CONSTRUCTION FLORA AND FAUNA MANAGEMENT PLAN

Moorebank Precinct East Stage 2

19 MARCH 2021

SYDNEY INTERMODAL TERMINAL ALLIANCE
MOOREBANK PRECINCT EAST STAGE 2

Construction Flora and Fauna Management Plan

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REVISIONS

Revision	Date	Description	Prepared by	Approved by
001	9/02/2018	Draft CFFMP	LH	EC
002	22/02/2018	Update in response to ER comments	AK/LH	KP
003	01/03/2018	Updated in response to additional ER comments and prepared for consultation	ZQ	KP
004	19/04/2018	Updated in response to OEH consultation	AK/LH	SB
005	2/05/2018	Updated based on DPE comments	KN	KP
006	27/09/2018	Updated to reflect issue of Moorebank Precinct EPL	ZQ	KP
007	21/05/2019	Updated with MPW Commonwealth Approvals relevant to Moorebank Avenue upgrade works	MWR	HT
008	06/08/2019	Updates to reflect DotEE comments and the incorporation of koala management measures	MWR	AL
009	15/08/2019	Updates to reflect additional DotEE comments	MWR	AL/EC
010	23/08/2019	Updates to reflect additional DotEE comments	AL	JC
011	25/10/2019	Minor updates associated with: • RfMA 007 - Update to compliance and non-compliance definitions and inclusion of cumulative impacts required by EPBC CoA (2011/6029) • RfMA 009 – Nest box advice • RfMA 013 – ISCA and UHIMS updates • RfMA 014 – Suitable spoil importation • RfMA 015 – Moorebank Precinct EPL • RfMA 019 – Clarification of definitions for Early Works	ZQ	AL

Revision	Date	Description	Prepared by	Approved by
		and Construction Phase A activities • RfMA 024 – MPW EPBC (2011/6086) and MPE EPBC (2011/9229) approval requirements for DotEE review and approval		
012	21/11/2019	Update to address ER comments, removal of Construction Phase A updates associated with RfMA 019 and minor updates associated with RfMA 016 – Temporary access time extension	RP	JC
013	20/12/2019	Update to address ER comments and the approved CTAMP – B.	ZQ	AL
014	16/01/2020	Updated to address ER comments	ZQ	JC
015	23/06/2020	Minor updates associated with: • RfMA-018 – MAUW boundary change • RfMA-028 – MAUW/MADR stockpile areas • SSD 7628-Mod 2 Approval	KB CS	JC AW
016	19/03/2021	Minor updates associated with: • RfMA-039 – Corrections and update to Extended Hours Works Plan, and revision to construction program • RfMA-040 – Additional compound for light vehicle parking and break facilities • SSD 7628 – MOD 3 • SSD 7628 – MOD 4	AW	RJ

ACRONYMS AND TERMS

Acronym / Term	Meaning
BAR	Biodiversity Assessment Report
Bootland	The area of land located to the east and south of the Project site, which comprises the offset area for the Moorebank Precinct.
BOS	Biodiversity Offset Strategy
BS Act	*NSW Biosecurity Act 2015*
CBD	Sydney Central Business District
CEMP	Construction Environmental Management Plan
CESCP	Construction Erosion and Sediment Control Plan
CFFMP	Construction Flora and Fauna Management Plan
CoA	Conditions of Approval
CoC	Conditions of Consent
Contractor's CM	Contractor's Construction Manager
Contractor's EM	Contractor's Environmental Manager
Contractor's PM	Contractor's Project Manager
DNSDC	Defence National Storage and Distribution Centre
DotEE	Commonwealth Department of the Environment and Energy (now Department of Agriculture, Water and Environment)
DP&E	NSW Department of Planning and Environment (now DPIE)
DPIE	NSW Department of Planning, Industry and Environment (formerly DP&E)
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EO	Environmental Officer
EPA	NSW Environment Protection Authority
EPBC Act	*Commonwealth Environment Protection and Biodiversity Conservation Act 1999*
MPE EPBC Approval	Approval (No. 2011/6229) granted under the EPBC Act on March 2014 by the Commonwealth Department of Environment for the development of the SIMTA Moorebank Intermodal Terminal Facility at Moorebank.
MPW EPBC Approval	Approval (No. 2011/6086) granted under the EPBC Act on September 2016 by the Commonwealth Department of Environment and Energy for the development of the SIMTA Moorebank Intermodal Terminal Facility at Moorebank.
ER	Environmental Representative
EWEMP	Early Works Environmental Management Plan

Acronym / Term	Meaning
FBA	NSW *Framework for Biodiversity Assessment* (OEH 2014)
FCMMs	Final Compilation of Mitigation Measures
FM Act	*NSW Fisheries Management Act 1994*
ha	hectare
ISCA	Infrastructure Sustainability Council of Australia
km	kilometres
MNES	Matters of National Environmental Significance
Moorebank Precinct	Both MPE site and MPW site
MPE	Moorebank Precinct East as approved by the Concept Plan (MP_10_0913)
MPE Site	The site at Moorebank as approved by the Concept Plan (MP_10_0913)
MPE Stage 1 Project	The whole of the land to which the MPE Stage 1 Project approval SSD 14-6766 relates including both MPE Stage 1 Package 1, and MPE Stage 1 Package 2.
MPW	Moorebank Precinct West
MPW Site	The site at Moorebank as approved by the Concept Plan (SSD 5066)
Native vegetation	Areas of Plant Community Types (PCT) mapped by Arcadis and WSP Parsons Brinckerhoff in the Moorebank Precinct (including Moorebank Precinct East and Moorebank Precinct West) being a consolidation of all assessments for the Moorebank Precinct conducted since 2011 (Figure 2)
Native vegetation clearance	Native vegetation clearance includes the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of any native vegetation.
NBMS	Nest Box Management Strategy
Non-compliance	An occurrence, set of circumstances, or development that results in a non-compliance or is non-compliant with Development Consent SSD 7628 Conditions of Consent or EPBC Act Approval (EPBC 2011/6229) Conditions of Approval but is not an incident
Non-conformance	Observations or actions that are not in strict accordance with the CEMP and the aspect specific sub-plan
OEH	Office of Environment and Heritage
PAC	Planning Assessment Commission
PCT	Plant Community Type
PCTs	Plant Community Types
PE	Project Ecologist
PEMF	Provisional Environmental Management Framework

Acronym / Term	Meaning
Project, the	As approved under SSD 7628, Stage 2 of the MPE Concept Approval (MP 10_0193), and SSD 7628-Mod 2, SSD 7628-Mod 3 and SSD 7628-Mod 4 approvals. It involves the construction and operation of warehousing and distribution facilities on the MPE site and upgrades to approximately 2.1 kilometres of Moorebank Avenue.
Project site, the	The MPE Stage 2 construction area show in Figure 1-1.
RSoC	Revised Statement of Commitments
RtS	Response to Submissions
SHEMS	Safety Health and Environmental Management System
SIMTA	Sydney Intermodal Terminal Alliance
SSD	State significant development
SSFL	Southern Sydney Freight Line
SSI	State Significant Infrastructure
TEC	Threatened Ecological Community
TEC	Threatened Ecological Communities
WIRES	NSW Wildlife Information, Rescue and Education Service Inc
WoNS	Weed of National Significance

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1 BACKGROUND

The Sydney Intermodal Terminal Alliance (SIMTA) received approval for the construction and operation of Stage 2 of the Moorebank Precinct East (MPE) Project (SSD 7628), which comprises the second stage of development under the MPE Concept Approval (MP10_0193) and approved under Development Consent SSD 7628. SSD 7628 has been subject to the following modification applications:

- MPE Stage 2 Modification 2 (SSD 7628-Mod 2) application, which was approved on 31 January 2020;
- MPE Stage 2 Modification 3 (SSD 7628-Mod 3) application, which was approved on 18 December 2020; and
- MPE Stage 2 Modification 4 (SSD 7628-Mod 4) application, which was approved on 19 January 2021.

This Construction Flora and Fauna Management Plan (CFFMP) has been developed to manage impacts to threatened and protected flora and fauna specifies, populations and communities and terrestrial biodiversity during the construction of Stage 2 of the Moorebank Precinct East (MPE) Project (hereafter, 'the Project').

Within this plan, a strategy has been established to demonstrate the Construction Contractor's approach to the management of terrestrial biodiversity values. This CFFMP addresses the relevant requirements of the Development Consent, including the Environmental Impact Statement (EIS), Response to Submissions (RtS) and Minister's Conditions of Consent (CoC), and all applicable guidelines and standards specific to the management of terrestrial biodiversity during construction of the Project.

1.1 Introduction

The MPE site, including the Project site, is located approximately 27 kilometres (km) south-west of the Sydney Central Business District (CBD) and approximately 26 km west of Port Botany and includes the former Defence National Storage and Distribution Centre (DNSDC) site. The MPE site is situated within the Liverpool Local Government Area (LGA), in Sydney's South West subregion, approximately 2.5 km from the Liverpool City Centre.

The MPE Project involves the development of an intermodal facility including warehouse and distribution facilities, freight village (ancillary site and operational services), stormwater, landscaping, servicing and associated works on the eastern side of Moorebank Avenue, Moorebank.

Stage 2 of the MPE Project (the Project) involves the construction and operation of warehousing and distribution facilities on the MPE site and upgrades to approximately 2.1 km of Moorebank Avenue.

Key components of the Project include:

- Earthworks including the importation of 600,000 m^3 of fill and vegetation clearing
- Importation, stockpiling and placement of up to 250,000 m^3 of suitable spoil (separate to the 600,000 m^3 of imported clean general fill permitted for bulk earthworks)
- Approximately 300,000 m^2 gross floor area (GFA) of warehousing and ancillary offices
- Warehouse fit-out
- Freight village, 8,000 m^2 GFA of ancillary retail, commercial and light industrial land uses
- Internal road network and hardstand across the site

- Ancillary supporting infrastructure within the site, including:
  - Stormwater, drainage and flooding infrastructure
  - Utilities relocation/installation
  - Fencing, signage, lighting, remediation and landscaping
- Moorebank Avenue upgrade including:
  - Raising by about two metres and some widening
  - Embankments and tie-ins to existing Moorebank Avenue road levels
  - Signalling and intersection works
- Intersection upgrades along Moorebank Avenue including:
  - Moorebank Avenue/MPE Stage 2 access
  - Moorebank Avenue/MPE Stage 1 northern access
  - Moorebank Avenue/MPE Stage 2 central access
  - Moorebank Precinct West (MPW) Southern Access/MPE Stage 2 southern emergency access.

The location of the Project site is shown in Figure 1-1Figure 1-1.

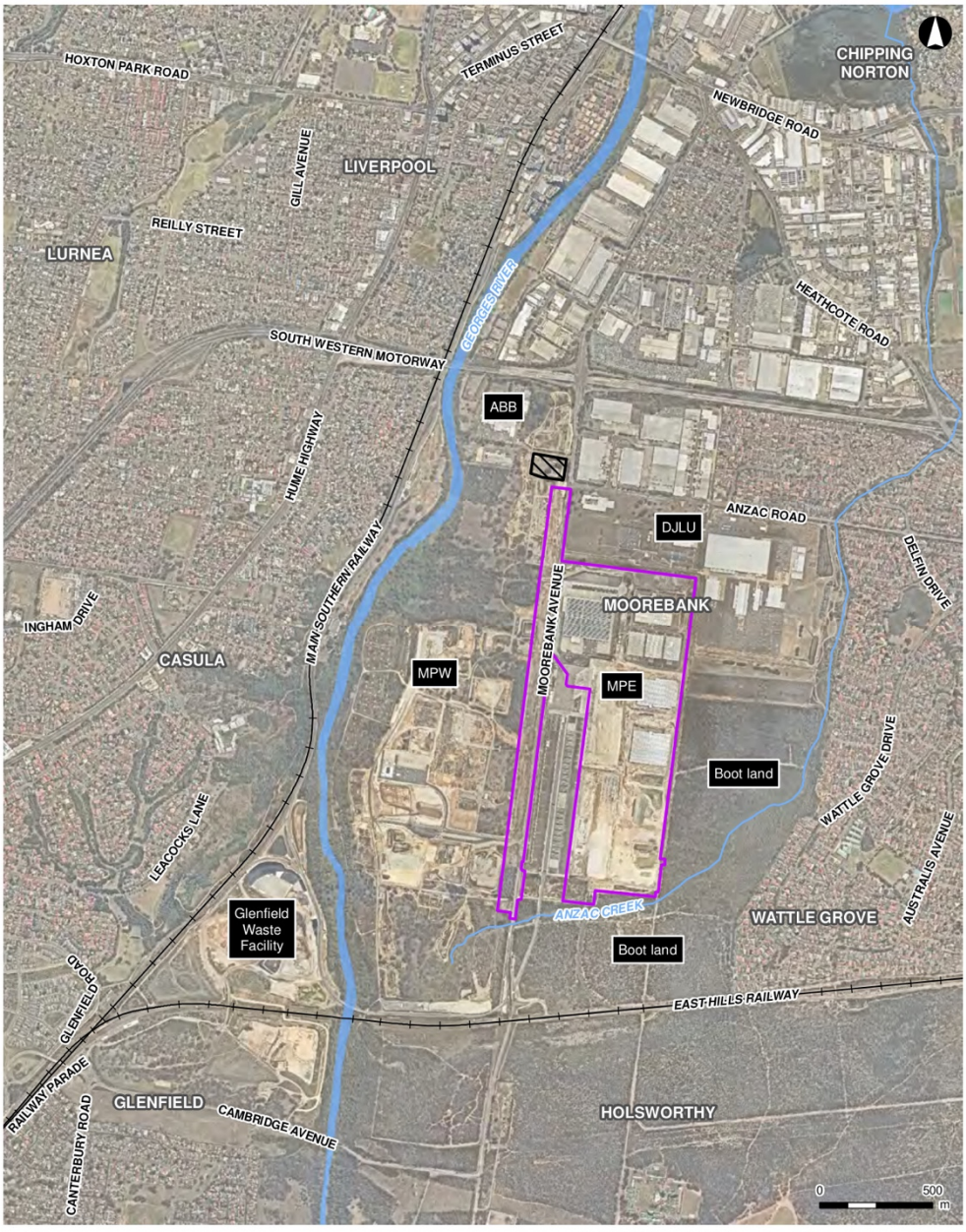

Figure 1-1: Site Location

Figure 1-1 Site Location

1.2 Development Consent

The MPE Stage 2 Project has been assessed by the Department of Planning and Environment (DP&E) under Part 4, Division 4.1 (now Division 4.7, as of 1 March 2018) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as state significant development (SSD). The Planning Assessment Commission (PAC) granted approval for the MPE Stage 2 Project on 31 January 2018 and is subject to the CoCs (SSD 7628). The Project has been subsequently modified and approved under Modification 2 (SSD 7628-Mod 2) on 31 January 2020. The Project, including its potential impacts, consultation and proposed mitigation and management, is documented in the following suite of documents:

- State significant development (SSD) consent SSD 7628, as modified
- SSD partial consent (subdivision) SSD 7628, as modified
- Moorebank Precinct East – Stage 2 – Environmental Impact Statement (Arcadis Australia Pacific Pty Limited, December 2016)
- Moorebank Precinct East – Stage 2 – Response to Submissions (Arcadis Australia Pacific Pty Limited, July 2017)
- Consolidated assessment clarification responses issued on 10 November 2017.
- MPE *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval (No. 2011/6229) granted on March 2014
- Moorebank Precinct West (MPW) *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval (No. 2011/6086) granted on September 2016 (for Moorebank Avenue Upgrade Works only)
- Moorebank Precinct East – Stage 2 (Modification 2) – Environmental Impact Statement (Aspect Environmental Pty Limited, July 2019)
- Moorebank Precinct East – Stage 2 (Modification 2) – Response to Submissions (Aspect Environmental Pty Limited, September 2019)
- Moorebank Precinct East – Stage 2 (Modification 3) – Environmental Impact Statement SSD 7628-Mod 3 (Aspect Environmental Pty Limited, June 2020)
- Moorebank Precinct East – Stage 2 (Modification 3) – Response to Submissions SSD 7628-Mod 3 (Aspect Environmental Pty Limited, August 2020)
- Moorebank Precinct East – Stage 2 (Modification 4) – Environmental Impact Statement SSD 7628-Mod 4 (Aspect Environmental Pty Limited, October 2020)

1.3 Project Delivery Phases

The Project construction period is anticipated to be up to five years which will be generally divided into three works phases, as detailed in the following sections. The timing of native vegetation clearance for this Stage 2 construction plan is planned for the period between Q1 2018 – Q4 2019.

The terminology for the project phases or periods has developed from the preparation of the EIS and RtS documentation in response to the language of the CoCs and the need to stage the delivery of the environmental management documentation required by the CoC. Current terminology, and the equivalent terminology from the CoCs and RtS are included in Table 1.

Table 1 Project Delivery Phase Terminology

Project Delivery Phase	CoC A18 Phase Equivalent	MPE Stage 2 RtS Works Period Equivalent
Early Works	Early Works Fill importation (to 60,000m^3)	Works Period A: Pre-construction Works Period B: Site preparation
Construction Phase A	Fill importation Construction	Works Period B: Site preparation Works Period E: Bulk earthworks, drainage and utilities Works Period F: Construction and internal fit out of warehousing Works Period G: Miscellaneous construction works
Construction Phase B	Fill importation Construction	Works Period C: Construction of Moorebank Avenue Diversion Road Works Period D: Pavement and intersection works along Moorebank Avenue Works Period E: Bulk earthworks, drainage and utilities

1.3.1 Early Works

Early Works is generally described as site preparatory works including utilities adjustments and relocations, clearing and stripping of topsoil (top 100mm of topsoil), heritage salvage and fill importation (including VENM and ENM, up to 60,000 m^3), establishment of site access, temporary fencing and compound establishment, asbestos and hazardous material removal and the preparation for the demolition of buildings.

The Early Works includes but is not limited to:

- Geotechnical and utilities investigation works including potholing to confirm the location of existing services, disconnection of non-critical services (with retention in place), grout filling of disconnected draining lines, and adjustment and relocation where applicable
- Clearing of non-native vegetation, stripping of topsoil and stockpiling of topsoil on site for later re-use within site landscaping
- Stabilisation of areas where topsoil has been stripped with imported clean hard fill or by other methods determined by the Environmental Representative (ER) to have minimal environmental impact
- Removal of asbestos from heating equipment and fire resistant building elements (e.g. fire doors) by a licenced asbestos removalist followed by clearance by a certified occupational hygienist
- Hazardous material cleaning and decontamination in Buildings 67, 69, 81 and 83
- Heritage salvage works in Buildings 37, 75 and 80 on the Project site to recover architectural elements for adaptive re-use

- Importation, stockpiling and placement of up to 60,000 m^3 (not exceeding a total of 22,000 m^3 of material per day) of imported clean general fill material by truck-and-dog and / or semi-trailer
- Establishment of a site access point at the existing MPE site northern access and construction of associated access road, utilising existing paved areas with minor pavement extensions required, to provide for access and manoeuvrability of vehicles into and through the site in accordance with CoC B10
- Establishment of temporary site fencing, a site compound(s) and temporary car parking areas to support Early Works and construction of the Project in accordance with CoC B10, B11 and B12
- Other activities determined by the ER to have minimal environmental impact.

Any of the activities defined in SSD Consent 7628 as 'Early Works' may be undertaken during Early Works, which may overlap the construction works phase and be undertaken concurrently with construction phase activities. All works during Early Works will be undertaken in accordance with the Early Works Management Plan (EWEMP) and required sub-plans. Upon the commencement of construction, the Project's Construction Environmental Management Plan (CEMP) will supersede the EWEMP.

The following sections provide a description of the works that will be undertaken as construction, that are the subject of this CFFMP.

1.3.2 Construction Works Phase A (Excluding Moorebank Avenue Upgrade Works)

Construction Works Phase A will include all works described in Early Works in addition to bulk earthworks, drainage and utilities, construction and internal fit-out of warehousing and finishing works.

Construction Works Phase A excludes Moorebank Avenue works described in Section 1.3.3. Construction Works Phase A includes, but is not limited to:

Completion of Site Preparation Activities

- Demolition of existing structures
- Clearing of remaining vegetation
- Adjusting the building formation of the site (to final operational levels) within which the Warehousing Compound will be located
- Establishment of temporary batch plant and materials crushing plant

Bulk Earthworks, Drainage and Utilities

- Importation, stockpiling and placement of up to 600,000 m^3 of imported clean general fill for bulk earthworks
- Importation, stockpiling and placement of up to 250,000 m^3 of suitable spoil (separate to the 600,000 m^3 of imported clean general fill permitted for bulk earthworks)
- Installation of on-site detention (OSD) and drainage infrastructure within the MPE Stage 2 site
- Construction of retaining walls
- Creation of internal road formation by general earthworks (by constructing fill embankments)

- Bulk earthworks and adjusting the building formation of the Project site to final level, including the terminal hardstand
- Utilities relocation and installation
- Establishment of hardstand areas.

Construction and Internal Fit-out of Warehousing

- Foundation and floor slab installation
- Erection of framework and structural walls
- Installation of roof
- Internal fit-out of warehouses (racking and associated services).

Miscellaneous Construction and Finishing Works

- Pavement construction (internal transfer roads and perimeter road), including forming of new kerbs, gutters, medians (where required) and other structures
- Line marking, lighting and sign posting
- Installation of road furniture, including traffic signs and pavement markers.
- Miscellaneous structural construction
- Finishing works, including landscaping and general site rehabilitation, where required
- Commissioning of the Project
- Decommissioning/demobilisation of the Project site, including removal of construction compound(s) and temporary construction environmental controls.

1.3.3 Construction Works Phase B (All Construction Activities)

Construction Works Phase B will include all works described in Early Works Phase and Construction Works Phase A, in addition to the Moorebank Avenue upgrade works. Generally, the Moorebank Avenue upgrade works are described as construction of the Moorebank Avenue Diversion Road, bulk earthworks, drainage and utilities, and pavement works.

Construction Works Phase B includes, but is not limited to:

Construction of the Moorebank Avenue Diversion Road

- Stripping of topsoil within footprint of temporary diversion road
- Installation of temporary drainage
- Placement of fill and temporary road pavement (e.g. gravel)
- Construction of interface between temporary diversion road and existing Moorebank Avenue
- Installation of temporary road signage, street lighting and signalling
- Transfer of traffic onto temporary diversion road from Moorebank Avenue.

Bulk Earthworks, Drainage and Utilities

- Removal of existing pavement and stripping of topsoil within Moorebank Avenue
- Importation, stockpiling and placement of approximately 600,000 m^3 of imported clean general fill for bulk earthworks

- Importation, stockpiling and placement of up to 250,000 m^3 of suitable spoil (separate to the 600,000 m^3 of imported clean general fill permitted for bulk earthworks)
- Creation of a road formation for Moorebank Ave and the Moorebank Ave Diversion Road by general earthworks (by constructing fill embankments)
- Utilities relocation and installation

Pavement Works along Moorebank Avenue

- Placement of select layer of earthworks material on top of the road formation
- Placing and compacting the pavement later (concrete, or concrete and asphalt) over the select layer (consisting of a sub-base and base) and potential sealing with bitumen
- Traffic switching from diversion road onto final, upgraded Moorebank Avenue
- Removal of construction traffic management and progressive opening of the internal road and warehouse access roads to traffic
- Removal of road surface, road signage, street lighting and signalling from temporary diversion road
- Commissioning of Moorebank Avenue.

1.4 Purpose and Application

This CFFMP has been developed to address the CoCs, final compilation of mitigation measures (FCMMs) and ISCA requirements and is based upon the Biodiversity Assessment Report (BAR) prepared by accredited ecologists to support the *Moorebank Precinct East – Stage 2 Proposal Response to Submissions* (Arcadis, 2017). This plan aims to demonstrate how terrestrial biodiversity will be managed during construction of the Project.

This plan provides measures to reduce and mitigate impacts on biodiversity by the contractor during the construction of the Project, including all sub-contractors and consultant partners.

The specific requirements of this CFFMP, in accordance with the CoCs, are:

- Prescribe measures to minimise the loss of key fauna habitat, including tree hollows
- Prescribe measures to minimise the impacts on fauna on site, including conducting fauna pre-clearance surveys prior to vegetation clearing and building demolition
- Prescribe measures to ensure biodiversity values not intended to be impacted are protected
- Provide a protocol for controlling weeds, pests and vermin
- Provide an Unexpected Finds Procedure detailing procedures and management measures to be implemented in the event that flora and fauna is uncovered in any area not identified in the updated Biodiversity Assessment Report (BAR)
- Detail a program to monitor the effectiveness of the mitigation measures outlined in this CFFMP

This CFFMP was developed in reference to the following documents:

- *Moorebank Precinct East-Stage 2 Proposal Biodiversity Assessment Report*, prepared for Sydney Intermodal Terminal Alliance. (Arcadis 2017)

- *Moorebank Precinct West (MPW) - Stage 2 Proposal Biodiversity Assessment Report.* Prepared for SIMTA (Arcadis 2016)
- *Moorebank Project East Stage 1: Biodiversity Assessment Report,* prepared for Sydney Intermodal Terminal Alliance. (Arcadis 2017)
- *Moorebank Intermodal Freight Terminal – Ecological Impact Assessment.* Prepared for the Moorebank Intermodal Company (Parsons Brinckerhoff 2014)
- *Biodiversity Assessment Report: Biobanking Agreement - Wattle Grove Offset Area (Part Lot 4 DP 1197707), Casula Offset Area (Part Lot 4 DP 1130937) and Moorebank Conservation Area (Part Lot 100 DP 1049508 And Part Lot 1 DP 1197707).* Prepared for Moorebank Intermodal Company (WSP Parsons Brinckerhoff 2017).

The most recent, approved version of this plan will be implemented to manage the impacts of the Project construction activities. Construction activities within the scope of this plan (i.e. Stage 2 MPE and Moorebank Avenue Upgrade Works) will not commence until acknowledgement has been received from the Secretary that this CFFMP has been prepared to their satisfaction, and the plan has been approved under the EPBC Act. Construction will be undertaken in accordance with the most recent, approved version of this CFFMP.

1.5 Staged Submission of this Plan

Subject to the approval of the Secretary (CoC A14), the Project has elected to stage the submission of a number of strategies, plans and programs that are required by the CoCs based on the Delivery Works Phases identified in Table 2.

In accordance with CoC A15, Table 2 identifies the stage of the development to which this document applies, and the relationship between any future stage. The trigger for updating the document is also identified in Table 2. When a document is updated, the most recent version of the document will supersede the previous version(s).

Table 2 Staged Documentation and Triggers to Satisfy CoC A15

Delivery Works Phases	General Description of Works	Current Document	Trigger to Update Document
Early Works			
Early Works	Geotechnical and utilities investigations, adjustments and relocations, clearing and stripping of topsoil, heritage salvage, fill importation, establishment of site access, temporary fencing and compound establishment, and other activities determined by the ER to have minimal environmental impact	☐ Document prepared to address Early Works only	Prior to the commencement of construction works
Construction			
Construction Phase A	Early Works activities, bulk earthworks, drainage and utilities, construction and internal fit-out of	☐ Document prepared to address Construction Works	Prior to the commencement of Moorebank Avenue upgrade works

	warehousing and finishing works.	Phase A only (does not address Moorebank Avenue upgrade works)	
Construction Phase B	Construction Phase A activities, construction of the Moorebank Avenue Diversion Road, bulk earthworks, drainage and utilities and pavement works	☒ Document prepared to address all construction works (Phase A + Phase B)	No further staging expected.

1.6 Objectives and Targets

Table 3 outlines the objectives and targets set out for the Project for the management of flora and fauna during construction of the Project. These objectives and targets implement the relevant objectives and targets in the MPW Concept Plan EIS Provisional Environmental Management Framework (PEMF), and were developed in consultation with the technical specialist, the Proponent and the Principal's Representative, based on collective industry experience and best practice.

Table 3 Objectives and Targets

Objective	Target	Timeframe	Accountability
Avoid disturbance to flora and fauna located outside the approved clearing footprint during construction phase of the project No reduction in the area of native vegetation proposed to be retained To minimise impacts to flora and fauna during Project works and to comply with contractual and legislative requirements	No unauthorised harm or disturbance to threatened flora and/or fauna species or threatened ecological communities No reduction in the area of retained native vegetation.	Construction	Contractor's CM
To implement the unexpected finds procedure to minimise impacts on threatened flora and/or fauna species or threatened ecological communities that have not been previously recorded within the Project Site	Stop relevant works in 100% of cases where potential threatened flora and/or fauna species or threatened ecological communities is identified in accordance with the Unexpected Finds Procedure (Appendix C)	Construction	Contractor's EM
Maintain the Project personnel's awareness of relevant flora and fauna issues	100% of Project personnel to attend environmental site induction	Construction	Contractor's EM
To prevent the spread of weeds within nominated vegetation retention areas	As a result of implementing the Weed, Pest and Vermin Management Protocol (a) there are no new declared weeds species, pests or vermin introduced onto the Project site (b) noxious and environmental weeds do not spread within the Project site and their presence within vegetation retention areas including riparian vegetation is reduced	Construction	Contractor's EM
Avoid injury or death of fauna resulting from construction activities (including vegetation	Zero incidents of injury or death to fauna resulting from construction activities	Construction	Contractor's EM

Objective	Target	Timeframe	Accountability
clearing and drainage of any on-site waterbodies)	(including vegetation clearing and drainage of any on-site waterbodies)		

1.7 Consultation

This CFFMP has been prepared in consultation with the Office of Environment and Heritage (OEH). A summary of consultation undertaken in preparation of this plan is provided in Table 4.

Table 4 Consultation Summary

Agency	Date	Person Contacted	Comment	Status
Office of Environment and Heritage	02/03/18	OEH representative	This plan emailed to request consultation	Open
	06/03/18	OEH representative	Voicemail left for OEH representative attempting to arrange a meeting for consultation with this plan. Follow up email sent.	Open
	20/03/18	OEH representative	Voicemail left for OEH representatives attempting to arrange a meeting to discuss this plan. Follow up email sent.	Open
	20/03/18	SIMTA	Phone conversation; indicating that there will be a new OEH representative for the Project.	Open
	20/03/18	OEH representative	Follow up email sent confirming details of phone conversation and requesting the contact details of the new OEH contact for the Project.	Open
	03/04/18	OEH representative	Attempted to contact OEH representative via phone. Email sent requesting OEH comments for this plan be provided.	Open
	03/04/18	SIMTA	Email received from OEH representative with comments on this plan.	Open
	19/04/18	OEH representative	Updated plan and response table emailed to OEH to demonstrate how comments have been addressed.	Closed

2 ENVIRONMENTAL MANAGEMENT

2.1 Legal and Other Requirements

Table 5 below details the legislation, planning instruments and guidelines considered during development of this CFFMP.

Table 5 Legislation, Planning Instruments and Guidelines

Legislation	Description	Relevance to this FFMP
Environmental Planning and Assessment Act 1979	This Act establishes a system of environmental planning and assessment of development proposals for the State.	The preparation of this CFFMP is a Condition of Consent of the Development Consent issued by the Planning Assessment Commission under Section 89E of the *Environmental Planning and Assessment Act 1979.*
Environment Protection and Biodiversity Conservation Act 1999	The main purpose of this Act is to provide a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined in the EPBC Act as Matters of National Environmental Significance (MNES). In accordance with sections 67 and 67A of the EPBC Act, any works that have the potential to result in an impact on any MNES or on Commonwealth land are considered 'controlled actions' and require a referral to the Federal Minister for the Environment for approval.	The Project was determined to be a controlled action under the EPBC Act, as a result of the project's impacts on listed threatened species and communities and Commonwealth land. This CFFMP prescribes measures to avoid and minimise impacts on threatened species and communities listed under the A EPBC Act, that are known or considered likely to occur in the project site.
Threatened Species Conservation Act 1995	This Act provides for the protection and management of threatened species, populations and ecological communities listed under schedules 1, 1A and 2 of the Act. This Act was repealed on 25 August 2017 and replaced with the *Biodiversity Conservation Act 2016.*	This CFFMP prescribes measures to avoid and minimise impacts on threatened species and communities listed that were listed under the TSC Act (now repealed and replaced by the BC Act) that are known or considered likely to occur in the Project site.
Biodiversity Conservation Act 2016	This Act broadly incorporates similar objectives to those identified the TSC Act, and additionally seeks to establish a framework for assessment and offsetting of development impacts as well as investment in biodiversity conservation.	This CFFMP prescribes measures to avoid and minimise impacts on threatened species and communities listed under the BC Act, that are known or considered likely to occur in the Project site.

Legislation	Description	Relevance to this FFMP
Biosecurity Act 2015 (Noxious Weeds Act 1993 repealed)	This act repeals the *Noxious Weed Act 1993* as of July 1 2017, as such, the *Noxious Weed Act 1993* is not included in this plan. The primary objective of the Act is to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers. Division 2 of the Act defines local control authorities for weeds. Schedule 1 outlines special provisions relating to weeds, including the duty of land occupiers to control and manage weeds.	This CFFMP prescribes measures to manage weeds and pests that may be identified in the Project site, although none have been identified to date.
Fisheries Management Act 1994	This Act aims to conserve, develop and share the fishery resources of the State for the benefit of present and future generations, including conserving threatened species, populations and ecological communities of fish and marine vegetation.	Fish habitat is associated with Anzac Creek and Georges River. The Project will not directly impact this habitat. Management measures prescribed in Section 3.3 aim to minimise indirect impacts on these waterways.
Prevention of Cruelty to Animals Act 1979	This Act aims to prevent cruelty to animals, and to promote the welfare of animals by requiring a person in charge of an animal to provide care for the animal, and to treat the animal in a humane manner, and to ensure the welfare of the animal.	The implementation of the Clearing Protocol provided in Appendix A would avoid and minimise injury and mortality of fauna that occur within the construction footprint. Management measures are provided in this CFFMP for the management and treatment of any injured fauna species.
Infrastructure Sustainability Council of Australia (ISCA) Rating Scheme	The ISCA rating scheme aims to advance sustainable outcomes in infrastructure through evaluating planning, design, construction and operation phases of all infrastructure asset classes.	The implementation of sustainability initiatives related to targeted ISCA credits would enhance the sustainability of the project. Credits related to ecology have requirements that are met through the management measures outlined in this CFFMP.
Biodiversity Offsets Policy for Major Projects	This policy was released in October 2014 and is applicable to projects that are SSD or State Significant Infrastructure (SSI) under the EP&A Act.	A Biodiversity Offset Strategy is being prepared for the project, to offset the unavoidable loss of threatened species and ecological communities from the construction footprint.

Guidelines and policy documents relevant to biodiversity and this CFFMP include the following publications:

- *Hygiene Protocol for the control of Disease in Frogs* (DECC 2008)
- *Code of Practice for Injured, Sick and Orphaned Protected Fauna* (OEH 2011)
- *Code of Practice for injured, sick and orphaned flying foxes* (OEH 2012)
- *Guidelines for the rehabilitation of birds of prey* (DECCW 2011)
- *Florabank Native Seed Collection Code of Practice* (Greening Australia NSW 1999)
- *Guidelines for the Translocation of Threatened Plants in Australia – Second Edition* (Australian Network for Plant Conservation 2004).

2.1.1 Compliance Matrices

2.1.1.1 State Approvals

The Project is being delivered under Part 4, Division 4.7 (previously Division 4.1 as of 1 March 2018) of the EP&A Act. The CoCs include requirements to be addressed in this plan and delivered during the Project. These requirements and how they are addressed is provided in Table 6.

Table 6 Conditions of Consent (CoCs)

CoC	Requirement	Plan Section	How Addressed
A1	In addition to meeting the specific performance measures and criteria established under this consent all reasonable measures must be implemented to prevent, and if prevention is not reasonable, minimise, any harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.	This plan	Section 3 of this CFFMP identifies the management measures to be implemented to prevent and minimise environmental harm. Section 4 sets out the processes for monitoring and reviewing the effectiveness of these management measures. Opportunities to further minimise environmental harm will be identified through the ongoing evaluation of environmental management performance and effectiveness of this plan.
A2	The development may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Secretary in relation to this consent; (c) in accordance with the EIS, Submissions Report, Consolidated assessment clarification responses, and updated Biodiversity Assessment Report;	a) Section 2.1.1 b) N/A c) Section 2.1.1	This plan has been developed to comply with the Condition of Consent (CoCs), written directions of the Secretary, amended development layout and management and mitigation measures outlined in Appendix B of the Consent. Refer to the following: (a) Section 2.1.1 (b) None provided to date

CoC	Requirement	Plan Section	How Addressed
	(d) in accordance with the amended Development Layout Plans and Design Plans, amended WSUD plans and amended architectural plans to be submitted for the Secretary's approval as part of this consent; and (e) in accordance with the management and mitigation measures at APPENDIX B of this consent.		(c) Section 2.1.1, Table 6 (d) N/A to this plan (e) Section 2.1.1, Table 6
A15	If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program.	Section 1.3 Section 1.5	This CFFMP outlines the proposed staged delivery of this plan. This CFFMP is relevant to construction only. No further staging of this document is expected.
A19	Where conditions of this consent require a document to be prepared in consultation with an identified party, the Applicant must: (a) consult with the relevant party prior to submitting the subject document to the Secretary for approval; (b) provide evidence that at least two weeks was provided for the relevant party to comment on the document; and (c) include in the document: (i) details of the consultation undertaken; (ii) a description of how matters raised by those consulted have been resolved to the satisfaction of both the Applicant and the party consulted; and (iii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.	Section 1.7	Section 1.7 indicates that this CFFMP has been developed in consultation with the identified parties.
A20	All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes the obligation for the Applicant to obtain, renew or	CEMP - Section 2.5.2	All applicable licences, permits and approvals will be obtained as required. An Environmental Protection Licence (EPL) (No. 21054) was issued by the EPA on 4 June 2018 (variation issued

CoC	Requirement	Plan Section	How Addressed
	comply with such licences, permits, approvals and consents.		on 18 April 2019). The licence applies to the Moorebank Precinct (excluding the MPE Stage 1 Rail Access Land Package (RALP) which has a separate EPL licence (No. 20966) and authorises > 100,000 – 500,000 tonnes crushing, grinding or separating processing capacity per annum and > 500,000 – 2,000,000 tonnes extraction, processing or storage capacity per annum. The licence applies to all other activities carried on at the premises, including road construction, bulk earthworks 'cut and fill' and importing fill. Approvals, permits and licences required for the Project are discussed in Appendix A and B of the CEMP.
B1	The Applicant must: (a) prepare each plan, program and other documents in consultation with the specified stakeholders; (b) not commence each phase of the project until the plans, programs and other documents required under this consent are approved by or, where not required to be approved, submitted to the Secretary specified within the timeframes; and (c) implement the most recent version of the required plans and programs approved by the Secretary for the duration of the development.	(a) Section 1.7 and Appendix D – Consultation (b) Section 1.4 (c) Section 4.3	(a) This CFFMP has been prepared in consultation with OEH as evidenced in Section 1.7 and Appendix D – Consultation. (b) Section 1.4 confirms that construction will not commence until the CFFMP has been submitted and is to the satisfaction of the Secretary. (c) The most recent, approved version of the CFFMP will be implemented.
B108	Prior to clearing of native vegetation, the Applicant must prepare a **Construction Flora and Fauna Management Plan** (CFFMP) in consultation with OEH. The CFFMP must form part of the CEMP required by condition C1 and must include the following: a) measures to minimise the loss of key fauna habitat, including tree hollows b) measures to minimise the impacts on fauna on site, including	Section 1.7 and Appendix D - Consultation (a) Section 3.3 and Appendix A (b) Section 3.3 and Appendix A	This plan has been prepared in consultation with OEH as shown in Section 1.7 and Appendix D – Consultation. (a) Section 3.3 includes mitigation measures to minimise the loss of fauna habitat. Appendix A provides details on the clearing protocol for the Project (b) Section 3.3 includes mitigation measures to minimise the impacts on

CoC	Requirement	Plan Section	How Addressed
	conducting fauna pre-clearance surveys prior to vegetation clearing and building demolition c) controlling weeds and feral pests d) an Unexpected Finds Procedure detailing procedures and management measures to be implemented in the event that flora and fauna is uncovered in any area not identified in the updated Biodiversity Assessment (BAR); e) to ensure biodiversity values not intended to be impacted are protected. These measures may include barriers and mapping of protected/'no-go' areas f) a program to monitor the effectiveness of the measures in the CFFMP	(c) Section 3.3 and Appendix B (d) Appendix C (e) Section 3.3 (f) Section 4	fauna on site. Appendix A provides details on the clearing protocol for the Project (c) Section 3.3 includes measures to control weeds and feral pests. Appendix B is the Weed and Pest Management Protocol. (d) Appendix C is the Unexpected Finds Procedure and it provides a procedure and management measures to implemented if unexpected flora and fauna are found. (e) Section 3.3 includes measures to ensure biodiversity values are protected. (f) Section 4 provides a program to monitor the effectiveness of this plan.
B109	Prior to removing/clearing any vegetation, pre-clearing surveys and inspections for threatened species, populations and ecological communities must be undertaken to confirm the on-site location of those entities. The surveys and inspections, and any subsequent relocation of species and associated management measures, must be undertaken under the guidance of a suitably qualified and experienced ecologist. Methodologies must be incorporated into the **Construction Flora and Fauna Management Plan** required under condition B108. The agreement of OEH, whichever is the relevant agency, is required for any proposed amendments to the location or reclassification of threatened species, populations and ecological communities as identified in the updated BAR.	Section 3.3 Appendix A – Clearing Protocol	Section 3.3 includes management measures that will be undertaken prior to the removal and clearing of vegetation. Appendix A - Clearing Protocol explains the actions and measures to be implemented prior to the commencement of vegetation clearing in the Project site.
B127	The Applicant must: (a) take all reasonable steps to manage pests and vermin on the site; (b) manage declared noxious weeds on the site in accordance	(a) Section 3.3 Appendix B – Weed Pest, Vermin Management Protocol	(a) The management measure (FF2.3) in Section 3.3 includes that all weeds, pests and vermin must be managed in accordance with Weed, Pest and Vermin Management Protocol (Appendix B).

CoC	Requirement	Plan Section	How Addressed
	with the requirements of the Noxious Weeds Act 1993; and (c) inspect the site on a regular basis, no less than every 3 months, to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in the surrounding area. *Note: For the purposes of this condition, noxious weeds are those species subject to an order declared under the Noxious Weed Act 1993.*	(b) Section 3.3 Appendix B – Weed, Pest and Vermin Management Protocol (c) Section 4.1 Appendix B – Weed, Pest and Vermin Management Protocol	(b) The *Biosecurity Act 2015* repeals the *Noxious Weed Act* 1993 as of July 1 2017, as such, the *Noxious Weed Act 1993* is not included in this plan. However, the *Biosecurity Act 2015* has been referenced in the Appendix B – Weed, Pest and Vermin Management Protocol. (c) The monitoring requirement for weed, pests and vermin is identified in Section 4.1 and Appendix B – Weed, Pest and Vermin Management Protocol.
C7	The Applicant must ensure that the environmental management plans required under this consent are prepared in accordance with any relevant guidelines, and include: (a) detailed baseline data; (b) a description of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures / criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; (c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits or performance measures / criteria; (d) a program to monitor and report on the: (i) impacts and environmental performance of the development; and (ii) effectiveness of any management measures (see (c) above);	(a) Section 3.1 (b) Section 2.1 and Section 0 (c) Section 3.3, Appendix A and Appendix B (d) Section 4 (e) Section 3.3 and Appendix C (f) Section 4.3 (g) CEMP - Sections 2.6, 2.8 and 4 (h) Section 4.3	(a) The existing flora and fauna environment is described in Section 3.1. (b) (i) Section 2.1 provides a list of the relevant statutory requirements required for the Project; (ii) and (iii) Section 0 identifies performance measures /criteria (objectives) and performance indicators (targets). (c) Section 3.3 identifies the flora and fauna specific management measures for the Project. (d) Program for monitoring and review is discussed under Section 4. (e) The Unexpected Finds Procedure describes the process to follow in the event that unexpected threatened flora and/or fauna species or threatened ecological communities are identified. (f) Improvement measures are discussed in Section 4.3. (g) Incident management will be undertaken in accordance with the Sections 2.6, 2.8 and 4.0 in the CEMP. (h) Section 4.3 outlines the requirements for review of this plan.

CoC	Requirement	Plan Section	How Addressed
	(e) a contingency plan to manage any unpredicted impacts and their consequences; (f) a program to investigate and implement ways to improve the environmental performance of the development over time; (g) a protocol for managing and reporting any: (i) incidents and non-compliances; (ii) complaints; (iii) non-compliances with statutory requirements; and (h) a protocol for periodic review of the plan. Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for a particular management plan.		Further detail is provided within Section 4 and 1.2.7 in the CEMP.

The Final Compilation of Mitigation Measures (FCMMs) were prepared as part of the consolidated assessment clarification responses issued to DP&E on 10 November 2017. A list of the FCMMs as relevant to the Project and how they have been complied with in this plan are provided in Table 7.

Table 7 Final Compilation of Mitigation Measures (FCMMs)

FCMM	Requirement	Document Reference
4A	A Construction Flora and Fauna Management Plan (CFFMP) would be prepared as part of the CEMP for the Amended Proposal. Native vegetation clearing for southern and eastern swales located outside of the MPE site would not occur until the Flora and Fauna Management Plan is approved. This would include the following: • Clear identification of vegetation exclusion zones • Site induction procedure, including briefings regarding the local threatened flora and local fauna of the site and protocols to be undertaken if they are encountered • A pre-start up check for sheltering native fauna of all infrastructure, plant and equipment and/or during relocation of stored construction materials • Application of speed limits in areas adjacent to native vegetation.	This plan
4B	The threatened plant populations identified within the Boot lands (to the south) would be protected by a minimum 10 metre buffer between the edge of the area of occupied habitat and the construction area.	Section 3.3
4C	Potential bat roosting locations in buildings to be demolished would be checked, as far as is practicable, by a qualified ecologist or wildlife carer for presence of bats prior to demolition. Any bats found would be relocated.	Section 3.3 Appendix A

FCMM	Requirement	Document Reference
4D	A two-stage approach would be undertaken to clearing: • Remove non-hollow bearing trees at least 48 hours before habitat trees are removed. • Hollow bearing trees are to be knocked with an excavator bucket or other machinery to encourage fauna to evacuate the tree immediately prior to felling. • Felled trees must be left for a short period of time on the ground to give any fauna trapped in the trees an opportunity to escape before further processing of the trees. • Felled hollow bearing trees must be inspected by an ecologist as soon as possible (not longer than 2 hours after felling).	Appendix A
4E	Directional lighting will be used where lighting is required in construction areas to avoid impact on fauna.	Section 3.3
4F	Should any animal be injured, the relevant local wildlife rescue agency (e.g. WIRES) and/or veterinary surgery would be contacted as soon as practical. Until the animal can be cared for by a suitably qualified animal handler, if possible minimise stress to the animal and reduce the risk of further injury by: • Handling fauna with care and as little as possible. • Covering larger animals with a towel or blanket and placing in a large cardboard box. • Placing small animals in a cotton bag, tied at the top. • Keeping the animal in a quiet, warm, ventilated and dark location.	Section 3.3 Appendix A

2.1.1.2 EPBC Approvals

The EPBC Act approval for the MPE Concept was granted by the Department of the Environment in March 2014 (No. 2011/6229). This approval was provided for the impact of the MPE Project on listed threatened species and communities (Sections 18 and 18A of the EPBC Act) and Commonwealth land (Sections 26 and 27A of the EPBC Act).

The EPBC Act approval for the MPW Concept was granted by the Commonwealth Department of Environment and Energy (DotEE) in September 2016 (No. 2011/6086). This approval was provided for the impact of the MPW Project on listed threatened species and communities (Sections 18 and 18A of the EPBC Act) and Commonwealth land (Sections 26 and 27A of the EPBC Act).

The Moorebank Avenue upgrade works will be performed under the MPE Stage 2 Consent as described in Section 1.1 and 1.3 of the CEMP. Since the western side of the Moorebank Avenue upgrade works construction footprint is located in an existing area of hardstand within the MPW site, the works must comply with the MPW Commonwealth Approval.

The construction and operation of the Project has been designed to be consistent with the EPBC Act Approval conditions, where relevant. EPBC Act Approval conditions relevant to this plan are identified in Table 8.

Table 8 Commonwealth Approvals

Condition	Requirement	Document Reference
MPE EPBC Approval (2011/6229)		
2	b) implement all feasible and practicable measures that ensure sedimentation and / or erosion (as a result of the proposed action) do not lead to any further reductions in the water quality, or degradation of, Macquarie Perch habitat.	Section 3.3 outlines sedimentation and erosions measures to avoid impact to Macquarie Perch habitat
5	For the better protection of **EPBC listed flora** and the environment on Commonwealth land, the person taking the action must engage a **suitably qualified expert** to prepare a Flora and Fauna Management Plan (FFMP) for the approval of **the Minister**. The FFMP must include (but need not be limited to): a) details on the timing of **native vegetation clearance** works	This plan Section 1.3 Section 3.3 – management measure timing indicated
	b) detailed maps of the rail link easement and construction zone showing: i. permanent infrastructure and temporary works; ii. no-go areas; and iii. physical barriers used for the protection of native vegetation on Commonwealth land, and of EPBC Act listed Nodding Geebung and Small-flower Grevillea.	Not applicable to this plan – detailed maps of the rail link easement are outlined in the MPE Stage 1, Package 1 (RALP) CFFMP.
	c) measures to minimise the extent of native vegetation clearing upon Commonwealth land and the clearing of **Nodding Geebung** and **Small-flower Grevillea**	Section 3.3 includes management measures that minimise the extent of native vegetation clearing upon Commonwealth Land and threatened flora species. Appendix A - Clearing Protocol explains the actions and measures to be implemented prior to and during vegetation clearing in the Project site.
	d) provisions to ensure no more than 17 individuals of **Nodding Geebung** and 634 stems of **Small-flower Grevillea** are cleared	Table 24 outlines anticipated construction impacts to threatened flora Section 3.3 includes management measures that prevent clearing beyond the construction boundary Appendix A - Clearing Protocol explains the actions and measures to be implemented prior to and during vegetation clearing in the Project site.

Condition	Requirement	Document Reference
	e) the results of targeted surveys for **Hibbertia sp. Bankstown** and **Bynoe's Wattle** (including the number of individuals recorded) and what measures will be implemented to avoid, mitigate and manage impacts to these species, if individuals are found on site	Section 3.1.1 outlines results of targeted surveys Section 3.3 outlines measures to avoid, mitigate and manage impacts to threatened flora species
	f) measures which allow all terrestrial fauna to disperse naturally ahead of clearing activities, and minimise the risk of injury to individuals	Section 3.3 outlines measures to encourage fauna to disperse naturally during clearing Appendix A outlines clearing procedures
	g) actions to maintain or enhance the long-term viability of native vegetation adjoining the rail easement in particular, adjoining populations of **Nodding Geebung** and **Small-flower Grevillea**	Not applicable to this plan – management of flora and fauna impacts adjacent to the rail link easement are outlined in the MPE Stage 1, Package 1 (RALP) CFFMP.
	h) measures to safeguard flora and fauna from the threat of weeds, fire, pathogens and unauthorised access, including (but not limited to) the commitments outlined in section 7.4.1 of the ***EIS*** (and summarised at Annexure A);	Section 3.3 outlines measures to safeguard flora and fauna from weeds, fire, pathogens and unauthorised access Appendix B outlines processes for managing weeds, pests and vermin on site.
	i) ongoing monitoring to inform the adaptive management of native vegetation adjoining the rail easement	Not applicable to this plan – management of flora and fauna impacts adjacent to the rail link easement are outlined in the MPE Stage 1, Package 1 (RALP) CFFMP.
	Native vegetation clearance must not occur until the FFMP has been approved. The FFMP must be implemented once approved	This plan
MPW EPBC Approval (2011/6086)		
7	Sections of the CEMP and OEMP relating to biodiversity must be prepared by a suitably qualified expert and must: a) be consistent with the Biodiversity Provisional Environmental Management Framework (3 July 2014), provided at Appendix O to the finalised EIS	The management measures outlined in Section 3.3 are consistent with the Biodiversity Provisional Environmental

Condition	Requirement	Document Reference
		Management Framework.
	b) incorporate all measures 6A to 6R, 6T, 6V and 6X from Table 7.1 of the finalised EIS that are described as 'mandatory'	Section 3.3 excluding 6G, 6M, 6P and 6V which are not applicable to the MPE site.
	c) explain how all measures 6A to 6R, 6T, 6V and 6X from Table 7.1 of the finalised EIS that are described as 'subject to review' have been addressed	Section 3.3 excluding 6N and 6Q which are not applicable to the MPE site.
	d) include detailed biosecurity protocols, prepared in consultation with relevant New South Wales and Commonwealth biosecurity agencies, in relation to international and interstate container movement be approved by the Minister.	Not applicable to construction as container movement will only occur once operation of the Precinct has commenced.
	e) be approved by the Minister	N/A

The MPE Commonwealth mitigation measures which are relevant to this plan are detailed in Table 9. There are no additional mitigation measures for MPW.

Table 9 MPE Commonwealth Mitigation Measures (CMM)

Issue	Requirement	Document Reference
	Mitigate • Install appropriate drainage infrastructure (e.g. sediment basins, diversion drains), sediment and erosion controls prior to the commencement of construction. • Clearing of vegetation is not to be undertaken during overland flow events. • Clearly identifying sensitive areas and areas for construction and managing clearing such that clearing activities are constrained to these approved areas only. • Locate soil or mulch stockpiles away from watercourses and key stormwater flow paths to limit potential transport of these substances into the watercourses via runoff. • Dust suppression activities to be undertaken where appropriate. • Stabilisation of disturbed areas, including revegetation in accordance with the VMP, is to be undertaken as soon as practicable after disturbance. • Emergency response protocols and procedures for implementation in the event of a contaminant spill or leak to be clearly articulated in the Construction Environmental Management Plan. • Spill kits to be located to allow for timely response to uncontained spills. Site inductions are to include a briefing on the use of spill kits.	Section 3.3

Issue	Requirement	Document Reference
	• Management of weeds in and adjacent to cleared areas will occur in accordance with a Weed Management Plan. This plan will include details relating to the monitoring, management and where necessary eradication of weeds, disposal of green waste, and vehicle/plant weed wash down protocols if required. • Management of noxious weeds are to be undertaken in accordance with the Noxious Weeds Act 1993. • Equipment used for treating weed infestation will be cleaned prior to moving to a new area within the project site to minimise the likelihood of transferring any plant material and soil. • Soil stripped and stockpiled from areas containing known weed infestations are to be stored separately and are not to be moved to areas free of weeds. • Fauna microhabitat such as logs should be removed from areas to be cleared and relocated to suitable nearby bushland areas in the presence of an ecologist. • Consider the installation of nest boxes in woodland vegetation in the rail corridor that may offer alternative nesting habitat to hollow dependent species recorded in the study area. • High visibility plastic fencing is to be installed to clearly define the limits of the works area to not further encroach on fauna habitat. • Undertake a pre-start up check for sheltering native fauna of all infrastructure, plant and equipment and/or during relocation of stored construction materials. • Undertake a two-stage approach to clearing: – Remove non-hollow bearing trees at least 48 hours before habitat trees are removed. – Hollow bearing trees are to be knocked with an excavator bucket or other machinery to encourage fauna to evacuate the tree immediately prior to felling. – Felled trees must be left for a short period of time on the ground to give any fauna trapped in the trees an opportunity to escape before further processing of the trees. – Felled hollow bearing trees must be inspected by an ecologist as soon as possible (not longer than 2 hours after felling). • Site inductions are to include a briefing regarding the local fauna of the site and identification of protocols to be undertaken if fauna are encountered. • If any pits/trenches are to remain open overnight, they are to be securely covered, if possible. Alternatively, fauna ramps (logs or wooden planks) are to be installed to provide an escape for trapped fauna. • Clearance of native vegetation should be minimised as far as is practicable.	

Issue	Requirement	Document Reference
	• Consider retention of some, or all, of the remnant scattered E. sclerophylla over patches of shrub and grass cover in the cleared grassland immediately south of the SIMTA site, in landscaping works. • The extent of, and limitations to, vegetation clearing would be clearly identified on construction plans. • Any additional construction areas, such as site offices, construction stockpile locations and machinery/equipment laydown areas are to be located, where possible, within existing cleared or disturbed areas. • Extent of clearing should be fenced with highly visible temporary fencing to minimise any extension of clearing beyond the area necessary. • A VMP should be prepared prior to construction, detailing restoration, regeneration and rehabilitation of areas of native vegetation in study area. The VMP should also detail appropriate management for the potential habitat of threatened plant species in the study area, including monitoring during and after construction works to ensure impacts are minimised. • As soon as possible rehabilitation will commence where possible. Management of land disturbed as a result of construction works will occur in accordance with a VMP. • High visibility plastic fencing is to be installed to clearly define the limits of the works area as to not further encroach on EEC and locations of threatened flora species. • Fencing is to be installed delineating threatened species habitat to be retained. Appropriate warning signage is to be installed along this fencing at regular intervals. Site inductions are to include a briefing on the presence of threatened species and its habitat, its significance and locations and extents of no-go zones. • Design and construction of rail crossings over Anzac Creek and Georges River to be in accordance with Fish Passage Requirements for Waterway Crossings (Fairfull and Witheridge 2003). • Minimise clearing and disturbance to the riparian zone where possible. • Install appropriate drainage infrastructure (e.g. sediment basins, diversion drains), sediment and erosion controls prior to the commencement of construction. • Construction disturbance areas will be clearly demarcated to avoid accidental clearing or stockpiling in riparian vegetation. • Landscaped zones to capture gross pollutants and oil and grits from pavement. These areas can be regularly maintained to remove rubbish and can be renewed on a regular basis. • Bio-retention installed in base of channels and swales proposed to capture and store stormwater. This will	

Issue	Requirement	Document Reference
	consist of bio-filtration layers, planting and subsoil collection and drainage. • Hot work not to be undertaken on declared total fire ban days • Vehicles and plant should not block fire trails. • Bushfire awareness included in staff induction and in toolbox talks pre-commencement. • Directional lighting will be used where lighting is required in construction areas. • Frequent maintenance of construction machinery and plant will be undertaken to minimise unnecessary noise. • Dust suppression activities to be undertaken where appropriate. • Speed limits will be developed so as to minimise the potential for fauna to be struck by a vehicle within the SIMTA site. All vehicles and plant in operation on the SIMTA site are to adhere to site rules relating to speed limits. • If an animal is injured, contact one of the following local wildlife rescue agency (e.g. WIRES) and/or veterinary surgery immediately • Until the animal can be cared for by a suitably qualified animal handler, if possible minimise stress to the animal and reduce the risk of further injury by: – Handling fauna with care and as little as possible. – Covering larger animals with a towel or blanket and placing in a large cardboard box. – Placing small animals in a cotton bag, tied at the top • Keeping the animal in a quiet, warm, ventilated and dark • Weed infestations that are identified during the operation of the SIMTA proposal are to be managed in accordance with the removal methods outlined in the Weed Management Plan.	

2.1.1.3 Concept Plan Approvals

The MPE Concept Plan was originally approved on 14 September 2011. The most recent modification to the approval was granted on 31 January 2018 subject to the (modified) Conditions of Approval (CoA). MPE Concept Plan CoAs that are relevant to this plan are identified in Table 10. Under the approved Concept Plan no native vegetation is to be retained on site. Therefore, the requirements of a Vegetation Management Plan required in the Commonwealth CMMs do not apply to this Plan.

Table 10 Concept Plan Conditions of Approval (CPCoA)

CPCoA	Requirement	Document Reference
	d) include the details of available offset measures to compensate the biodiversity impacts of the proposal where offset measures are proposed to address residual impacts, in particular the following should be considered: i. as stipulated in principle 2 of the *'NSW offset principles for major projects (state significant development and infrastructure)*', for terrestrial biodiversity, established assessment tools, such as BioBanking Assessment Methodology (BBAM), are considered best practice; ii. the Biodiversity Offset Strategy will be undertaken in accordance with the '*NSW offset principles for major projects (state significant development and state significant infrastructure)'* and; iii. offsets will be identified, and demonstrate that they can be secured.	A Biodiversity Offset Strategy is currently being prepared for the MPE Project.

The Revised Statement of Commitments (RSoC) includes the most recent compilation of SIMTA commitments to mitigate the environmental impacts, monitor the environmental performance and/or achieve a positive environmentally sustainable outcome. These RSoCs (June 2017) were presented in the Moorebank Precinct East – Concept Plan Modification 2 Response to Submissions. The RSoC that are relevant to this plan are identified in Table 11.

Table 11 Revised Statement of Conditions (RSoC)

RSoC	Requirement	Document Reference
22	The Proponent will undertake further detailed assessment to establish the potential biodiversity impacts of the proposed rail link and measures to mitigate its potential impacts. The investigations shall incorporate the mitigation measures listed within Section 5 of the Flora and Fauna Assessment and as summarised below:	*This Proposal would not impact on the proposal rail link
	<u>Avoid impacts</u> Site establishment, earthworks and rail construction	Section 3.3
	<u>Mitigate impacts</u> • Soil disturbance related to site establishment, earthworks and rail construction* • Vegetation clearance for rail construction, access and maintenance tracks • Construction in riparian areas/in proximity to watercourse* • Construction of pavement, slabs and building structures	*Impacts to riparian corridors not applicable to the Project site, this will be addressed in the CFFMP for MPE Stage 1.

RSoC	Requirement	Document Reference
	• Hot works (including vegetation clearing requiring heat producing equipment) • Alteration to air quality and noise environments Operation of the SIMTA proposal	
23	<u>Management of Threatened Plant Species</u> The Proponent shall prepare and implement a Threatened Species Management Plan for the *Persoonía nutans* and *Grevillea parviflora* subsp. *parviflora* populations within the rail corridor that would be affected by the rail link	*Impacts to threatened flora within the rail corridor not applicable to the Project site, this will be addressed in the CFFMP for MPE Stage 1.
24	<u>Off-Set impacts</u> The Proponent will update the Preliminary Biodiversity Offset Strategy (Hyder Consulting 2013) in accordance with the NSW offset principles for major projects (state significant development and state significant infrastructure) and continue to consult with the Department of the Environment (DOTE) through the project approval processes. The offset package will be secured before any clearing of endangered ecological communities or threatened species is carried out.	The Biodiversity Offset Strategy is being prepared by SIMTA and does not form part of this CFFMP.
25	<u>Aquatic Flora and Fauna</u> The Proponent will implement the following measures to protect the aquatic flora and fauna as part of the applications for the detailed planning applications (where relevant and applicable): • Implementation of design principles for friendly fish passage. • Implementation of Construction and Operation Management Plans for maintenance of structures in riparian and aquatic zones. • Minimise siltation of the Georges River during construction through implementing the water quality mitigation measures detailed within the Stormwater and Flooding section of the Statement of Commitments. • Thorough assessment of any development within the Anzac Creek CSWL community, including potential impacts on groundwater quality and quantity. Lantana removal within nominated construction zones to reduce degradation of streamside vegetation and offset any potential impacts to aquatic biodiversity.	*Impacts to aquatic habitats not applicable to the Project site. This will be addressed in MPE Stage 1.

Infrastructure Sustainability Council of Australia (ISCA) requirements relevant to this plan are detailed in Table 12.

Table 12 ISCA Requirements

ISCA Credit Reference	Requirement	Document Reference
Eco-1: Ecological value	The ecological value of the infrastructure site is maintained through ecological assessment	Assessment of existing environment and anticipated impacts is outlined in Section 3.1, 3.2 and 3.3.
	The ecological value of the infrastructure site is enhanced	Management measures are provided in Section 0. Section 3.4.2 provides details on the translocation of threatened flora species. MPE Stage 1 CFFMP contains details of the Nest Box Management Strategy which has been adopted for MPE Stage 2.
Eco-2: Habitat connectivity	The existing degree of habitat connectivity is maintained (based on previous ecological assessments). This can include offset strategies.	Management measures are provided in Section 0. The extent of the offset is described in detail in Biodiversity Assessment Report: Biobanking Agreement (WSP 2017).
	Ecological assessments and management plans must be reviewed by a suitably qualified professional.	The responsibilities of the Project Ecologist are outlined in Table 13. Reviews of this CFFMP will be undertaken in accordance with the CoC outlined in Section 4.3.

2.2 Roles and Responsibilities

Key roles and responsibilities associated with this plan are presented in Table 13.

Table 13 Roles and Responsibilities

Roles	Responsibilities
Contractor's Construction Manager (Contractor's CM)	• Oversee the overall implementation of this CFFMP • Ensure that sufficient resources are allocated for the implementation of this CFFMP • Ensure that the CEMP covers the management and mitigation measures presented in this CFFMP • Ensure that the outcomes of the visual checks/ compliance construction monitoring/ incident reporting are systematically evaluated as part of ongoing management of construction activities • Ensure audits of construction site records/ monitoring records/ incident reports are undertaken on a monthly basis; findings are shared with relevant site personnel and corrective actions are implemented • Ensure all relevant personnel have and understand the most up-to-date copy of this CFFMP • Ensure that any required actions arising from the preclearance surveys, detection of a threatened species or if clearing is required outside of the approved Project development footprint are reported to the relevant personnel for further action and ensure that the actions are effectively implemented • Ensure that qualified personnel conduct the preclearance surveys and any animal handling procedures • Ensure all monitoring reporting requirements are met and maintained on site • Authorise all monitoring reports and any revisions to this CFFMP.
Contractor's Environmental Manager (Contractor's EM) **Site Supervisors** **Sub-contractors**	• Understand and implement mitigation protocols as required in the CFFMP and any other required measures during construction • Undertake relevant training to implement the requirements of this CFFMP • All personnel are responsible for ensuring that the clearing limits are addressed and native flora and fauna species are protected • All site personnel to undertake toolbox talks in relation to the reporting process for injury/ death to fauna or clearing of flora occurring beyond the required limits for construction • Supervisors will be responsible for implementing environmental controls as outlined by the Contractor's EM.

Roles	Responsibilities
Project Ecologist	Preclearance surveys must be undertaken by a suitably qualified and experience ecologist. The ecologist may also be responsible for providing advice to minimise potential impacts to any threatened and/or protected fauna species that may be recorded during the preclearance surveys or as incidental observations during the construction activities. The Project Ecologist must conduct all works under the following licences: • NSW National Parks and Wildlife Service Scientific Investigation Licence • Animal Research Authority issued by NSW Agriculture • Certificate of Accreditation of a Corporation as an Animal Research Establishment issued by NSW Agriculture • Animal Care and Ethics Committee Certificate of Approval issued by NSW Agriculture.

2.3 Training

Training and induction for construction and site personnel will include, but not be limited to:

- Raising awareness of on-site environmental management issues
- Providing information on the location and importance of threatened flora and fauna species (and habitat), and ecological communities
- Providing information on the boundaries for vegetation clearing and no-go zones, including the Bootland to the east and south of the project
- Training on procedures on encountering fauna
- Training on weed identification and the appropriate guidelines for removing weeds, driving vehicles in weed infested locations and the disposal of weed infested topsoil etc.
- Penalties associated with breaching environmental policies, regulation and law
- Emergency and incident responses, including spill management procedures including the management of chemical and fuel spills and fire.

Records of all training are to be filed in accordance with the document control system outlined in Section 2.3 of the CEMP.

3 IMPLEMENTATION

3.1 Existing Environment

The existing environment information described below is obtained from the Biodiversity Assessment Report (Appendix O of the EIS).

3.1.1 Threatened Flora Species

Four threatened species occur in the Project site (refer to Table 14) The locations of these species are shown on Figure 3-1.

Table 14 Threatened Species Located in the Project Site

Species	Status Under BC Act	Status Under EPBC Act
Hibbertia puberula subsp. puberula	Endangered	-
Persoonia nutans (Nodding Geebung)	Endangered	Endangered
Grevillea parviflora subsp. parviflora (Small-flowered grevillea	Vulnerable	Vulnerable
Hibbertia fumana	Critically Endangered	-

An additional two threatened species occur on land adjoining the Project site (refer to Table 15). The locations of these species are also shown on Figure 3-1.

Table 15 Threatened Species Located in Proximity to the Project Site

Species	Status under BC Act	Status under EPBC Act
Acacia bynoeana (Bynoe's Wattle)	Endangered	Vulnerable
Acacia pubescens (Downy Wattle)	Vulnerable	Vulnerable

Hibbertia sp. Bankstown (syn. *Hibbertia puberula subsp. glabrescens*) is currently known to occur in only one population at Bankstown Airport. The airport site is very heavily modified from the natural state, lacks canopy species and is currently a low grass/shrub association with many pasture grasses and other introduced herbaceous weeds. Soil at the site is a sandy (Tertiary) alluvium with a high silt content. Based on the presence of potentially similar habitat surveys for the species were undertaken within the Project Site in June 2016, October 2016, October-November 2017. The species was not detected and was considered unlikely to occur within the Project Site (Moorebank Precinct East Stage 2 Biodiversity Assessment Report, Arcadis 2017).

3.1.1.1 *Hibbertia puberula subsp. puberula*

Table 16 Existing Environment and Occurrence of Hibbertia puberula susp. puberula

Hibbertia puberula* subsp. *Puberula	
Description	A small shrub with few spreading but wiry branches up to 30 cm long. This species flowers from October to December and sometimes January. The distribution of *Hibbertia puberula* subsp. *puberula* extends from Wollemi National Park in the north to Morton National Park near Nowra in the south. This species favours low heath on sandy soils or rarely clay, with or without rocks underneath (NSW Office of Environment & Heritage 2017).
Number occurring in the Project	Approximately 110 plants of *Hibbertia puberula* subsp. *puberula* are located within the project site, in four locations: • Five plants in an area of sparse regrowth adjoining the fenceline in the south of the project site, next to the access track • One plant in denser regrowth adjoining the fenceline in the south-east of the project site, next to the powerline easement • 82 plants in mown grassland in the south-east of the project site • 22 plants in Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland along the western margin of Moorebank Avenue A total of 3.49 ha of *Hibbertia puberula subsp. puberula* will be removed from the MPE Stage 2 project site, including Mod 2.
Number occurring outside of the Project	A total of 1,161 plants have been recorded in Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain in the Bootland, to the south of the project site. Of the 1,161 plants that have been recorded outside of the Project, 15 are within approximately 10 m of the eastern boundary, 24 are within approximately 10 m of the southern boundary and 17 are within approximately 10 m of the western boundary of the Project site.
Photo	

3.1.1.2 *Grevillea parviflora subsp. parviflora* (Small-flower Grevillea)

Table 17 Existing Environment and Occurrence of Grevillia parviflora subsp. parviflora

Grevillea parviflora* subsp. *Parviflora	
Description	A low spreading to erect shrub, usually less than a metre high. The small white flowers are spider-like and clustered in groups of 6-12. This species is sporadically distributed throughout the Sydney Basin and in the Hunter in the Cessnock - Kurri Kurri area (particularly Werakata National Park. Sydney region occurrences are usually on Tertiary sands and alluvium, and soils derived from the Mittagong Formation. Soil landscapes include Lucas Heights or Berkshire Park (NSW Office of Environment & Heritage 2017; Department of the Environment and Energy 2017).
Number occurring in the Project	A total of 79 stems of *Grevillea parviflora* subsp. *parviflora* were recorded in Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, along the western margin of Moorebank Avenue.
Number occurring outside of the Project	A total of 7,063 stems have been recorded in Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain in the south of the bootland, to the south of the Project site. Of these 7,063 stems, zero have been recorded within 10 m of the eastern boundary and 141 have been recorded within 10 m of the western boundary of the Project site.
Photo (NSW Office of Environment & Heritage 2017)	

3.1.1.3 *Persoonia nutans* (Nodding Geebung)

Table 18 Existing Environment and Occurrence of Persoonia nutans

Persoonia nutans	
Description	An erect to spreading shrub 0.5–1.5 metres high, with linear leaves and hairy young branches (DotE 2017). It is restricted to the Cumberland Plain in Western Sydney, between Richmond in the north and Macquarie Fields in the south. Northern populations are confined to aeolian and alluvial sediments and occur in a range of sclerophyll forest and woodland vegetation communities.
Number occurring in the Project	12 plants are located in the far south of the Project site, in proximity to the Project site boundary, including the area associated with Mod 2. A total of 0.70 ha of *Persoonia Nutans* will be cleared for Mod 2.

Persoonia nutans	
Number occurring outside of the Project	A total of 258 plants of *Persoonia nutans* have been recorded to date in the Boot land, south of the Project site. Of the 258 plants recorded in the Boot Land, 4 have been recorded within approximately 10 m of the southern boundary, zero have been recorded within approximately 10 m of the eastern boundary and 3 have been recorded within approximately 10 m of the western boundary of the Project site.
Photo (NSW Office of Environment & Heritage 2017)	

3.1.1.4 *Acacia bynoeana* (Bynoe's Wattle)

Table 19 Existing Environment and Occurrence of Acacia bynoeana

Acacia bynoeana	
Description	A semi-prostrate shrub to a metre high with shiny, stiff and narrow leaves, that flowers from September to March. *Acacia bynoeana* occurs in heath or dry sclerophyll forest on sandy soils. The species seems to prefer open, sometimes slightly disturbed sites such as trail margins, edges of roadside spoil mounds and in recently burnt patches. Associated overstorey species include Red Bloodwood, Scribbly Gum, Parramatta Red Gum, Saw Banksia and Narrow-leaved Apple (NSW Office of Environment & Heritage 2017; Department of the Environment and Energy 2017).
Number occurring in the Project site	This species has not been identified in the Project site.
Number occurring outside of the Project site	39 plants have been recorded in Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, in the central area of the bootland, to the south of the Project site. One individual of *Acacia bynoeana* is located approximately 6 metres east of the eastern boundary of the Project site.
Photo	 

3.1.1.5 *Acacia pubescens* (Downy Wattle)

Table 20 Existing environment and occurrence of Acacia pubescens

Acacia pubescens	
Description	A spreading shrub, one to five metres high with brilliant yellow flowers, bipinnate leaves and hairy branchlets. *Acacia pubescens* occurs on alluviums, shales and at the intergrade between shales and sandstones in open woodland and forest. Found in a variety of plant communities, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland (NSW Office of Environment & Heritage 2017; Department of the Environment and Energy 2017).
Number occurring in the Project site	This species has not been identified in the Project site.
Number occurring outside of the Project site	This species has been recorded in three distinct patches in both Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin (ME003) and Broad-leaved Ironbark - Grey Box- Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin. The total number of stems over the three patches was estimated at 254 stems. The closest record of *Acacia pubescens* is located approximately 18 metres east of the eastern boundary of the Project site.
Photo	

3.1.1.6 Hibbertia fumana

Table 21 Existing Environment and Occurrence of Hibbertia fumana

Hibbertia fumana	
Description	A low shrub or sub-shrub with many branches at the base and branches also well branched. Occurs in areas of woodland with a more open understorey, in associated with intergrade alluvial habitats rich in sands and laterite. Currently only known from a single population at Moorebank but potentially elsewhere in greater Sydney.
Number occurring in the Project site	This species has been identified in the Project site. A total of 0.14 ha of *Hibbertia Fumana* will be cleared from within Mod 2 project boundary.

Hibbertia fumana	
Number occurring outside of the Project site	The core population of 14,270 plants of *Hibbertia fumana* is located in a transitional zone between Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin and Broad-leaved Ironbark -Grey Box- Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin, in the central southern part of the Boot Land, south of Anzac Creek.
Photo	 

Figure 3-1a: Threatened Flora Species and Plant Community Types - Temporary Works

Figure 3-1a Threatened Flora Species and Plant Community Types – Temporary Works

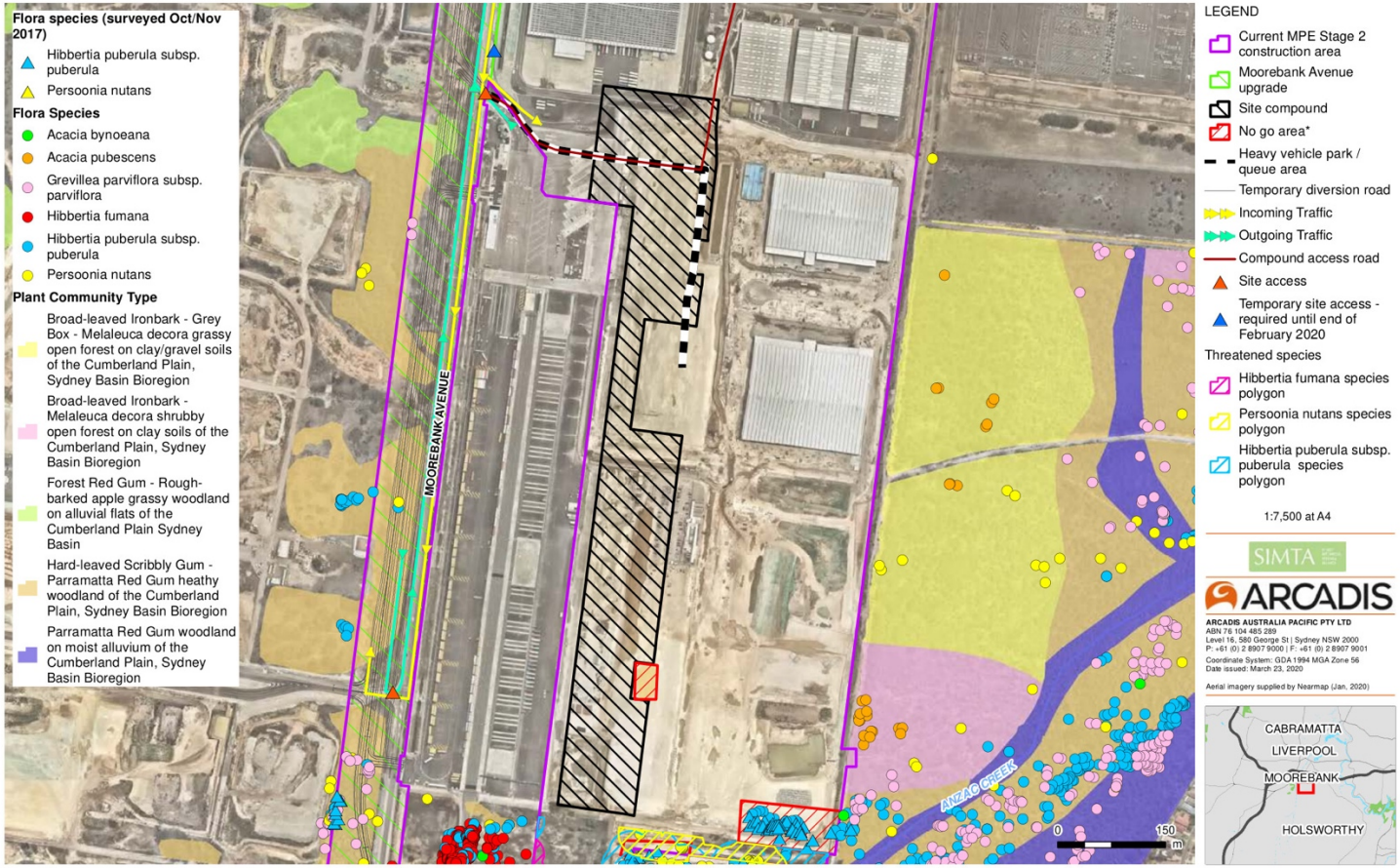

Figure 3-1b: Threatened Flora Species and Plant Community Types - Temporary Works

Figure 3-1b Threatened Flora Species and Plant Community Types – Temporary Works

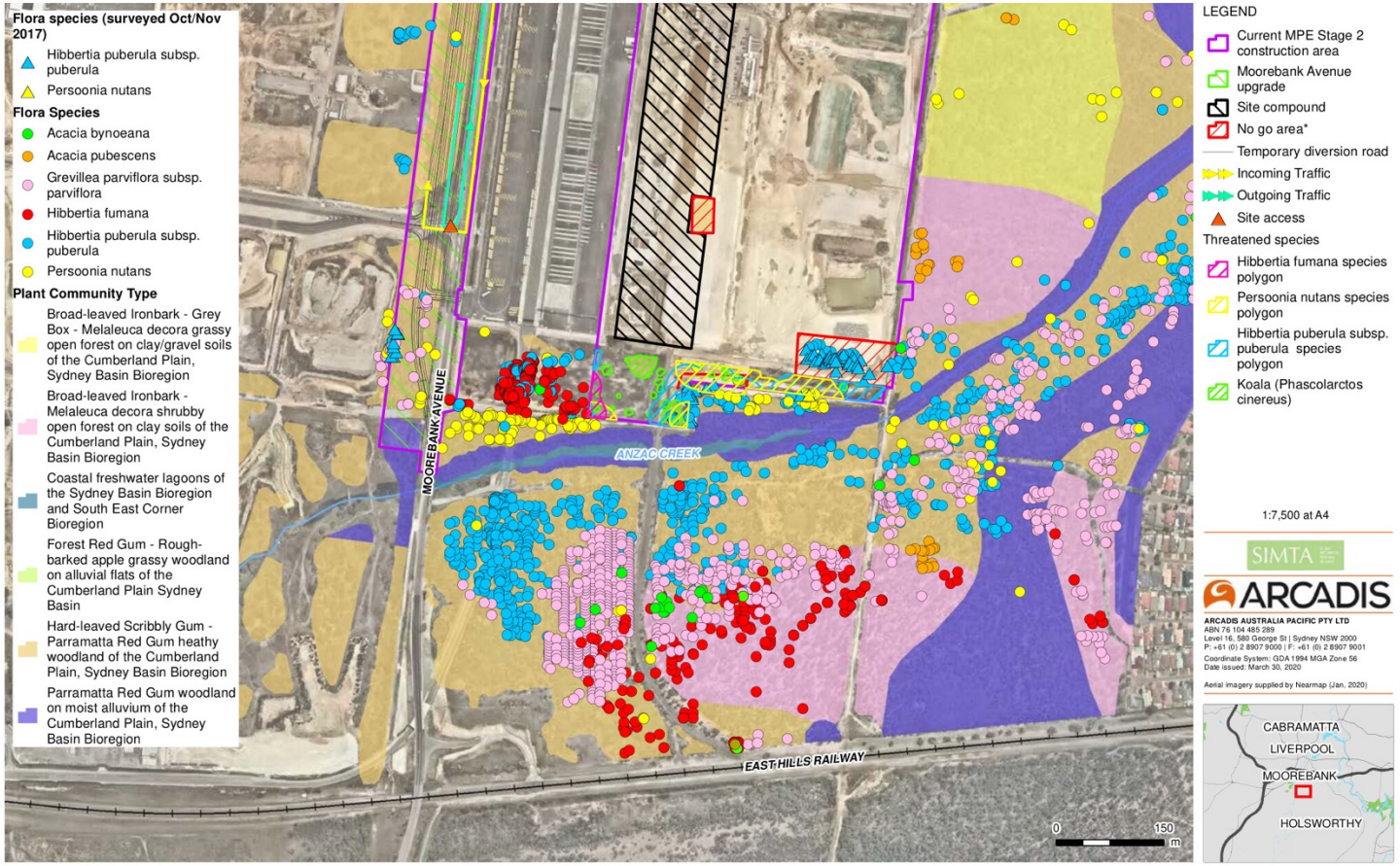

Figure 3-1c: Threatened Flora Species and Plant Community Types - Temporary Works

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Created by : GC
QA by : ZQ

Figure 3-1c Threatened Flora Species and Plant Community Types – Temporary Works

Figure 3-1d: Threatened Flora Species and Plant Community Types - Permanent Infrastructure

Date: 23/03/2020 Path: \\hc-aus-ns-fs-01\jobs\AA008765\5-GIS\A_Current\B_Maps\MPES2\MPES2_CEMP\MPES2_CFFMP\SIMTA_MPES2_CFFMP_006_ThreatenedFloraPCT_PermanentInfrastructure_A4P_v7.mxd
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QA by : EH

Figure 3-1d Threatened Flora Species and Plant Community Types – Permanent Infrastructure

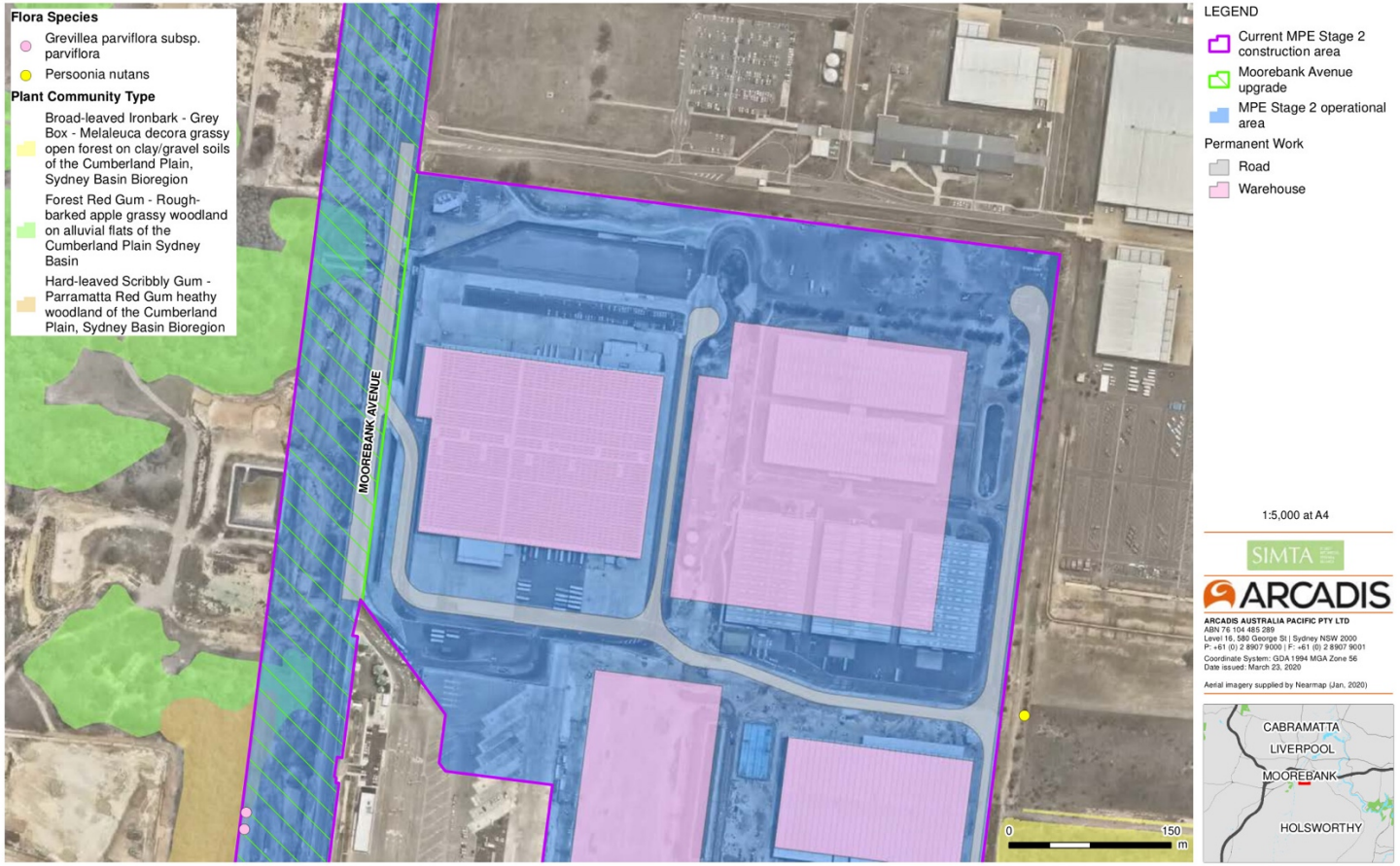

Figure 3-1e: Threatened Flora Species and Plant Community Types - Permanent Infrastructure

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QA by : EH

Figure 3-1e Threatened Flora Species and Plant Community Types – Permanent Infrastructure

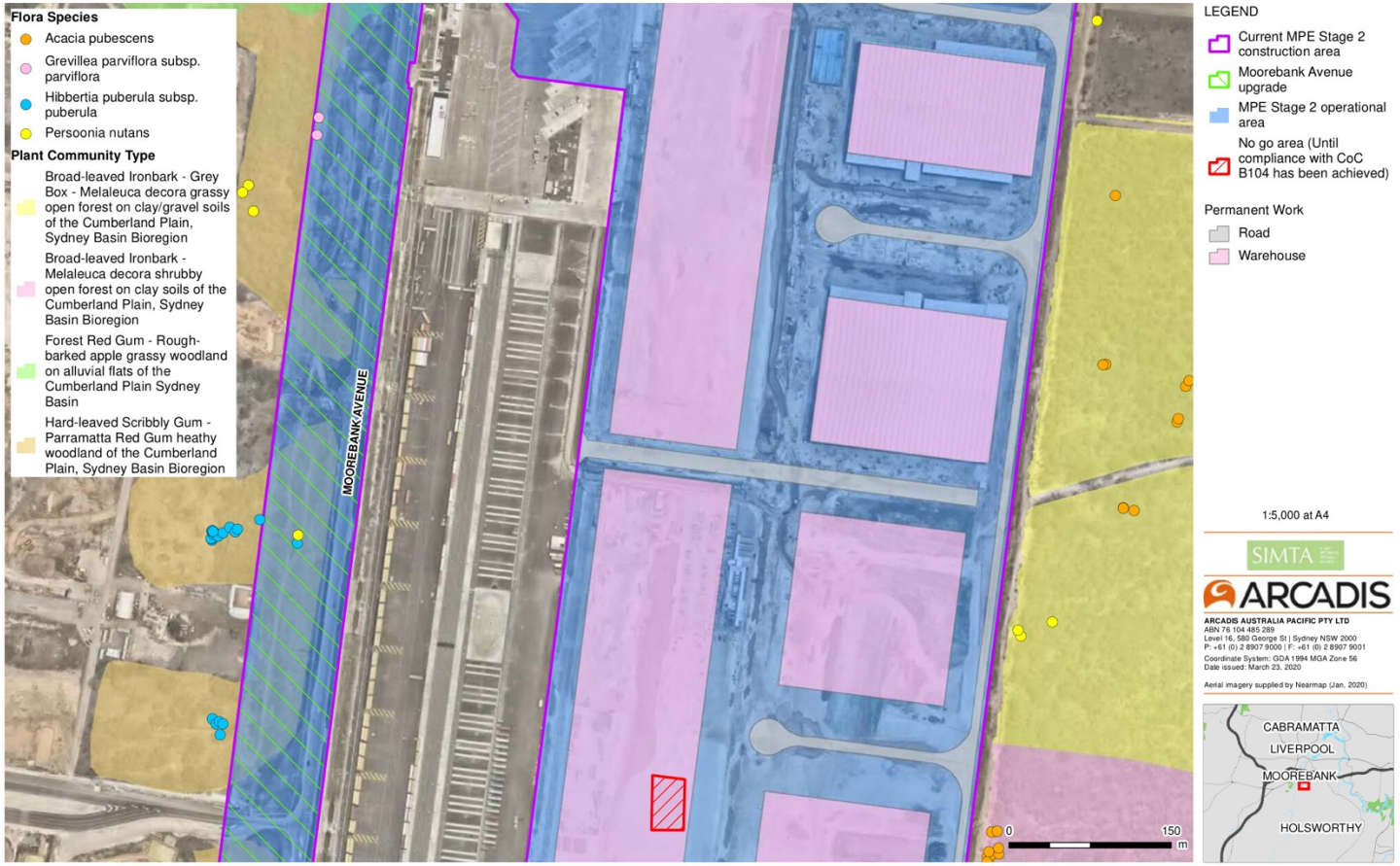

Figure 3-1f: Threatened Flora Species and Plant Community Types - Permanent Infrastructure

Figure 3-1f Threatened Flora Species and Plant Community Types – Permanent Infrastructure

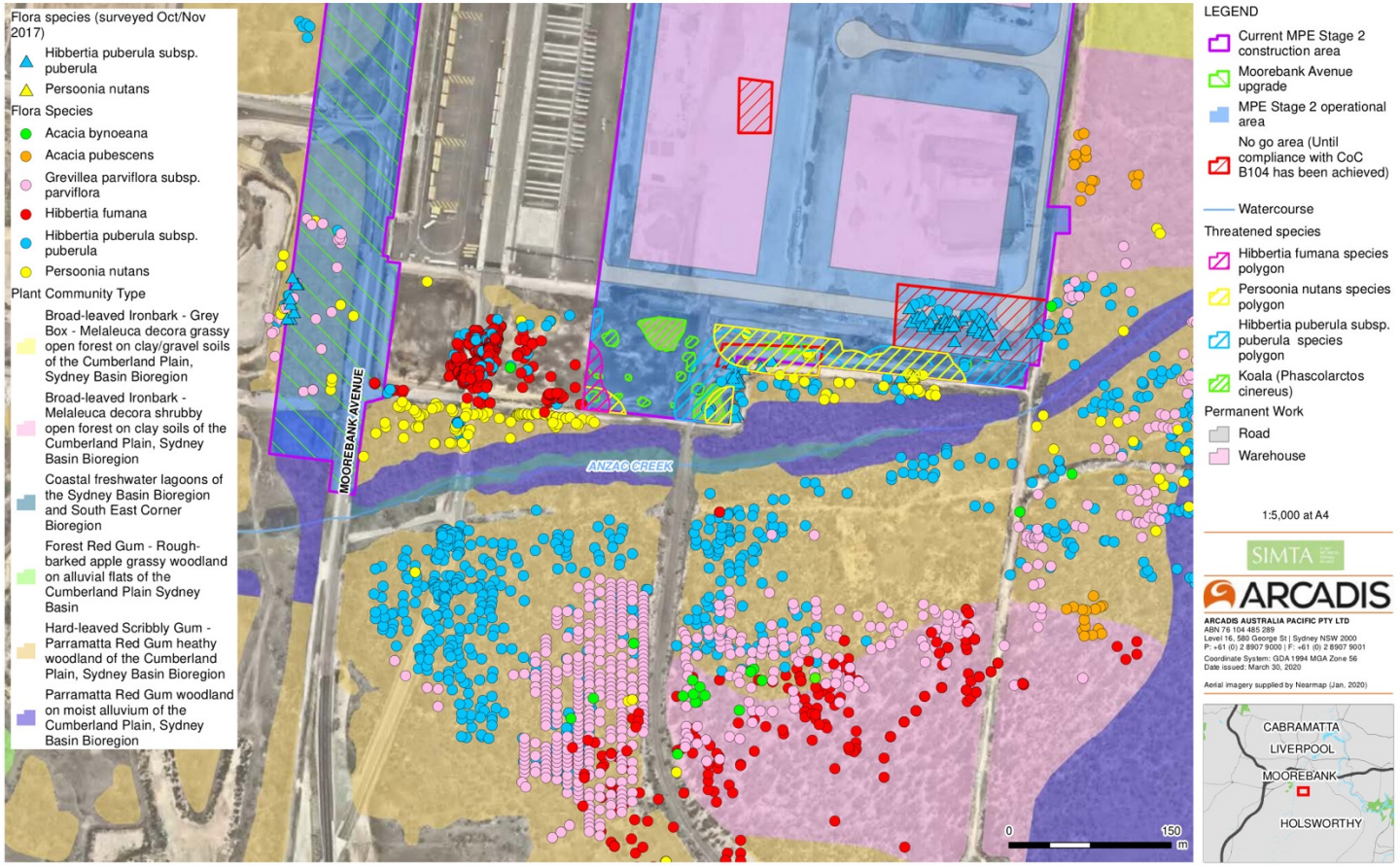

Figure 3-1g: Threatened Flora Species and Plant Community Types - Permanent Infrastructure

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QA by : EH

Figure 3-1g Threatened Flora Species and Plant Community Types – Permanent Infrastructure

3.1.2 Vegetation

Much of the Project supports planted and disturbed vegetation, with the exception of small patches of four different Plant Community Types (PCTs) that mostly occur on the western side of Moorebank Avenue.

3.1.2.1 Planted and Disturbed Vegetation

Planted tree species occur along the verges of Moorebank Avenue and the internal road network, that are typical of cultivated eucalypts that are commonly found as mature street trees in suburban Sydney, with *Eucalyptus microcorys* (Tallowwood), *E. saligna* (Sydney Blue Gum), *Corymbia maculata* (Spotted Gum) and *C. citriodora* (Lemon-scented Gum) frequently recorded. The groundlayer in non-paved areas consists of mown grass lawns, dominated by exotic grass species, with native grass species persisting in some locations. In the south of the Project site is a network of drainage channels with some tree plantings and some apparent tree and shrub regeneration. These channels support a mixture of native, non-local native and exotic trees and shrubs.

3.1.2.2 Plant Community Types

Four native PCTs occur within the Project site (refer to Table 22). Each of these four PCTs are equivalent to Threatened Ecological Communities (TECs) listed under the BC Act and/or EPBC Act. The distribution of these PCTs is shown on Figure 3-1.

Table 22 Plant Community Types Occurring in the Project Site

Plant Community Type	Equivalent Threatened Ecological Community	Status under BC Act	Status under EPBC Act	Area in Project
Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin:	Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion	Vulnerable	Endangered	4.00 ha
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	Critically Endangered	0.05 ha
Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin:	Castlereagh Swamp Woodland	Endangered	-	0.22 ha
Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin:	River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and Southeast Corner bioregions	Endangered	-	0.59 ha

A small, isolated patch of Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland adjoins the disused rail line in the south-east of the project, which supports mature trees of *E. sclerophylla* (Hard-leaved Scribbly Gum) and numerous shrubs of *Acacia* spp., *Allocasuarina littoralis* (Black She-

oak), *Hakea salicifolia* (Willow Hakea) and *Melaleuca nodosa* (Ball Honey-myrtle). Small patches of this woodland also occur along the western margin of the project, on the western side of Moorebank Avenue.

A small area of Broad-leaved Ironbark - Melaleuca decora shrubby open forest occurs along the eastern margin of the project, that is part of a much larger area that falls outside of the project. This open forest community is characterised by a canopy of small trees and tall shrubs such as *Angophora bakeri* (Narrow-leaved Apple), *Acacia binervia* (Coast Myall), *Acacia parramattensis* (Parramatta Wattle) and *Melaleuca decora* (White Feather Honeymyrtle).

A small area of Parramatta Red Gum Woodland occurs within the south-west corner of the project, on the western side of Moorebank Avenue. This woodland is characterised by a canopy of *Melaleuca linariifolia* (Flax-leaved Paperbark), *Casuarina glauca* (Swamp Oak) and *Leptospermum trinervium* /Flaky-barked Tea-tree).

Small patches of Forest Red Gum – Rough-barked Apple grassy woodland occurs in the north-western corner of the Project site, on the western side of Moorebank Avenue. This woodland is characterised by *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus amplifolia* (Cabbage Gum), *Angophora floribunda* (Rough-barked Apple), *Bursaria spinose* (Blackthorn, Boxthorn), *Breynia oblongifolia* (Coffee bush), *Leucopogon juniperinus* (Prickly Beard-heath), *Jacksonia scoparia* (Winged Broom-pea), *Acacia spp.,* and *Exocarpos cupressiformis* (Cherry Ballart).

3.1.3 Threatened Fauna Species

No threatened fauna species have been identified in the Project site. Locally occurring threatened fauna species have been determined to have a low likelihood of occurring on the Project site, due to an absence of preferred nesting, sheltering and/or roosting habitat.

Koalas are known to occur within the Bootland, to the south and east of the MPE Stage 2 site. There are some eucalypt trees within the MPE Stage 2 site which are considered be feed tree species and therefore provide potential foraging resources for Koalas. Notwithstanding, Koalas or evidence of use by Koalas, has not been detected within the MPE Stage 2 or MPE Stage 2 Mod 2 site.

3.1.4 Fauna Habitat

Fauna habitat features identified in the Project site are summarised in Table 23 and hollow bearing trees are shown in Figure 3-2 These habitat features offer foraging, sheltering, nesting and roosting resources to a variety of native fauna species.

Table 23 Fauna Habitat Features Occurring in the Project Site

Habitat Feature	Location	Comments
Flowing and fruiting trees and shrubs	Occur throughout the Project site, in planted and disturbed areas and within patches of native vegetation mapped as PCTs	Foraging, sheltering and roosting habitat to birds Noisy Miner (*Manorina melanocephala*), Raven (*Corvus coronoides*), Pied Currawong (*Strepera graculina*) and Magpie Lark (*Grallina cyanoleuca*). Foraging habitat for Grey-headed Flying Fox (*Pteropus poliocephalus*)
Groundlayer habitats, including leaf litter and ground timber	Associated with patches of native vegetation mapped as PCTs	Foraging and sheltering habitat to small mammals and reptiles such as Eastern brown snake (*Pseudonaja textilis)*

Habitat Feature	Location	Comments
Mown grassy areas	Occur throughout the Project site, in planted and disturbed areas	Foraging habitat for ground-feeding birds such as White-winged Chough (*Corcorax melanorhamphos*), Red-rumped parrot (*Psephotus haematonotus*) and Magpie Lark (*Grallina cyanoleuca*)
Drainage channels supporting aquatic and fringing vegetation	A network of formalised drainage channels is located in the south of the Project site that drain into the native vegetation to the east of the Project site	Foraging and sheltering habitat for reptiles and amphibians such as Common Eastern Froglet (*Crinia signifera*)
Hollow-bearing trees	Four hollow-bearing trees are located within the Project site	Small hollows or bark fissures offer roosting and sheltering habitat to hollow-dependant microbats, arboreal mammals and birds such as Rainbow Lorikeet (*Trichoglossus haematodus*) and Scaly-breasted Lorikeet (*Trichoglossus chlorolepidotus*)
Koala feed trees	Scattered throughout the southern portion of the extended Mod 2 boundary	A total of 0.19 ha PCT 883 vegetation and 0.10 ha of scattered feed trees occurs within the Mod 2 boundary including Hard-Leaved Scribbly Gum and Parramatta Red Gum.
Warehouse buildings	Warehouses, sheds and other built structure of various sizes are located throughout the Project site	Marginal roosting habitat to microchiropteran bats that may occupy man-made structures, such as Gould's Wattled Bat (*Chalinolobus gouldii*)

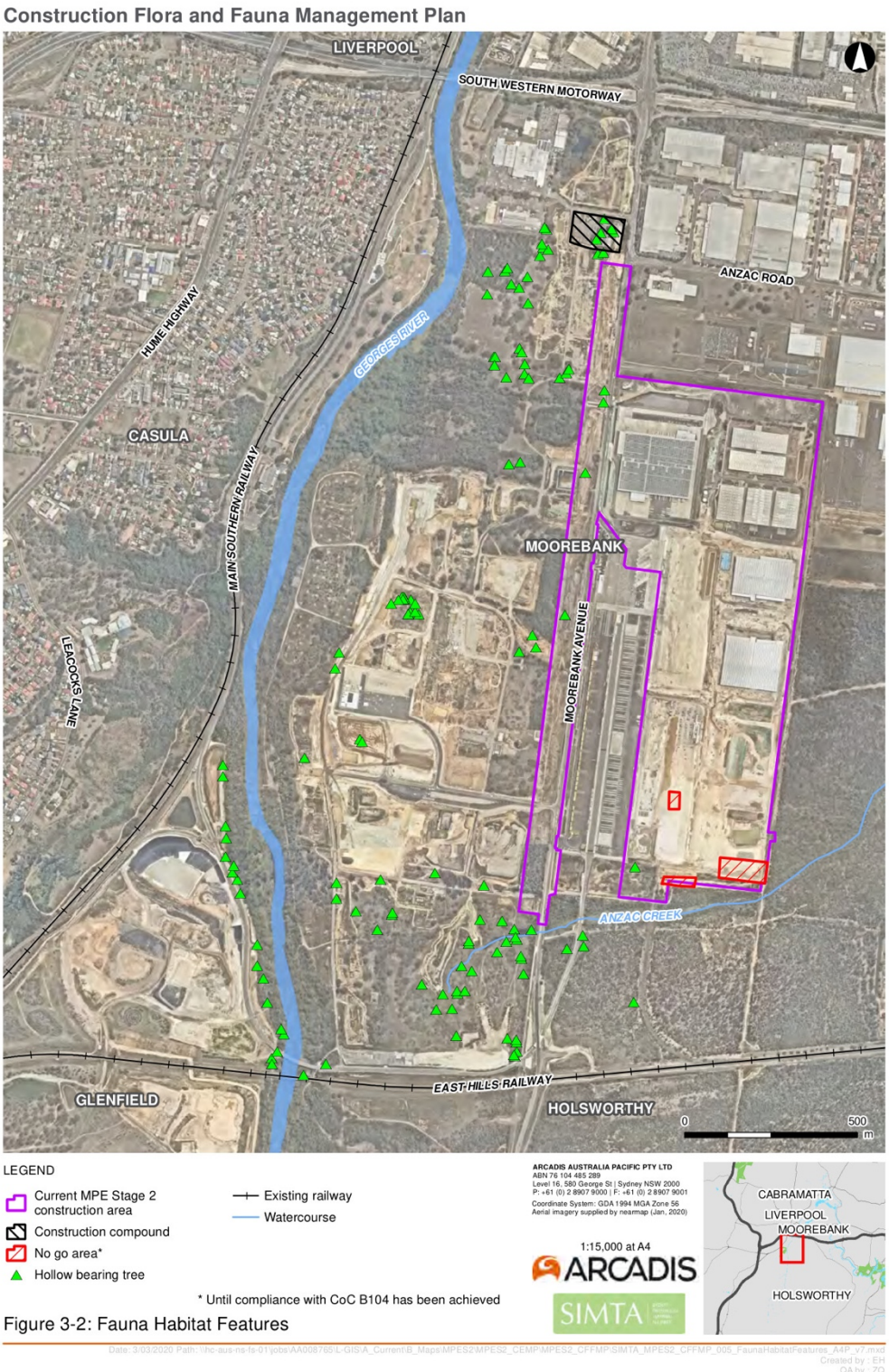

Figure 3-2: Fauna Habitat Features

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Created by : EH
QA by : ZQ

Figure 3-1 Fauna Habitat Features

The Project site is located within a relatively industrialised and urbanised landscape. Single, isolated trees or patches of trees amongst expanses of mown exotic and native grasses in planted and disturbed areas do not maintain connectivity with larger areas of habitat to the east and south of the Project site. Patches of native vegetation (mapped as PCTs) adjoining Moorebank Avenue maintain some connectivity to other similar vegetation on the MPW site, which also occurs in a patchy/fragmented state. The fragmented habitat within the Project site is further isolated from adjacent habitat due to the presence of significant barriers to fauna movement such as Moorebank Avenue and the chain-mesh fencing surrounding the Project site.

3.2 Aspects, Impacts and Risks

Impacts of the Project on biodiversity were assessed by the *Moorebank Precinct East-Biodiversity Assessment Report* (Arcadis 2017), which was prepared in accordance with the NSW *Framework for Biodiversity Assessment* (FBA) (OEH 2014). Cumulative impacts associated with the Project are assessed in Section 3.3.

The Aspects and Impacts Register can be found in Appendix C of the CEMP.

3.2.1 Construction Activities

The Project's construction activities will have a direct impact on biodiversity values that are located in the Project's construction footprint, and may have indirect impacts on biodiversity values located on land that adjoins the construction footprint. The most significant construction activities that would impact biodiversity include:

- Clearing of vegetation
- Demolition of buildings
- Earthworks including excavation and grading of topography
- Stockpiling of building / construction waste and spoil
- Plant maintenance.

3.2.2 Construction Impacts

A summary of impacts that are likely to result from construction of the Project is provided in Table 24. The extent or scale of the impact generally relates to biodiversity impacts that occur within the construction footprint that would be directly impacted by construction activities.

Table 24 Construction Impacts on Biodiversity

Construction Activity	Description of Impact	Extent / Scale of Impact
Direct Impacts		
Vegetation clearing	Clearing of four TECS from the construction footprint	4.02 ha Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion
		0.05 ha Cooks River – Castlereagh Ironbark Forest in the Sydney Basin Bioregion
		0.22 ha Castlereagh Swamp Woodland

Construction Activity	Description of Impact	Extent / Scale of Impact
		0.59 ha River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and Southeast Corner bioregions
	Clearing of four threatened flora species from the construction footprint	79 *Grevillea parviflora* subsp. *parviflora*
		A total of 3.49 ha including Mod 2.
		12 *Persoonia nutans* for MPE Stage 2 and a total of 0.70 ha as a result of Mod 2
		0.14 ha of *Hibbertia Fumana* as a result of Mod 2
	Loss of fauna habitat resources offered by native trees, shrubs and groundcovers that will be cleared from the construction footprint	4.88 ha of native vegetation (total).
		Four hollow-bearing trees
	Increase in fauna habitat fragmentation due to the removal of vegetation from the construction footprint	Removal of existing tenuous connectivity offered by scattered trees and small patches of native vegetation
Demolition of buildings	Loss of potential microbat roosting habitat offered by buildings that will be demolished in the construction footprint	Potential microbat roosting habitat offered by all buildings in construction footprint
Indirect Impacts		
Earthworks	Changes in runoff and redirection of flows resulting in altered natural flow regimes and/or sedimentation and erosion of nearby waterways and native vegetation.	Anzac Creek, that is located approximately 40 metres south of the Project site. Native vegetation occurring in the Bootland, that directly adjoins the Project site to the east and south.
	Degradation of retained vegetation and fauna habitat due to dust and mobilisation of particulates generated by earthworks	Native vegetation and fauna habitat occurring in the Bootland, that directly adjoins the Project site to the east and south.
Activities involving people, vehicles and plant	Injury or mortality of fauna resulting from collisions with vehicles or plant, or accidental entrapment in plant, trenches or other earthworks.	Fauna species that may occur within the Project site on a temporary or occasional basis
	Infection of native plants by *Phytophthora cinnamomi,* by infected soil or plant material adhering to and being	Native vegetation occurring in the Bootland, that directly adjoins the Project site to the east and south.

Construction Activity	Description of Impact	Extent / Scale of Impact
	transferred by vehicles, people (clothes or shoes), animals, or by percolating through the soil, in creeks or storm runoff.	
	Introduction and spread of weeds facilitated by vehicles and plant transporting weed propagules into the construction site.	Native vegetation occurring in the Bootland, that directly adjoins the Project site to the east and south.
	Degradation of waterways, retained vegetation and fauna habitat due to chemical and/or fuel spills from plant, vehicles or other construction equipment	Anzac Creek, that is located approximately 40 metres south of the Project site. Native vegetation and fauna habitat occurring in the Bootland, that directly adjoins the Project site to the east and south.
Material stockpiling	Reduction in air quality due to dust and mobilisation of particulates generated by stockpiling activities	Native vegetation and fauna habitat occurring in the Bootland, that directly adjoins the Project site to the east and south.

3.3 Cumulative Impacts

Assessment of potential cumulative biodiversity impacts was undertaken by Arcadis during preparation of the EIS (Appendix O of the EIS). This assessment included the use of database searches, literature and mapping reviews and numerous field surveys.

The assessment found that the development of the MPE Stage 2 site in conjunction with other construction phases associated with the Moorebank East Precinct requires the clearing of vegetation which will reduce or remove a range of biodiversity values. This may include available fauna habitat (roosting, nesting and foraging habitat), potential threatened fauna habitat, threatened flora species, *Biodiversity Conservation Act 2016* listed Threatened Ecological Communities, local provenance plant species and potential seedbanks.

Given the modified and fragmented nature of fauna habitat in the Project site, potential impacts on these species are considered likely to be minimal, and mainly comprise removal of marginal foraging, sheltering and roosting habitat. As a result, cumulative impacts to threatened fauna species are also considered to be unlikely.

Management measures (see Section 0) will be implemented prior to, during and after construction to avoid and minimise impacts on flora and fauna species located on the Project site. Impacts on flora species will be limited with appropriate implementation of the measures and, as such cumulative impacts are also anticipated to be unlikely.

3.4 Management Measures

3.4.1 Management of Construction Impacts

Management actions prescribed by this CFFMP aim to avoid and minimise impacts on biodiversity. Note that the direct impacts listed in Table 24 are unavoidable impacts, and the loss of threatened flora species and threatened ecological communities will be offset in accordance with a comprehensive Biodiversity Offset Strategy (BOS) that is being prepared for the Project Site.

Management measures to be implemented prior to, during and after construction are prescribed in Table 25.

Table 25 Management Measures

ID	Management Measure	Timing	Responsibility	Reference
Pre-construction Management Actions				
FF1	To minimise the extent of native vegetation clearing upon Commonwealth Land and the clearing of Nodding Geebung and Small-flower Grevillea clearing limits, No-Go zones and the Project boundary will be identified on all design, construction and operational drawings as well as sensitive area drawings. Clearing limits will be delineated by installing highly visible barrier or tape with "No-Go signage" as shown on the drawings. The southern and eastern boundary of the construction footprint will be located at least 10 metres from the edge of the area of habitat within the Bootland.	Check and verify limits two weeks prior to the commencement of clearing. Highly visible flagging tape or fencing that delineates vegetation to be retained will be maintained until the date of construction completion.	Contractor's EM Site Supervisor	CoC A7 CoC B103(b) CoC B108(e) FCMM4A FCMM4B MPE C'th CoA - 5(e) MPW C'th CoA - 7(b) MPWS1 REMM 6A
FF2	All trees within the construction footprint that could potentially be used by resident and migratory fauna as habitat (eg hollow-bearing trees) will be marked as follows (with spray paint on their trunks in a visible location)**:** **'H'** = Habitat Tree. If hollow-bearing or habitat trees are identified as requiring removal, the two-staged clearing process outlined in Appendix A is to be implemented and the clearing supervised by an ecologist. **O** = Ecologist has assessed the tree and it is ready for removal. **O** = Ecologist has assessed the tree and it requires pre-inspection immediately prior to, and during removal. Where feasible, clearing of habitat trees (as outlined in Appendix A) will be undertaken in March-April to avoid microbat and hollow-dependent bird breeding seasons	Two weeks prior to the commencement of clearing	Contractor's EM Project Ecologist	CoC B108(b) CoC B109 FCMM 4D MPE C'th CoA - 5(f) MPWS1 REMM 6E MPW C'th CoA - 7(b)

ID	Management Measure	Timing	Responsibility	Reference
	In this instance, examples of “where feasilble” include: • When pre-clearing surveys identify no species present within habitat trees • Where time restrictions do not allow but clearing of habitat trees can be mitigated through the appropriate management measures detailed in Table 25 and the Clearing Protocol located in Appendix A.			
FF2.1	Vegetation will be cleared from a 10m radius around habitat trees to encourage animals roosting in hollows to leave the tree.	During clearing	Contractor’s EM Project Ecologist	MPE C’th CoA - 5(f) MPWS1 REMM 6E MPW C’th CoA - 7(b)
FF2.2	Native vegetation will be reused on the Project site as mulch in erosion and sediment control or landscaping. Where practicable, important habitat elements (e.g. large woody debris) will be moved from the construction area within the conservation area which would not be cleared during the Project, or to stockpiles for later use in vegetation/habitat restoration. Non-native vegetation will be removed from the Project site to an approved green waste facility. In this instance, an example of “where practicable” includes: • Where relocating important habitat elements would require clearing of existing native vegetation in order to relocated to a conservation area.	During construction	Contractor’s EM Project Ecologist	CoC B108(c) MPE C’th CoA - 5(h) MPWS1 REMM 6A MPW C’th CoA - 7(b)
FF2.3	Weeds, pests and vermin will be managed in accordance with the Weed, Pest and Vermin Management Protocol (Appendix B).	During construction	Contractor’s EM Project Ecologist	CoC B127(a)(b) MPE C’th CoA - 5(h) MPWS1 REMM 6A

ID	Management Measure	Timing	Responsibility	Reference
FF2.4	The Project site will be kept tidy for vermin control.	During construction	All construction site personnel	CoC B127(a) MPWS1 REMM 6A
FF2.5	Work occurring underneath the drip zone of EEC must be managed in accordance with the Drip Zone Protocol (Appendix E)	Prior to commencement of works within the drip zones of EECs	All construction site personnel	CoC B108
FF3	Identify nearby habitat suitable for the release of fauna that may be encountered during the pre-clearing process, such as fauna habitat contained within the Bootland to the east and south of the Project site.	Two weeks prior to the commencement of clearing	Contractor's EM Project Ecologist	Best Practice
FF4	Appropriate drainage infrastructure (e.g. sediment basins, diversion drains), erosion and sediment controls will be constructed during the initial stages of construction, in accordance with the Construction Soil and Water Management Plan (CSWMP) and the Construction Erosion and Sediment Control Plan (CESCP). Temporary mitigation measures for soil and water management control during construction will include, but will not be limited to the following: sediment fencing, diversion drains, geotextile fabric, sediment control basins and gravel shaker ramps for construction traffic.	Prior to the commencement of clearing	Contractor's EM Site Supervisor	MPE C'th CoA - 5(e) MPWS1 REMM 6A CMM - Biodiversity
FF5	Pre-clearing fauna surveys will be undertaken in accordance with the Clearing Protocol provided in Appendix A.	Two weeks prior to vegetation clearing/demolition of buildings	Contractor's EM Project Ecologist	CoC B103(b) CoC B108(b) CoC B109 FCMM 4D MPWS1 REMM 6A MPW C'th CoA - 7(b)

ID	Management Measure	Timing	Responsibility	Reference
FF5.1	In order to manage the potential presence of koalas within the MPE Stage 2 site, the koala management measures outlined in the Clearing Protocol provided in Appendix A will be followed.	Prior to the commencement of each day of clearing	Contractor's EM Project Ecologist	Best Practice
FF5.2	Site fencing will be designed to minimise the entry of koalas onto the site or entrapment of koalas already present on site. Site boundary fencing will be used to prevent koala entry to the site from adjacent land while allowing any koalas present to exit the site. Appropriate boundary fence design will be specified by the Project Ecologist and may include using a strip of Colorbond or Perspek (or equivalent) sheeting on the outside face of fencing to prevent koalas from climbing the fence to enter the site.	Two weeks prior to vegetation clearing	Contractor's EM Project Ecologist	Best Practice
FF6	Nest boxes and microbat roost boxes will be installed in vegetation to be retained within the precinct, to compensate for the loss of hollow-bearing trees from the construction footprint (see 0).	Two months prior to vegetation clearing/demolition of buildings	Contractor's EM Project Ecologist	CoC B108(a) CoC B108(b) MPWS1 REMM 6A CMM - Biodiversity
FF7	Site fencing and overhead powerlines will be designed and constructed to minimise the potential for collision by birds and bats		Contractor's EM	MPWS1 REMM 6A MPW C'th CoA - 7(b)
FF8	Additional construction areas, such as site offices, construction stockpile locations and machinery/equipment laydown areas will be located within cleared or disturbed areas.		Contractor's EM	CMM – Biodiversity
Construction Management Actions				
Pre-start / Induction				
FF9	All site personnel involved in construction activities must be inducted during Toolbox Talks on the requirements of this CFFMP prior to commencing work on the Project site. Site personnel are to be:	Immediately prior to the commencement of construction activities	Contractor's EM Site Supervisor	FCMM 4A MPWS1 REMM 6A

ID	Management Measure	Timing	Responsibility	Reference
	• Made aware of the clearing limits and how they are marked • Informed that they are not to encroach on areas beyond the clearing limits • Are to be informed of the two-stage clearing process for hollow-bearing trees • Made aware of the locations of threatened flora species, Threatened Ecological Communities and vegetation to be retained, measures required to protect them, and the consequences of damage to these areas • Made aware of the local fauna that may occur on the Project site • Made aware of the Unexpected Finds Procedure, pertaining to threatened flora and fauna species that may be found on the Project site • Informed of bushfire hazards and risks, and made aware of the Bushfire Management Plan and the Bushfire Emergency and Evacuation Plan • Informed of spill management procedures (e.g. fire and chemical / fuel spills) in the CSWMP. • Informed of the incident response procedures in the Construction Environmental Management Plan (CEMP).			MPE C'th CoA – 5(e) and (h) MPW C'th CoA - 7(b)

ID	Management Measure	Timing	Responsibility	Reference
Vegetation Management Actions				
FF10	On declared 'Total Fire Ban' days, hot works will not be undertaken and there will be no: • Grass or vegetation reduction works (including mowing/slashing) • Arborist works (chainsaw) • Vehicle operations in long grass.	During construction	Contractor's EM Site Supervisor	MPWS1 REMM 6A MPE C'th CoA – 5(h) MPW C'th CoA - 7(b)
FF11	Earthworks (and certainly all works in the vicinity of Anzac Creek) will not be undertaken during wet weather conditions. Clearing of vegetation will not be undertaken during overland flow events.	During construction	Contractor's EM	MPWS1 REMM 6A CSWMP CESCP
FF12	Soil or mulch stockpiles will be located away from key stormwater flow paths to limit potential transport of these substances into nearby watercourses (such as Anzac Creek) via runoff.	During construction	Contractor's EM	MPWS1 REMM 6A CMM – Biodiversity MPW C'th CoA - 7(b)
FF13	Soil stripped and stockpiled from areas containing known weed infestations are to be stored separately and are not to be moved to areas free of weeds.	During construction	Contractor's EM	CMM – Biodiversity
FF14	No spoil, excavated material, plant or equipment is to be stockpiled or stored within the delineated "No-Go" zones	During construction	Contractor's EM	MPE C'th CoA - 5(e) MPWS1 REMM 6A Best Practice
FF15	Dust suppression activities will be undertaken to minimise degradation of retained vegetation on land adjoining the Project site.	During construction	Contractor's EM	MPWS1 REMM 6A CMM – Biodiversity

ID	Management Measure	Timing	Responsibility	Reference
FF16	Stabilisation of disturbed areas, including mulching will be undertaken as soon as practicable after disturbance.	During construction	Contractor's EM	CMM - Biodiversity
FF17	Management of spills or leaks will be undertaken in accordance with the Emergency Spill Response in the CSWMP.	During construction	Contractor's EM	FCMM 6E MPWS1 REMM 6A
FF18	Frequent maintenance of construction machinery and plant will be undertaken to minimise noise and the risk of fuel spills.	During construction	Contractor's EM	MPWS1 REMM 6A Best Practice
FF19	Vehicles, equipment, materials and footwear will be clean on entry (free of soil, mud and/or seeds) to minimise the introduction or spread of *Phytophthora cinnamomi.* A wheel wash is to be established at the site access as per the CESCP.	During Construction	Contractor's EM	CoC B127 MPWS1 REMM 6A
FF20	To ensure that no more than 17 individual Nodding Geebungs and no more than 634 Small-flower Grevillea are cleared the following will be undertaken: • Recording of individuals cleared of each species cumulatively Reconciling of totals of individuals of each species cleared against MPES1 and MPES2 cumulatively.	During Construction	Contractor's EM	MPE C'th CoA 5(d)
FF21	An ecologist will supervise the drainage of any waterbodies on the Project site and will relocate native fish (e.g. eels), tortoises and frogs to the edge of the Georges River and/or the existing pond at the northern end of the Project site.	During construction	Project Ecologist	Best practice
Fauna Management Actions				
FF22	Prior to the demolition of buildings located in the construction footprint, the project ecologist will carry out targeted	One week prior to demolition	Contractor's EM	FCMM 4C

ID	Management Measure	Timing	Responsibility	Reference
	microchiropteran bat (microbat) surveys of the buildings to be demolished, as described in Clearing Protocol (Appendix A).		Project Ecologist	MPWS1 REMM 6A
FF23	A pre-start up check for sheltering native fauna in all infrastructure, plant and equipment and/or during relocation of stored construction materials, will be undertaken.	Daily, prior to commencement of works	Contractors	FCMM 4A
FF24	A site speed limit of 20km/h will be adhered to by all personnel to minimise the potential for fauna to be struck by a vehicle within the construction areas. All vehicles and plant in operation during construction will adhere to site rules relating to speed limits.	During Construction	All construction site personnel	FCMM 4A MPWS1 REMM 6A
FF25	No personnel on site are permitted to hunt, fish, feed, capture, extract or otherwise disturb aquatic, animal or vegetative species while performing any tasks in performance of the work.	During Construction	All construction site personnel	MPWS1 REMM 6A Best Practice
FF26	If a threatened species is identified in the Project site, management of that species is to be carried out in accordance with the Unexpected Find Procedure provided in Appendix C.	During Construction	All construction site personnel	CoC B108(d) MPWS1 REMM 6A
FF26	If any animal is injured the Contractor's EM will contact the relevant local wildlife rescue agency (e.g. WIRES) and/or local veterinary surgery as soon as practical. • WIRES: 1300 094 737 • Sydney Wildlife Rescue: 9413 4300 • Moorebank Veterinary Hospital: 8798 4859 • Liverpool Veterinary Hospital: 9602 6015. Until the animal can be cared for by a suitably qualified animal handler, if possible, minimise stress to the animal and reduce the risk of further injury by: • Handling fauna with care and as little as possible	If injured terrestrial animals are found prior to or during clearing activities	All construction site personnel	FCMM 4F MPWS1 REMM 6A

ID	Management Measure	Timing	Responsibility	Reference
	• Covering large animals with a towel or blanket and placing in a large cardboard box • Placing small animals in a cotton bag, tied at the top. Keeping the animal in a quiet, warm, ventilated and dark location. • In the case of arboreal or flying mammals, attempts will be made to relocate the den or nest. After capture, the animal(s) will be held by a trained wildlife carer for a period of no longer than two weeks until the roost or den can be relocated, either as an entire tree or part thereof.			
FF28	Directional lighting will be used where lighting is required in construction areas to avoid impact on fauna.	During construction	Contractor's CM Site Supervisor	FCMM 4E MPWS1 REMM 6A
FF29	Fauna microhabitat such as logs will be relocated from areas to be cleared to suitable nearby bushland areas, under the supervision of the Project Ecologist.	During construction	Contractor's EM Project Ecologist	CMM - Biodiversity
FF30	Where possible, any pits/trenches that are to remain open overnight, are to be securely covered. Alternatively, fauna ramps (logs or wooden planks) are to be installed to provide an escape for trapped fauna. In this instance, examples of "where possible" include: • In an emergency situation, such as a bushfire alert, may arise and all staff are required to evacuate site and pits and trenches remain open • Where pits and trenches are fenced off and fauna is excluded from the work area	During construction	Contractor's EM	CMM - Biodiversity
Dust impacts on flora and fauna				
FF31	Dust impacts on flora and fauna will be minimised by the following: • Completing rehabilitation as quickly as possible	During construction	Contractor's EM	CMM - Biodiversity

ID	Management Measure	Timing	Responsibility	Reference
	• Minimising the number of stockpiles on site • Using water carts for dust suppression during road construction • Coordinating delivery and removal of material to avoid unnecessary trips			
Upon Completion of Construction				
FF32	Disturbed areas will be stabilised by using mulch and / or temporary vegetation cover to mitigate potential erosion and prevent the establishment of weed species.	As soon as practicable after disturbance	Contractor's EM Site Supervisor	MPWS1 REMM 6A CESCP
FF33	Where soil has been compacted, ripping may be required prior to re-spreading topsoil and/or seeding.	As soon as practicable after disturbance	Contractor's EM Site Supervisor	Best Practice
FF34	Revegetation by seeding will utilise native species of local provenance. Where possible winter-flowering trees would be preferentially planted in landscaped areas to provide a winter foraging resource for migratory and nomadic nectar-feeding birds and the Grey-headed Flying-fox. In this instance, an example of "where possible" includes: • When the approved operational Urban Design and Landscape Plan for MPES2 requires planting of different species.	As soon as practicable after disturbance	Contractor's EM Site Supervisor	MPWS1 REMM 6A MPW MMM 6L MPW C'th CoA - 7(b) Best Practice
Monitoring				
F35	Monitoring of the Project site to be undertaken in accordance with Section 4.1 of this plan.	During construction	Contractor's EM	CoC B127(c) MPWS1 REMM 6A

3.4.2 Translocation of Threatened Flora Species

Translocation is defined as the "deliberate transfer of plant material from one area to another for conservation purposes" (Vallee et al. 2004). The three threatened species that are located within the construction footprint could be considered as candidates for translocation:

- 79 Grevillea parviflora subsp. parviflora
- 110 Hibbertia puberula subsp. puberula
- 12 Persoonia nutans.

Translocation is not considered a mitigation measure under the EPBC Act and the flora individuals to be removed/translocated would still be considered to be directly impacted by the project. This impact will be compensated by the implementation of the Biodiversity Offset Strategy (BOS) that is being prepared for the MPE Project.

Translocation of threatened plants should be considered for those individuals that are located within the construction footprint that would otherwise be removed as part of clearing activities, and that have suitable life history traits that make translocation a viable option. Successfully translocating threatened flora from the construction footprint (instead of clearing them) could preserve the genetic diversity of the species and contribute towards the long-term viability of the species. Monitoring of the translocated individuals would be required to measure success.

Translocation of the three threatened species located within the construction footprint would require consultation with OEH and the preparation of a Flora Translocation Feasibility Study, prior to the commencement of clearing.

3.4.3 Nest Boxes

Nest boxes have been installed as a result of vegetation clearing, specifically the removal of hollow-bearing trees that provide habitat for hollow dependent fauna, progressively undertaken across the Moorebank Precinct (both MPE and MPW). Nest boxes were installed in accordance with the requirements within the Nest Box Management Strategy (NBMS) (Appendix D of the MPE Stage 1, Package 2 CFFMP). The MPE Stage 2 (SSD 7628) NBMS was adapted from the MPE Stage 1 (SSD 6766) NBMS in accordance with the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) Approval (2011/6299) and CoC B108(a) and (b).

To satisfy nest box monitoring required in accordance with the MPE Stage 1 NBMS, nest box monitoring was undertaken across both MPE and MPW in November 2018 by Arcadis Ecologists in order to assess the condition and number of nest boxes across these sites.

Based on these investigations, a memorandum (Appendix F) was developed on 8 February 2019 to consider the requirement to install additional nest boxes at the Moorebank Logistics Park (MLP). The memorandum provided a review of nest boxes installed to date and assessed the values and risks associated with the installation of additional nest boxes at MLP.

This advice, based on investigations and approval conditions, recommended that no additional nest boxes be installed for the following reasons:

- The total number of nest boxes installed within the Georges River Corridor exceeds the recommended densities (i.e.- is oversaturated), favouring over-abundant, adaptable and/or aggressive species which outcompete less tolerant native species
- Availability of tree hollows and installation of nest boxes within the Bootland currently meet benchmark conditions so that additional supplementary nest boxes are not required

- In addition to the above, there is no suitable woodland present in the rail corridor and the southern Bootland has recently been burned; presenting installation risks, as well as risks to the highly sensitive land
- No threatened hollow-dependent fauna was recorded and therefore no habitat for these species will be removed. All hollows are in landscape planted trees in highly disturbed cleared or developed lands which do not provide habitat for threatened fauna
- Installation of nest boxes is likely to benefit over-abundant highly adaptable species to the detriment of other fauna, as observed during monitoring in November 2018.

Based on this advice, no further nest boxes will be installed for the MPE Stage 2 site.

4 MONITORING AND REVIEW

4.1 Monitoring

Daily site inspections will be undertaken by the Site Supervisor (or delegate) and documented. Any maintenance of controls will be recorded in site diaries during active site works.

Monitoring is required to ensure the effectiveness of the management measures outlined in Section 3.3 of this CFFMP. Monitoring under this CFFMP will be undertaken by the Contractor's EM (or delegate) during construction to monitor compliance with the requirements of the CoC and this CCFMP. Monitoring activities for the Project site is prescribed in Table 26. Daily inspections will be recorded in site diaries during construction, and any failures in management measures will be rectified within 48 hours of identifying the failure.

Table 26 Monitoring Activities

Monitoring Activity	Frequency	Responsibility
Inspect the delineation of "NO-GO" areas, to ensure that the clearing boundary (e.g. high visibility flagging tape) is intact and clearly visible	Daily	Contractor's EM
Inspect areas immediately adjoining the clearing boundary (i.e. within "NO-GO" areas), to ensure no material stockpiling, plant or equipment storage is located within a "NO-GO" area	Daily	Contractor's EM
Inspect sediment control measures (sediment fencing) to ensure all measures are intact and functioning properly, to avoid indirect impacts on adjoining areas	Weekly, and as soon as practical following rainfall	Contractor's EM
Inspect cleared and disturbed areas, to confirm that appropriate stabilisation measures have been implemented (e.g. placement of mulch and/or revegetation by seeding)	Weekly	Contractor's EM
Inspect cleared and disturbed areas to identify the presence of establishing weeds and assess the effectiveness of weed controls	Weekly	Contractor's EM
Inspect Project site to determine whether noxious weeds, vermin and pest species pose an environmental hazard, cause the loss of amenity in the surrounding area and/or require further control.	No less than every three months	Contractor's EM

4.2 Auditing and Reporting

Environmental auditing and reporting of the Project during construction will be undertaken in accordance with Section 4.3 of the CEMP.

4.3 Review and Improvement

Review (both annually and intermittently) and improvement of this plan will be undertaken in accordance with the CoCs and Section 4.5 of the CEMP. Continuous improvement will be achieved by the ongoing evaluation of environmental management performance and effectiveness of this plan.

The continuous improvement process is designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances/non-compliances with this plan or the conditions of approval
- implement corrective and preventative action to address or prevent any actual or potential non-conformances/non-compliances
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparison and assess attainment and maintenance of CEMP objectives and targets.

Revisions of this plan will be undertaken in accordance with Section 1.2.7 of the CEMP. Any modifications to this plan may result from:

- Review of the implementation of this plan
- Audits (either internal or by external parties)
- Changes to the environmental management system
- Changes to the procedures, scope of works and/or systems after an incident or potential incident
- Design changes
- Changes in the CoCs
- Identification of opportunities for improvement of deficiencies in the project system (e.g. through the course of site inspections)
- Following complaints.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the Safety Health and Environmental Management System (SHEMS) document control procedure (outlined in Section 2.3 of the CEMP).

In accordance with CoC C10 and MPW EPBC Approval (2011/6086) this plan will be reviewed annually as a minimum but may be updated more regularly depending on process changes and refinements or where there is identification of hollow bearing trees, unexpected threatened species, or as a result of an environmental incident.

The most recent, approved version of this CFFMP will be implemented during construction of the Project.

4.4 Non-compliances, Non-conformance and Actions

It is the responsibility of all site personnel to report non-compliances and non-conformances to the Site Supervisor and/or the Contractor's EM.

Non-compliances, non-conformances and corrective and preventative actions will be managed in accordance with Section 4.4 of the CEMP. .

APPENDIX A CLEARING PROTOCOL

Purpose

This protocol explains the actions and measures to be implemented prior to the commencement of vegetation clearing in the Project site.

Scope

This protocol is applicable to all vegetation that occurs in the Project site.

Training

All personnel undertaking clearing activities, or directly involved with works, will be trained in this protocol through Toolbox Talks and/or a site induction.

Protocol

Prior to Commencement of Clearing

At least two weeks prior to proposed vegetation clearing the Contractor's Environment Manager (EM) will ensure that the following actions have been implemented. Each action must be checked off by the Project Ecologist (PE) and Contractor's EM.

Pre-clearing Management Action	PE (√)	EM (√)
To minimise the extent of native vegetation clearing upon Commonwealth Land and the clearing of Nodding Geebung and Small-flower Grevillea clearing limits, No-Go zones and the Project boundary will be identified on all design, construction and operational drawings as well as sensitive area drawings. Clearing limits will be delineated by installing highly visible barrier or tape with "No-Go signage" as shown on the drawings. The southern and eastern boundary of the construction footprint will be located at least 10 metres from the edge of the area of habitat within the Bootland.		
Prior to the commencement of clearing, to ensure that no more than 17 individual Nodding Geebungs, 0.33 ha of Nodding Geebungs (required as part of Mod 2) and no more than 634 Small-flower Grevillea are cleared the following will be undertaken: • Confirming the individuals cleared of each species to date • Confirming the totals of individuals of each species cleared against MPES1 and MPES2 cumulatively to date.		
Prior to the commencement of clearing, ensure that all biodiversity credits have been retired in accordance with B104 and B104A		
The Project Ecologist has undertaken an assessment of vegetation within and adjacent to the construction footprint (from which vegetation will be cleared), clearly marking all hollow-bearing trees within the construction footprint as follows: » **'H'** = Habitat Tree. If hollow-bearing or habitat trees are identified as requiring removal the two-staged clearing process outlined below is to be implemented and the clearing supervised by the Project ecologist. » **O** = Ecologist has assessed the tree and it is ready for removal. » **O** = Ecologist has assessed the tree and it requires pre-inspection immediately prior to, and during removal. The tree must be cleared in accordance with the two-staged		

Pre-clearing Management Action	PE (√)	EM (√)
clearing process which is outlined below.		
Where feasible, clearing of hollow-bearing trees would be undertaken in March-April when most microbats are likely to be active (not in torpor) but are unlikely to be breeding or caring for young, and when threatened hollow-dependant birds in the locality are also unlikely to be breeding. In this instance, examples of "where feasible" include: • When pre-clearing surveys identify no species present within habitat trees • Where time restrictions do not allow but clearing of habitat trees can be mitigated through the appropriate management measures detailed in Table 25 of the CFFMP and this Clearing Protocol.		
The Project Ecologist has carried out targeted microchiropteran bat (microbat) surveys prior to the demolition of buildings from the construction footprint. This must involve Anabat surveys carried out for at least one full night (from dusk until dawn) in proximity to buildings that offer potential microbat roosting habitat. If microbats are found to be roosting in a building proposed to be demolition, exclusion measures must be implemented to exclude microbats from that building, so that no microbats are occupying the building when it is to be demolished. Any microbat exclusion methods must be carried out by an appropriately qualified and experienced Ecologist.		
The Project Ecologist is available to be present during the felling of hollow-bearing trees.		
The Project Ecologist has identified weed infestation within the Project site and weeds are managed in accordance with the Weed, Pest and Vermin Management Protocol (Appendix B of this CFFMP).		
Sediment control measures have been installed in accordance with the Soil and Water Management Plan, particularly along the eastern and southern boundary of the Project site so that potential indirect impacts on the adjoining Bootland are mitigated.		
The project ecologist has identified areas suitable for the release of fauna so that, if fauna species are encountered immediately prior do or during clearing activities are relocated to a suitable site. Suitable areas would most likely be contained within the Bootland to the east and south of the Project site, however, the suitability of a relocations site must be confirmed by the Project Ecologist.		
Install nest boxes in woodland vegetation in the rail corridor that may offer alternative nesting habitat to hollow dependent species recorded in the study area.		
Pre-clearing surveys would be conducted 12 to 48 hours before vegetation clearing to search for native wildlife (e.g. reptiles, frogs, Cumberland Land Snail) that can be captured and relocated to suitable adjacent habitat within the Wattle Grove Offset Area. After a period of 48 hours, clearing of habitat trees (marked 'H' or O) can commence		
Koala Management		
Pre-clearing surveys will be conducted immediately prior to (the morning of) vegetation clearing to search for koalas within the area scheduled for clearing.		
If no koalas are recorded during the ecologist inspection, then vegetation clearing can proceed under supervision by the Project Ecologist.		
If koalas are recorded during the ecologist inspection, then koala management measures outlined in the 'Vegetation Clearing' section below must be implemented.		

Site Preparation

Immediately prior to vegetation clearing, the Contractor's EM will ensure that the following actions have been implemented. Each action must be checked off by the Contractor's EM.

Site Preparation Management Action	EM (√)
All pre-clearing management actions listed in the pre-clearing checklist has been completed.	
The boundary of the clearing footprint is clearly fenced or delineated on site, and shown on all relevant plans.	
All construction personnel (subcontractors and employees) involved in the clearing are trained via toolbox talks and/or pre starts on the environmental risks and aspects of vegetation clearing, including: • Clearing limits and no-go areas, including the Bootland to the east and south of the project; • Two stage clearing for hollow-bearing trees; • Location and attributes of threatened flora species, and attributes of threatened fauna species that may occur in the Project site; • Guideline for working around trees; • If any timber is to be reused for milling or mulching; • The Unexpected Finds Procedure (Appendix C of this CFFMP).	
Sediment and erosion controls are in place (in accordance with the Construction Soil and Water Management Plan and the Construction Erosion and Sediment Control Plan).	

Vegetation Clearing

A two-stage approach to the clearing of habitat trees is to be used for trees marked **'H'** or **O** by the project ecologist during pre-clearing surveys. The Project Ecologist must be present for the clearing of each habitat tree. Each action must be checked off by the Project Ecologist and Contractor's EM.

A maximum of three hectares shall be cleared during each day of vegetation clearing in accordance with guidelines provided in Nature Conservation (Koala Conservation Plan 2006 and Management Program 2006-2016 (Queensland EPA 2006).

Clearing Management Actions	PE (√)	EM (√)
Stage 1		
Trees marked **O** by the Project Ecologist during pre-clearing surveys must be felled at least 48 hours prior to habitat tree removal. Vegetation marked **O** would be cleared from a 10m radius around habitat trees to encourage animals roosting in hollows to leave the tree		
Habitat trees (marked **'H'** or **O**) are to remain standing for a period of 48 hours while non-habitat trees area felled, to allow fauna to vacate the habitat on their own accord.		
Stage 2		
Habitat trees are to be knocked with an excavator bucket or other machinery to encourage fauna to evacuate the tree immediately prior to felling.		

Clearing Management Actions	PE (√)	EM (√)
If an animal is detected in a tree prior to pushing over, the clearing activities are to cease to allow fauna time to leave, or the animal is carefully removed from the tree.		
Tree should be “soft-felled”, i.e. felled in sections and/or lowered to the ground slowly by an excavator.		
Felled trees must be left for a short period of time on the ground to give any fauna trapped in the trees an opportunity to escape before further processing of the trees.		
Felled hollow bearing trees must be inspected by an Ecologist as soon as possible (not longer than two hours after felling), to check for injured or immature fauna.		
Animals found prior to or during clearing activities will be released to the suitable location previously identified by the Project Ecologist.		
If any animal is injured, the Contractor’s EM will contact the relevant local wildlife rescue agency (e.g. WIRES) and/or local veterinary surgery as soon as practical. • WIRES: 1300 094 737 • Sydney Wildlife Rescue: 9413 4300 • Moorebank Veterinary Hospital: 8798 4859 • Liverpool Veterinary Hospital: 9602 6015. Until the animal can be cared for by a suitably qualified animal handler, if possible minimise stress to the animal and reduce the risk of further injury by: • Handling fauna with care and as little as possible. • Covering larger animals with a towel or blanket and placing in a large cardboard box. • Placing small animals in a cotton bag, tied at the top. Keeping the animal in a quiet, warm, ventilated and dark location. • In the case of arboreal or flying mammals, attempts will be made to relocate the den or nest. After capture, the animal(s) will be held by a trained wildlife carer for a period of no longer than two weeks until the roost or den can be relocated, either as an entire tree or part thereof.		
Work may recommence once the animal(s) have been captured and removed from the area.		
Under supervision of the Project Ecologist, fauna microhabitat such as logs will be removed from areas to be cleared and relocated to suitable nearby bushland areas.		
Excess native vegetation material will be mulched and used on the Project site as erosion and sediment control or landscaping. Excess non-native vegetation will be removed from the Project site to an approved green waste facility. Remove unused mulch to designated stockpile locations and do not use mulch within 40 metres of waterways (e.g. Anzac Creek) or drainage lines.		
Koala Management		

Clearing Management Actions	PE (√)	EM (√)
If koalas are detected at any stage before or during clearing the following measures will be implemented:		
• All vegetation clearing and construction works in the immediate vicinity (i.e. within 30 metres) of the koala will cease and the Project Ecologist or Environmental Coordinator will be informed of the presence of the koala.		
• If the koala is located on the ground, then all site works within the immediate vicinity (including vehicle movement) will immediately cease until advised by the Project Ecologist or Environmental Coordinator that it is safe to re-commence. The koala will be encouraged to self-relocate by the Project Ecologist.		
• If the koala is in a tree, this tree (and other trees with crowns overlapping the tree containing the koala) will be marked with flagging tape. An appropriate buffer area around the trees (typically 30 metres) will also be marked as a temporary 'no-go' area. Clearing and construction works adjacent to the no-go area can recommence if/when confirmed by the Project Ecologist or Environmental Coordinator. The Project Ecologist will remain present during works to confirm that the koala does not descend from the tree and to issue a cease work warning if the koala descends from the tree.		
• A further pre-clearing survey of the temporary no-go area will be undertaken the following day prior, and prior to commencement of vegetation clearing. If the koala is still present then the temporary no-go area will remain in place until the koala has, or is, relocated.		
• If the koala remains in-situ for several days then relocation may be required. Such relocation will be conducted by a recognised koala expert following consultation with OEH.		

APPENDIX B WEED, PEST AND VERMIN MANAGEMENT PROTOCOL

Purpose

This Weed, Pest and Vermin Management Protocol explains the actions and measures to be implemented if any noxious weeds, pest species and/or vermin are found in the Project site. To date, no noxious weeds or fauna pest species have been identified in the Project site.

This Weed, Pest and Vermin Management Protocol prescribes measures to manage weeds, pests and vermin that may be identified in the Project site, in accordance with the *Biosecurity Act 2015.* The *Biosecurity Act 2015* repeals the *Noxious Weed Act 1993* as of July 1 2017.

Training

All personnel undertaking construction activities within the Project site will be inducted on the identification of noxious weeds species, pest species and vermin that may occur on the Project site, and will be trained in this protocol through Toolbox Talks or a site induction.

Protocol

Prevent introduction of noxious weeds, pest species and/or vermin

As outlined in Section 3.3 of the CFFMP, the following management measures will be implemented to prevent the introduction of weeds to the Project site:

- Vehicles, equipment, materials and footwear will be clean on entry (free of soil, mud and/or seeds) to minimise the introduction or spread of *Phytophthora cinnamomi*; a wheel wash to be installed at the Project site entry.
- No spoil, excavated material, plant or equipment is to be stockpiled or stored within the delineated “No-Go” zones
- Undertake weekly inspections of cleared and disturbed areas, to identify the presence of establishing weeds.

Identification of noxious weeds, pest species and/or vermin

No noxious weeds have been previously identified within the Project site. However, the movement of people, plant and equipment during construction activities has the potential to introduce weed propagules to the construction footprint. Disturbed areas (i.e. where the soil profile has been disturbed by vegetation clearing and/or earthworks) are most susceptible to the establishment of weeds.

Noxious weeds, pest species and/or vermin may be identified on the Project site during the weekly inspections of cleared and disturbed areas that must be carried out, in accordance with the monitoring requirements prescribed by Section 4.1 of the CFFMP. Soil stripped and stockpiled from areas containing known weed infestations will be stored separately and will not to be moved to areas free of weeds.

Management of noxious weeds, pest species and/or vermin

If weeds, pests and/or vermin are identified in the Project site, the following steps must be implemented.

1. **IDENTIFY WEED, PEST SPECIES AND/OR VERMIN.** The Contractor’s Environment Manager (EM) or Environmental Officer (EO) is to contact the Project Ecologist (PE), who will identify the weed, pest or vermin to species level.
2. **REMOVE WEED, PEST SPECIES AND/OR VERMIN.** The PE must recommend management measures specific to the species identified in the Project site. Management measures may include:
    a. Physical removal of weed species.

b. Application of a herbicide for chemical removal of a weed species.

c. Disposal of weed and non-native vegetation.

d. Capture or deterrent of a fauna pest species.

e. Capture fauna vermin species or removal of flora vermin species.

3. **CONTINUE MONITORING FOR WEED, PEST SPECIES AND/OR VERMIN.** The Contractor's EM must ensure that the weed, pest species or vermin is included in subsequent inductions and Toolbox Talks. Subsequent weekly inspections must include inspections of areas from which weeds, pest species or vermin have been removed.

   Inspect the Project site on a regular basis, no less than every 3 months, to ensure that the measures in this protocol are working effectively, and that pests, vermin or noxious weeds are not present on the Project site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in the surrounding area.

APPENDIX C UNEXPECTED FINDS PROCEDURE

Purpose

This Unexpected Finds Procedure explains the actions and measures to be implemented if any threatened flora and/or fauna species or threatened ecological communities, that have not been previously recorded within the Project Site, are found during construction. Examples of such species include Hibbertia sp. Bankstown and Bynoe's Wattle.

Training

All personnel undertaking construction activities within the Project site will be inducted on the identification of known and potential threatened species and ecological communities occurring on site, and will be trained in this protocol through Toolbox Talks or a site induction.

Protocol

Upon detection of a threatened species or ecological community during construction activities, the following steps must be followed.

1. **STOP ALL WORK** in the vicinity of the find. Immediately notify the Contractor's Environment Manager (EM) or Environmental Officer (EO) who will notify the Project Ecologist (PE) and Environmental Representative (ER). The project ecologist must confirm the presence of the threatened species. The EM will then contact the relevant agencies as required.
2. **ASSESS IMPACT.** An assessment is to be undertaken by the Contractor's EM and the PE to identify the plant or animal to species level and the likely impact to the threatened species / ecological community and appropriate management options, such as re-location measures, developed in consultation with the relevant agencies.
3. **OBTAIN APPROVALS.** Obtain any relevant licences, permits or approvals required if the threatened species / ecological community is likely to be significantly impacted. Consultation with OEH must be completed for any proposed amendments to the location or reclassification of threatened species, populations and ecological communities as identified in the updated BAR.
4. **RECOMMENCE WORKS.** Construction works may recommence once the EM has:
    a. obtained approvals as required, and
    b. confirmed that all corrective actions and additional mitigation measures have been Implemented.
5. **UPDATE PLANS AND PROCEDURES.** The Contractor's EM must ensure that the threatened species / ecological community is included in subsequent site plans and/or sensitive area drawings, inductions and Toolbox Talks. The Contractor's EM must provide information to enable an update of ecological monitoring and/ or biodiversity offset requirements.

APPENDIX D CONSULTATION

Addressing comments from Office of Environment and Heritage dated 3 April 2018.

Section of comment	Comment	SIMTA Response	Section Amended
Acronyms and Terms	Also located south of the Project site.	Addressed	Acronyms and Terms
Background	Typo: 2nd para – Construction (not Constriction).	Addressed	Background
Section 1.3.3	Construction Works Phase B includes Construction Works Phase A – is this correct? If so, the difference between Phase A and Phase B is not clear.	This is correct. The activities that are started in Construction Works Phase A will be continued and completed during Construction Works Phase B. The key difference between Phase A and Phase B is the addition of Moorebank Avenue upgrade works in Phase B	Section 1.3.3
Section 2.3	Replace 'should' with 'will'.	Addressed	Section 2.3
Section 3.1.1.1	Within the 'number occurring outside the Project site' information box include details of those individuals outside but in close proximity to the eastern, western and southern boundaries.	Table 15 has been updated to include the statement: *"Of the 1,161 plants that have been recorded outside of the Project, 15 are within approximately 10 m of the eastern boundary, 24 are within approximately 10 m of the southern boundary and 17 are within approximately 10 m of the western boundary of the Project site"*	Section 3.1.1.1
Section 3.1.1.2	Within the 'number occurring outside the Project site' information box include details of those individuals in close proximity to the eastern and western boundaries.	Table 16 has been updated to include the statement: *"Of these 7,063 stems, zero have been recorded within 10 m of the eastern boundary and 141 have been recorded within 10 m of the western boundary of the Project site"*	Section 3.1.1.2

Section of comment	Comment	SIMTA Response	Section Amended
Section 3.1.1.3	Within the 'number occurring outside the Project site' information box include details of those individuals in close proximity to the western, eastern and southern boundaries.	Table 17 has been updated to include the statement: *"Of the 258 plants recorded in the Boot Land, 4 have been recorded within approximately 10 m of the southern boundary, zero have been recorded within approximately 10 m of the eastern boundary and 3 have been recorded within approximately 10 m of the western boundary of the Project site."*	Section 3.1.1.3
Section 3.1.1.5	Within the 'number occurring outside the Project site' information box include details of those individuals in close proximity to the eastern boundary.	The closest record of Acacia pubscens is located approximately 18 metres east of the eastern boundary of the Project site	Section 3.1.1.5
Section 3.1.2.2	The area of 'Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin' (3.83 ha) does not accord with the area (3.74 ha) in Table 23 Construction Impacts on Biodiversity (on p.39). [It is assumed 3.83 ha of this PCT will be cleared as Table 23 (p.40) states the total area of native vegetation to be impacted is 4.69 ha – a correction is required if this is an error].	3.83 hectares is correct. Table 23 has been updated accordingly.	Section 3.2.2
Section 3.1.4	The location of hollow-bearing trees within the construction area is not clear (i.e. is it 2 or 4?). In addition, the total is different to the 9 indicated in Table 23 (on p.40).	Figure 3-2 indicates that 4 hollow-bearing trees (HBT) are located within the construction area. Table 23 has been updated to be consistent with Section 3.1.4 and Figure 3-2, i.e. 4 hollow bearing trees. During preclearing surveys, the ecologist will determine whether there are any additional HBTs, these will be managed in accordance with Appendix A.	Section 3.2.2
Section 3.2.2	Typo: '*Phytophthora cinnamomic'* should be *'Phytophthora cinnamomi'*.	Addressed	Section 3.2.2
Section 3.3	Under Management Measure, 3rd paragraph delete last 4 words (… 'and the construction footprint').	Addressed	Section 3.3

Section of comment	Comment	SIMTA Response	Section Amended
Section 3.3	Typo: 4th dot point under 'Management Measure', replace 'will' with 'to'.	Addressed	Section 3.3
Section 3.3	It is recommended the induction program for construction staff also include emergency and incident response/spill management procedures (eg fire and chemical/fuel spills).	Addressed	Section 3.3
Section 3.3	Typo: under 'Management Measure', replace 'not' with 'no'.	Addressed	Section 3.3
Appendix A	Typos: under 'Purpose', replace 'commandment' with 'commencement' and replace 'Area' with 'site'.	Addressed	Appendix A
Appendix A	Typo: under 'Pre-clearing Management Action' Purpose', 4th action, replace 'Area' with 'site'.	Addressed	Appendix A

APPENDIX E DRIP ZONE PROTOCOL

Purpose

This protocol explains the actions and measures to be implemented prior to the commencement of works within the drip zones of Endangered Ecological Communities (EECs) (including Threatened Ecological Communities (TECs)) within the Project site. It should be noted that the term EECs within this Schedule incorporates both Endangered and Threatened Ecological Communities (TECs) within the Project site.

Scope

This protocol is applicable to all vegetation (trees, understorey, groundcover) that comprise an ecological community (i.e. TEC, EEC) listed under the *Biodiversity Conservation Act 2016* ((BC Act) which replaced the former *Threatened Species Conservation Act 1995* (TSC Act)) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) that occur within the Project site.

Training

All personnel undertaking works, or directly involved with works, within the drip zone of EECs (including TECs) will be trained in this protocol through Toolbox Talks and/or a site induction.

Protocol

Drip Zone Protocol	
1	Contractor plans proposed works, including location, plant/equipment, general approach
2	The Arborist and the Ecologist visit the proposed work area/s with the contractor to determine the most adequate practicable construction methodology and mitigation requirements for proposed works
3	Arborist and Ecologist identifies tree protection and mitigation measures and any other EEC protection measures to be implemented for proposed works
4	Contractor implements protection and mitigation measures identified by Arborist and Ecologist
5	Arborist and Ecologist (if required) reviews/inspects implementation of protection and mitigation measures
6	***HOLD POINT – Works must not proceed without Project Arborist's and Ecologist's (if required) and Environmental Representative's sign off that works may commence***
7	Contractor conducts proposed works in accordance with Arborist's / Ecologist's protection and mitigation measures
8	Arborist and Ecologist (if required) conducts inspection to determine whether proposed works have been completed without affecting the health of trees, that any EECs have not been significantly impacted, and whether any rectification works are required
9	Project Arborist, Project Ecologist (if required) and Environmental Representative sign off that all proposed works are complete, and rectification works (if required) are complete

APPENDIX F NEST BOX ADVICE

MEMO

ARCADIS Design & Consultancy for natural and built assets

Date	15/02/2019
To	Ian Irwin (Tactical Group), Nathan Cairney (Tactical Group), Steve Ryan (Tactical Group), Ketan Patel (Arcadis), Ed Cooper (Arcadis), Jessica Rooke (Arcadis)
From	Carl Corden (Arcadis)
Subject	Moorebank Precinct – Nest Box Advice

1 Introduction

The purpose of this memorandum is to demonstrate consideration of the requirement to install additional nest boxes at Moorebank Logistics Park (MLP). The removal of four hollow-bearing trees for Moorebank Precinct East (MPE) Stage 2 has triggered the need to review nest box installations to date for the MLP project to determine whether installation of additional nest boxes would be required, both this project and future projects.

This memorandum provides a review of nest boxes installed to date, and assesses the values and risks associated with installation of additional nest boxes at MLP.

The requirements for installation of nest boxes at MLP are as outlined in the following approvals and documents:

Moorebank Precinct East (MPE)

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval (No. 2011/6229) granted on March 2014.
- Stage 1, Package 1 – Rail Access Land Package Works (SSD 6766) Construction Environmental Management Plan (CEMP) and sub-plans.
- Stage 1, Package 1 – Rail Access Land Package Works – Nest Box Management Strategy (CPB, 6 April 2017).
- Stage 1, Package 2 – Import Export Terminal Works (SSD 6766) Construction Environmental Management Plan (CEMP) and sub-plans.
- Stage 2 – State Significant Development Consent (SSD 7628).
- Stage 2 – Environmental Impact Statement (Arcadis Australia Pacific Pty Limited, December 2016).
- Stage 2 – Response to Submissions (Arcadis Australia Pacific Pty Limited, July 2017).
- Consolidated assessment clarification responses issued on 10 November 2017.

Moorebank Precinct West (MPW)

- Concept Plan - *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval (No. 2011/6086) granted on September 2016.
- Stage 1, Early Works - State Significant Development Consent (SSD 5066).
- Stage 1, Early Works – Construction Flora and Fauna Management Plan (Biosis, 14 August 2018).
- Stage 1, Early Works – Nest Box Plan (Biosis, 20 August 2018).

Specifically, this advice has been prepared to address the recommended mitigation measure of Annexure A of EPBC Approval No. 2011/6229:

- *Consider installation of nest boxes in woodland vegetation in the rail corridor that may offer alternative nesting habitat to hollow dependent species recorded in the study area.*

This requirement has been included within the following Construction Flora and Fauna Management Plans for the MPE project:

- **MPE Stage 1 Package 1 (RALP),** item 8C within Table 18 Stage 1 Final Compilation of Mitigation Measures - *A nest box management strategy will be prepared prior to clearing of hollow bearing trees. The strategy will inform the installation of nest boxes in retained native vegetation in the riparian corridor of the Georges River and the woodland in the Southern Boot Land and the on-going monitoring and maintenance of nest boxes through the construction and operational phases.*
- **MPE Stage 1 Package 2 (IMEX)**, item E34 d) (ii) (b) clearing procedures (including nest box plan) within Table 1 Ministers Conditions of Consent - *During the original approval of this plan, hollow bearing trees had not been identified on the Project site. However, a Nest Box Management Strategy (NBMS) was included within the Stage 1 Package 1 CFFMP and has been adopted as part of this plan with site specific requirements. The NBMS is included within Appendix D. Where hollow bearing trees are identified during preclearing surveys, the process outlined in Section 5.1 will be followed and the NBMS would be implemented.*
- **MPE Stage 2**, item FF6 within Table 25 Management Measures - *Where practicable, install nest boxes and/or microbat roost boxes in vegetation to be retained within the precinct, to compensate for the loss of hollow-bearing trees from the construction footprint*.

Commonwealth approval for the MPW (Concept) EPBC 2011/6086 does not specify any requirement to consider installation of nest boxes for MPW. Condition D21 (d) (ii) b) of Approval SSD5506 specifies the requirement to include a nest box plan as part of the CFFMP for MPW Concept Proposal and Early Works. As such the CFFMP for MPW includes the following action:

- Task 'Re-use of fauna habitat/installation of nest boxes for loss of fauna habitat' within Table 5 Environmental mitigation measures for Demolition and remediation works - *The removal of hollow-bearing or habitat trees will trigger the requirement to implement the Nest box plan included as Appendix 1 of this CFFMP.*

During assessments undertaken by Arcadis ecologists for the development of the MPE Stage 2 Biodiversity Assessment Report in 2017, a total of four hollow-bearing trees were recorded in the MPE Stage 2 Project area. The provision of nest boxes to mitigate the loss of these hollow-bearing trees was not included as a mitigation measure in the MPE Stage 2 Biodiversity Assessment Report (BAR) and RtS, nor was it included as a Condition of Consent under SSD 7628. However, as outlined above, the EPBC approval for MPE requires that the installation of nest boxes be considered.

This memorandum demonstrates consideration of the recommended mitigation measure of Annexure A of EPBC Act Approval no. 2011/6229, and provides advice regarding installation of any additional nest boxes to offset removal of hollow-bearing trees for the MLP project.

2 Background and context

Nest boxes have been installed to mitigate the impacts of vegetation clearing for MPE and MPW projects, specifically the removal of hollow-bearing trees that provide habitat for hollow-dependent fauna. Nest boxes were installed in accordance with approval conditions, and requirements of Nest Box Strategies (NBSs) prepared as sub-plans of the approved CFFMPs for MPE Stage 1 Package 1 (Rail Link), MPE Stage 1 Package 2 (Import Export Terminal Works) and MPW Stage 1 (concept and early works).

2.1 Nest box installation to date

The location of nest box installation was based on the following selection criteria:

- The vegetation should be outside of construction boundaries.
- The vegetation should be deficient in natural tree hollows.
- Installation of nest boxes should not result in damage to threatened flora, fauna or ecological communities.
- The vegetation should have some level of connectivity to other bushland patches.
- The nest boxes should be located as far as practical from development.

By applying these selection criteria, two locations within the Moorebank Precinct biobank site were prioritised for nest box installation as detailed below (Figure 1, Table 1).

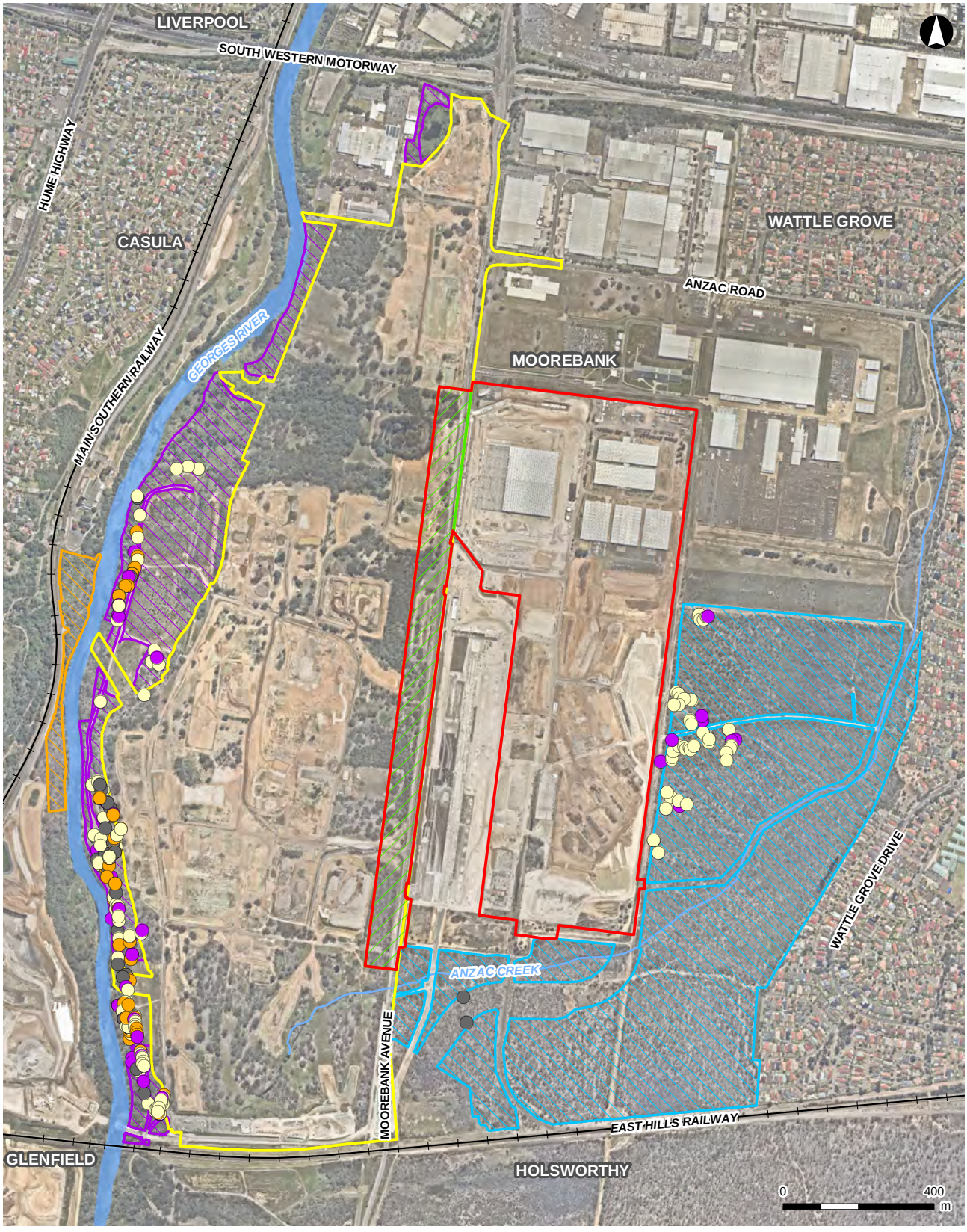
Table 1: Nest Box Locations

Location	Description
Georges River Corridor (Riparian Corridor)	The Georges River Corridor is comprised of a narrow, linear strip of bushland that extends for approximately three kilometres, alongside the MPW project. This vegetation is within the Moorebank offset area. A total of 195 nest boxes have been installed in this area, including a mix of boxes designed for microbats, small, medium and large arboreal mammals, small birds, parrots, cockatoos and owls.
Bootland	The Bootland is located to the east of the MPE site. It is comprised of relatively intact native vegetation, providing potential habitat for several hollow dependant fauna species. A total of 50 nest boxes have been installed in this area, including a mix of boxes designed for microbats, small, medium and large arboreal mammals, small birds, parrots, cockatoos and owls. The southern Bootland was recently burned by intense bushfires and this vegetation is currently regenerating.

2.1 Nest box monitoring

Nest box monitoring was undertaken in November 2018 of all nest boxes installed to date for the MLP project within the Bootland and Georges River Corridor. Monitoring results identified the following:

- A total of 247 nest boxes were located by Arcadis; 52 in the Bootland and 195 in the Georges River Corridor.
- A total of 219 nest boxes (89%) were inspected by camera.
- A total of 38 nest boxes were occupied at the time of inspection; eight in the Bootland (15%) and 30 in the Georges River Corridor (15%).
- Of those occupied, eight of the 38 nest boxes (21%) contained introduced species.
- A total of six deceased fledgling birds were discovered in three nest boxes; two in the Bootland and one in the Georges River Corridor.
- A total of 22 nest boxes within the Georges River Corridor (11%) require maintenance. Two nest boxes recently discovered in the southern section of the Bootland also require maintenance as they were installed at a height above 10 m and recent bushfires may have affected their structure and stability.



LEGEND

- MPE Stage 2 construction area
- Nest box locations
  - Empty
  - Occupied
  - Previous occupancy
  - N/A
- Moorebank Avenue site
- MPW Stage 2 construction area
- Casula offset site (Hourglass)
- Moorebank offset site (Georges River)
- Wattle Grove offset site (Bootland)
- Existing railway
- Watercourse

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Aerial imagery supplied by nearmap (Nov, 2018)

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ARCADIS

SIMTA

Figure 1: Nest Boxes within the Moorebank Precinct

3. Assessment of nest box installation

3.1 Nest box saturation

The installation of 195 nest boxes within the Georges River Corridor is considered in excess of recommended densities (i.e. saturated; Franks & Franks, 2011; RTA, 2011) (Table 2). Consequences of nest box saturation include an over-abundance of common, adaptable and/or aggressive native and introduced species such as Rainbow Lorikeet *Trichoglossus moluccanus*, Galah *Eolophus roseicapilla* Common Brushtail Possum *Trichosurus vulpecula*, Common Ringtail Possum *Pseudocheirus peregrinus,* Common Myna and European Honey Bee (Goldingay & Stevens, 2009; RTA, 2011). These species may outcompete less common or adaptable native species for resources. Monitoring conducted in November 2018 identified that nest boxes were predominately occupied by these species. As such, it is recommended that no additional nest boxes should be placed within the Georges River Corridor.

Table 2: Recommended densities of nest boxes (modified from Table 8.2 in RTA, 2011)

Nest box type	Recommended density
Microbat sp.	One every 50 metres
Eastern Pygmy Possum *Cercartetus nanus*	One every 20 – 40 metres
Australian Owlet Night-jar *Aegotheles cristatus*	One every 50 metres
Cockatoo sp.	One every 200 metres
Brown Tree creeper *Climacteris picumnus*	One every 50 metres
Brush-tailed Phascogale *Phascogale tapoatafa*	One every 200 metres
Squirrel Glider *Petaurus norfolcensis*	One every 60 – 100 metres
Yellow-bellied Glider *Petaurus australis*	One every 180 – 200 metres
Large Forest Owl sp.	One every >500 metres

3.2 Vegetation condition

Biobanking plot data collected under the BAM from the Bootland identified that much of this area is in ‘benchmark’ condition for tree hollows (i.e. the current availability of natural hollows is typical for native vegetation in good condition). While some areas within the Bootland are below benchmark condition, including the northern section of the Bootland, supplementation of additional nest boxes is not recommended given the availability of natural tree hollows and current installation of 52 artificial nest boxes in the Bootland.

Currently, there are no nest boxes installed within the rail corridor and it is recommended that no nest boxes should be installed within this area. The rail corridor does not support woodland vegetation and therefore does not provide opportunities for installation of nest boxes. While areas adjacent to the rail corridor contain woodland vegetation, the operational noise, vibration and light impacts associated with the rail corridor mean that this vegetation is not ideal for installing nest boxes.

The southern Bootland was recently burned by intense bushfires and this vegetation is currently regenerating and therefore highly sensitive. Two out of the four nest boxes installed in this area

remain intact. Many of the trees in this area are unsound and therefore further installation of nest boxes would not be recommended. Further, installation of nest boxes could have detrimental impacts on this highly sensitive land (including the threatened plants and EEC vegetation that it contains) by resulting in damage to individual plants or potential introduction and spread of weeds and pathogens.

Installation of additional nest boxes may therefore be contrary to EPBC condition of approval 5 h) which states that the Flora and Fauna Management Plan must include (but need not be limited to):

- *Measures to safeguard flora and fauna from the threat of weeds, fire, pathogens and unauthorised access, including (but not limited to) the commitments outlined in section 7.4.1 of the EIS (and summarised at Annexure A)*.

3.3 Occupation by over-abundant species

Many fauna species recorded using hollows within the project are considered over-abundant and adaptable. These include:

- Rainbow Lorikeet *Trichoglossus moluccanus*.
- Galah *Eolophus roseicapilla*.
- Common Ringtail Possum *Pseudocheirus peregrinus*.

Installation of nest boxes is likely to provide additional nesting and roosting habitat for these and other common adaptable and aggressive species to the detriment of smaller, less tolerant fauna. Medium and large nest boxes are more likely to be detrimental by favouring already over-abundant and adaptable species such as Galah, Rainbow Lorikeet and Common Ringtail Possum. Nest boxes designed for microbats are also likely to support only common, adaptable species. It is currently unclear whether any of these species aggressively displace threatened or less tolerant microbat species.

3.4 Hollow dependent fauna

No threatened hollow-dependent fauna was recorded during assessments undertaken by Arcadis ecologists for the development of the MPE Stage 2 Biodiversity Assessment Report in 2017. No threatened hollow-dependent fauna was recorded during preclearance assessments or ecologist clearing supervision for all other stages of the MLP project. No threatened hollow-dependent fauna was recorded during nest box monitoring undertaken by Arcadis in November 2018 throughout the Bootland and the Georges River Corridor. It is therefore considered unlikely that removal of hollow-bearing trees for the MLP project has displaced any threatened hollow-dependent fauna.

Hollow-bearing trees removed for the MLP project to date have been largely landscape planted trees, or remnant scattered trees in highly disturbed, cleared or developed lands. These environments may provide suitable habitat for introduced and non-threatened fauna but are considered unlikely to provide habitat resources for threatened hollow-dependent species.

Trees to be removed for future stages of the MLP project may include hollow-bearing trees that provide limited, marginal habitat for some threatened species (e.g. microbats). Nest boxes installed to date throughout the Bootland and Georges River Corridor are considered adequate to mitigate any impacts to threatened hollow-dependent fauna displaced by future clearing for the MLP project.

4. Conclusion and recommendations

This advice has been prepared to address the recommended mitigation measure of Annexure A of EPBC Approval No. 2011/6229 that installation of nest boxes in woodland vegetation in the rail corridor should be considered. Nest boxes have been installed for both MPE and MPW. Arcadis recommend that no additional nest boxes should be installed to offset the loss of four hollow-bearing

trees from MPE Stage 2, or for any additional hollows that are encountered as part of future clearing works associated with MPE or MPW.

It is recommended that no additional nest boxes should be installed for the following reasons:

- The total number of nest boxes installed within the Georges River Corridor exceeds the recommended densities (i.e.- is oversaturated), favouring over-abundant, adaptable and/or aggressive species which outcompete less tolerant native species.
- Availability of tree hollows and installation of nest boxes within the Bootland currently meet benchmark conditions so that additional supplementary nest boxes are not required.
- In addition to the above, there is no suitable woodland present in the rail corridor and the southern Bootland has recently been burned; presenting installation risks, as well as risks to the highly sensitive land.
- No threatened hollow-dependent fauna was recorded and therefore no habitat for these species has been removed. All hollows were in landscape planted trees or scattered remnant trees in highly disturbed cleared or developed lands which do not provide habitat for threatened fauna.
- Given the abundance of nest boxes already installed in the Bootland and Georges River Corridor it is considered unlikely that additional nest box installation would benefit threatened fauna that may be displaced during future clearing for the MLP project.
- Installation of additional nest boxes is likely to benefit over-abundant highly adaptable species to the detriment of other fauna, as observed during monitoring in November 2018.

Yours sincerely,

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