fauna, including threatened species.

5.3 Cumulative impacts

Cumulative flora and fauna impacts may arise from the interplay between construction activities associated with the Project, and other approved or proposed projects that are likely to occur within the area. When considered in isolation, specific impacts may be considered minor. These minor impacts may be more substantial however, when the impact of multiple projects on the same receivers is considered.

As outlined in the EIS, a number of other projects in the area that may coincide with construction works include:

- MPE Stage 2 (SSD 7628)
- MPW Stage 2 (SSD 7709) and Stage 3 (SSD 10431)
- M5 Motorway Westbound Traffic Upgrade
- Glenfield Waste Services Resource Recovery Facility (SSD 6249).

Construction of the MPW and MPE Projects are currently ongoing, while some areas are currently operational. The MPE and MPW sites are largely cleared; subsequently impacts to TECs, native vegetation and fauna habitats through vehicle movements and construction equipment and fragmentation are considered unlikely.

Communication between the Construction Contractor and developers for these projects would be undertaken to manage cumulative impacts with the aim of combining messages relating to construction works when possible and minimising impacts to the local community as per the CCS.

6 ENVIRONMENTAL MITIGATION AND MANAGEMENT MEASURES

6.1 Pre-clearing Process

Site preparation works will require clearing of native vegetation and fauna habitat. To avoid and minimise impacts to vegetation and fauna species the following controls are to be implemented:

- Native vegetation and fauna habitat are to be retained wherever possible, with clearing minimised to the extent required to construct and maintain the Project (refer to Figure 6.1).
- Undertake site surveys to locate exclusion zones and install temporary fencing for construction areas adjoining the Wattle Grove Offset Area
- Exclusion zones around all areas of retained vegetation and fauna habitat will be implemented prior to vegetation clearance works commencing. These areas will be signed as 'No-go Zones' or 'Environmentally Sensitive Areas'. All staff will be notified of the presence and importance of these Environmentally Sensitive Areas during all site inductions
- Where feasible or when required, tree protection zones (TPZs) will be set up around all trees to be retained within and immediately adjacent to the subject land. If required, TPZs will be established in accordance with the *Australian Standard AS 4970-2009 Protection of trees on development sites* (Standards Australia Committee 2009)

Prior to undertaking vegetation clearing, pre-clearance inspections will be undertaken by appropriately qualified ecologists at least one week prior to the commencement of clearing. The pre-clearing inspections will:

- Confirm the biodiversity values identified in this report
- Check for presence or evidence of threatened flora and fauna species
- Flag key habitat features, including (but not limited to) nests, hollow bearing trees or large logs, snags and weeds. Note if snags are identified, the Project Ecologist will consult with DPI Fisheries prior to clearing
- Identify nearby habitat suitable for the release of any species that may be encountered during the clearing works
- Recommend whether vegetation clearing should occur at night to minimise the risk of impacts to nocturnal fauna
- Translocation of Cumberland Plain Land Snail is required. If so, translocate into suitable areas of adjacent retained vegetation as close as feasible to the location which the snail is removed without the snail being at risk of harm.
- If fish captured within Anzac Creek require relocation, a Section 37 permit will be obtained from NSW DPI prior to fish relocation commencing.

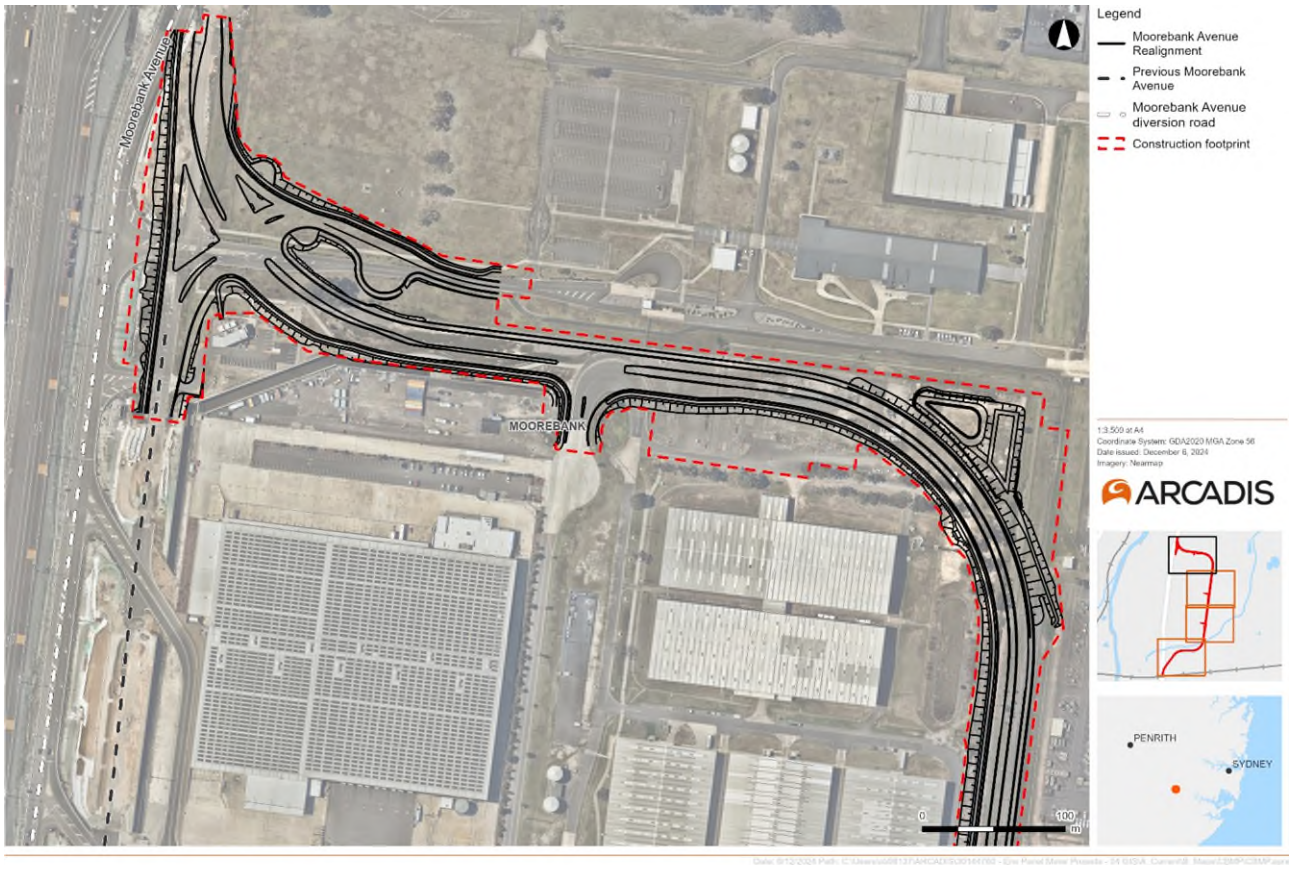
6.2 Exclusion Zones

Exclusion zones and fencing or other means to demarcate vegetation to be retained will be installed and will be set up at the limit of clearing in accordance with *Biodiversity Guidelines* (RTA, 2011) (Guide 2: Exclusion zones).

Environmental protection area signage will be installed on exclusion zone fencing at regular intervals. The fencing will only be removed following completion of construction based upon agreement between the Construction Contractor and the Principals Representative.

Ancillary facilities will be located within the existing Project Site to avoid further vegetation impacts and away from sensitive receiving environments such as Anzac Creek.

The exclusion zones are shown on Figure 6.1 and are also identified on Sensitive Area Plans provided in Appendix D of the CEMP.


Moorebank Avenue
MOOREBANK
Legend
Moorebank Avenue Realignment
Previous Moorebank Avenue
Moorebank Avenue diversion road
Construction footprint
1:3,500 at A4
Coordinate System: GDA2020 MGA Zone 56
Date issued: December 6, 2024
Imagery: Nearmap
ARCADIS
PENRITH
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MOOREBANK
Legend
Moorebank Avenue Realignment
Construction footprint
Exclusion zones
1:3,500 at A4
Coordinate System: GDA2020 MGA Zone 56
Date issued: December 6, 2024
Imagery: Nearmap
ARCADIS
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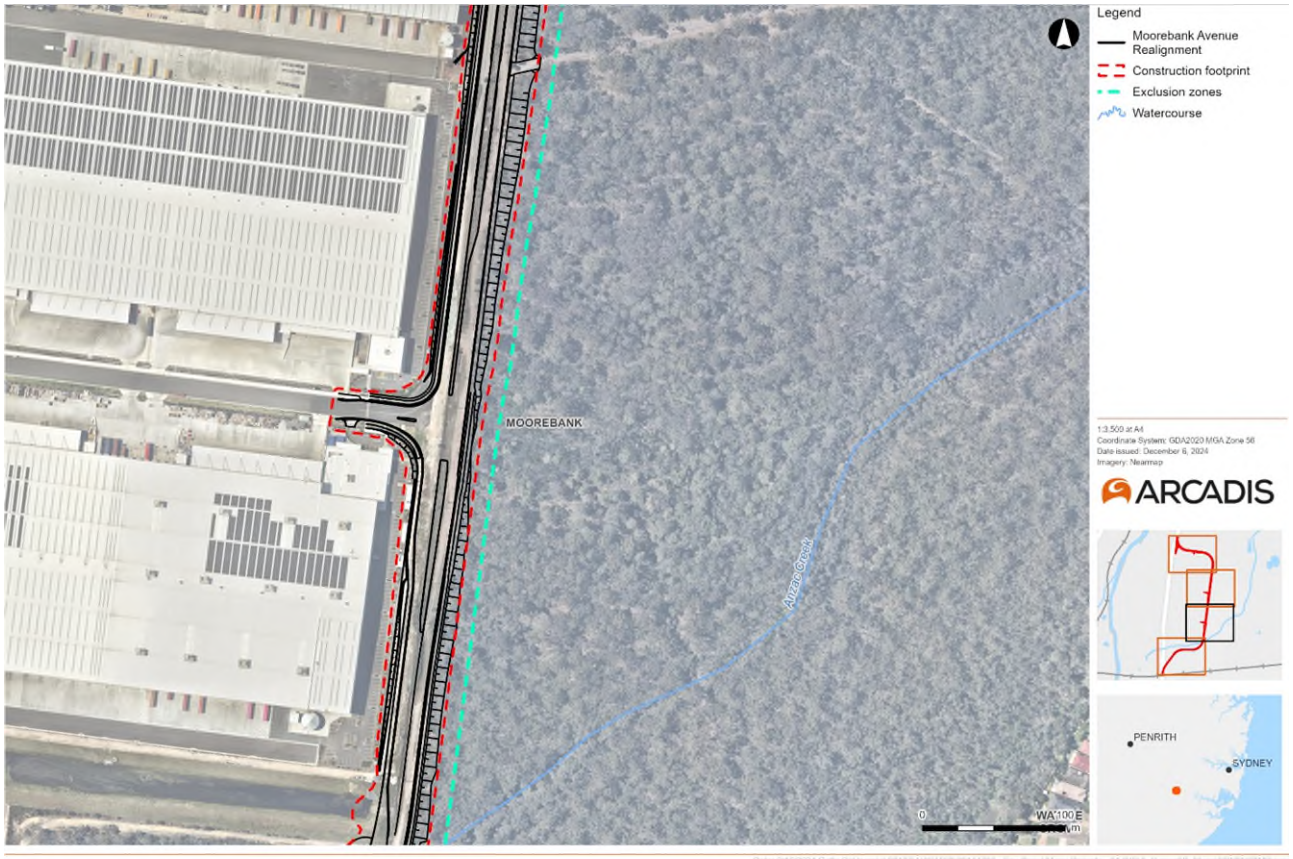

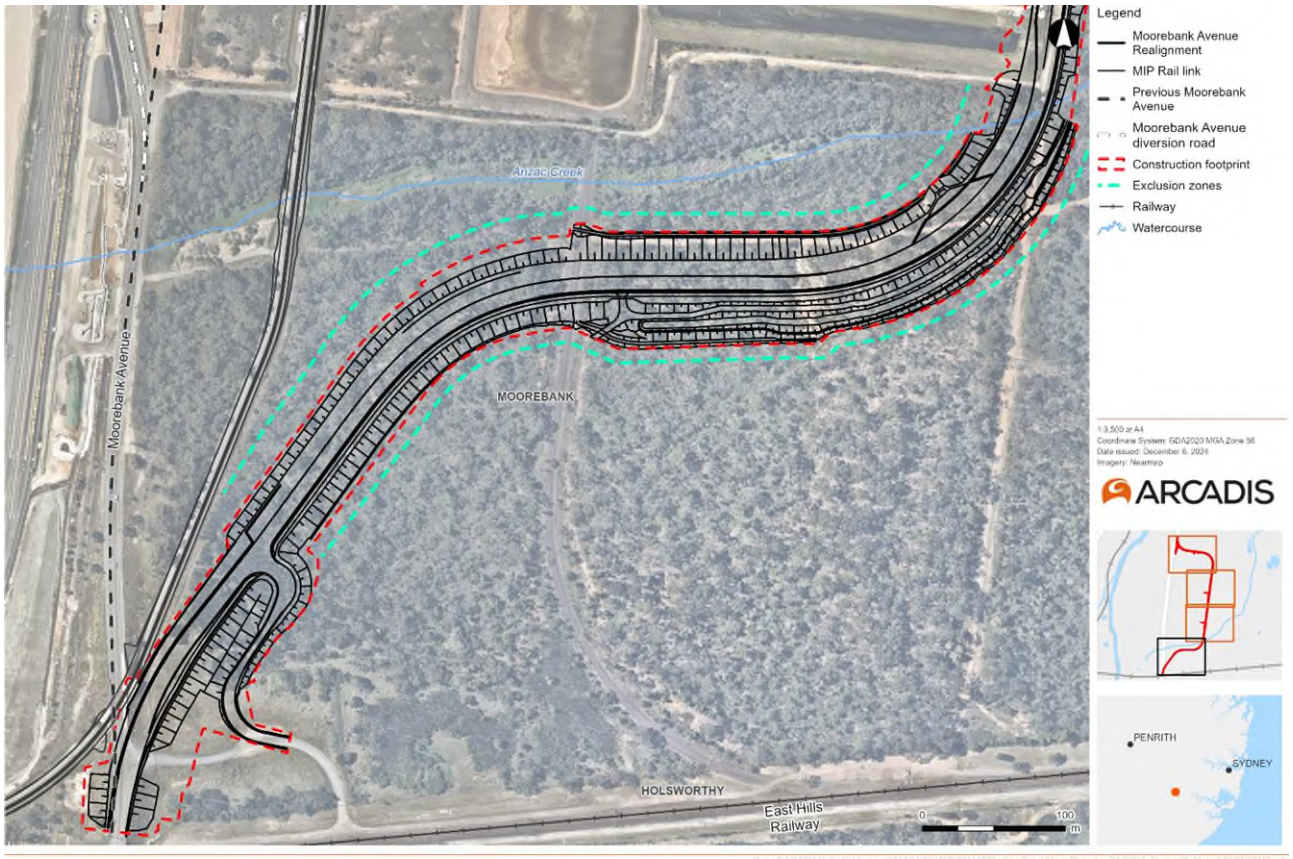

Figure 6.1: Project exclusion zones

6.3 Salvaging of Habitat

Prior to clearing of vegetation, plant material and seeds will be collected to provide local provenance plants for future revegetation in the locality under the direction of the Project Ecologist appointed by the Construction Contractor (refer to Section 7.1).

Landcare groups and government agencies including Liverpool City Council interested in recovering plant materials and habitat features will be consulted in accordance with NSW CoA E9 by the Construction Contractor. The groups and agencies interested in salvaging plant materials, bush rocks and hollow-bearing trees and tree trunks, including their contact details, are listed in Table 6.1.

Table 6.1: Landcare and agencies interested in recovery of materials and habitats

Stakeholder / agency	Interested in	Contact
Liverpool City Council	Plant materials, bush rocks and hollow-bearing trees	1300 36 2170
Toolijooa Environmental Restoration	Plant materials	Dominic Noonan M: 0410 611 859 P: 9986 1859 E: Dominic.Noonan@toolijooa.com.au.
Greening Australia	Plant materials, bush rocks and hollow-bearing trees	Paden Wilson M: 0416 225 097 P: 02 9677 6200 E: PWilson@greeningaustralia.org.au
Bushland Management Solutions Pty Ltd	Plant materials, bush rocks and hollow-bearing trees	Frank Gasparre M: 0423 058 797 E: hillsbush@bigpond.com
Greater Sydney Local Land Services	Hollow-bearing trees	Peter Ridgeway M: 0401 481 037 E: Peter.Ridgeway@lls.nsw.gov.au

6.4 Vegetation Clearing

Vegetation clearing works are to follow a two-staged process.

- Stage 1 will include the removal of all non-habitat vegetation, (e.g., shrubs, regrowth, ground cover and nonhabitat trees) and groundcover will be scalped to topsoil where appropriate
- Stage 2 will include the removal of all habitat vegetation and will require the presence of an ecologist.

6.4.1 Stage 1 Vegetation Clearing

The following steps will be undertaken before non-habitat vegetation is removed:

- Physical identification of hollow-bearing trees during pre-clearing surveys
- A map of hollow-bearing trees will be prepared following the pre-clearing surveys
- Rocky outcrops, nests and on-ground logs will be carefully inspected by the Project Ecologist. Logs will be carefully rolled and inspection beneath the log undertaken

- Surrounding vegetation (i.e. non-hollowing bearing trees and understorey plants) will be inspected by the Project Ecologist for the presence of fauna
- If animals are found, procedures outlined in the Fauna Rescue and Relocation Procedure (refer to Section 6.5) will be followed
- Surrounding vegetation can then be cleared
- If no fauna is found, then surrounding non-habitat-vegetation can be cleared:
  - This process will be monitored by the Project Ecologist in case fauna are found to be at risk
- The Project Ecologist will document the outcomes of this process (e.g., number and species encountered/rescued) (refer to Section 6.6)

Proceed to Stage 2. A minimum of 24 hours will be allowed between Stage 1 and Stage 2.

6.4.2 Stage 2 Vegetation Clearing

The Project Ecologist will be present during clearing operations to ensure felling of trees is carried out in an appropriate manner, and any fauna present can be rescued and relocated:

- Habitat trees (trees with hollows or nests) will be removed within the three hours before sunset, or during night works if advised by the Project Ecologist, as far as possible and appropriate fauna capture and release techniques will be implemented (refer to Section 6.5)
- The Project Ecologist experienced in the handling of fauna will be present with appropriate animal-handling equipment and holding containers (refer to Section 6.5.3)
- Prior to felling or removal, clearing machinery will be used to gently shake or ‘bang’ the habitat tree for a period of 2–3 minutes (dependant on tree health and structural integrity) to encourage any resident fauna to vacate hollows. Sticks, poles or other similar hand-held objects will be used to hit the trunk of the tree or log at various points, to encourage animals to vacate the tree. The tree will be observed for at least five minutes prior to completing this action
- Trees will be gently lowered using an excavator bucket for support if possible. The Project Ecologist will observe the tree felling and ensure that any hollows are not blocked by being placed against the ground
- Once it has been deemed safe by the excavator operator to inspect each tree, hollows will be inspected for fauna that may be present (uninjured, injured or deceased). Use of fibre-optic cameras to assist this process is recommended. The Project Ecologist will document this process using the tree hollow inspection register (refer to Appendix G)
- Felled habitat trees with any occupied hollows will be left on the ground until the evening or up to 24 hours to allow the animal to exit the hollow. Habitat trees can then be removed
- Any fauna species are to be relocated to habitat identified during the pre-clearing process or, if injured, transported to a veterinarian or wildlife carer
- Hollows logs and limbs will be retained for placement within the Wattle Grove Biodiversity Offset Area retained vegetation
- Native vegetation cleared will be mulched and stockpiled for re-use during any rehabilitation works–

DPI - Fisheries (1800 043 536) and the EPA (131 555) will be notified immediately if any fish kills occur in the vicinity of the works. In such cases, all works other than emergency response procedures are to cease until the issue is rectified and approval is given by DPI Fisheries and/or the EPA for the works to proceed.

6.5 Fauna Rescue and Relocation Procedure

6.5.1 Location for Release of Animals

The Project Ecologist will identify a location for release of rescued animals prior to clearing commencing, preferably within unaffected areas of the Project Site.

Potential release locations will occur within retained native vegetation located in the Wattle Grove Biodiversity Offset Area, meaning that fauna are not moved substantial distances from their existing home range, and may still be located within their existing home range.

6.5.2 General Capture and Release Methods

The Project Ecologist will be present during the clearance of native vegetation and/or fauna habitats identified on the sensitive area plans.

Animals that require handling must not be approached or handled except by the Project Ecologist, unless in an emergency (e.g., when there are no authorised persons present and where the failure to immediately intervene will place the animal at significant risk). In such an emergency, the Site Supervisor may obtain over the phone instructions from the Project Ecologist to ameliorate the situation. A wildlife rescue organisation (e.g., WIRES) will be made aware of operations in case any injured fauna are found.

All animals encountered will be treated humanely, ethically, and in accordance with relevant codes under the NSW *Prevention of Cruelty to Animals Act 1979*, including:

- Australian code of practice for the care of animals for scientific purposes (NHMRC, 2013)
- Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH, 2011)
- Rehabilitation of Protected Native Animals Policy (DPIE, 2020a)
- Hygiene guidelines. Protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomic*, myrtle rust, amphibian chytrid fungus and invasive plants (DPIE, 2020b)
- Animal ethics considerations and protocols outlined in this sub-plan

If the Project Ecologist considers an animal is at risk of injury or undue stress, it will be gently encouraged to vacate the area and will be directed into secure adjoining habitat. Where deemed necessary, the animal may be required to be captured and released. Capture and release operations will proceed via the following protocols:

- All construction activities that are considered by the Project Ecologist to be likely to increase the risk of injury, mortality or stress to the animal will be halted until the animal has been removed. This will be undertaken with the co-operation of the Site Supervisor.
- Construction activities that do not contribute to the risk of injury, mortality or stress to the animal can continue, as determined by the Project Ecologist
- Only the Project Ecologist or wildlife carers are authorised to handle fauna
- If fauna needs to be captured, safe and ethical techniques will be used as appropriate for the particular species. Captured fauna will be held in a receptacle appropriate for that species until release. More details are provided in Section 6.5.3.
- Each receptacle will only hold one animal at a time and will be cleaned and disinfected between use to avoid the spread of disease.
- Management of any captured feral animals is discussed in Section 6.5.5.4.

6.5.3 Appropriate Containers for Temporarily Holding Fauna

Animals that are unable to depart from the construction area of their own accord will be captured and held in an appropriate receptacle until their release at dusk.

Appropriate containers for temporarily holding various types of animals are:

- Small calico bag (~ 20 cm x 30 cm with cord to secure the opening, turned inside out so that seams are on the outside of the bag). Used for small mammals (e.g., Antechinus), micro-chiropteran bats. Bag then slung from beam in a holding box until the time of release
- Large calico bag or pillow slip (~ 60 cm x 90 cm with cord to secure the opening, turned inside out so that seams are on the outside of the bag). Used for snakes, medium-sized arboreal mammals. Bag then stored in a cardboard box with padding if required for transport
- Cage trap (~ 30 cm x 30 cm x 60 cm): Medium sized arboreal and ground-dwelling mammals. Trap to be covered with bag to reduce stress
- Plastic 'lunch-box'- style container (~ 10 cm x 10 cm x 20 cm) with appropriate habitat features, some water (or dampened cloth) and air holes: frogs, reptiles such as small lizards
- Sealable container (~ 1–2 litres) filled with on-site fresh water for tadpoles
- Small box/open container with appropriate material for nestlings
- Plastic bag with water: Frogs (one bag per frog).

Note: Frogs must be handled in accordance with the NPWS *Frog Hygiene Protocol (JCU, 2011*) to prevent the transmission of disease such as the Chytrid fungus. Gloves and/or containers which have been used to handle or contain frogs will not be reused.

6.5.4 Handling of Bats

Anyone handling bats must be suitably qualified and also vaccinated against rabies due to being at risk of Australian Bat Lyssavirus (ABLV). This may include the Project Ecologist.

ABLV is spread by bites and scratches from infected bats, or by being exposed to infected animals' saliva through the eyes, nose, mouth or broken skin. The early symptoms are flu-like, including headache, fever and fatigue. The illness progresses rapidly to paralysis, delirium, convulsions and death, usually within a week or two. There is no cure. This disease can be prevented by vaccination, as well as rapid and thorough cleaning of the wound (NSW Health 2019).

In Australia, evidence of ABLV infection has been found in species of flying foxes/fruit bats and insect-eating microbats. It is assumed that any bat in Australia could potentially carry ABLV. Contact or exposures to bat faeces, urine or blood do not pose a risk of exposure to ABLV, nor do living, playing or walking near bat roosting areas, as long as bats are not handled (NSW Health 2019).

If a person who has been previously vaccinated is bitten or scratched by a bat the following action will be undertaken:

- Immediately wash the wound thoroughly with soap and water for at least five minutes – proper cleansing of the wound reduces the risk of infection
- Apply an antiseptic with anti-virus action such as povidone-iodine, iodine tincture, aqueous iodine solution or alcohol (ethanol) after washing
- Seek medical attention as soon as possible to care for the wound and to assess whether you are at risk of infection (NSW Health 2019)

- If the person is at risk of infection, they may require treatment consisting of a combination of rabies immunoglobulin and rabies vaccine. If they have not been vaccinated previously, they will require an injection of rabies immunoglobulin as soon as possible and a series of either four or five rabies vaccine injections over one month. If the person has been vaccinated before with a full course of vaccination, they will require two further doses of vaccine
- In NSW, Public Health Units will work with the person's doctor to assess their risk and where indicated, will arrange for rabies vaccines and immunoglobulin to be delivered to their GP or hospital. If the animal or bat can be observed or tested without placing other people at risk, health authorities may decide to delay the person's treatment for a short period of time. In Australia, testing of bats can be arranged by local Public Health Units. If it is found that the animal is not a rabies risk, the course of vaccinations will not be required and can be ceased (NSW Health 2019)
- Antiseptic with anti-virus action must be held in the site office first aid kit for the duration of works.

6.5.5 Management of Captured Animals

6.5.5.1 Native Animals – Uninjured

The following methods are appropriate for the release of uninjured native fauna:

- Uninjured captured individuals will be immediately released into retained vegetation to the south and -east of the Project Site
- If the Project Ecologist is not trained to handle snakes, or a particular snake species, then either another wildlife specialist who is trained and experienced at handling snakes will be brought to the Project Site, or a licensed snake handler will be engaged. Licensed snake handlers in the local area will be identified and made aware of this possibility before the commencement of construction activities
- For particular species (e.g. nocturnal species), the Project Ecologist may determine that it is beneficial to hold the animal/s safely in an appropriate receptacle until or after sunset to reduce risks to the animal such as disorientation or attack from predators. The receptacle will be kept in a shaded or otherwise suitable location during the day so that the temperatures experienced by the animals are well within its normal range. At all times, the receptacle will be kept in a secure location, under the supervision of the Project Ecologist
- The time, location, species, name of ecologists and other relevant details will be marked on a capture and release recording form.

6.5.5.2 Native Animals – Injured

The following methods are appropriate for the management of injured native fauna:

- If an injured animal is found within the construction area, it will be placed into the care of a local and accredited party experienced in the care of that particular animal species
- The following wildlife rescue organisations are in the area:

WIRES	13 000 WIRES (13 00 094 737)
Sydney Wildlife	(02) 9413 430

- When injured animals have recovered sufficiently, they will be released safely by the accredited party in suitable habitat within retained vegetation to the south and east of the Project Site

- Animals that have a poor chance of recovery or for which a successful return to the wild is considered unlikely, as determined by the accredited party, will be euthanised humanely by a veterinarian

6.5.5.3 Native Animals – Deceased

The Project Ecologist will offer deceased animals to the Australian Museum. Specimens not taken by the Museum will be disposed of in an appropriate manner.

6.5.5.4 Feral Fauna

Feral animals may be present during the clearing process. Those that may occur include the Red Fox (*Vulpes vulpes*), Cat (*Felis catus*), European Rabbit (*Oryctolagus cuniculus*), Black Rat (*Rattus rattus*) and House Mouse (*Mus domesticus*). The following procedures will be followed if feral animals are captured within the construction area:

- Animals will be handled and held in an appropriate receptor as per the Native Fauna Handling Procedure
- The liberation of any animal, other than a homing pigeon or a captured animal which is native to NSW, is illegal
- Any captured feral animals will therefore not be re-released after capture, but will be humanely destroyed.

6.6 Post-Clearing Report

At the completion of clearing, the Project Ecologist will complete post-clearing surveys and prepare a Post-Clearing Report.

The report will confirm the final area cleared, the number and identity of all vegetation removed, and specifically, the post-clearance abundance and density count of hollow-bearing trees.

The Post-Clearing Report will also identify if any fauna, nests or other fauna habitats were impacted by clearing works and provide fauna capture and relocation data. Any reuse, relocation or disposal of snags, hollows or coarse woody debris will be included within the post-clearing report.

6.7 Revegetation

Revegetation of cleared areas as well as replacement and enhancement if vegetative screening throughout the Project Site will be undertaken as quickly as possible and in a progressive manner following construction works to allow for early establishment. These areas include road batters, embarkments and any cleared areas that are not part of the road infrastructure.

Environmental safeguards (silt curtains, booms etc) will be installed at Anzac Creek as soon as possible after vegetation clearing has taken place and will stay in place during construction or until revegetation has occurred to ensure that there is no escape of turbid plumes into the adjacent aquatic environment.

If batters are at low risk of erosion, they will be left to regenerate naturally with the assistance of replacement organic matter, where required. Batter stabilisation works will be undertaken where required, along with revegetation of cleared areas, construction of drainage swales and sedimentation control planting. No additional clearing, outside the Project Site, will be required for work compound, temporary stockpile and laydown areas.

Most of the vegetation clearing will occur within the Boot Land (however outside of the Wattle Grove Biodiversity Offset Area) where the PCTs listed in Appendix D are currently present. These PCTs are

commensurate with threatened ecological communities listed under the BC Act and EPBC Act, as outlined in Section 4.2.2.

Revegetation works will use locally sourced tubestock species typical of the vegetation communities present. Mid-storey and understorey species characteristic of each PCT, and TEC will be planted in cleared areas according to the mapping of PCTs, and the corresponding TECs as part of the updated BDAR appended to the RtS as Appendix B.

Appendix H provides a summary of suggested flora species for use in revegetation works according to the relevant PCT.

6.8 Management Measures

Management actions prescribed by this CBMP aim to avoid and minimise impacts on biodiversity and are summarised in Table 6.2.

The development of management measures has been based on SMART principles i.e. measures that are specific, measurable, achievable, relevant, and time-bound:

- **S**pecific –Mitigation and management measures identified in Table 6.2 specifically to manage flora and fauna impacts during construction
- **M**easurable – Inspection and monitoring requirements detailed in Section 7.3 include specific measures or indicators for which inspection and monitoring requirements will be triggered
- **A**chievable – Ongoing compliance with the Infrastructure Approval (Table 3.1 and Table 3.2) and Commonwealth CoAs, is achievable throughout the delivery of construction and represents the minimum requirements to be implemented by the Construction Contractor
- **R**elevant - The management measures outlined in Table 6.2 represent the approach to monitoring and tracking against the objectives, targets and environmental performance outcomes (identified in Section 2.3 of the CBMP)
- **T**ime-bound – The management measures set out within Table 6.2 are required to be implemented for the duration of construction, setting a clear and defined time frame and includes reference to other timeframes, including during detailed design, pre-construction, post-construction and/or operation.

Table 6.2: Flora and fauna management and mitigation measures

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
Pre-construction management actions					
1	A biodiversity management plan (BMP) will be developed for the Project post-approval and will be encompassed within the CEMP. The BMP plan will provide details for the ongoing management and maintenance of biodiversity protection measures during the construction phase of the Project.	Prior to commencement of construction	National Intermodal	REMM BIO01 NSW CoA C6 EPBC CoA 9	This CBMP
2	A Biodiversity Offset Strategy is to be prepared in consultation with ESS Group and DCCEEW. The Strategy must outline: The process for and confirmation that the species or community types to be offset, the number and classes of biodiversity credits (like-for-like) set out in Tables 7.8, 7.9, 7.10 and 7.11 of the revised Biodiversity Development Assessment Report (version 5), prepared by EMM and dated 24 May 2021 have been retired and provide relevant evidence of payment or obtaining like-for-like species credits Evidence of the retirement of credits or payment to the Biodiversity Conservation Fund must be provided to the Planning Secretary and DCCEEW before any impact on the species or community types to be offset.	Prior to commencement of construction	National Intermodal	NSW CoA E4 NSW CoA E5 NSW CoA E6 NSW CoA E7 NSW CoA E8 EPBC CoA 5 EPBC CoA 5	N/A
3	Appoint a Project Ecologist to supervise pre-clearing and clearing operations. The Project Ecologist is to be a suitably qualified fauna spotter catcher / wildlife carer and will be pre-exposed to prophylaxis with the rabies vaccine.	Pre-construction	Site Supervisor	REMM BIO09 REMM BIO10	Compliance monitoring
4	Create sensitive areas plan showing areas to be cleared and areas to be protected, including exclusion zones, are to be prepared prior to clearing. The sensitive area plans are to be updated with any additional nests, dreys or weed areas prior to clearing commencing to assist with management of clearing operations.	Pre-construction	Site Supervisor Project Ecologist	EPBC CoA 2 EPBC CoA 3 EPBC CoA 4 NSW CoA E3 Appendix D of the CEMP Figure 6.1	Training records Compliance monitoring

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
5	A pre-clearing survey is to be conducted by the Project Ecologist or suitably qualified contractor at least one week prior to clearing commencing. Any identified habitat features that are to be managed during clearing are to be clearly marked and mapped with GIS for future reference. This survey is to include: • Searches for threatened flora species, known to occur in the Project Site or nearby Wattle Grove Offset Area, and identification of any threatened flora individuals outside the construction footprint that can be protected from construction activities through the use of fencing, signage, or flagging. • Searches for occupied hollow-bearing trees, nests, dreys, snags and bush rock areas, which are to be marked on the sensitive areas map • Hollow-bearing trees or trees with nests are to be marked with pink flagging tape and/or a large pink 'H" will be marked on the trunk with pink spray paint • Identify nearby habitat suitable for the release of any species that may be encountered during the clearing works • Translocation of Cumberland Plain Land Snail found within the development area into suitable areas of adjacent retained vegetation as close as feasible to the location which the snail is removed without the snail being at risk of harm • Should snags be identified, the Project Ecologist will consult with DPI Fisheries prior to clearing.	Pre-construction	Site Supervisor Project Ecologist	REMM BIO09	Compliance monitoring Induction register Toolbox record
6	A weed survey is to be conducted within the Project Site. The survey is to map any areas with weed infestations that require management. Priority weeds under the Biosecurity Act for Greater Sydney (DPI, 2022), listed High Threat Weeds (DPIE, 2020) and Weeds of National Significance (WA, 2022) will be targeted for management actions. The purpose of management action is to ensure weed species such as Crofton weed, Moth Vine, African Lovegrass and Fireweed (refer to section 2.3) are not transported further south into the Wattle Grove Offset Area during construction activities. These species were recorded in proximity to areas of disturbance such as the	Pre-construction	Site Supervisor Project Ecologist	REMM BIO12	Compliance monitoring Induction register Toolbox record

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
	powerline easement adjacent to the drainage line along the north eastern boundary of the MPE site and adjacent Moorebank Avenue.				
7	The Project Ecologist is to organise a location for release of rescued animals prior to clearing commencing, preferably within unaffected areas of the Project Site or nearby Wattle Grove Offset Area in consultation with the managing ecologist of the Wattle Grove Offset Area. Potential release locations will occur within retained native vegetation located in the Wattle Grove Offset Area. If fish captured within Anzac Creek is required, a Section 37 permit will be obtained from NSW DPI prior to fish relocation commencing.	Pre-construction	Project Ecologist	N/A	Inspection records
Training					
8	Carry out inductions for all construction staff to advise on biodiversity values and management measures. The induction will address flora and fauna management, including: • Familiarisation with the requirements of this sub-plan • Relevant legislation regarding the protection of flora and fauna • Specific species likely to be affected by the construction works and how these species can be recognised • Locations and purpose of ecologically sensitive areas and exclusion zones • General flora and fauna management measures • Fauna rescue requirements • Weed and pathogen control measures • Location and importance of the Wattle Grove Offset Area boundary. • Records will be kept of all staff inducted, as well as the date of induction, an outline of the training received and name of the Project Ecologist or similar person delivering the induction.	Pre-construction	Site Supervisor Project Ecologist	REMM BIO03	Compliance monitoring Induction register Toolbox record

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
Exclusion zones					
9	All practicable measures to reduce the clearing of native vegetation within the clearing footprint must be undertaken, with the objective of reducing impacts to threatened ecological communities and threatened species habitat. Within the Project Site, clearing must be limited to: • 0.91 hectares of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest • 5.41 hectares of Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion. • 6.84 hectares of Koala habitat. • Site survey will be undertaken progressively to calculate and confirm that the area cleared is within the above limits. • Where feasible or when required, Tree Protection Zones (TPZs) are to the set up around all trees to be retained where the root zone extends into the developable area. TPZs are to be established in accordance with the Australian Standard AS 4970-2009 Protection of trees on development sites (Standards Australia Committee 2009).	Pre-construction	Site Supervisor Project Ecologist	EPBC CoA 3 EPBC CoA 4 REMM BIO05 REMM VIS07 REMM SUS04	Compliance monitoring Post clearing report Induction register Toolbox record
9a	No clearing will be undertaken outside the Project Site. The following will be undertaken: • Site survey will be carried out to establish exclusion zones: • Installation of temporary fencing along the Wattle Grove Offset Area • Exclusion zones around all areas of retained vegetation and fauna habitat identified via signs displaying ‘No-go Zones’ or ‘Environmentally Sensitive Areas’ • Fencing will be constructed to guide fauna towards culvert entrances where feasible.	Pre-construction	Site Supervisor Project Ecologist	EPBC CoA 2 NSW CoA E2 REMM BIO03 REMM BIO08 REMM BIO27 REMM AIR14	Compliance monitoring Induction register Toolbox record
10	Inspect fencing of ecologically sensitive areas and fencing installed to demarcate the construction area in the pre-construction phase. High visibility parawebbing demarcating ecological sensitive areas following pre-clearance surveys, will be inspected, and repaired as necessary.	Construction	Site Supervisor Project Ecologist	N/A	Inspection records

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
Vegetation clearing					
11	The Construction Contractor is to ensure lands established as part of the Wattle Grove Offset Area (now Biodiversity Stewardship Site) under BioBanking agreement No. 341, are protected and retained.	Construction	Site Supervisor Project Ecologist	EPBC CoA 3 NSW CoA E2 NSW CoA E3 REMM BIO03 REMM BIO05	Compliance monitoring
12	The Project Ecologist is required to consult with DPI Fisheries prior to clearing to ensure measures to avoid and mitigate riparian vegetation have been considered and addressed– DPI - Fisheries (1800 043 536) and the EPA (131 555) will be notified immediately if any fish kills occur in the vicinity of the works. In such cases, all works other than emergency response procedures are to cease until the issue is rectified and approval is given by DPI Fisheries and/or the EPA for the works to proceed.	Construction	Project Ecologist	EPBC CoA 3 REMM BIO05	Compliance monitoring Consultation records
13	The Project Ecologist will manage clearing of vegetation in compliance with the following two-stage process: • Stage 1 will include the removal of all non-habitat vegetation (e.g., shrubs, regrowth, ground cover and non-habitat trees, as described below). The groundcover will be scalped to topsoil where appropriate. A minimum of 24 hours will be allowed between Stage 1 and Stage 2 Stage 2 will include the removal of all habitat vegetation: • Nests and on-ground logs will be carefully inspected by the Project Ecologist. Logs will be carefully rolled and inspection beneath the log undertaken • Habitat trees (trees with hollows or nests) will be carefully lowered to the ground with minimal impact, and nests and hollows inspected by the Project Ecologist. • Any fauna species are to be relocated to retained habitat identified during the pre-clearing process or, if injured, transported to a veterinarian or wildlife carer.	Construction	Site Supervisor Project Ecologist	REMM BIO10	Compliance monitoring Pre-clearance report Post-clearance report

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
14	The Project Ecologist is to manage the removal of hollow-bearing trees. Hollow-bearing trees are to be re-used where land is available nearby, and within the Wattle Grove Offset Area.	Construction	Site Supervisor Project Ecologist	REMM BIO11	Compliance monitoring
15	The Site Supervisor is to ensure cleared native vegetation is to be mulched and stockpiled for re-use during rehabilitation works provided, no weed species are present. Stockpiles will be contained by appropriate sediment control devices (eg sediment fences) Stockpiled mulch and materials will be located outside of exclusion zones, tree protection zones and ecological sensitive areas, including waterways.	Construction	Site Supervisor	REMM BIO13 REMM BIO17	Compliance monitoring
16	The Construction Contractor will consult with Landcare groups and government agencies including Liverpool City Council interested in recovering plant materials (including hollows, tree trunks, mulch, bush rock and root balls) prior to any vegetation clearing. The Landcare groups interested are listed below with contact details provided in Table 6.1: • Toolijooa Environmental Restoration • Greening Australia: • Bushland Management Solutions Pty Ltd	Construction	Site Supervisor	NSW CoA E9 Section 6.3 Table 6.1	Compliance monitoring
17	The Construction Contractor will consult the following groups interested in salvaging rock materials prior to any vegetation clearing. Contact details provided in Table 6.1: • Liverpool City Council • Greening Australia • Bushland Management Solutions Pty Ltd The Project Ecologist is to be present during the removal of rock outcrops and trees with nests.	Construction	Site Supervisor Project Ecologist	NSW CoA E9 Section 6.3 Table 6.1	Compliance monitoring
18	The Construction Contractor will consult the following groups interested in hollow-bearing trees materials prior to any vegetation clearing. Contact details provided in Table 6.1: • Liverpool City Council	Construction	Site Supervisor Project Ecologist	NSW CoA E9 REMM BIO11 Section 6.3 Table 6.1	Compliance monitoring

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
	• Greening Australia • Bushland Management Solutions Pty Ltd • Greater Sydney Local Land Services The Project Ecologist is to be present during the removal of rock outcrops and trees with nests.				
Fauna management					
19	• All fauna encountered is to be handled by the Project Ecologist, wildlife carer or suitably qualified contractor working with the Project Ecologist. • All animals encountered will be treated humanely, ethically, and in accordance with relevant codes under the NSW Prevention of Cruelty to Animals Act 1979, including: • Australian code of practice for the care of animals for scientific purposes (NHMRC, 2013) • Code of Practice for Injured, Sick and Orphaned Protected Fauna (OEH, 2011) • Rehabilitation of Protected Native Animals Policy (DPIE, 2020a) • Hygiene guidelines. Protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus and invasive plants (DPIE, 2020b) • Animal ethics considerations and protocols outlined in this document	Construction	Project Ecologist	Section 3.1 Section 5.2.2	Fauna handling records
20	If the Project Ecologist considers an animal is at risk of injury or undue stress, it is to be gently encouraged to vacate the area and will be directed into secure adjoining habitat. Where deemed necessary by the Project Ecologist, the animal may be required to be captured and released. Capture and release operations will proceed via the following protocols: • Construction activities that do not contribute to the risk of injury, mortality or stress to the animal can continue, as determined by the Project Ecologist • Only the Project Ecologist or wildlife carers are authorised to handle animals	Construction	Project Ecologist	NSW CoA E3	Compliance monitoring Fauna handling records

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
	• Animals will be captured, if required, by the Project Ecologist or authorised animal handler using a safe and ethical technique, as is appropriate for the particular species • Native animals that are unable to depart of their own accord will be captured and held in a receptacle appropriate for that species until release • All captive-held animals will be provided with food, water and warmth as is appropriate for the species • Each container will only hold one animal at a time and will be cleaned and disinfected between use to avoid the spread of disease.				
21	The Project Ecologist is to use appropriate containers for temporarily holding various types of animals are: • Small calico bag (~ 20 cm x 30 cm with cord to secure the opening, turned inside out so that seams are on the outside of the bag): Small mammals (e.g., Antechinus), micro-chiropteran bats. Bag then slung from beam in a holding box until the time of release • Large calico bag or pillow slip (~ 60 cm x 90 cm with cord to secure the opening, turned inside out so that seams are on the outside of the bag): Snakes, medium-sized arboreal mammals. Bag then stored in a cardboard box with padding if required for transport • Cage trap (~ 30 cm x 30 cm x 60 cm): Medium sized arboreal and ground-dwelling mammals. Trap to be covered with bag to reduce stress • Plastic 'lunch-box'- style container (~ 10 cm x 10 cm x 20 cm) with appropriate habitat features, some water (or dampened cloth) and air holes: Frogs, reptiles, such as small lizards • Sealable container (~ 1–2 litres) filled with fresh water: Tadpoles • Small box/open container with appropriate material for nestlings • Plastic bag with water: Frogs (one bag per frog). *Note: Frogs must be handled in accordance with the NPWS Frog Hygiene Protocol (JCU, 2011) to prevent the transmission of disease such as the*	Construction	Project Ecologist	NSW CoA E3	Compliance monitoring Fauna handling records Capture and release register

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
	Chytrid fungus. Gloves and/or containers that have been used to handle or contain frogs will not be reused.				
22	Where bat handling is required during clearing, the Project Ecologist or another suitably qualified person vaccinated against rabies are to handle bats due to being at risk of Australian Bat Lyssavirus (ABLV). A person who has been previously vaccinated is bitten or scratched by a bat the following action will be undertaken: • Immediately wash the wound thoroughly with soap and water for at least five minutes - proper cleansing of the wound reduces the risk of infection • Apply an antiseptic with anti-virus action such as povidone-iodine, iodine tincture, aqueous iodine solution or alcohol (ethanol) after washing • Seek medical attention as soon as possible to care for the wound and to assess whether there is a risk of infection (NSW Health 2019). If the person is at risk of infection, they may require treatment consisting of a combination of rabies immunoglobulin and rabies vaccine. If they have not been vaccinated previously, they will require an injection of rabies immunoglobulin as soon as possible and a series of either four or five rabies vaccine injections over one month. If the person has been vaccinated before with a full course of vaccination, they will require two further doses of vaccine. In NSW, Public Health Units will work with the person's doctor to assess their risk and where indicated, will arrange for rabies vaccines and immunoglobulin to be delivered to their GP or hospital. If the animal or bat can be observed or tested without placing other people at risk, health authorities may decide to delay the person's treatment for a short period of time. In Australia, testing of bats can be arranged by local Public Health Units. If it is found that the animal is not a rabies risk, the course of vaccinations will not be required and can be ceased (NSW Health 2019). Antiseptic with anti-virus action must be held in the site office first aid kit for the duration of works.	Construction	Site Supervisor Project Ecologist	NSW CoA E3	Compliance monitoring Fauna handling records Capture and release register

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
23	The following methods are appropriate for the release of uninjured native fauna by the Project Ecologist: • Uninjured captured individuals are to be immediately released into retained vegetation to the south-west of the Project Site or equivalent • If the Project Ecologist is not trained to handle snakes, or a particular snake species, then either another wildlife specialist who is trained and experienced at handling snakes will be brought to the Project, or a licensed snake handler will be engaged. Licensed snake handlers in the local area will be identified and made aware of this possibility before the commencement of construction activities • For particular species (e.g., nocturnal species), the Project Ecologist may determine that it is beneficial to hold the animal/s safely in an appropriate container until (or after) sunset to reduce risks to the animal such as disorientation or attack from predators. The container will be kept in a shaded or otherwise suitable location during the day so that the temperatures experienced are within its normal range. • The time, location, species, name of ecologists and other relevant details will be marked on a capture and release recording form	Construction	Project Ecologist	NSW CoA E3	Compliance monitoring Capture and release register
24	The following methods are appropriate for the management of injured native fauna by the Project Ecologist: • If an injured animal is found within the Project Site, it will be placed into the care of a local and accredited party experienced in the care of that particular animal species. The following wildlife rescue organisations are in the area: - WIRES, P: 13 000 WIRES (13 00 094 737) - Sydney Wildlife, P: (02) 9413 4300 • When injured animals have recovered sufficiently, they will be released safely by the accredited party in suitable habitat within retained vegetation to the north of the Project Site.	Construction	Site Supervisor Project Ecologist	NSW CoA E3	Compliance monitoring Capture and release register

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
	• Animals that have a poor chance of recovery or for which a successful return to the wild is considered unlikely, as determined by the accredited party, will be euthanised humanely by a veterinarian.				
25	To manage pest fauna including feral cats and foxes the Construction Contractor will provide appropriate waste storage facilities that are inaccessible to pests and vermin. Waste will be disposed offsite at an appropriate and licensed waste facility. No waste will be left outside in open areas accessible to feral animals.	Construction	Site Supervisor	REMM BIO18 REMM BIO19	Compliance monitoring
Weeds					
26	Initial control of large infestations of weeds identified on the sensitive area plans will be achieved prior to construction works by a suitably qualified bush regeneration contractor via a combination of brush-cutting, manual removal and careful spot-spraying	Construction	Site Supervisor Project Ecologist	REMM BIO12 Appendix D of the CEMP	Compliance monitoring
27	Suitably qualified bush regeneration contractor to manage weeds during construction: • Avoid herbicide spraying within 20 m of any watercourse • No clearing, stockpiling of plant and material shall take place in the established ecologically sensitive areas • All weed material is to be disposed of at a registered green waste facility where required • Maintenance weed control works are to be undertaken during regular sweeps of the Project. • Revegetation of cleared areas will be undertaken as quickly as possible following construction.	Construction	Site Supervisor Project Ecologist	REMM BIO13 REMM BIO17	Compliance monitoring
28	All vehicles, earthmoving equipment shall be thoroughly washed down prior to their use on the Project or when moving from exotic vegetation into mapped PCTs. (JCU, 2011; DotE, 2015; DotEE, 2018). Evidence of washdown will be provided to the Construction Contractor prior to plant and equipment arriving on site.	Construction	Site Supervisor	REMM BIO13	Compliance monitoring Procurement records

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
28a	Boots shall be thoroughly washed down prior to their use in mapped PCTs.	Construction	Site Supervisor	REMM BIO13	Compliance monitoring
28b	Wash downs must not be located within 20 m of native vegetation. Dirty water would be directed to a collection point and be disposed of appropriately. Water would either be allowed to evaporate or would be removed by tanker for offsite discharge.	Construction	Site Supervisor	REMM BIO13	Compliance monitoring
Lighting					
29	Use directional lighting adjacent to ecological sensitive areas to avoid impacts to nocturnal fauna.	Construction	Site Supervisor	REMM BIO20	Compliance monitoring
Vehicle management					
30	The Site Supervisor will ensure construction staff and sub-contractors use the existing road network to minimise vegetation removal and fragmentation. No vehicles, plant or construction staff are to enter the ecologically sensitive areas unless under instruction from the Project Ecologist.	Construction	Site Supervisor	REMM BIO04 REMM BIO05	Compliance monitoring
31	The Site Supervisor will ensure access road speed limit (20 km/hr) is enforced to protect fauna from vehicle strike. A Drivers Code of Conduct will be prepared.	Construction	Site Supervisor	REMM BIO29	Compliance monitoring
Revegetation					
32	Revegetation of cleared areas as well as replacement and enhancement if vegetative screening throughout the Project Site will be undertaken as quickly as possible and in a progressive manner following construction works to allow for early establishment. Environmental safeguards (silt curtains, booms etc) will be installed at Anzac Creek as soon as possible after vegetation clearing has taken place and will stay in place during the works to ensure that there is no escape of turbid plumes into the adjacent aquatic environment. If batters are at low risk of erosion, they will be left to regenerate naturally with the assistance of replacement organic matter, where required. Batter stabilisation works will be undertaken where required, along with revegetation	Post-construction	National Intermodal	REMM BIO15 REMM AIR14 NSW CoA E66	Revegetation and providence tracking

ID	Measure / Requirement	Timing	Responsibility	Ref	Evidence
	of cleared areas, construction of drainage swales and sedimentation control planting. Most of the vegetation clearing will occur within the Boot Land (but outside the Wattle Grove Offset Area) where the PCTs listed in Appendix D are currently present. Revegetation works will use locally sourced tubestock species typical of the vegetation communities present. Mid-storey and understorey species characteristic of each PCT, and corresponding threatened ecological community. The species listed in Appendix G will be planted in cleared areas according to the mapping of PCTs and corresponding threatened ecological communities as part of the updated BDAR appended to the RtS as Appendix B.				

7 COMPLIANCE MANAGEMENT

7.1 Roles and Responsibilities

The Project organisational structure and overall roles and environmental responsibilities are outlined in Section 5.1 of the CEMP.

A suitably qualified ecologist appointed by the Construction Contractor, who is an authorised fauna spotter catcher will be engaged for the duration of the Project to oversee impacts to flora and fauna and ecological communities. Specific responsibilities for the implementation of flora and fauna management are summarised Table 7.1 and more detail is provided in Section 6 of this CBMP.

Table 7.1: Roles and responsibilities specific to biodiversity

CBMP specific roles	
Project Ecologist	• Pre-clearance and post-clearance surveys • Oversee all vegetation clearing on site • Manage and handle all fauna onsite • Implement fauna contingency measures, where required • Inform all staff and sub-contractors of their environmental obligations • Inform all staff and sub-contractors of all biodiversity values on site and associated protection measures • Monitor and maintain compliance to environmental approvals, agreements licences and management plans.

7.2 Training

All site personnel (including sub-contractors) will undergo site induction training relating to flora and fauna management issues prior to construction commencing. The induction training will address elements related to flora and fauna management, including:

- Existence and requirements of this CBMP
- Relevant legislation and regulations and
- Incident response, management and reporting
- Environmentally sensitive locations and exclusion zones
- Specific species likely to be affected by the construction works and how these species can be recognised
- Mulch stockpile location and management measures
- Site flagging protocol
- Fauna rescue requirements
- Boundaries for vegetation clearing
- Fauna and fauna habitat management
- Weed control measures
- General flora and fauna management measures

- Specific responsibilities for the protection of flora and fauna
- All requirements of Appendices contained within this CBMP.

A register will be kept and updated to record employees who have completed the induction and their date of completion.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in flora and fauna management or those undertaking an activity with a high risk of environmental impact. Site personnel will undergo refresher training at no less than six monthly intervals.

Daily pre-start meetings conducted by the Site Supervisor will inform the site workforce of any environmental issues relevant to flora and fauna that could potentially be impacted by, or impact on, the day's activities.

Further details regarding staff induction and training are provided in Section 5.2 of the CEMP.

7.3 Monitoring and Inspections

Inspections of sensitive areas and activities with the potential to impact flora and fauna will occur for the duration of the construction of the Project.

Requirements and responsibilities in relation to monitoring and inspections are documented in Section 7.1 of the CEMP. Table 7.2 summarises the inspections applicable to this CBMP.

Table 7.2: Summary of inspections applicable to biodiversity

Inspection Type	Frequency	Focus	Responsibility	Record
Pre-clearing inspections	As required	Prior to undertaking clearing	Project Ecologist	Pre-clearance report
Post-clearing inspection	As required	After undertaking clearing	Project Ecologist	Post-clearance report
Site inspections	Weekly	Extent of clearing Weeds Exclusion zone fencing	Construction Contractor Environmental Advisor Project Ecologist	Inspection checklist

7.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub plan, NSW and Commonwealth CoA and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in Section 7.3 of the CEMP.

7.5 Reporting and Identified Records

Reporting requirements and responsibilities are documented in Section 7.4 of the CEMP.

Specific reporting requirements associated with the CBMP are outlined in Table 7.3.

Table 7.3: Reporting requirements relevant to flora and fauna management

Report	Frequency	Responsibility
Pre-clearing Survey Report Survey methodology, targeted species, habitat trees to be removed, fauna rescue events and relocations	Prior to undertaking clearing	Contractor Site Environmental Representative Project Ecologist
Post-clearing Report The report will confirm the final area cleared, impacted species and habitats and any reuse or relocation of hollows or debris and will include the clearing register, hollow inspection register and any completed capture and release forms.	After undertaking clearing	Contractor Site Environmental Representative Project Ecologist

Accurate records will be required to be maintained substantiating all construction activities associated with the Project or relevant to the State and Commonwealth CoA, including measures taken to implement this CBMP. Records will be made available to the DPE and DCCEEW upon request, within the timeframe nominated in the request.

7.6 Incidents

It is the responsibility of all personnel to report any incidents in accordance with the incident management procedures detailed to Section 6.1 of the CEMP.

In addition to the reporting requirements in Section 6.1 of the CEMP, DPI Fisheries (1800 043 536) and the Environment Protection Authority (131 555) is to be notified immediately if any fish kills occur in the vicinity of the works. In such cases, all works other than emergency response procedures are to cease until the issue is rectified and approval is given by DPI Fisheries and/or the Environment Protection Authority for the works to proceed.

7.7 Complaints

Complaints will be managed as soon as possible in accordance with the requirements of the CCS and Complaints Management System developed in accordance with NSW CoA B7 and B8 respectively.

Complaints will be managed in accordance with Section 5.4.3 of the CEMP and CCS.

7.8 Non-Compliances and Corrective Actions

Non-compliance may be identified via internal and external audits, site monitoring, inspections and observations, environmental incidents and emergencies, complaints and management reviews.

Non-compliance and resulting corrective actions will be managed in accordance with Section 7.2 of the CEMP.

8 REVIEW AND IMPROVEMENT

8.1 Continuous Improvement

Continuous improvement of this CBMP will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement and through SMART principles. The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-compliances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non- compliances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.
- Environmental risks are to be identified and included in the risk register and appropriate mitigation measures implemented throughout the construction of the Project as part of the continuous improvement process.

Project environmental risks will be identified and included in the risk register and appropriate mitigation measures implemented throughout the construction of the Project as part of the continuous improvement process.

8.2 CBMP Update and Amendment

The processes described in Section 7.5 of the CEMP may result in the need to update or revise this CBMP. This will occur as needed.

Any revisions to the CBMP will be endorsed and / or approved in accordance with the process outlined in Section 1.5 of the CEMP.

A copy of the updated Plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

APPENDIX A Consultation

Response to DPI Fisheries Letter of 11 April 2023

Comment	Response and where the comment has been addressed
1. The Department of Primary Industries Policy and Guidelines for Fish Habitat Conservation and Management (DPI 2013) is mentioned twice in Section 3.1.3, the second reference can be removed;	Section 3.1.3 has been updated and the additional reference to the guideline has been removed.
2. If fish relocation is required as a part of fauna management activities, a separate s.37 permit should be obtained from NSW DPI to relocate fish;	Section 6.1 Pre-clearing and Table 6.2 Mitigation Measure 7 have been updated to state *"If fish captured within Anzac Creek are required to be relocated, a Section 37 permit will be obtained from NSW DPI prior to fish relocation commencing".*
3. It is noted that should snags be identified, the Project Ecologist will consult with DPI Fisheries prior to clearing.	Section 6.1 and Table 6.2 Mitigation Measure 5 have been updated to state that the "… *Project Ecologist will consult with DPI Fisheries prior to clearing"*
4. Environmental safeguards (silt curtains, booms etc) are to be installed at Anzac Creek as soon as possible after vegetation clearing has taken place and must stay in place during the works to ensure that there is no escape of turbid plumes into the adjacent aquatic environment;	Section 6.7 and Table 6.2 Mitigation Measure 32 have been updated to include this requirement: *"Environmental safeguards (silt curtains, booms etc) will be installed at Anzac Creek as soon as possible after vegetation clearing has taken place and will stay in place during the works to ensure that there is no escape of turbid plumes into the adjacent aquatic environment."*
5. Any material removed from the waterway that is to be temporarily deposited or stockpiles on land is to be located well away from the waterway and to be contained by appropriate sediment control devices; and	Table 6.2 Mitigation Measure 15 has been updated to state the following: *"Stockpiles will be contained by appropriate sediment control devices (eg sediment fences)"* *"Stockpiled mulch and materials will be located outside of exclusion zones, tree protection zones and ecological sensitive areas, including waterways."*
6. DPI Fisheries (1800 043 536) and the Environment Protection Authority (131 555) is to be notified immediately if any fish kills occur in the vicinity of the works. In such cases, all works other than emergency response procedures are to cease until the issue is rectified and approval is given by DPI Fisheries and/or the Environment Protection authority for the works to proceed.	Table 6.2 Mitigation Measure 12 has been updated to include this requirement.

Our Ref: C23/189 **11 April 2023**

Your Ref: SSI-10023

Major Projects Portal
Attn: Kylie Hargreaves
c/o: k[redacted]

Dear Kylie,

Post Approval Consultation for Moorebank Avenue Realignment Works – Construction Biodiversity Management Plan (CBMP)

Thank you for your referral of 24/03/2023 seeking comment on the proposal from DPI Fisheries, a division of NSW Department of Primary Industries on the proposed works stated above. This notification complies with s.199(1)(a) of the *Fisheries Management Act 1994* (FM Act) concerning the proposed dredging and reclamation activities.

DPI Fisheries is responsible for ensuring that fish stocks are conserved and that there is no net loss of key fish habitats upon which they depend. To achieve this, DPI Fisheries ensures that developments comply with the requirements of the *Fisheries Management Act 1994* (FM Act) (namely the aquatic habitat protection and threatened species conservation provisions in Parts 7 and 7A of the Act, respectively), and the associated *Policy and Guidelines for Fish Habitat Conservation and Management (2013)*. DPI Fisheries is also responsible for ensuring the sustainable management of commercial, recreational and Aboriginal cultural fishing, aquaculture, marine parks and aquatic reserves within NSW.

DPI Fisheries has reviewed the CBMP in light of those provisions and has no objections, provided that:

1. The Department of Primary Industries Policy and Guidelines for Fish Habitat Conservation and Management (DPI 2013) is mentioned twice in Section 3.1.3, the second reference can be removed;
2. If fish relocation is required as a part of fauna management activities, a separate s.37 permit should be obtained from NSW DPI to relocate fish;
3. It is noted that should snags be identified, the Project Ecologist will consult with DPI Fisheries prior to clearing.
4. Environmental safeguards (silt curtains, booms etc) are to be installed at Anzac Creek as soon as possible after vegetation clearing has taken place and must stay in place during the works to ensure that there is no escape of turbid plumes into the adjacent aquatic environment;
5. Any material removed from the waterway that is to be temporarily deposited or stockpiles on land is to be located well away from the waterway and to be contained by appropriate sediment control devices; and
6. DPI Fisheries (1800 043 536) and the Environment Protection Authority (131 555) is to be notified immediately if any fish kills occur in the vicinity of the works. In such cases, all works other than emergency response procedures are to cease until the issue is rectified and approval is given by DPI Fisheries and/or the Environment Protection authority for the works to proceed.

If you require any further information, please contact me on [redacted]

Mail to: M.Coughran,1243 Bruxner Hwy, Wollongbar NSW 2477
Email: ahp.central@dpi.nsw.gov.au
ABN 19 948 325 463

Yours sincerely,

Jess Hyland
Fisheries Manager, Coastal Systems

DPI Fisheries
Mail to: M.Coughran,1243 Bruxner Hwy, Wollongbar NSW 2477
Email: ahp.central@dpi.nsw.gov.au
ABN 19 948 325 463

From: Oyston, Samantha
To: [redacted]
Cc: Patel, Ketan; Gail Hall; Westley Owers
Subject: RE: Moorebank Avenue Realignment - Construction Management Plans
Date: Friday, 24 March 2023 4:54:00 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.jpg

Hi Carla,

This is a courtesy email to let you know that the CBMP has been uploaded to the DPE portal for DPI Fisheries review. Consultation closes Thursday, 20 April 2023.

Warm Regards,

Samantha Oyston | Senior Environmental Consultant
Arcadis | [redacted]
www.arcadis.com

From: Oyston, Samantha
Sent: Thursday, 22 December 2022 3:54 PM
To: [redacted]
Cc: Patel, Ketan [redacted]; Gail Hall [redacted];
Jamie Crawford [redacted]
Subject: Moorebank Avenue Realignment - Construction Management Plans

Hello Carla,

Following on from my voicemail today.

Arcadis are currently developing the Construction Environmental Management Plan and Associated Sub-plans for the Moorebank Avenue Realignment Works (SSI-10053) on behalf of the National Intermodal Corporation.

The Project involves the realignment of an existing section of Moorebank Avenue, from a point approximately 130 meters south of the Anzac Road/Moorebank Avenue intersection to a point immediately north of the East Hills Railway. Moorebank Avenue currently divides the Moorebank Logistic Park. The key features of the Project include:

- Construction of approximately three kilometres of new road to bypass the MLP to the east, comprising:
  - A four-lane road (two lanes in each direction) near Moorebank Precinct East (MPE), commencing from a point approximately 130 metres south of the Anzac Road / Moorebank Avenue intersection to the south-eastern corner of the MPE site
  - A two-lane road (one lane in each direction) from the south-eastern corner of the MPE site to a point immediately north of the bridge over the East Hills railway
- Northern tie-in to the existing Moorebank Avenue, 130 meters south of the Anzac Road/Moorebank Avenue for a distance of 250 metres to the northwest corner of the MPE site.
- Construction of four accesses with signalised intersections between the new road and the MLP

- Construction of a central median, typically six metres wide, tapering to zero width where the new road becomes two lanes
- Southern tie-in to the existing Moorebank Avenue, 17 metres before the East Hills railway over bridge. No work will be undertaken or impact the East Hills over bridge

At the completion and commissioning of the realigned road section, the public through traffic using Moorebank Avenue will be redirected onto the new alignment. The existing road alignment will be decommissioned and modified to function as a restricted access to the Moorebank Logistic Park.

We are aiming to send the Construction Biodiversity Management Plan for DPI Fisheries review during the week commencing of 23 January 2023.

Warm Regards,

Samantha Oyston (she/her) MRes, BEnv
Senior Environmental Consultant
Arcadis Australia Pacific
[redacted]
www.arcadis.com

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal work hours.

APPENDIX B ER Endorsement

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ABN 57683487196

24 Grays Point Road,
Grays Point, NSW 2232

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maurice@optimenv.com.au

www.optimenv.com.au

29 May 2023

Our Ref: 2205 L6.1

National Intermodal Corporation
Senior Manager – Planning and Environment
Attention: Westley Owers

Dear Westley

SSI 10053 - Moorebank Avenue Realignment Works (MARW)
Environmental Representative (ER) - Endorsement of the Construction Biodiversity Management Plan

Pursuant to SSI10053 Conditions of Approval (CoA) A31(d) and C9, I confirm that I have reviewed and endorsed the following documentation as being consistent with the conditions of approval and relevant undertakings made in the documents listed in Condition A1:

- National Intermodal Corporation, Moorebank Avenue Realignment Works, Appendix F, Construction Biodiversity Management Plan, Version G, dated 21 April 2023 (CBMP).

The CBMP was prepared to expressly address REMM BIO01.

In accordance with CoA C8, the CBMP was expressly nominated by a nominee of the Planning Secretary to be endorsed by the ER (Department of Planning and Environment letter dated 9 May 2023 Reference: SSI-10053-PA-4).

Yours sincerely,

Maurice Pignatelli
Environmental Representative – MARW Project
OptimE Pty Ltd

OptimE PTY LTD ATF Majocaev Trust
ABN 57683487196

24 Grays Point Road,
Grays Point, NSW 2232

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maurice@optimenv.com.au

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12 February 2025 Our Ref: 2205.L13.2

National Intermodal Corporation
Senior Manager – Planning and Environment
Attention: Westley Owers

Dear Westley

SSI 10053 - Moorebank Avenue Realignment Works (MARW)
Environmental Representative (ER) – Approved amendments to the Construction Environmental Management Plan (CEMP) and associated sub-plans and monitoring programs

National Intermodal Corporation (NIC) has updated the CEMP and associated sub-plans and monitoring programs approved by the Secretary to reflect the following documents:

- Moorebank Avenue Realignment Works (MARW) Division 5.2 Consistency Assessment – Proposed Design and Boundary Changes, Revision E, 16 July 2024
- Artefact Moorebank Avenue Realignment Works Surface Collection Completion Memo, 30 August 2024
- Moorebank Avenue Realignment Project Remediation Action Plan (Rev C), 5 July 2024
- Variation to EPBC 2020-8839 approved by the Minister for the Environment and Water on 14 January 2025.
- Approval of variation to the conditions attached to the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 approval 2020/8839, dated 14 January 2025.

A summary of the amendments, prepared by Arcadis, is provided as Attachment A to this letter.

The ER was requested by NIC to review the updated CEMP and associated sub-plans and monitoring programs and if the updates were considered by the ER to be consistent with SSI10053 Conditions of Approval (CoA) A31(i), to approve the amendments.

Pursuant to SSI10053 CoA A31(i), I confirm that I have reviewed the following MARW documentation:

- Construction Environmental Management Plan, Version F, dated 22 January 2025
- Construction Air Quality Management Plan, Version F, dated 22 January 2025

- Construction Bushfire Management Plan, Version F, dated 22 January 2025
- Construction Biodiversity Management Plan, Version H, dated 22 January 2025
- Construction Contamination Management Plan, Version E, dated 22 January 2025
- Construction Heritage Management Plan, Version I, dated 22 January 2025
- Construction Noise and Vibration Management Plan, Version H, dated 22 January 2025 and associated Construction Noise and Vibration Monitoring Program, Version H, dated 22 January 2025
- Construction Soil and Water Management Plan, Version E, dated 22 January 2025 and associated Construction Surface Water Monitoring Program, Version E, dated 22 January 2025
- Construction Traffic and Transport Management Plan, Version H, dated 22 January 2025
- Construction Waste and Resource Management Plan, Version H, dated 22 January 2025.

In my opinion, the amendments to the approved CEMP and associated subplans and monitoring programs do not increase impacts to nearby receivers, are of an administrative nature, and are consistent with the terms of SSI10053. On this basis, I approve the amendments.

Yours sincerely,

Maurice Pignatelli
Environmental Representative – MARW Project
OptimE Pty Ltd

Attachment A - MARW CEMP and Sub-plan minor updates, Q4 2024

Date	12 February 2025
To	Maurice Pignatelli
From	Jamie Crawford
Copy to	Gail Hall, Wes Owers, Ben Bracken
Subject	MARW CEMP and Sub-plan minor updates, Q4 2024

CEMP AND SUB-PLAN MINOR ADMENDMENTS

The MARW CEMP and Sub-plans have been updated to reflect the following:

- Moorebank Avenue Realignment Works (MARW) Division 5.2 Consistency Assessment – Proposed Design and Boundary Changes, Revision E, 16 July 2024
- Artefact Moorebank Avenue Realignment Works Surface Collection Completion Memo, 30 August 024
- Moorebank Avenue Realignment Project Remediation Action Plan (Rev C)
- Approval of variation to the conditions attached to the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 approval 2020/8839, dated 14 January 2025.

The following table summarises the updates made to the CEMP and Sub-plans in order to reflect the above documentation.

Reason for update	Plan, version and section subject to minor update
Construction Environmental Management Plan	

Consistency Assessment – Proposed Design and Boundary Changes	Construction Environmental Management Plan (Version E), updated to Version F:
	• Figure 1.1 Project regional and local context, updated to reflect revised construction footprint.
	• Figure 2.1 Project Overview, updated to reflect revised construction footprint.
	• Figure 2.2a Project Overview, updated to reflect revised construction footprint and renamed Figure 2.2
	• Figure 2.3b Project Overview, updated to reflect revised construction footprint and renamed Figure 2.3
	• Figure 2.4c Project Overview, updated to reflect revised construction footprint and renamed Figure 2.4
	• Figure 2.5d Project Overview, updated to reflect revised construction footprint and renamed Figure 2.5
	• Appendix E Sensitive Area Plans:
	  ○ App E Main Figure
	  ○ App E Fig a
	  ○ App E Fig b
	  ○ App E Fig d

Moorebank Avenue Realignment Works Surface Collection Completion Memo	Construction Environmental Management Plan (Version E), updated to Version F: • Section 3.2.5. Bullet list summary of information included on Sensitive Area Plans updated to remove reference to Aboriginal heritage sites

Reason for update	Plan, version and section subject to minor update

	• Appendix E Sensitive Area Plans:
	  ○ App E Main Figure. 'Recorded AHIMS' removed
	  ○ App E Fig a. 'Recorded AHIMS' removed
	  ○ App E Fig c. 'Recorded AHIMS' removed
	  ○ App E Fig d. 'Recorded AHIMS' removed

EPBC Act 2020/8839 variation, dated 14 January 2025.	Construction Environmental Management Plan (Version E), updated to Version F: • Section 1.1 Overview updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 1.2 Purpose of the CEMP updated to reflect that EPBC 2020/8839 was varied on 14 January 2025 • Table 4.2 Approvals permits and licences required for the Project updated to include Commonwealth EPBC Approval (EPBC 2020-8839) variation dated 14 January 2025 • Appendix C1 Legislation Register updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.
Other minor updates	Construction Environmental Management Plan (Version E), updated to Version F: • Section 5.4.2 updated to reflect current Project website.
Construction Biodiversity Management Plan	
Consistency Assessment – Proposed Design and Boundary Changes	Construction Biodiversity Management Plan (Version G), updated to Version H: • Figure 1.1: Project location. Figure updated to reflect revised construction footprint. • Figure 1.2: Project overview. Figure updated to reflect revised construction footprint. • Figure 6.1: Project exclusion zones. Figure updated to reflect revised construction footprint. • Figure D-1 Native Plant Community Types and threatened flora and fauna. Figure updated to reflect revised construction footprint.
EPBC Act 2020/8839 variation, dated 14 January 2025.	Construction Biodiversity Management Plan (Version G), updated to Version H: • Section 1.1 Background and Project Description updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 2.2 Objectives updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.
Construction Traffic and Transport Management Plan	
Consistency Assessment – Proposed Design and Boundary Changes	Construction Traffic and Transport Management Plan (Version G), updated to Version H: • Figure 1.1: Project location. Figure updated to reflect revised construction footprint.

Reason for update	Plan, version and section subject to minor update
	• Figure 1.2: Project layout. Figure updated to reflect revised construction footprint. • Figure 4.1: Key intersections. Figure updated to reflect revised construction footprint.
EPBC Act 2020/8839 variation, dated 14 January 2025.	Construction Traffic and Transport Management Plan (Version G), updated to Version H: • Section 1.1 Background and Project Description updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 2.2 Objectives updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.
Construction Noise and Vibration Management Plan	
Consistency Assessment – Proposed Design and Boundary Changes	Construction Noise and Vibration Management Plan (Version G), updated to Version H: • Figure 1.1: Project location. Figure updated to reflect revised construction footprint. • Figure 1.2: Project layout. Figure updated to reflect revised construction footprint. • Figure 4.1: Sensitive receivers and assessment and monitoring locations. Figure updated to reflect revised construction footprint. • Figure 7.1: Modelled Construction Noise Contours (NVIA). Figure updated to reflect revised construction footprint. Construction Noise and Vibration Monitoring Program (Version G) • Figure 2.1: Location of noise and vibration assessment and monitoring locations. Figure updated to reflect revised construction footprint.
EPBC Act 2020/8839 variation, dated 14 January 2025.	Construction Noise and Vibration Management Plan (Version G), updated to Version H: • Section 1.1 Background and Project Description updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 2.2 Objectives updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.
Construction Heritage Management Plan	
Consistency Assessment – Proposed Design and Boundary Changes	Construction Heritage Management Plan (Version H), updated to Version I: • Figure 1.1: Project location. Figure updated to reflect revised construction footprint. • Figure 1.2: Project layout. Figure updated to reflect revised construction footprint. • Figure 4.1 (previously Figure 4.2): Location of Non-Aboriginal heritage sites and items. Figure renamed as Figure 4.1 and updated to reflect revised construction footprint.

Reason for update	Plan, version and section subject to minor update
Moorebank Avenue Realignment Works Surface Collection Completion Memo	Construction Heritage Management Plan (Version H), updated to Version I The following updates have been made in response to completion of surface collection activities on 19 August 2024 in accordance with Section 6.1.1 of the CHMP, Appendix A of Infrastructure Approval SSI-10053 and REMM ABH01, during which no Aboriginal objects were identified and an Aboriginal Site Impact Recording Form (ASIRF) was submitted to AHIMS to note the revised status of these sites. • Section 4.1 – Update to include reference to Artefact Moorebank Avenue Realignment Works Surface Collection Completion Memo (30 August 2024) • Section 4.2.1.2 Known Aboriginal Cultural Heritage Values – Project Site updated to reflect that there are now no known Aboriginal sites within the Project Site (previous desktop and field investigations identified six remaining sites). • Section 4.2 – Removal of Figure 4.1: Location of Aboriginal sites and isolated finds across the Project • Section 5.2.1 Aboriginal Heritage Impacts revised to reflect that no known Aboriginal sites are identified within the construction boundary and therefore no impacts to Aboriginal heritage associated with Project construction are anticipated. • Section 5.3 Cumulative impacts revised to reword paragraph three and remove reference to "…the Aboriginal items identified within the Project Site…" • Section 6.1 Management of Aboriginal Cultural Heritage Risks updated to remove inference that there are known Aboriginal heritage objects on the Project Site • Section 6.1.1 Salvage of Aboriginal Objects updated to reflect that surface collection activities are now complete and no Aboriginal objects were identified. • Section 6.1.2 Care of Salvaged Aboriginal Objects updated to reflect that surface collection activities are now complete and, as no objects were identified, no temporary storage locations were required for the storage of collected objects. • Section 7.5, Table 7.1 reference to Heritage Salvage Report retained, but reference to six Aboriginal sites removed
EPBC Act 2020/8839 variation, dated 14 January 2025.	Construction Heritage Management Plan (Version H), updated to Version I • Section 1.1 Background and Project Description updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 2.2 Objectives updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.
Construction Soil and Water Management Plan	
Consistency Assessment – Proposed Design and Boundary Changes	Construction Soil and Water Management Plan (Version D), updated to Version E: • Figure 1.1: Project location. Figure updated to reflect revised construction footprint.

Reason for update	Plan, version and section subject to minor update
	• Figure 1.2: Project Layout. Figure updated to reflect revised construction footprint. • Figure 4.1: Nearby Waterways. Figure updated to reflect revised construction footprint. • Figure 4.2: Groundwater dependent ecosystems. Figure updated to reflect revised construction footprint. Construction Surface Water Monitoring Program (Version D), updated to Version E: • Figure 3.1: Proposed Monitoring Locations. Figure updated to reflect revised construction footprint. NOTE: Appendix F Preliminary Erosion and Sediment Control Plan is not proposed for update as this effort is unwarranted given Progressive Erosion and Sediment Control Plans will be developed reflecting the revised construction footprint.
EPBC Act 2020/8839 variation, dated 14 January 2025.	Construction Soil and Water Management Plan (Version D), updated to Version E: • Section 1.1 Background and Project Description updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 2.2 Objectives updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.
Contamination Management Sub-Plan	
Consistency Assessment – Proposed Design and Boundary Changes	Contamination Management Sub-Plan (Version D), updated to Version E: • Figure 1.1: Project location. Figure updated to reflect revised construction footprint. • Figure 1.2: Project Layout. Figure updated to reflect revised construction footprint. • Figure 4.1: Sources of potential contamination. Figure updated to reflect revised construction footprint.
Moorebank Avenue Realignment Remediation Action Plan (Rev C)	Contamination Management Sub-Plan (Version D), updated to Version E: The following updates have been made as a result of preparation of the Interim Audit Advice and the Remediation Action Plan (RAP). • Section 1.5.1 Interactions with Other Management Plans and Documents updated to confirm that a RAP has been prepared • Section 6.1 Targeted Site Investigations updated to reflect completion of the Interim Audit Advice verifying the appropriateness of the SAQP (Condition E33), and completion of the targeted investigations required and subsequent reporting of findings (Condition E34). A summary of the key remediation recommendations has been included. Section 6.2 Remediation Action Plan updated to reflect preparation of a RAP in accordance with NSW Condition E35, E36, E37 and E38.

Reason for update	Plan, version and section subject to minor update
EPBC Act 2020/8839 variation, dated 14 January 2025.	Contamination Management Sub-Plan (Version D), updated to Version E: • Section 1.1 Background and Project Description updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 2.2 Objectives updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.
Construction Bushfire Management Plan	
Consistency Assessment – Proposed Design and Boundary Changes	Construction Bushfire Management Plan (Version E), updated to Version F: • Figure 1.1: Project location. Figure updated to reflect revised construction footprint. • Figure 1.2: Project layout. Figure updated to reflect revised construction footprint. • Figure 4.2: Project Bushfire Prone Land Map. Figure updated to reflect revised construction footprint. • Figure 6.1: Assembly Points and Evacuation Route. Figure updated to reflect revised construction footprint.
EPBC Act 2020/8839 variation, dated 14 January 2025.	Construction Bushfire Management Plan (Version E), updated to Version F: • Section 1.1 Background and Project Description updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 2.2 Objectives updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.
Construction Air Quality Management Plan	
Consistency Assessment – Proposed Design and Boundary Changes	Construction Air Quality Management Plan (Version E), updated to Version F: • Figure 1.1: Project location. Figure updated to reflect revised construction footprint. • Figure 1.2: Project layout. Figure updated to reflect revised construction footprint. • Figure 4.1: Receptors for construction impacts. Figure updated to reflect revised construction footprint.
EPBC Act 2020/8839 variation, dated 14 January 2025.	Construction Air Quality Management Plan (Version E), updated to Version F • Section 1.1 Background and Project Description updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 2.2 Objectives updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.
Construction Waste and Resource Management Sub-Plan	
Consistency Assessment – Proposed Design and Boundary Changes	Construction Waste and Resource Management Sub-Plan (Version D), updated to Version E: • Figure 1.1: Project location. Figure updated to reflect revised construction footprint.

Reason for update	Plan, version and section subject to minor update
	• Figure 1.2: Project layout. Figure updated to reflect revised construction footprint.
EPBC Act 2020/8839 variation, dated 14 January 2025.	Construction Waste and Resource Management Sub-Plan (Version D), updated to Version E: • Section 1.1 Background and Project Description updated to reflect approval of the variation to EPBC 2020/8839 dated 14 January 2025 • Section 2.2 Objectives updated to reflect that EPBC 2020/8839 was varied on 14 January 2025.

APPENDIX C Secondary CoA and REMMs

C1: Commonwealth Secondary CoA

No.	Requirements	Timing	Document reference
2	The approval holder must not clear outside of the project area	Construction	Table 6.2 Mitigation Measure (MM) 4 and MM9a
3	The approval holder must comply with conditions E2 – E3 of the NSW Approval as they relate to minimising the impact on protected matters.	Construction	Table 6.2 MM4, MM9, MM11 and MM12
4	Within the project area, the approval holder must not clear more than:	Construction	Table 6.2 MM4 and MM9
(a)	0.91 hectares of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	Construction	Table 6.2 MM4 and MM9
(b)	5.41 hectares of Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion.	Construction	Table 6.2 MM4, MM9
(c)	6.84 hectares of Koala habitat.	Construction	Table 6.2 MM4 and MM9
5	The approval holder must comply with conditions E4 – E6 and E8 of the NSW Approval as they relate to offsetting the impact to protected matters	Construction	Table 6.2 MM2
6	In retiring the number and class of credits in accordance with condition E5 of the NSW Approval, the following number and class of credits are specified for listed threatened species and communities:	Post construction	Table 6.2 MM2
(a)	27 ecosystem credits for Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest, and	Post construction	Table 6.2 MM2
(b)	128 ecosystem credits for Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion, and	Post construction	Table 6.2 MM2
(c)	168 species credits for Koala habitat	Post construction	Table 6.2 MM2

C2: NSW Infrastructure Secondary CoA

No.	Requirements	Timing	Document reference
E2	The SSI must not directly intrude on to the lands established as a Biobanking site under Biobanking agreement No. 341.	Construction	Table 6.2 MM9a and MM11
E3	The clearing of native vegetation must not exceed the clearing footprint identified in the documents listed in Condition A1. All practicable measures to reduce the clearing of native vegetation within the clearing footprint must be undertaken, with the objective of reducing impacts to threatened ecological communities and threatened species habitat.	Construction	Table 6.2 MM4 and MM9
E4	Before the commencement of works, a Biodiversity Offset Strategy must be prepared in consultation with EES Group and DAWE.	Pre-construction	Table 6.2 MM2
E5	Before any impact on the species or community types to be offset, the number and classes of biodiversity credits (like-for-like) set out in Tables 7.8, 7.9, 7.10 and 7.11 of the revised Biodiversity Development Assessment Report (version 5), prepared by EMM and dated 24 May 2021, must be retired.	Pre-construction	Table 6.2 MM2
E6	The requirement to retire like-for-like ecosystem credits and species credits in Condition E5 may be satisfied by payment to the Biodiversity Conservation Fund of an amount equivalent to the number and classes of ecosystem credits and species credits.	Pre-construction	Table 6.2 MM2
E7	Where evidence of compliance with the Ancillary rules: Reasonable steps to seek like-for-like biodiversity credits for the purpose of applying the variation rules (OEH, 2017) has been provided to the Planning Secretary, variation rules may be applied to retire the relevant ecosystem credits and species credits as set out in a BAM Credit Summary Report (Variation).	Pre-construction	Table 6.2 MM2
E8	Evidence of the retirement of credits in satisfaction of Condition E5 or payment to the Biodiversity Conservation Fund in satisfaction of Condition E6 must be provided to the Planning Secretary and DAWE before any impact on the species or community types to be offset.	Pre-construction	Table 6.2 MM2
E9	Before vegetation clearing, the Proponent must consult with Liverpool City Council, Landcare groups and relevant government agencies to determine if:	Pre-vegetation clearing	Table 6.2 MM16, MM17 and MM18
(a)	hollows, tree trunks, mulch, bush rock and root balls salvaged from native vegetation impacted by the SSI; and	Pre-vegetation clearing	Table 6.2 MM16, MM17 and MM18
(b)	collected plant material, seeds and / or propagated plants from native vegetation impacted by the SSI, could be used by others in habitat enhancement, beneficial re-use and rehabilitation work, before pursuing other disposal options.	Pre-vegetation clearing	Table 6.2 MM16, MM17 and MM18

No.	Requirements	Timing	Document reference
E65	Revegetation and the provision of replacement trees must be informed by a Tree Survey undertaken during detailed design. The Tree Survey must identify the number, type and location of trees to be removed, except for trees that are offset under Condition E5. The Tree Survey must be submitted to the Planning Secretary for information with the Urban Design and Landscape Plan required under Condition E61. Where trees will be removed, a net increase in the number of replacement trees must be provided at a ratio of 2:1, except trees that are offset under Condition E5. Replacement trees must have a minimum pot size consistent with the relevant government authority(ies) or relevant council's plans / programs / strategies for vegetation management, street planting, or open space landscaping, or as agreed by the relevant authority(ies). *Note: For the purposes of this condition, the relevant authority is that State or local government authority that owns or manages the land on which the replacement trees will be planted.*	Pre-construction	To be submitted with the Urban Design and Landscape Plan Section 1.5.1
E66	Replacement and enhancement of vegetative screening along the project corridor must be undertaken in a progressive manner during construction to allow for its early establishment.	Design Construction	Section 6.7 Table 6.2 MM32

C3: NSW Secondary REMMs

No.	Requirements	Timing	Document reference
	REMMs		
BIO02	Work compounds, temporary laydown and stockpile areas will be located within the existing MPE construction site and/or within the road construction footprint.	Construction	Section 6.2 and CEMP Section 2.4 and Figure 2.2a
BIO03	Survey and fencing of the Biobanking site boundary to be the first works completed. The construction footprint avoids direct impacts on the Biobanking site, to ensure this the inclusion of details about the Biobanking site boundary, and the importance of avoiding impacts within these lands as part of worker induction program.	Pre-construction	Table 6.2 MM8, MM9a and MM11 Sections 6.1 and 6.2
BIO04	Use of the existing road network to minimise requirement for removal of native vegetation, minimising fragmentation to existing areas.	Construction	Table 6.2 MM30
BIO05	Minimisation of clearing during construction, wherever possible.	Construction	Table 6.2 MM9, MM11, MM12 and MM30 Section 6.1
BIO08	Exclusion zones will be established around retained vegetation, including fencing and signage.	Pre-construction	Section 6.2 Table 6.2 MM9a
BIO09	Pre-clearing surveys will be conducted prior to clearing, including translocation of fauna into areas of retained vegetation.	Pre-vegetation clearing	Sections 6.1, 6.4 and 6.5 Table 6.2 MM3 and MM5
BIO10	Vegetation clearing will be undertaken in accordance with the two-stage process.	Vegetation clearing	Section 6.4 Table 6.2 MM3 and MM13
BIO11	Hollows logs and limbs will be retained for placement within the Biobanking site retained vegetation.	Vegetation clearing	Table 6.2 MM14
BIO12	Weed control prior to construction works will be undertaken, where possible.	Pre-construction	Table 6.2 MM6 and MM26
BIO13	Weeds will be actively controlled in areas where significant weeds occur.	Pre-construction Construction	Table 6.2 MM15, MM27, MM28, MM28a and MM28b
BIO15	Re-vegetation of cleared areas as quickly as possible following construction.	Construction	Table 6.2 MM32 Section 6.7
BIO17	Appropriate disposal and management of weeds during clearing works.	Construction	Table 6.2 MM15 and MM27 The CWRMP
BIO18	Waste to be stored appropriately in inaccessible bins and disposed off-site.	Construction	Table 6.2 MM25
BIO19	No waste will be left outside in open areas accessible to feral animals.	Construction	Table 6.2 MM25

No.	Requirements	Timing	Document reference
BIO20	Use of directional lighting to retain lighting within works area and road alignment and to minimise light spill as much as possible.	Construction	Table 6.2 MM29
BIO21	Siting of infrastructure away from sensitive receiving environments such as Anzac Creek.	Construction	Section 6.2
BIO27	Construction of fauna fencing to guide fauna towards the culvert entrances to maximise the effectiveness of the culvert.	Pre-construction Construction	Table 6.2 MM9a
BIO29	To mitigate the risk of fauna vehicle mortality during construction a driver's code of conduct is to be prepared and implemented, with a recommended maximum speed limit of 40 km per hr within Boot Land in the morning period (prior to 7 am and after 5 pm).	Construction	Table 6.2 MM31
VIS07	The removal of existing vegetation within the road corridor will be minimised	Construction	Table 6.2 MM9
SUS04	The removal of trees and the area of disturbance around riparian habitat and waterways will be minimised as far as possible.	Construction	Table 6.2 MM9
AIR14	The extent of clearing of vegetation and topsoil will be limited to the designated footprint required for construction and appropriate staging of any clearing.	Construction	Table 6.2 MM9a and MM32

Biodiversity REMMs that are not included in this CBMP (BIO06, BIO07, BIO14, BIO16, BIO22 – BIO26, BIO28, BIO30) are addressed in Appendix B4 of the CEMP.

APPENDIX D Plant Community Type, Vegetation Zone and Threatened Ecological Communities

D1: Plant Community Types

Note: EEC = endangered ecological community, CEEC = critically endangered ecological community, VEC = vulnerable ecological community

PCT name	PCT ID	Conservation Significance	PCT Conditions	PCT description	Location	Direct impact (ha)	Indirect impact (ha)
Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion (refer to **Plate 1**)	724	Shale Gravel Transition Forest in the Sydney Basin Bioregion EEC listed under the BC Act Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest CEEC listed under the EPBC Act	High, medium, poor and Derived native grassland (DNG)	Red Ironbark, Narrow-leaved Apple and *M. decora* were recorded in the canopy. A sparse mid stratum was observed dominated by Blackthorn and Peach Heath. Ground cover species recorded include *Lepidosperma laterale*, Wattle Mat-rush, Forest Goodenia, Poison Rock Fern, Weeping Grass, Blue Trumpet, Kidney Weed, Kangaroo Grass, Many-flowered Mat-rush, *Oxalis perennans* and Two-colour Panic. The majority of this community is of high condition with a relatively intact native vegetation and low exotic cover. The proposed project will impact mostly on the DNG areas.	North-west corner of a registered BioBanking offset site known as the Wattle Grove Offset Area	2.73	1.98
Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion (refer to **Plate 2**)	725	Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion EEC listed under the BC Act and CEEC listed under the EPBC Act	High and DNG	Native canopy tree cover consisted of Woollybutt, *M. decora* and Black Wattle. Mid stratum species recorded include Blackthorn, Prickly-leaved Paperbark and Hickory Wattle. Ground stratum species recorded include Weeping Grass, Wiry Panic, Kangaroo Grass, Poison Rock Fern, Many-flowered Mat-rush and Forest Goodenia. The majority of this community is of high condition with a relatively intact native vegetation and low exotic cover. The proposed project will impact mostly on the DNG areas.	In the middle of a registered BioBanking offset site known as the Wattle Grove Offset Area	0.62	0.52
Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion (refer to **Plate 3**)	883	Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion VEC listed under the BC Act. Castlereagh Scribbly Gum and Agnes Banks Woodlands in the Sydney Basin Bioregion EEC listed under the EPBC Act	High, medium and DNG	The dominant canopy species were identified as Narrow-leaved Scribbly Gum, Narrow-leaved Apple and Parramatta Red Gum. The mid-stratum species present Prickly-leaved Paperbark, *Melaleuca decora*, Needlebush Flaky-barked Tea-tree, Hairpin Banksia. The ground layer consisted of Wiry Panic, Stylidium spp., Many-flowered Mat-rush, Poison Rock Fern, *Xanthorrhea minor*. Even though this community has experience both severe and historic disturbances (high intensity fire in April 2018), its condition is considered to be of fairly high quality with a moderate canopy cover and good regeneration occurring of midstratum and groundcover species.	Southern half of the Project Site	5.66	2.98

Note: EEC = endangered ecological community, CEEC = critically endangered ecological community, VEC = vulnerable ecological community							
PCT name	**PCT ID**	**Conservation Significance**	**PCT Conditions**	**PCT description**	**Location**	**Direct impact (ha)**	**Indirect impact (ha)**
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion (refer to **Plate 4**)	1067	Castlereagh Swamp Woodland Community EEC listed under the BC Act	High	The recorded dominant canopy species associated with this PCT were, *Melaleuca decora*, Flax-leaved Paperbark and Parramatta Red Gum. The mid-storey aligns with the PCT with a dominant cover of Flax-leaved Paperbark, Hairy bush-pea and Sydney Golden Wattle. Although the ground layer was sparse, *Juncus usitatus, Opercularia diphylla* and Indian Pennywort were present.	Within the Anzac Creek riparian corridor	0.15	0.14
Cleared and exotic grassland	N/A	N/A	N/A	A portion of the land within the study area is highly disturbed, and either cleared or dominated by exotic grass cover.	Throughout the Project Site	10.45	8.44

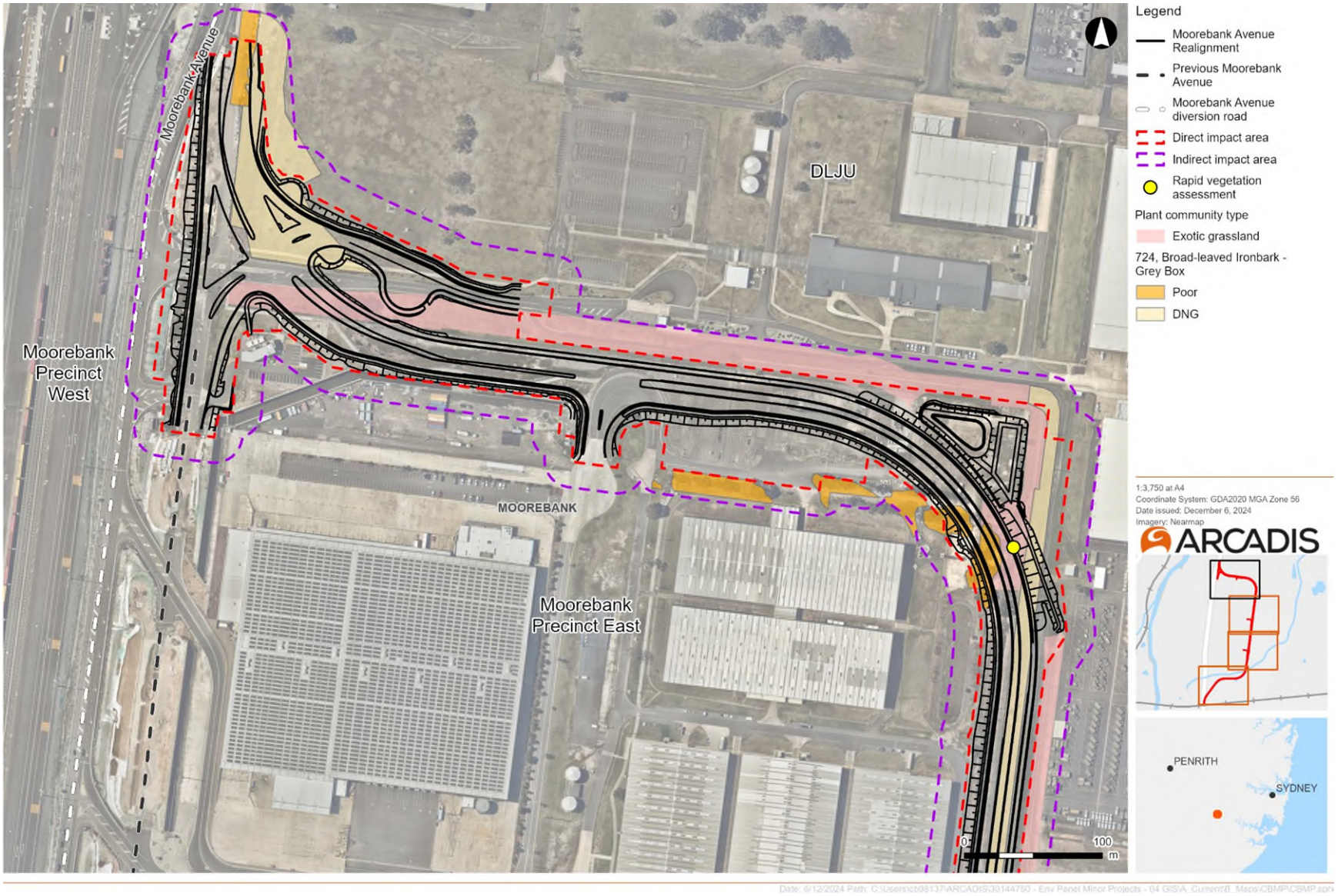

Figure D-1 Native Plant Community Types and threatened flora and fauna

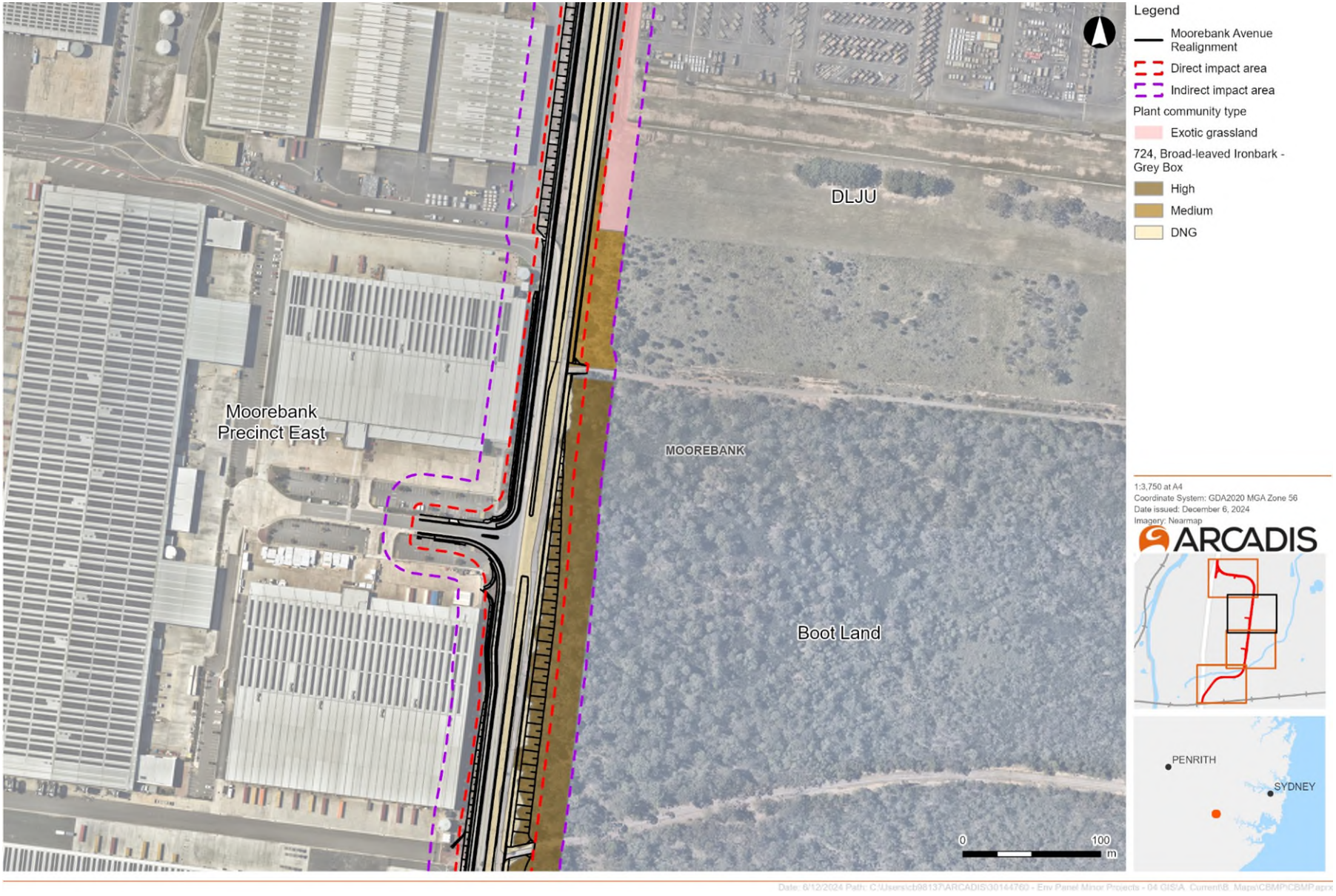

Figure D-1 Native Plant Community Types and threatened flora and fauna

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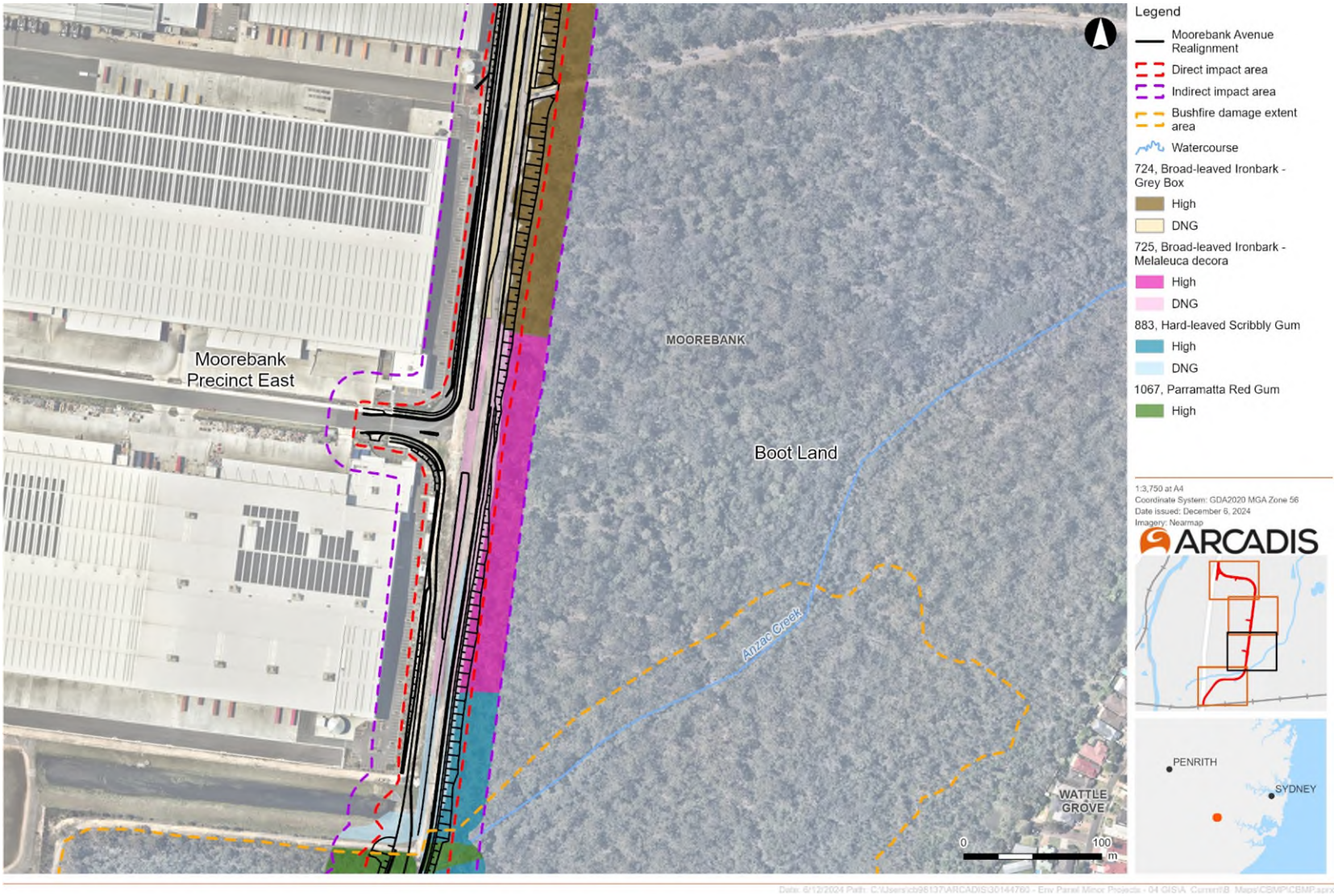

Figure D-1 Native Plant Community Types and threatened flora and fauna

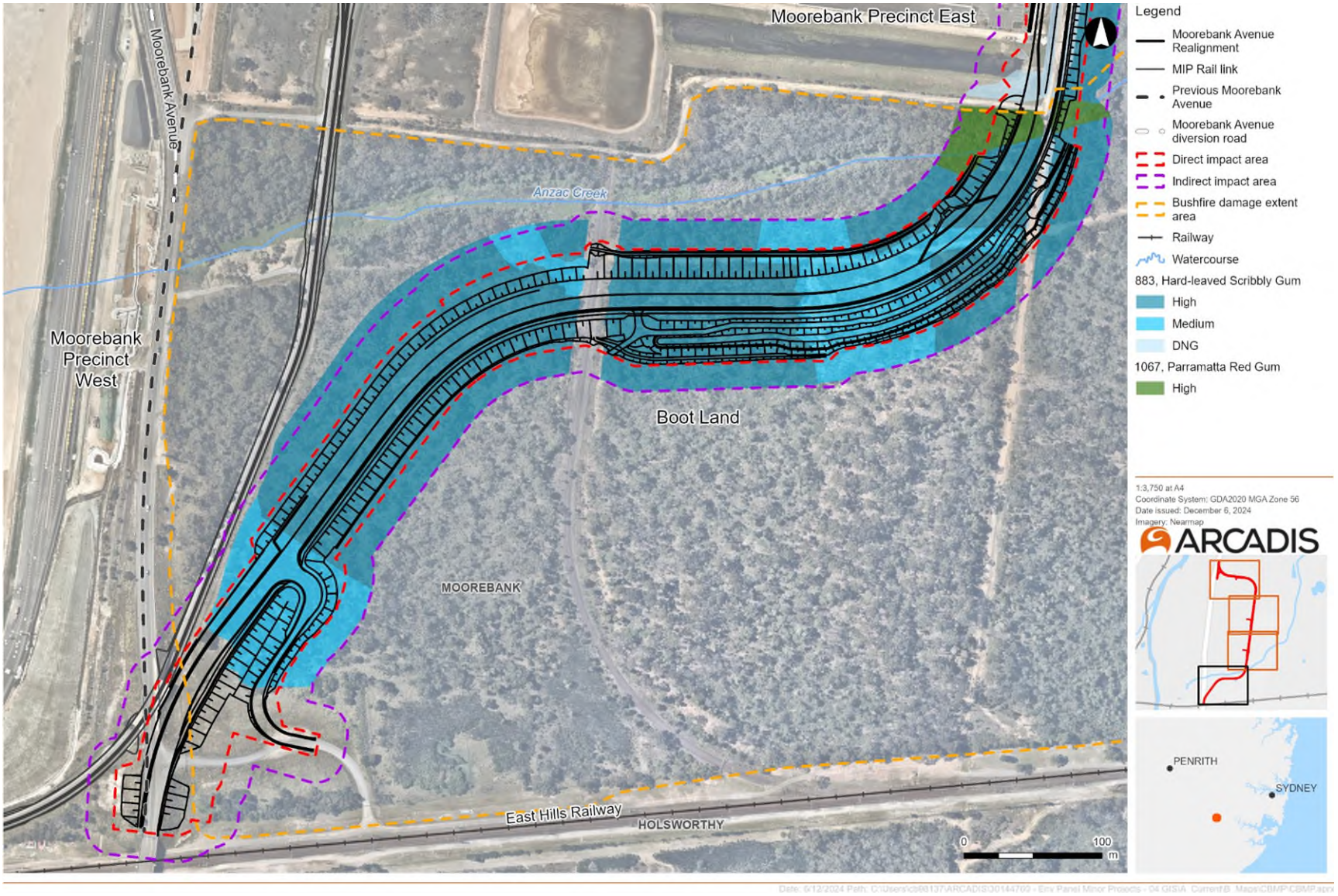

Figure D-1 Native Plant Community Types and threatened flora and fauna

Plate 1: PCT 724 - Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion (EMM 2021)

Plate 2: PCT 725 - Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion (EMM 2021)

Plate 3: PCT 883 - Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion (EMM 2021)

Plate 4: PCT 1067 - Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion (EMM 2021)

D2: Threatened Flora Species and Likelihood of Occurrence

Note: CE= Critically endangered, E = Endangered, V = Vulnerable

Scientific Name	Common Name	BC Act	EPBC Act	Likelihood of occurrence	Justification
Acacia bynoeana	Bynoe's Wattle	E	V	Recorded	The species is known to occur within the study area and was recorded during targeted surveys.
Acacia pubescens	Downy Wattle	V	V	Recorded	The species is known to occur within the study area and was recorded during targeted surveys.
Allocasuarina glareicola		E	E	Low	There is a single record of this species within 10 km from the study area. Potential habitat for the species was identified within the study area near Anzac Creek. However, the species was not recorded during targeted surveys.
Caladenia tessellata	Thick-lipped Spider-orchid	E	V	Low	Not known in the Cumberland IBRA subregion; there are no records of the species within 10km from the study area. This species was not recorded during targeted surveys.
Cryptostylis hunteriana	Leafless Tongue-orchid	V	V	Negligible	There are no records within10km of the study area. The study area is located on the edge of the species known distribution and does not contain suitable habitat for this species. Therefore, the species is not considered to occur within the study area.
Cynanchum elegans	White-flowered Wax Plant	E	E	Low	There is a single record within 10 km of the study area. The study area is located on the edge of the species known distribution and does not contain suitable habitat for this species. Therefore, the species is not considered to occur within the study area.
Genoplesium baueri	Yellow Gnat-orchid	E	E	Low	There are no records within 10 km of the study area and the study area does not contain suitable habitat for this species. Therefore, the species is not considered to occur within the study area.
Grevillea parviflora subsp. Parviflora	Small-flower Grevillea	V	V	Recorded	The species is known to occur within the study area, with records throughout the Boot Land. The species was recorded during targeted surveys.
Leucopogon exolasius	Woronora Beard-heath	V	V	Low	There are records of the species within 10 km of the study area. The study area contains suitable habitat for this species, with associated vegetation communities. The species was not recorded during targeted surveys.
Melaleuca deanei	Deane's Melaleuca	V	V	Low	There are records of the species within 10 km of the study area. The study area does not contain any suitable habitat for this species; therefore, the species is not considered to occur.

Note: CE= Critically endangered, E = Endangered, V = Vulnerable

Scientific Name	Common Name	BC Act	EPBC Act	Likelihood of occurrence	Justification
Persicaria elatior	Knotweed	V	V	Low	There are no records within 10 km of the study area. The species prefers riparian habitat, associated with wet areas and standing water. Anzac Creek is an ephemeral watercourse located within the study area; however, it is not considered suitable habitat for the species as it is consistently dry outside of rain events. The species is not considered to occur within the study area.
Persoonia hirsuta	Hairy Geebung	E	E	Low	There are records of the species within 10 km of the study area. However, the study area does not contain suitable habitat for this species. Therefore, the species is not considered to occur.
Persoonia nutans	Nodding Geebung	E	E	Recorded	There are a large number of records of this species within 10km of the study area. The study area contains suitable habitat for this species, with known records within the study area. The species was recorded during targeted surveys.
Pimelea curviflora var.curviflora		V	V	Low	There are no records of this species within 10 km of the study area. However, given the study area contained marginally suitable habitat for the species with associated vegetation it was considered as a candidate species. The species was not recorded during targeted surveys.
Pimelea spicata	Spiked Rice-flower	E	E	Low	There are numerous records of the species within 10 km of the study area. However, the study area lies on the edge of the known distribution and is no considered to contain any suitable habitat for this species.
Pterostylis gibbose	Illawarra Greenhood	E	E	Negligible	There is one record of the species within 10km of the study area. However, the study area is outside the known distribution of the species and is not considered to contain suitable habitat for this species. Therefore, the species is not considered to occur.
Pterostylis saxicola	Sydney Plains Greenhood	E	E	Low	Known to occur within the Cumberland IBRA subregion, the species has been recorded within 10 km of the study area. However, the study area does not contain any suitable habitat for this species and is therefore not considered to occur within the study area.
Rhizanthella slateri	Eastern Australian Underground Orchid	E	V	Unlikely	Not known in the Cumberland IBRA subregion, however, a recent record of this species was collected within the Hornsby area in September 2020. The nearest record is approximately 30 km to the northeast of the Project Site, and thus it is considered unlikely that the species occurs.
Syzygium paniculatum	Magenta Lilly Pilly	E	V	Low	The species has been recorded within 10 km of the study area. However, the study area does not contain any suitable habitat for this species. Therefore, the species is not considered to occur within the study area.

Note: CE= Critically endangered, E = Endangered, V = Vulnerable

Scientific Name	Common Name	BC Act	EPBC Act	Likelihood of occurrence	Justification
Thelymitra kangaloonica	Kangaloon Sun Orchid	CE	CE	Low	There are no records of the species within 10km of the study area. The study area does not contain any suitable habitat for this species and is located on the edge of the known distribution. Therefore, the species is not considered to occur within the study area.
Thesium australe	Austral Toadflax	V	V	Negligible	There are no records of the species within 10km of the study area. The study area is outside the known distribution of the species and does not contain any suitable habitat for the species. Therefore, the species is not considered to occur within the study area.

APPENDIX E Threatened Fauna

E1: Threatened Fauna Species and Likelihood of Occurrence

Note: CE = Critically Endangered, E = Endangered, V = Vulnerable, Mi = Migratory

Species Name	Common Name	BC Act	EPBC Act	Likelihood of occurrence	Justification
Frogs					
Heleioporus australiacus	Giant Burrowing Frog	V	V	Low	The species has been recorded within 10 km of the study area. A habitat assessment identified potential habitat for the species at Anzac Creek. However, the species was not recorded during targeted surveys.
Litoria aurea	Green and Golden Bell Frog	E	V	Low	The species has been recorded within 10 km of the study area. A habitat assessment identified potential habitat for the species at Anzac Creek. However, the species was not recorded during targeted surveys.
Litoria raniformis	Growling Grass Frog	E	V	Negligible	There are no records of this species within 10km of the study area and the study area is located outside the known distribution of the species. No suitable habitat for this species was recorded within the study area. The species is not considered to occur.
Birds					
Anthochaera phrygia	Regent Honeyeater	CE	CE	Moderate	The Regent Honeyeater has a wide distribution range, in which the study area is within and there are records of the species within 10 km of the study area. The study area is outside the mapped important areas, however known feed tree species such as Broad-leaved Ironbark (E. fibrosa) were recorded during vegetation integrity surveys.
Botaurus poiciloptilus	Australasian Bittern	E	E	Negligible	There is a single record of the species within 10km of the study area. However, the study area lacks suitable wetland habitat and permanent freshwater. Therefore, the species is not considered to occur.
Burhinus grallarius	Bush Stone-curlew	E	-	High	Study area contains suitable open woodland habitat, with fallen timber, leaf litter, and patches of exposed ground. There is a recent record of Bush Stone-curlews from approximately 3 km south of the study area.
Dasyornis brachypterus	Eastern Bristlebird	E	E	Negligible	There are no records of the species within 10 km of the study area and the study area is on the edge of the species known distribution. There is no suitable habitat for this species, therefore it is not considered to occur.
Grantiella picta	Painted Honeyeater	V	V	Low	There are no records of the species within 10 km of the study area. The study area does not contain any suitable habitat for this species including an abundance of mistletoe. Therefore, the species is not considered to occur.

Note: CE = Critically Endangered, E = Endangered, V = Vulnerable, Mi = Migratory

Species Name	Common Name	BC Act	EPBC Act	Likelihood of occurrence	Justification
Lathamus discolor	Swift Parrot	E	CE	Moderate	The study area is not within known mapped special areas for this species. However, this species has been recorded six times within 10 km of the study area since 1980 (DPIE, 2020g), with the most recent observation recorded in 2014. Corymbia gummifera was identified during vegetation integrity surveys, however few individuals were identified across the study area.
Rostratula australis	Australian Painted Snipe	E	E	Negligible	There is one record of the species within 10km of the study area. However, the study area lacks suitable wetland habitat and permanent freshwater. Therefore, the species is not considered to occur.
Thinornis rubricollis rubricollis	Hooded Plover (eastern)	-	V	Negligible	There are no records of the species within 10 km of the study area and the study area does not contain any suitable habitat for this species. This species is not considered to occur.
Apus pacificus	Fork-tailed Swift	-	Mi	Negligible	There are no records of the species within 10km of the study area. Although the species has potential to fly above the study area it is unlikely to use vegetation on site for roosting or foraging. This species is a coastal marine species. The Project Site does not contain any suitable habitat for this species. This species is not considered to occur within the Project Site.
Actitis hypoleucos	Common Sandpiper	-	Mi	Low	The species has been recorded within 10 km of the study area. However, the study area is not considered to support suitable wetland habitat for this species.
Calidris acuminata	Sharp-tailed Sandpiper	-	Mi	Negligible	There is a single record within 10km, however the study area lacks suitable wetland habitat for this species. Therefore, the species is not considered to occur within the study area.
Calidris ferruginea	Curlew Sandpiper	E	CE, Mi	Negligible	There are no records of the species within 10 km of the study area and the study area does not contain any suitable habitat for this species. This species is not considered to occur.
Calidris melanotos	Pectoral Sandpiper	-	Mi	Negligible	There are no records of the species within 10 km of the study area and the study area does not contain any suitable habitat for this species. This species is not considered to occur.
Gallinago hardwickii	Latham's Snipe	-	Mi	Low	There are records of the species within 10 km of the study area. The study area contains marginal habitat for the species.
Myiagra cyanoleuca	Satin Flycatcher	-	Mi	Moderate	The species has been recorded within 10 km of the study area. The study area contains suitable forest and woodland for the species. Although the species was not recorded during targeted surveys it is still considered potential to occur.
Motacilla flava	Yellow Wagtail	-	Mi	Negligible	There are no records of the species within 10km of the study area. The study area is outside the known distribution of the species and is not considered to contain suitable habitat.
Rhipidura rufifrons	Rufous Fantail	-	Mi	Recorded	The species has been recorded within 10km of the study area and was recorded within the study area.

Note: CE = Critically Endangered, E = Endangered, V = Vulnerable, Mi = Migratory

Species Name	Common Name	BC Act	EPBC Act	Likelihood of occurrence	Justification
Monarcha melanopsis	Black-faced Monarch	-	Mi	Low	The species has been recorded within 10 km of the study area. However, the study area is not considered to contain suitable habitat for this species. This species was not recorded during targeted during surveys.
Hirundapus caudacutus	White-throated Needletail	-	V, Mi	Recorded	The species was recorded flying over the study area.
Chrysococcyx basalis	Horsfield's Bronze-Cuckoo	-	Mi	Moderate	Species has been recorded within 10 km of the study area. The study area contains suitable habitat for the species. Although the species was not recorded during targeted surveys it is still considered potential to occur.
Numenius madagascariensis	Eastern Curlew	-	CE, Mi	Negligible	There are no records of the species within 10 km of the study area and the study area does not contain any suitable habitat for this species. This species is not considered to occur.
Pandion haliaetus	Eastern Osprey	V	Mi	Recorded	There are records of the species within 10km of the study area. The species was recorded in flying within proximity to the Project Site; however, no breeding nests were identified within the study area
Tringa nebularia	Common Greenshank	-	Mi	Negligible	The species has been recorded within 10km of the study area. However, the study area is not considered to support suitable wetland habitat for this species.
Reptiles					
Hoplocephalus bungaroides	Broad-headed Snake	E	V	Negligible	There is a single record within 10km, however the study area lacks rocky escarpments, outcrops and cliffs necessary for this species. Therefore, the species is not considered to occur within the study area.
Fish					
Macquaria australasica	Macquarie Perch	E (FM Act)	E	Negligible	DPI Fisheries does not list this species as occurring within the Sydney Metro catchment area. The Project Site does not contain any suitable habitat for this species. This species is not considered to occur within the Project Site.
Invertebrate					
Synemon plana	Golden Sun Moth	E	CE	Negligible	There are no records of this species within 10km of the study area and the study area is located outside the known distribution of the species. No suitable habitat for this species was recorded within the study area. The species is not considered to occur.

Note: CE = Critically Endangered, E = Endangered, V = Vulnerable, Mi = Migratory

Species Name	Common Name	BC Act	EPBC Act	Likelihood of occurrence	Justification
Mammals					
Cercartetus nanus	Eastern Pygmy-possum	V	-	High	The study area contains some Banksias and other suitable feed species, as well as several tree hollows that could be used for breeding. There are numerous records of this species in the area and has been assumed present.
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Low	No roosting habitats were identified within 100 m of the study area. There are records of the species within 10 km of the study area. The study area contains marginal foraging opportunities for this species.
Dasyurus maculatus maculatus	Spotted-tailed Quoll	V	E	Low	The species has been recorded within 10 km of the study area. The study area does contain suitable vegetation for the species. However, given the lack of connectivity and size of the patch of vegetation it is unlikely the species would be present.
Petauroides volans	Greater Glider	-	V	Low	There is a single record of this species within 10 km from the study area. 18 hollow bearing trees were recorded within the study area, with the ten of these hollows having a diameter of < 5 cm and six having at one medium size hollow (5 – 20 cm). Given the lack of connectivity and abundance of hollow bearing trees, it is unlikely the species is present.
Petrogale penicillata	Brush-tailed Rock-wallaby	E	V	Negligible	There is a single record within 10km, however the study area lacks rocky escarpments, outcrops and cliffs necessary for this species. Therefore, the species is not considered to occur within the study area.
Phascolarctos cinereus	Koala	V, E	V	High	There are over 700 records of the species within 10 km of the study area. The species is considered to occur within the study area and has been assumed present.
Pseudomys novaehollandiae	New Holland Mouse	-	V	Low	There are no records of the species within 10 km of the study area. Due to the 2018 fires, the study area lacks suitable ground cover for this species. Therefore, the species is not considered to occur within the study area.
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Recorded	Whilst no flying-fox camps were observed on the study area, the species was recoded flying over the study area.

APPENDIX F Matters of National Environmental Significance

Scientific name	Common Name	Recorded / assumed presence	Potential for significant impact
Threatened ecological community			
Shale Sandstone Transition Forest of the Sydney Basin Bioregion		Recorded	Possible
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion		Recorded	Unlikely
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion		Recorded	Possible
Flora			
Acacia bynoeana	Bynoe's Wattle	Recorded	Unlikely
Acacia pubescens	Downy Wattle	Recorded	Unlikely
Grevillea parviflora subsp.parviflora	Small-flower Grevillea	Recorded	Unlikely
Persoonia nutans	Nodding Geebung	Recorded	Unlikely
Fauna			
Anthochaera phrygia	Regent Honeyeater	Not recorded	Unlikely
Hirundapus caudacutus	White-throated Needletail	Recorded	Unlikely
Lathamus discolor	Swift Parrot	Not recorded	Unlikely
Phascolarctos cinereus	Koala	Assumed presence	Possible
Pteropus poliocephalus	Grey-headed Flying-fox	Recorded – incidental sighting	Unlikely
Migratory species			
Pandion haliaetus	Eastern Osprey	Recorded – incidental sighting	Unlikely
Chrysococcyx basalis	Horsfield's Bronze-Cuckoo	Not recorded	Unlikely
Myiagra cyanoleuca	Satin Flycatcher	Not recorded	Unlikely
Rhipidura rufifrons	Rufous Fantail	Recorded	Unlikely

APPENDIX G Clearing Report Templates

General clearing register	
Project:	Date:
Clearing inspection	
Fauna present:	
Health (was it injured during tree felling):	
Does it require immediate attention:	
Wildlife care agency called:	
Outcome:	
Release of fauna:	
Where was the animal(s) released:	
Other comments	
Sign-off	
Name:	
Signature:	
Date:	

General clearing register	
Project:	Date:
Clearing inspection	
Fauna present:	
Health (was it injured during tree felling):	
Does it require immediate attention:	
Wildlife care agency called:	
Outcome:	
Release of fauna:	
Where was the animal(s) released:	
Other comments:	
Sign-off	
Name:	
Signature:	
Date:	

Hollow inspection register		
Project:	Date:	
Tree number:	Species:	
Pre-clearing inspection		
Size of hollow (small, medium, large):		
Size of entrance (small, medium, large):		
Height of hollow from ground:		
Are there any additional hollows on same tree:	(Yes)	(No)
Is the hollow occupied:	(Yes)	(No)
Species:		
Is there evidence of breeding (eggs, nestlings, young etc:	(Yes)	(No)
Recommended action:		
Other comments:		
Clearing inspection		
Fauna present:		
Health (was it injured during tree felling):		
…….Does it require immediate attention:		
…….Wildlife care agency called:		
…….Outcome:		
Release of fauna:		
Where was the animal(s) released:		
Other comments:		
Sign-off		
Name:		
Signature:		
Date:		

APPENDIX H Flora Species Identified for Revegetation Works

PCT	TEC	Mid-storey species	Understorey species
724 - Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion	Shale Gravel Transition Forest in the Sydney Basin Bioregion (endangered ecological community listed under the BC Act) Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (critically endangered ecological community listed under the EPBC Act)	• *Bursaria spinosa* • *Lissanthe strigosa subsp. strigosa* • *Daviesia ulicifolia* • *Acacia falcata* • *Acacia parramattensis* • *Melaleuca decora*	• *Lomandra multiflora subsp. multiflora* • *Lomandra filiformis* • *Lepidosperma cf. laterale* • *Microlaena stipoides* • *Grona varians* • *Dichondra repens* • *Glycine clandestina* • *Lobelia purpurascens* • *Themeda triandra* • *Echinopogon caespitosus var. caespitosus* • *Echinopogon ovatus*
725 - Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion (endangered ecological community listed under the BC Act and critically endangered ecological community listed under the EPBC Act)	• *Bursaria spinosa* • *Melaleuca nodosa* • *Acacia longifolia subsp. longifolia* • *Solanum aviculare* • *Polyscias sambucifolia subsp. Long Leaflets* • *Dillwynia sieberi* • *Hakea sericea* • *Leptospermum trinervium* • *Pimelea linifolia* • *Kunzea ambigua* • *Leucopogon juniperinus* • *Acacia binervia*	• *Entolasia stricta* • *Panicum simile* • *Lepidosperma laterale* • *Lomandra multiflora subsp. multiflora* • *Cheilanthes sieberi* • *Themeda triandra* • *Entolasia marginata* • *Opercularia diphylla* • *Lomandra longifolia* • *Lobelia purpurascens* • *Cymbopogon refractus* • *Dichondra repens* • *Glycine clandestina* • *Glycine tabacina* • *Billardiera scandens*

PCT	TEC	Mid-storey species	Understorey species
883 - Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion	Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion (vulnerable ecological community listed under the BC Act) Castlereagh Scribbly Gum and Agnes Banks Woodlands in the Sydney Basin Bioregion (endangered ecological community listed under the EPBC Act)	• *Melaleuca nodosa* • *Hakea sericea* • *Hakea dactyloides* • *Acacia brownii* • *Acacia elongata* • *Banksia spinulosa* • *Leptospermum trinervium* • *Daviesia ulicifolia subsp. ulicifolia* • *Platysace ericoides* • *Bursaria spinosa subsp. spinosa* • *Hovea longifolia*	• *Entolasia stricta* • *Lomandra multiflora subsp. multiflora* • *Opercularia diphylla (Stinkweed)* • *Panicum simile (Two-colour Panic)* • *Eragrostis brownii* • *Cyathochaeta diandra* • *Lepyrodia scariosa* • *Themeda triandra* • *Microlaena stipoides var. stipoides*
1067 - Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion	Castlereagh Swamp Woodland Community (endangered ecological community listed under the BC Act)	• *Melaleuca decora* • *Melaleuca nodosa* • *Pultenaea villosa* • *Callistemon linearis* • *Melaleuca thymifolia* • *Melaleuca ericifolia* • *Leptospermum polygalifolium subsp. polygalifolium*	• *Centella asiatica* • *Juncus usitatus* • *Machaerina articulata* • *Cyperus flaccidus* • *Dianella revoluta* • *Themeda triandra* • *Dianella revoluta var. revoluta*