

Prepared for Abergeldie Complex Infrastructure

Biodiversity Management Plan

Billabong Creek Environmental Water Regulators (Parts 2A & 2C)

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Acronyms and abbreviations

BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BMP	Biodiversity Management Plan
CEMP	Construction Environmental Management Plan
CM	Construction Manager
CoA	Conditions of Approval
CPHR	Conservation Programs, Heritage and Regulation Group
CWD	Coarse woody debris
DBH	Diameter at breast height
DCCEEW (NSW)	Department of Climate Change, Energy, the Environment and Water (NSW)
DNG	Derived native grassland
DP	Deposited Plan
DPHI	Department of Planning, Housing and Infrastructure
EEC	Endangered ecological community
EIS	Environmental Impact Statement
EMS	Environmental management system
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2021
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
ESR	Environmental Site Representative
EWMS	Environmental Work Method Statements
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
GDE	Groundwater dependent ecosystems
Ha	Hectares
HBTs	Hollow-bearing trees
IBRA	Interim Biogeographic Regionalisation of Australia

KFH	Key Fish Habitat
km	kilometres
LGA	Local Government Area
m	Metres
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
NPWS	National Parks and Wildlife Service (NSW)
PCT	Plant Community Type
PM	Project Manager
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
SCADA	Supervisory Control and Data Acquisition
SWMP	Soil and Water Management Plan
TEC	Threatened ecological community
TPZ	Tree Protection Zones
VI	Vegetation Integrity
WPCP	Weed and Pathogen Control Plan
YCMP	Yanco Creek Modernisation Project

1. Introduction

1.1. Background

Abergeldie Complex Infrastructure (Abergeldie) have been engaged by the New South Wales (NSW) Department of Climate Change, Energy, the Environment & Water (DCCEEW, the Proponent) to replace two existing weirs with new regulators along Billabong Creek, within the Yanco Creek system in south-western NSW. The works involve the demolition of the Hartwood and Wanganella weirs and the construction of two new regulators, as well as the construction of access tracks (and access track upgrades), and overhead and underground cables (the Project). This Project forms part of the Billabong Creek Environmental Water Regulator Project (YCMP) and aims to enhance water management efficiency within Billabong Creek by enabling precise delivery of environmental and consumptive water (for towns and irrigation) to the right locations at the right time, while also improving native fish passage throughout the system.

The Project was declared State Significant Infrastructure (SSI) and assessed under Part 5 Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) (SSI-50831979). An Environmental Impact Statement (EIS) was prepared (DCCEEW 2024).

A referral (024/09939) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the Project was lodged with the Australian Minister for the Environment and Water. On 17 September 2024, it was determined that the Project was not a controlled action. This decision indicates that no additional assessment pertaining to the Project is required under the EPBC Act.

The Project (SSI-50831979) received approval under the EP&A Act on 19 February 2026 from the Department of Planning, Housing and Infrastructure (DPHI) and conditions of approval (CoA) issued. This document specifically addresses the requirements of Condition C10 which requires the preparation of the Biodiversity Management Plan (BMP).

This BMP provides a framework for conserving, protecting, restoring, and enhancing biodiversity throughout the construction phase of the Project. It outlines the key objectives, management actions and mitigation measures required to achieve the outcomes of the assessment process and meet the relevant approval conditions.

1.2. Project location

The Project site includes the Hartwood and Wanganella Regulators, as well as all associated works.

The Hartwood Regulator will be located approximately 10 kilometres (km) east of Conargo village, refer to Figure 1-1. The Hartwood site is primarily surrounded by agricultural land used for dryland and irrigated cropping and grazing. Hartwood Weir, situated downstream of the Billabong Creek and Forest Creek junction, occurs on land owned by WaterNSW (Lots 1 and 2 DP1144789, Lot 3 DP181995). Downstream areas comprise both private and Crown land: the eastern bank is privately owned farmland, while the western bank is Crown land with associated licences and permits. Billabong Creek near the weir is classified as a Crown Waterway.

The Wanganella Regulator will be located approximately 1 km southwest of Wanganella village, on part of Lot 7005 DP 1024202 and Lot 7004 DP 1024203, refer to Figure 1-2. The site is part of the Wanganella Recreation Reserve, known to local residents as Wanganella Common. The area is a Crown land reserve

(R88408), used for the preservation of fauna and public recreation. Billabong Creek at this location is a Crown Waterway. Surrounding land uses include cropping and grazing.

Both regulators are located within the Edward River Local Government Area (LGA).

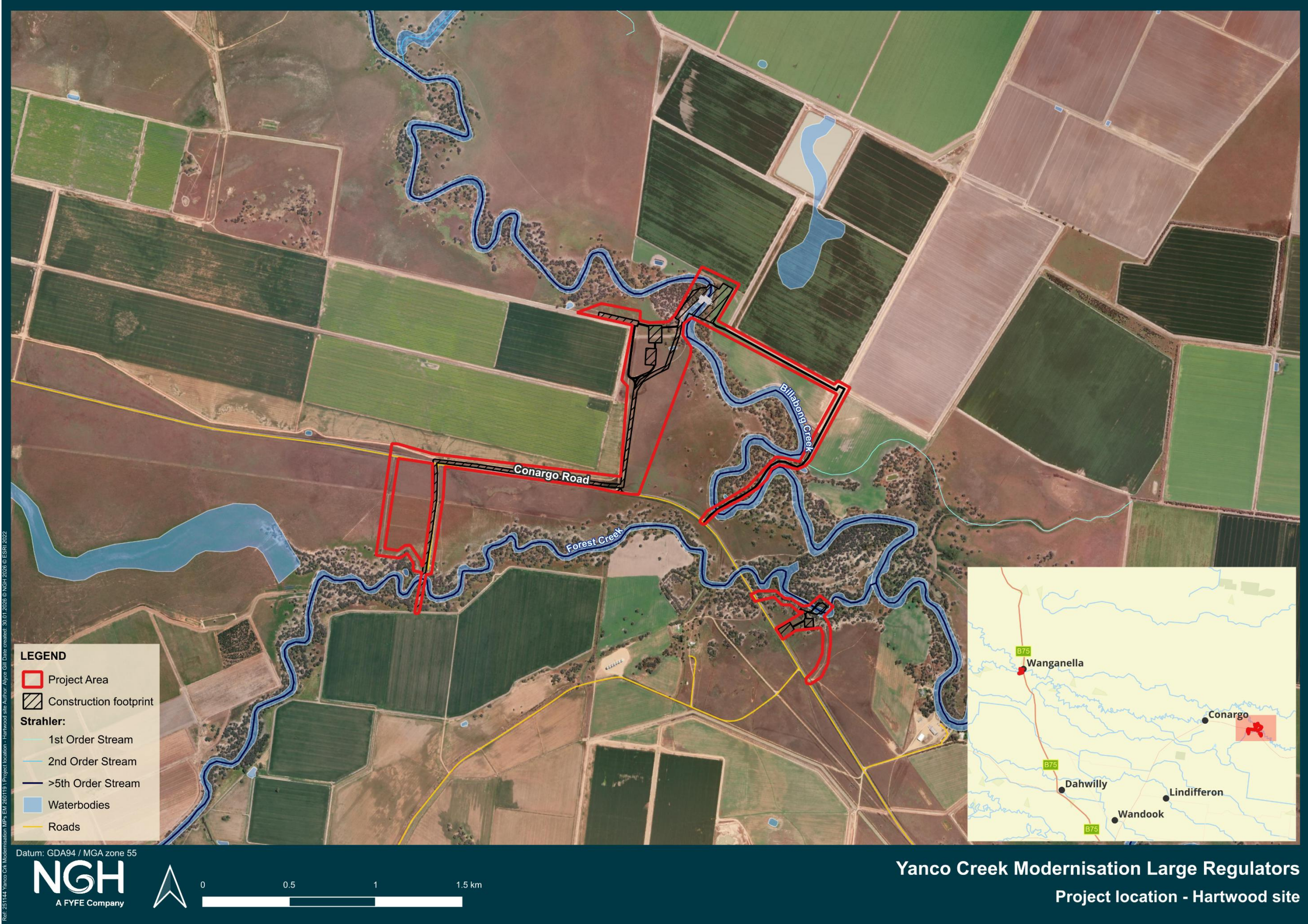


Figure 1-1 Project location – Hartwood site

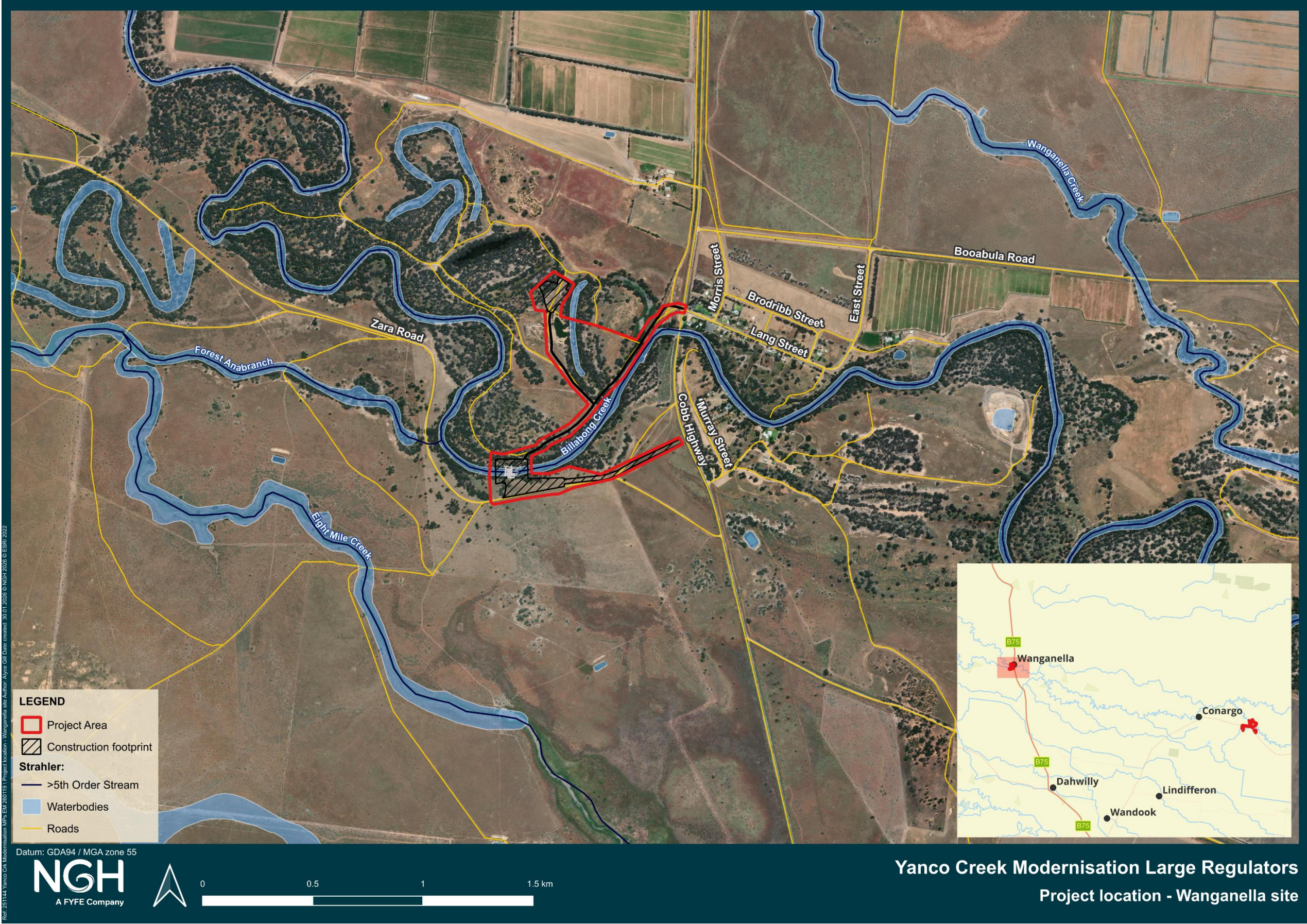


Figure 1-2 Project location – Wanganella site

1.3. The Project

Works for each regulator would include the construction of the following:

- Construction / upgrading of temporary and permanent access tracks
- Construction of a new drainage culvert (Hartwood Regulator access tracks)
- The extension of an existing, privately owned borrow pit (near the Hartwood regulator Project site)
- Demolition of the Hartwood and Wanganella weirs
- Construction of the regulators, which would include:
 - Concrete piers with maintenance bulkhead slots
 - Automated layflat gates across the crest of the structure to assist with flow management and downstream fish passage
 - A low turbulence 'keyhole' type vertical slot fishway with allowances for variable headwater to provide upstream fish passage
 - Automated sidewinder gates within the vertical slot fishway to allow for variable headwater conditions
 - Fixed concrete crests on the opposite side of the gates to the vertical slot fishway
 - A concrete apron downstream of each structure
 - Concrete wingwalls upstream and downstream of each structure
 - Access from a trafficable deck for maintenance (Hartwood Regulator only)
 - Pedestrian walkway access part way across the Wanganella Regulator structure to facilitate housing of gate actuators and maintenance
 - A walkway grating over the gates to facilitate operations and maintenance
- Rock beaching upstream and downstream of each structure for erosion protection
- Replacement of the existing Forest Creek block bank (Hartwood Regulator)
- Sheet pile cut-off walls beneath each structure
- Construction of the Wanganella flood bypass channel
- Construction of maintenance pads (consisting of crushed rocks), access and turnaround areas adjacent to the structures
- Construction of a control house
- Fencing around each structure to prevent public access
- Installation of a Supervisory Control and Data Acquisition (SCADA) control system
- Site rehabilitation works.

1.4. Purpose and objectives

This BMP ensures that environmental performance outcomes identified in the Environmental Impact Statement (EIS), Submissions Report, Biodiversity Development Assessment Report (BDAR) and Infrastructure Approval are achieved through the implementation of mitigation measures, monitoring programs and compliance tracking.

Environmental risks and impacts identified during construction will be managed using SMART principles (Specific, Measurable, Achievable, Relevant and Time-bound) through the project risk management framework.

The key objective of the BMP is to ensure that all conditions, mitigation measures and licence/permit requirements relevant to biodiversity are described, scheduled, and assigned responsibility as outlined in:

- The Project EIS (NSW DCCEEW, 2024)
- The Project Submissions Report (NSW DCCEEW, 2025)
- The Project Request for additional information (DCCEEW 2025b).
- The Project Biodiversity Development Assessment Report (BDAR) (GHD, 2025)
- The Project Surface Water Quality and Aquatic Ecology Assessment (Jacobs, 2024)
- DPHI Infrastructure Approval (approved 19 February 2026).

The primary objective of the BMP during the construction phase is to effectively manage the Project's impacts on biodiversity within the Project site. To accomplish this objective, Abergeldie will:

- Detail the existing biodiversity values identified within the Project footprint, including but not limited to, threatened species habitats and native vegetation
- Ensure reasonable and feasible measures are implemented during construction to avoid or minimise biodiversity impacts
- Establish a pre-clearing procedure and permit system
- Establish a biodiversity monitoring program.

1.5. Environmental Management System

The overall Environmental Management System (EMS) for the Project is described in the Construction Environmental Management Plan (CEMP). This BMP forms part of the EMS for the Project and is to be read in conjunction with the overarching CEMP. It is applicable to all staff, contractors and sub-contractors associated with the construction of the Project.

Where relevant, management measures identified in this plan will be incorporated into activity specific Environmental Work Method Statements (EWMS). EWMS will be developed and signed by environment and management representatives prior to associated works. Construction personnel will receive toolbox training regarding the relevant CMS and SWMS and will be required to undertake works in accordance with the identified mitigation and management measures.

Used together, the CEMP and associated sub-plans, and EWMS form management guides that clearly identify required environmental management actions for personnel and contractors.

The review and document control processes for this plan are described in Section 7.3 of the CEMP.

Construction will not commence until the CEMP and all associated sub-plans, including this Biodiversity Management Plan, have been approved by the Planning Secretary.

This BMP is a sub-plan of the CEMP and will be implemented for the duration of construction, including any minor amendments approved by the Environmental Representative (ER).

1.6. Consultation

In accordance with Condition C10 of the Infrastructure Approval, the BMP has been prepared in consultation with the Conservation Programs, Heritage and Regulation Group (CPHR),

1.7. Authorship

This BMP has been prepared by suitably qualified and experienced authors. Jane Love (NGH Technical Lead - Environmental Management) and Alyce Gill (Senior Consultant – Environmental Management). This BMP has been reviewed and approved by Lisa Bunyan (Technical Lead Ecologist – Biodiversity).

Jane Love holds a Bachelor of Environmental Science, Master of Environmental Management and over 13 years professional experience in environmental science and management, including extensive experience in preparing biodiversity management plans and implements plans onsite during construction.

Alyce Gill holds a Bachelor of Environmental Science and over 6 years professional experience in environmental science and management, including extensive experience in preparing biodiversity management plans for infrastructure projects.

Lisa Bunyan holds a Bachelor of Environmental Science and Management and has over 9 years working as an ecologist for the private industry. She was previously an Accredited Assessor under the NSW Biodiversity Assessment Methodology (BAM) and has extensive experience working in both the approval and post approval space for infrastructure projects.

CV's can be provided on request.

2. Planning

2.1. Relevant legislation and guidelines

2.1.1. Legislation

Legislation relevant to the development and implementation of the BMP includes:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- Environmental Planning and Assessment Regulation 2021 (EP&A Regulation)
- *National Parks and Wildlife Act 1974* (NPW Act)
- *Biodiversity Conservation Act 2016* (BC Act)
- *Protection of the Environment Operations Act 1997* (POEO Act)
- *Biosecurity Act 2015*
- *Pesticides Act 1999*
- Pesticides Regulation 2017.

2.1.2. Guidelines and standards

Guidelines and standards relevant to the development and implementation of the BMP include:

- Australian Standard 4970 – 2009 Protection of Trees on Development Sites
- Environmental Management Plan Guidelines (Commonwealth of Australia, 2014)
- National standards for the practice of ecological restoration in Australia (2018)
- NSW National Parks & Wildlife Service. 2001. Policy for the Translocation of Threatened Fauna in NSW: Policy and Procedure Statement No. 9 Threatened Species Unit, Hurstville NSW.

2.2. Conditions of Approval

The CoA relevant to this BMP are listed in Table 2-1 below. Mitigation measures relevant to the BMP are provided in Table 2-2. A cross reference is included to indicate whether the requirement is addressed in this BMP or other Project management documents.

Table 2-1 Approval conditions relevant to the BMP

Reference number	Condition requirement	Document Reference
C9	<u>Construction Environmental Management Plan</u> The following CEMP Sub-plans must be prepared in consultation with the relevant government agencies and councils identified for each CEMP Sub-plan. Details of all information requested by an agency during consultation must be provided to the Planning Secretary as part of any submission of the relevant CEMP Sub-plan, including copies of all correspondence from those agencies as required by	

Reference number	Condition requirement	Document Reference												
	Condition A9. <table border="1"> <thead> <tr> <th></th><th>Required CEMP Sub-plan</th><th>Relevant government agencies and councils to be consulted for each CEMP Sub-plan</th></tr> </thead> <tbody> <tr> <td>(a)</td><td>Biodiversity Management Plan</td><td>CPHR</td></tr> <tr> <td>(b)</td><td>Aboriginal Cultural Heritage Management Plan</td><td>Heritage NSW, Edward River Council</td></tr> <tr> <td>(c)</td><td>Local Accommodation and Employment Plan</td><td>Edward River Council</td></tr> </tbody> </table> Notes: - CEMP Sub-plan(s) may reflect the staged construction of the project through geographical activities, temporal activities or activity based contracting and staging. - Nothing in this condition prevents the Proponent from combining any of the above CEMP Sub-plans.		Required CEMP Sub-plan	Relevant government agencies and councils to be consulted for each CEMP Sub-plan	(a)	Biodiversity Management Plan	CPHR	(b)	Aboriginal Cultural Heritage Management Plan	Heritage NSW, Edward River Council	(c)	Local Accommodation and Employment Plan	Edward River Council	a) Section 1.6, Appendix A b) Aboriginal Cultural Heritage Management Plan c) Local Accommodation and Employment Plan
	Required CEMP Sub-plan	Relevant government agencies and councils to be consulted for each CEMP Sub-plan												
(a)	Biodiversity Management Plan	CPHR												
(b)	Aboriginal Cultural Heritage Management Plan	Heritage NSW, Edward River Council												
(c)	Local Accommodation and Employment Plan	Edward River Council												
C10	The CEMP sub-plan for Biodiversity Management must be prepared to incorporate mitigation measures identified in the documents listed in Condition A1 and the following:	This Plan												
	a) be prepared by a suitably qualified and experienced biodiversity expert/s in consultation with NSW DCCEEW CPHR;	Section 1.7												
	b) be prepared in accordance with the BDAR dated June 2025;	Section 1.4												
	c) include a description of the measures and timeframes that would be implemented for:	Section 5.1												
	(i) ensuring the development does not adversely affect the native vegetation and habitat outside the disturbance footprint;	Section 5.2 Table 5-4												
	(ii) minimising the clearing of native vegetation and habitat within the disturbance footprint;	Table 5-4												
	(iii) minimising impacts on entities at risk of a serious and irreversible impact (SAIL) (Plains-wanderer (<i>Pedionomus torquatus</i>) habitat),	Section 5.6.1												
	(iv) minimising impacts on the breeding cycles of the Little Eagle and Southern Bell Frog, including avoiding construction during breeding periods where possible	Section 5.6												
	(v) rehabilitating and revegetating temporary disturbance areas;	Section 5.10												

Reference number	Condition requirement	Document Reference
		Rehabilitation Plan
	(vi) protecting native vegetation and key fauna habitat outside the approved disturbance area;	Section 5.1 Section 5.2 Table 5-4
	(vii) maximising the salvage of resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and revegetation of the site;	Section 5.3
	(viii) collecting and propagating seed (where relevant);	Section 5.3.2
	(ix) controlling weeds and feral pests;	Section 5.4 Section 5.5
	(x) controlling erosion; and	Soil and Water Management Plan (SWMP) Erosion and Sediment Control Plan (ESCP)
	(xi) bushfire management	Section 5.9 Table 5-4
	d) include supplementary surveys to confirm the extent of threatened species within the development footprint	Section 5.2.1
	e) include a detailed program to monitor and report on the effectiveness of these measures; and	Section 6.3
	f) include details of who would be responsible for monitoring, reviewing and implementing the plan.	Section 6.1 Table 5-4Section 7.2
E2	Biodiversity <u>Biodiversity Credits</u> The clearing of native vegetation must be minimised to the greatest extent practicable with the objective of reducing impacts to threatened ecological	Table 5-4

Reference number	Condition requirement	Document Reference																				
	communities and threatened species habitat.																					
E3	The Proponent must not clear any native vegetation or fauna habitat located outside the construction and operational disturbance footprints.	Table 5-4																				
E4	The Proponent must ensure that the vegetation and habitat clearing limits specified in Tables 3 and Table 4 are not exceeded.	Table 5-4																				
E5	Prior to carrying out any development that could directly or indirectly impact the biodiversity values requiring offset, the Proponent must provide evidence to the Planning Secretary that biodiversity credits have been retired.	Table 5-4																				
E6	Prior to the impacts set out in Table 3 and Table 4: Species Credits the number and classes of ecosystem credits and species credits (like-for-like) must be achieved by: (i) retirement of biodiversity credits of a number and class specified in Table 3 and Table 4: Species Credits in accordance with the Biodiversity Conservation Act 2016; and/or (ii) where evidence of compliance with the Ancillary rule: biodiversity conservation action has been provided to the Planning Secretary, and/or (iii) making a payment into the Biodiversity Conservation Fund of an amount equivalent to the class and number of ecosystem and species credits Table 3: Ecosystem Credits <table><tr><th>Credit Class</th><th>Number of Credits</th><th>IBRA sub-region</th><th>Like-for-like PCTs</th><th>Hollow Bearing tree credit</th></tr><tr><td colspan="5">Hartwood</td></tr><tr><td>PCT 7 River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland</td><td>26</td><td>Murrumbidgee</td><td>Inland Riverine Forests. Includes PCT's: 2, 5, 7, 8, 9, 10, 11, 36, 78, 79, 112, 233, 234, 249, 356, 362, 4088, 4089</td><td>26</td></tr><tr><td>PCT 10 River Red Gum - Black Box woodland wetland of the semi-arid (warm) climatic zone</td><td>19</td><td>Murrumbidgee</td><td>Inland Riverine Forests This includes PCT's: 2, 5, 7, 8, 9, 10, 11, 36, 78, 79, 112, 233, 234, 249, 356, 362, 4088, 4089</td><td>14</td></tr></table>	Credit Class	Number of Credits	IBRA sub-region	Like-for-like PCTs	Hollow Bearing tree credit	Hartwood					PCT 7 River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland	26	Murrumbidgee	Inland Riverine Forests. Includes PCT's: 2, 5, 7, 8, 9, 10, 11, 36, 78, 79, 112, 233, 234, 249, 356, 362, 4088, 4089	26	PCT 10 River Red Gum - Black Box woodland wetland of the semi-arid (warm) climatic zone	19	Murrumbidgee	Inland Riverine Forests This includes PCT's: 2, 5, 7, 8, 9, 10, 11, 36, 78, 79, 112, 233, 234, 249, 356, 362, 4088, 4089	14	Table 5-4
Credit Class	Number of Credits	IBRA sub-region	Like-for-like PCTs	Hollow Bearing tree credit																		
Hartwood																						
PCT 7 River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland	26	Murrumbidgee	Inland Riverine Forests. Includes PCT's: 2, 5, 7, 8, 9, 10, 11, 36, 78, 79, 112, 233, 234, 249, 356, 362, 4088, 4089	26																		
PCT 10 River Red Gum - Black Box woodland wetland of the semi-arid (warm) climatic zone	19	Murrumbidgee	Inland Riverine Forests This includes PCT's: 2, 5, 7, 8, 9, 10, 11, 36, 78, 79, 112, 233, 234, 249, 356, 362, 4088, 4089	14																		

Reference number	Condition requirement					Document Reference
	PCT 13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone	90	Murrumbidgee	Inland Floodplain Woodlands This includes PCT's: 13, 15, 16, 83, 438, 454, 630	68	
	PCT 44 Forb-rich Speargrass - Windmill Grass - White Top grassland	12	Murrumbidgee	Riverine Plain Grasslands This includes PCT's: 44	0	
	PCT 46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam (46_Moderate)	138	Murrumbidgee	Plain Grasslands This includes PCT's: 44, 45, 46, 165, 1203	0	
	PCT 46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam (46_Poor)	8	Murrumbidgee	Plain Grasslands This includes PCT's: 44, 45, 46, 165, 1203	0	
	Wanganella					
	PCT 7 River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland	11	Murrumbidgee	Inland Riverine Forests This includes PCT's: 2, 5, 7, 8, 9, 10, 11, 36, 78, 79, 112, 233, 234, 249, 356, 362, 4088, 4089	11	
	PCT 10 River Red Gum - Black Box woodland wetland of the semi-arid (warm) climatic zone	18	Murrumbidgee	Inland Riverine Forests This includes PCT's: 2, 5, 7, 8, 9, 10, 11, 36, 78, 79, 112, 233, 234, 249, 356, 362, 4088, 4089	18	
	PCT 13 Black Box - Lignum woodland wetland of the inner floodplains in	30	Murrumbidgee	Inland Floodplain Woodlands This includes PCT's: 13, 15, 16, 83, 438, 454, 630	30	

Reference number	Condition requirement					Document Reference																																											
	the semi-arid (warm) climate zone (13_Good)																																																
	PCT 13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (13_DNG)	7	Murrumbidgee	Inland Floodplain Woodlands This includes PCT's: 13, 15, 16, 83, 438, 454, 630	0																																												
	PCT 46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam	63	Murrumbidgee	Riverine Plain Grasslands This includes PCT's: 44, 45, 46, 165, 1203	0																																												
	PCT 160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains	7	Murrumbidgee	Inland Floodplain Shrublands This includes PCT's: 17, 24, 25, 115, 160, 161, 240, 241, 247, 261, 271, 375	0																																												
	Table 4: Species Credits																																																
<table><tr><th>Species</th><th>Indirect impacts</th><th>Direct Impacts (ha)</th><th>Number of credits</th></tr><tr><td colspan="4">Hartwood</td></tr><tr><td>Southern Bell Frog</td><td>0</td><td>5.52</td><td>157</td></tr><tr><td>Plains-Wanderer</td><td>0</td><td>1.96</td><td>123</td></tr><tr><td>Southern Myotis</td><td>0</td><td>5.52</td><td>157</td></tr><tr><td>Slender Darling Pea</td><td>0</td><td>2.25</td><td>94</td></tr><tr><td colspan="4">Wanganella</td></tr><tr><td>Little Eagle</td><td>0</td><td>1.25</td><td>30</td></tr><tr><td>Southern Bell Frog</td><td>0</td><td>3.28</td><td>85</td></tr><tr><td>Bush Stone-curlew</td><td>0</td><td>2.33</td><td>74</td></tr><tr><td>Pink Cockatoo</td><td>0</td><td>2.33</td><td>74</td></tr></table>						Species	Indirect impacts	Direct Impacts (ha)	Number of credits	Hartwood				Southern Bell Frog	0	5.52	157	Plains-Wanderer	0	1.96	123	Southern Myotis	0	5.52	157	Slender Darling Pea	0	2.25	94	Wanganella				Little Eagle	0	1.25	30	Southern Bell Frog	0	3.28	85	Bush Stone-curlew	0	2.33	74	Pink Cockatoo	0	2.33	74
Species	Indirect impacts	Direct Impacts (ha)	Number of credits																																														
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Bush Stone-curlew	0	2.33	74																																														
Pink Cockatoo	0	2.33	74																																														
E7	An Unexpected Finds Protocol must be developed for threatened species and threatened ecological communities before the commencement of Work. The					Section 5.7																																											

Reference number	Condition requirement	Document Reference
	Unexpected Finds Protocol must be submitted to the Planning Secretary for approval at least one month before the commencement of Work. Work cannot commence until the unexpected finds protocol is approved by the Planning Secretary. The Unexpected Finds Protocol must be implemented throughout the duration of Work.	Table 5-4 Unexpected Threatened Species Finds Procedure (C)
E8	<u>Key Fish Habitat</u> The Proponent must minimise impacts to Key Fish Habitat (KFH) as defined in the Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013 update).	Table 5-4
E11	<u>Reuse of timber</u> The SSI must maximise the reuse of native vegetation and other habitat features that have been approved for removal. Where reuse by the SSI is not possible, relevant council(s), Local Land Services, local Landcare groups, DPIRD Fisheries and any additional relevant government agencies must be consulted prior to the removal of vegetation and other habitat to determine if: (a) hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and root balls salvaged from native vegetation impacted by the SSI; and (b) collected plant material, seeds and/or propagated plants from native vegetation impacted by the SSI, could be used by others in the local area in habitat enhancement and rehabilitation work which is currently underway or planned within 6 months of removal, before pursuing other disposal options. If the timber can be re-used by others, the Proponent must advise them and facilitate access for salvage. Note: Before reusing rootballs and other vegetative material by the SSI or offered to others, it must be checked by a suitably qualified arborist/ecologist pathologist to determine that Pathogens (including but not limited to <i>Phytophthora cinnamomi</i> , <i>Chytrid fungus</i> , <i>Myrtle rust</i> and <i>Fusarium wilt</i> / Panama disease) are absent from the construction footprint and the material is not showing signs of infection or pests.	Section 5.3 Table 5-4

Table 2-2 Mitigation measures relevant to the BMP

Reference number	Condition requirement	Document Reference
SWQ08	Develop and implement a weed and pathogen control plan that includes the following requirements and measures to mitigate spread: Vehicle, personnel, material and equipment hygiene protocols (including measures required to prevent the spread or transmission of Chytrid Fungus as per Hygiene protocols for the control of diseases in	Weed and Pathogen Control Plan (Appendix G) Table 6-1

Reference number	Condition requirement	Document Reference
	Australian frogs (Murray et al. 2011) • Weed, pest animal and pathogen management and monitoring and reporting requirements during the construction period • Weed and pathogen management and monitoring and reporting requirements should be documented. Measures must be auditable and linked to management outcomes.	
SWQ09	• Limit disturbance to riparian vegetation and snags to the assessed clearing areas and avoid complete removal wherever possible. • Any large woody debris and snags (>3m long or 30cm wide) that have to be removed from the construction footprint should be moved to a suitable location upstream or downstream of the site in consultation with a qualified ecologist and WaterNSW.	Section 5.3.1 Table 5-4
SWQ10	• Disturbed areas will be revegetated with endemic riparian and floodplain species (replacing like for like) to be undertaken as soon as practical, progressive reinstatement. • Rehabilitation at construction sites to include replacing topsoil from the site stockpile.	Table 5-4
SWQ11	Food waste accumulated on site will be stored in inaccessible bins and disposed off-site regularly so that the waste doesn't attract predatory pests such as cats and foxes.	Section 5.5 Table 5-4
SWQ12	Implement the following fauna management procedures during construction including: • Prepare a dewatering plan for coffer dams to avoid potential impacts to aquatic fauna such as fish stranding	Section 5.8 Dewatering Plan (As appended to the SWMP)
	• As a requirement of the dewatering plan, native aquatic fauna entrained within the coffer dams will be captured and relocated to a nearby suitable habitat by qualified aquatic ecologists	Section 5.8 Dewatering Plan (As appended to the SWMP)
	• Development and implementation of handling and salvage protocols for terrestrial and aquatic fauna during construction, including requirements for legislative permits and authorisation requirements of wildlife handlers. This will include procedures for pre-clearing, clearing surveys and procedures should fauna or nests/burrows be found during these surveys and removal is required. The protocols will include details of requirements, including wildlife handler/ecologist/NSW DPI permits.	Section 5.2 Table 5-4 Fauna Handling, Rescue and Release Procedure (Appendix F)

Reference number	Condition requirement	Document Reference
SWQ13	All fencing must be fauna friendly to minimise risk of injury from collision and include provision of egress points, for example: Temporary to exclude construction: High visibility string of bunting or plastic mesh (not transparent) attached to star pickets with plastic caps (or weighted posts that avoid ground penetration in culturally sensitive areas)	Section 5.1 Table 5-4
	Temporary to exclude wildlife (e.g. from open trenches): Fencing stays located inside the exclusion area, or with high visibility mesh to guide wildlife away from obstructions and potential traps. Shade cloth or other suitable deterrent attached to the lower 50 cm of the outside of the exclusion zone and weighted to the ground	Section 5.1 Table 5-4
	No barbed or razor wire will be used	Section 5.1 Table 5-4
	Trench management, including avoiding open trenches overnight where practicable. Where trenches cannot be closed, check trenches at the start and end of each day (i.e. dawn/dusk), and consider feasibility of measures (e.g. ramps) to aid animal escape.	Table 5-4
SWQ14	Implement measures to minimise noise, vibration and lighting impacts on known threatened fauna species and habitat, including: - Avoid unnecessary light spill across a broader area than required to avoid attracting insects and subsequently their predators (bats and birds) - Avoiding night works during periods of high insect/bird/bat activity (October to March) as far as reasonably practical, so as to minimise disturbance to fauna communication, foraging and other behaviours that depend on sound and darkness.	Table 5-4
B01	Flora and fauna management controls will be included within the CEMP that specifies measures, processes, and responsibilities to minimise the potential for biodiversity impacts during construction. The CEMP will specify requirements for the implementation of these measures and provide for audit and compliance.	This BMP Section 6
B03	All workers will be provided with an environmental induction prior to starting work on site. This will include information on the biodiversity values of the site, protection measures to be implemented to protect native biota and	Section 6.2 Table 5-4

Reference number	Condition requirement	Document Reference
	penalties for breaches.	
B04	Plans will be prepared showing areas to be cleared and areas to be protected, including exclusion zones and protected habitat features in the vicinity of work areas.	Section 5.1
B05	A pre-construction assessment of the local <i>Swainsona murrayana</i> population will be conducted including: • Consideration of whether the construction period coincides with the August to November flowering period for the species (Cth. DCCEEW 2024b) • Consideration of prevailing rainfall conditions in the preceding cool season and assessment of the likely health and extent of the local population • Supplementary survey as appropriate to confirm the extent of above-ground plants in the local population • Definition and implementation of additional impact and avoidance measures as appropriate potentially including delayed construction activity, adjustment of CAZs, exclusion fencing and/or translocation.	Section 5.2.1 Table 5-4
B06	A pre-construction assessment of the local Southern Bell Frog population will be conducted including: • Consideration of whether the construction period coincides with the Spring-Summer breeding and higher adult frog activity period for the species • Consideration of prevailing rainfall and river conditions and assessment of the likely presence and extent of potential breeding habitat in ephemeral wetlands • Supplementary survey as appropriate to confirm the extent of occupied breeding habitat and/or mobile adult frogs in the local population • Definition and implementation of additional impact and avoidance measures as appropriate potentially including delayed construction activity, adjustment of CAZs, exclusion fencing, procedures for dewatering of wetlands and/or translocation.	Section 5.2.1 Table 5-4
B07	A pre-construction assessment of threatened bird breeding habitat will be conducted including: • Consideration of whether the construction period coincides with the Spring-Summer breeding periods for the Little Eagle, Pink Cockatoo and other threatened bird species • Inspection of the known Little Eagle nest tree location, species polygon areas, and any other suitable habitat containing candidate nest trees within 200 m of the proposal footprint • Supplementary monitoring as appropriate to confirm the presence of	Section 5.2.1 Table 5-4

Reference number	Condition requirement	Document Reference
	occupied nest trees, breeding activity, and behaviour of birds in the vicinity of the proposal footprint. Definition and implementation of additional impact and avoidance measures as appropriate to ensure that occupied nests are not disturbed, potentially including delayed construction activity, adjustment of CAZs and exclusion fencing.	
B08	Prior to the commencement of any work in or adjoining areas of native vegetation, a survey will be carried out to mark the construction impact boundary. The perimeter of this area would be fenced using high visibility fencing and clearly marked as the limits of clearing. All vegetation outside this fence line will be clearly delineated as an exclusion zone to avoid unnecessary vegetation and habitat removal and the transmission of weeds or disease. Fencing and signage will be maintained for the duration of the construction period. Fencing will be designed to allow fauna to exit the site during clearing activities.	Section 5 Table 5-4
B09	An unexpected finds protocol will be implemented including prepared to detail measures to be undertaken if threatened flora and fauna not previously recorded on site are detected during clearing or construction activities.	Unexpected or Incidental Threatened Species Finds Procedure (C) Table 5-4
B10	The following protocols for the management of fauna and habitats will be implemented in accordance with the CEMP. - A procedure for the felling of hollow-bearing trees to prevent or minimise mortality of fauna - Salvage of hollows and logs where practicable - Management of any trenches or drill sites to prevent fauna from becoming trapped or injured - Any additional measures for the management of frog breeding habitat as appropriate to seasonal conditions and the outcomes of pre-construction surveys.	Section 5
B11	Pre-clearing surveys will be undertaken prior to and during construction by a suitably qualified ecologist. The surveys and inspections, and any subsequent relocation of species, will be undertaken in accordance with the CEMP. Specific surveys include: - An initial pre-clearance survey of the proposal footprint, undertaken by a suitably qualified ecologist prior to the commencement of any clearing activities including: - Surveys for roosting microbats in any man-made structures to be removed	Section 5.2.2

Reference number	Condition requirement	Document Reference
	- Searches for nests in vegetation to be removed - Identification of fauna refuge sites potentially requiring fauna management during removal, including hollow-bearing trees, woody debris as well as human made material such as metal sheets - A daily pre-clearance fauna survey of the day's work area, undertaken by a suitably qualified ecologist prior to the clearing of native vegetation - Monitoring of clearing activities and observation, rescue, treatment and/or relocation of any resident fauna as appropriate.	
B12	Monitoring of clearing activities would include particular focus on habitat features that may harbour threatened species that are vulnerable to direct or indirect harm including during: • Felling of habitat trees that may contain roosting threatened birds or microbats • Earthworks in or near floodplain depressions that may contain breeding habitat for the Southern Bell Frog • Earthworks affecting cracking clay soils or woody debris that may harbour Grey Snakes or Southern Bell Frogs • Construction activity in the vicinity of the known Little Eagle nest tree or any other nest sites observed in or near the proposal footprint.	Table 5-4
B13	A post-clearing report will be prepared documenting all animals that are handled, or otherwise managed, within the site. Data to be recorded includes: • Date and time of the sighting and details of the observer • Species • Number of individuals recorded • Adult/juvenile • Condition of the animal (living/dead/injured/sick) • Management action undertaken (e.g. captured, handled, taken to vet) • Results of any management actions (e.g. released, placed in a nest box, euthanised, placed with carer). An inventory of hollows and fallen timber salvaged and relocated will be maintained.	Section 5.2.2 Fauna Handling, Rescue and Release Procedure (Appendix F)
B14	All machinery entering the site will be appropriately washed down and disinfected prior to work on site to prevent the potential spread of weeds and disease in accordance with the NSW best practice Protocols to protect priority biodiversity areas (DPIE 2020f). Protocols to prevent introduction or spread of chytrid fungus will be implemented following the NSW hygiene guidelines for wildlife (DPIE 2020f). Vehicle washdown logbooks will be maintained.	Weed and Pathogen Control Plan (Appendix G) Table 5-4

Reference number	Condition requirement	Document Reference
B15	Declared priority weeds will be managed according to requirements of the NSW <i>Biosecurity Act</i>. Soil material and stripped groundcover vegetation with the potential to contain priority weeds will not be removed from the proposal footprint. Soil disturbance would be avoided as much as possible to minimise the potential for spreading weeds.	Weed and Pathogen Control Plan (Appendix G) Table 5-4
B18	Appropriate speeds for all construction and contractor vehicles will be enforced to limit dust generation and minimise risk of fauna mortality through vehicle strike during construction and operation.	Table 5-4
B19	Works would be confined to daytime hours of 7:00am to 6:00pm, Monday to Sunday (including public holidays), with the exception of the limited activities as described above for noise impacts. Light generated during construction will be managed in general accordance with the requirements in Australian Standard AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting. Directional lighting will be used to minimise the effects of light spill outside the CAZ as far as possible.	Table 5-4

3. Existing environment

3.1. Vegetation communities

3.1.1. Terrestrial vegetation

The Project site contains large areas of cleared and degraded land that support agricultural production and cattle grazing areas as well as areas of native vegetation. Native vegetation predominantly occurs along the riparian corridors of Billabong Creek and Forest Anabran Creek, which intersect the Project site. Plant Community Types (PCTs) occurring within the Project site are identified in Table 3-1, Figure 3-3 and Figure 3-2.

3.1.2. Aquatic vegetation

Submerged aquatic vegetation is largely absent from Billabong Creek. Floating plants such as *Azolla* sp., Water Primrose (*Ludwigia peploides*), and Water Couch (*Paspalum distichum*) occur sparsely along shallow margins. Emergent vegetation, including sedges (*Carex* sp.), rushes (*Juncus* sp.), Common Reed (*Phragmites australis*), and Broadleaf Cumbungi (*Typha orientalis*) lines the riverbanks and benches. Riparian zones remain dominated by native species, primarily River Red Gum (*Eucalyptus camaldulensis*) in frequently inundated areas and Black Box (*Eucalyptus largiflorens*) on higher ground, with occasional River Cooba (*Acacia stenophylla*).

3.2. Threatened ecological communities

3.2.1. Terrestrial TECs

Three PCTs identified within the Project site are associated with Threatened Ecological Communities (TEC) under the BC Act and/or EPBC Act, refer to Table 3-1. Vegetation within the Project site does not meet the condition listing requirements for a TEC.

3.2.2. Aquatic TECs

The Project site lies entirely within the Lower Murray River aquatic ecological community, which includes all natural creeks, rivers, lagoons, billabongs, and lakes in the regulated sections of the Murray, Murrumbidgee, and Tumut Rivers. This community, including its fish species and habitats, is listed as Endangered under the FM Act.

3.3. Threatened flora

3.3.1. Terrestrial flora

One threatened flora species, the Slender Darling Pea (*Swainsona murrayana*), listed as vulnerable under the BC Act and EPBC Act, was identified within the Hartwood site, refer to Figure 3-1, Figure 3-3 and Figure 3-2.



Figure 3-1 Slender Darling Pea (*Swainsona murrayana*) (ALA, accessed January 2026)

Targeted surveys were also conducted for the following flora species:

- Claypan Daisy (*Brachyscome muelleroides*)
- Mossiel Daisy (*Brachyscome papillosa*)
- Bindweed (*Convolvulus tedmoorei*)
- Small Scurf-pea (*Cullen parvum*)
- Yellow Gum (*Eucalyptus leucoxylon subsp. pruinosa*)
- Winged Peppergrass (*Lepidium monoplacoides*)
- Lanky Buttons (*Leptorhynchos orientalis*)
- Chariot Wheels (*Maireana cheelii*)
- Austral Pillwort (*Pilularia novaehollandiae*)
- Turnip Copperburr (*Sclerolaena napiformis*)
- Red Darling Pea (*Swainsona plagiotropis*)
- Silky Swainson-pea (*Swainsona sericea*).

None of these species were recorded during targeted surveys at both sites.

3.3.2. Aquatic flora

No threatened aquatic flora species were identified within the Project site.

Table 3-1 PCTs occurring within the Project site

PCT	BC Act Status	EPBC Act Status	Extent and condition of PCTs within Wanganella site	Extent and condition of PCTs within Hartwood site	Total extent of PCT (ha) within Project site
PCT 7: River Red Gum -Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion	Not listed	Not listed	Extent: 0.61 ha Condition: Moderate condition inland riverine forest (Vegetation Integrity (VI) score 47.6)	Extent: 0.84 ha Condition: Moderate condition inland riverine forest (VI score 82.7)	1.45
PCT 10: River Red Gum - Black Box woodland wetland of the semi-arid (warm) climatic zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Not listed	Not listed	Extent: 0.93 ha Condition: Moderate condition inland riverine forest (VI score 52.7)	Extent: 0.75 ha Condition: 0.49 ha (moderate condition inland riverine forest, VI score 74.3) 0.28 ha (shrubland, VI score 43.8)	1.68
PCT 13: Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Not listed	Not listed	Extent: 1.68 ha Condition: 0.79 ha (moderate condition inland floodplain woodland, VI score 87.6) 0.89 ha (derived native grassland (DNG), VI score 17)	Extent: 4.26 ha Condition: 1.87 ha (DNG, VI score 27.3) 2.39 ha (moderate condition inland floodplain woodland, VI score 64.6)	5.96
PCT 44: Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Not listed	Listed in part - Natural Grasslands of the Murray Valley Plains (Critically Endangered Ecological Community (CEEC)). Vegetation within the Project site <u>does not</u> meet the condition listing for a TEC.	-	Extent: 0.32 ha Condition: Moderate condition riverine plain grasslands (VI score 75.9)	0.32
PCT 46: Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain, Riverina Bioregion	Not listed	Listed in part - Natural Grasslands of the Murray Valley Plains (Critically Endangered Ecological Community (CEEC)). Vegetation within the Project site <u>does not</u> meet the condition listing for a TEC.	Extent: 1.89 ha Condition: Moderate condition riverine plain grasslands (VI score 89.1)	Extent: 4.78 ha Condition: 4.32 ha (moderate condition riverine plain grasslands, VI score 85.4) 0.48 ha (poor condition riverine plain grasslands, VI score 44.4)	6.67
PCT 160: Nitre Goosefoot shrubland wetland on clays of the inland floodplains	Listed in part - Artesian Springs Ecological Community in the Great Artesian Basin (CEEC). Vegetation within the Project site <u>does not</u> meet the condition listing for a TEC.	Not listed	Extent: 0.19 ha Condition: Moderate condition inland floodplain shrublands (VI score 97.3)	-	0.19

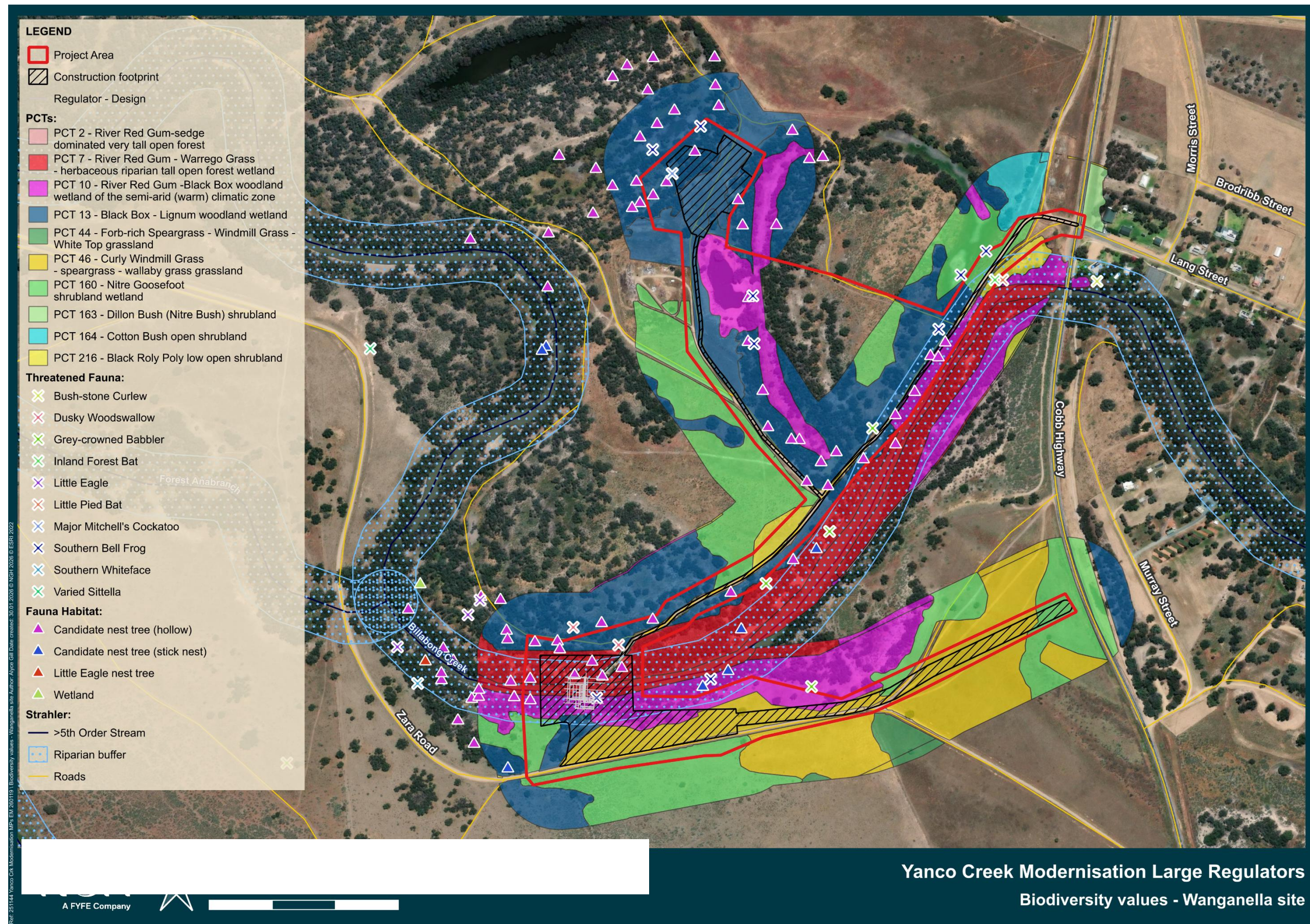


Figure 3-2 Biodiversity values occurring within the Wanganella Regulator site

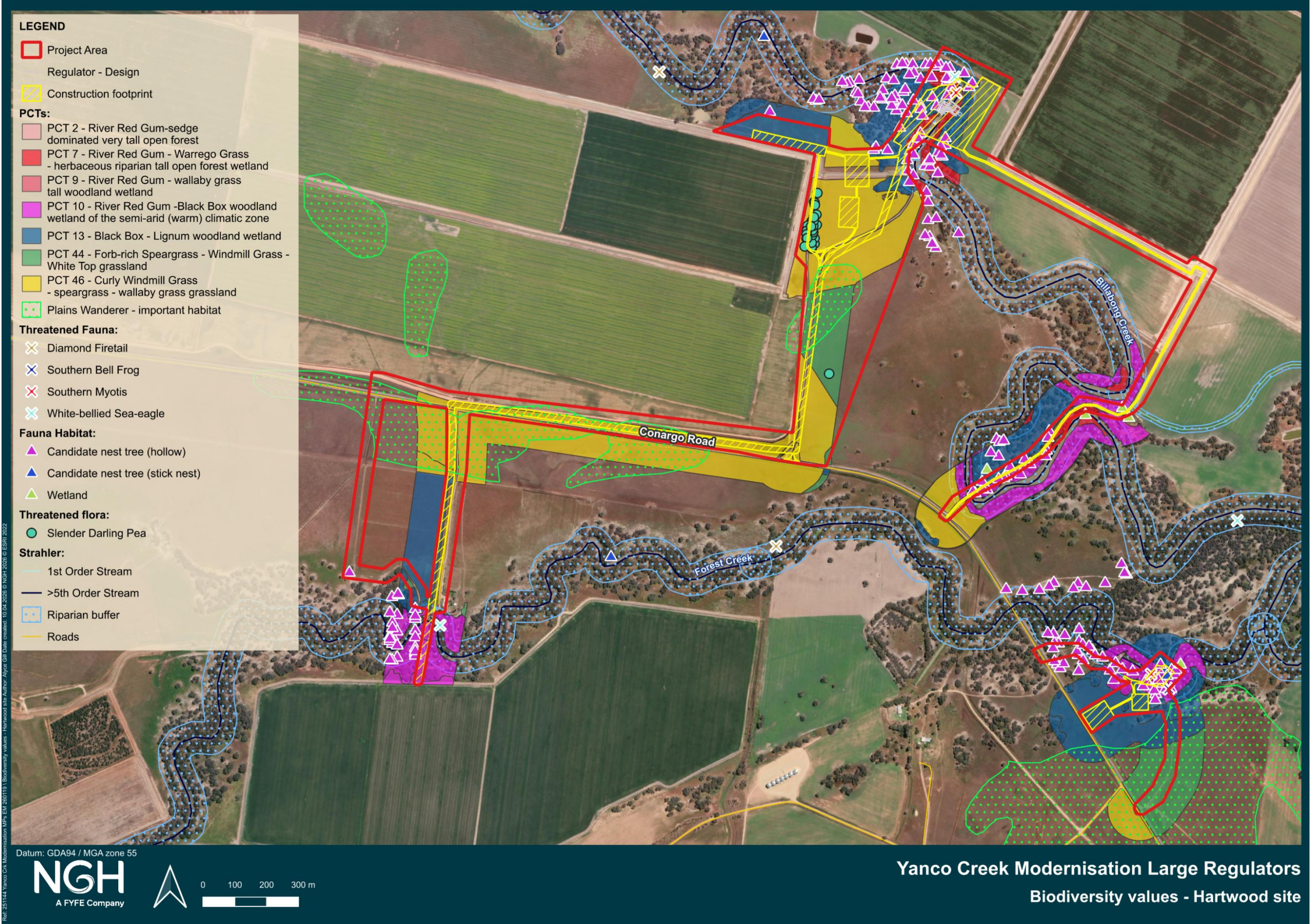


Figure 3-3 Biodiversity values occurring within the Hartwood Regulator site

3.4. Weeds and pathogens

Refer to the Weed and Pathogen Control Plan (WPCP) (Appendix G).

3.5. Threatened fauna

3.5.1. Terrestrial fauna

Table 3-2 outlines the threatened terrestrial fauna species identified within the Project site. Refer to Figure 3-3 and Figure 3-2 for the location of threatened species recorded during the surveys for each site.

Table 3-2 Threatened terrestrial fauna species identified within the Project site

Name	Conservation status	Relevant site	Image
Bush Stone-curlew (<i>Burhinus grallarius</i>)	Endangered under the BC Act	Wanganella site	 Source: (NSW OEH, accessed January 2026a)
Dusky Woodswallow (<i>Artamus cyanopterus cyanopterus</i>)	Vulnerable under the BC Act	Wanganella site	 Source: (Birdlife Australia, accessed January 2026)

Name	Conservation status	Relevant site	Image
Little Eagle (<i>Hieraaetus morphnoides</i>)	Vulnerable under the BC Act	Wanganella site	 Source: (eBird, accessed January 2026)
Grey-crowned Babbler (eastern subspecies) (<i>Pomatostomus temporalis temporalis</i>)	Vulnerable under the BC Act	Wanganella site	 Source: (NSW Government, accessed January 2026)

Name	Conservation status	Relevant site	Image
White-bellied Sea-eagle (<i>Haliaeetus leucogaster</i>)	Vulnerable under the BC Act	Hartwood site	 Source: (iNaturalist, accessed January 2026)
Major Mitchell's Cockatoo (<i>Lophochroa leadbeateri</i>)	Vulnerable under the BC Act, Endangered under the EPBC Act	Wanganella site	 Source: (DAWE, accessed January 2026)
Southern Whiteface (<i>Aphelocephala leucopsis</i>)	Critically Endangered under the BC Act and EPBC Act	Wanganella site	 Source: (eBird, accessed January 2026a)

Name	Conservation status	Relevant site	Image
Diamond Firetail (<i>Stagnopleura guttata</i>)	Vulnerable under the BC Act and EPBC Act	Hartwood site	 Source: (eBird, accessed January 2026b)
Varied Sittella (<i>Daphoenositta chrysoptera</i>)	Vulnerable under the BC Act	Wanganella site	 Source: (eBird, accessed January 2026c)
Inland Forest Bat (<i>Vespadelus baverstocki</i>)	Vulnerable under the BC Act	Wanganella site	 Source: (Australian Museum, accessed January 2026)

Name	Conservation status	Relevant site	Image
Little Pied Bat (<i>Chalinolobus picatus</i>)	Vulnerable under the BC Act	Wanganella site	 Source: (Australian Museum, accessed January 2026a)
Plains Wanderer (<i>Pedionomus torquatus</i>)	Endangered under the BC Act, Critically Endangered under the EPBC Act	Both sites	 Source: (NSW OEH, accessed January 2026)
Southern Myotis (<i>Myotis aelleni</i>)	Vulnerable under the BC Act	Hartwood site	 Source: (Australian Museum, accessed January 2026b)

In addition to this, a number of threatened fauna species were identified as having the potential to occur within the Project site:

- Australian Bustard (*Ardeotis australis*)
- Square-tailed Kite (nesting) (*Lophoictinia isura*)
- Barking Owl (*Ninox connivens*)
- Koala (*Phascolarctos cinereus*)
- Superb Parrot (nesting) (*Polytelis swainsonii*)
- Masked Owl (*Tyto novaehollandiae*).

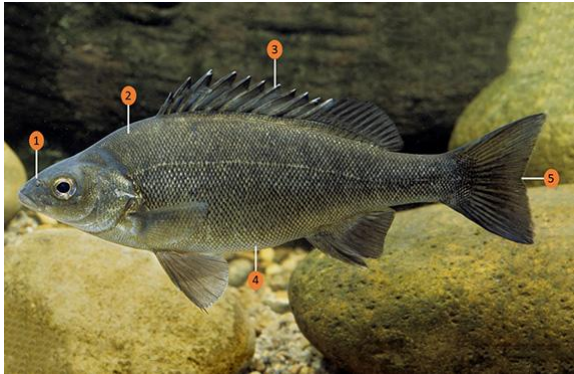
These fauna species were not identified during surveys and did not generate species credits for the Project.

3.5.2. Aquatic fauna

Refer to Table 3-3 for threatened aquatic fauna species that are known to, or predicted to occur, within the Project site.

Table 3-3 Threatened aquatic fauna species known to, or predicted to occur, within the Project site

Name	Conservation status	Relevant site	Image
Southern Bell Frog (<i>Litoria raniformis</i>)	Endangered under the BC Act, vulnerable under the EPBC Act	Wanganella site	 Source: (ALA, accessed January 2026j)
Murray Cod (<i>Maccullochella peelii</i>)	Vulnerable under the EPBC Act	Both sites	 Source: (Australian Museum, accessed January 2026b)

Name	Conservation status	Relevant site	Image
Silver Perch (<i>Bidyanus bidyanus</i>)	Endangered under the EPBC Act, Vulnerable under the FM Act	Both sites	 Source: (NSW DPIRD, accessed January 2026)
Freshwater Catfish (<i>Tandanus tandanus</i>)	Endangered population under the FM Act	Both sites	 Source: (NSW DPIRD, accessed January 2026a)
Murray Crayfish (<i>Eustacus armatus</i>)	Vulnerable under the FM Act	Both sites	 Source: (NSW DPIRD, accessed January 2026b)

3.6. Fauna habitat

3.6.1. Terrestrial habitat

Refer to Table 3-4 for a summary of fauna habitat identified within the Project site.

Table 3-4 Fauna habitat identified within the Project site

Habitat type	Hartwood site	Wanganella site
Rivers and streams	Billabong Creek and Forest Creek	Billabong Creek and Forest Anabranh
	Billabong Creek is part of the anabranh complex of interconnecting channels that comprises the Yanco Creek System. The Yanco Creek System is extensive, with almost 800 km of natural channels (creeks and streams) over a region that stretches 250 km from east to west. The main branches of the system are Yanco, Colombo, Billabong, Forest and Piccaninny creeks.	
Wetlands	A small ephemeral wetland occurs within the southeastern portion of the site.	A small ephemeral wetland occurs within the northwestern portion of the site.
Riparian vegetation	Riparian vegetation occurs along Billabong Creek and Forest Creek.	Riparian vegetation occurs along Billabong Creek and the Forest Anabranh.
Hollow-bearing trees (HBTs)	82 HBTs were identified within the clearing zone during preconstruction surveys by NGH.	25 HBTs were identified within the clearing zone during preconstruction surveys by NGH.
Other habitat features	Fallen / standing dead timber, including logs and nest trees. No rocky habitat was identified within the Project site.	

3.6.2. Aquatic habitat

Mid and lower Billabong Creek contain a moderate to high abundance of in-stream structural habitat, including large woody debris, snags and rootballs. Refuge habitats, such as deep permanent pools, are relatively common within weir pools but occur infrequently elsewhere. Riverbank benching is also prevalent, contributing to variations in water depth and substrate that support plant growth and other key ecological functions.

Billabong Creek, within the Project site, and the nearby connected Colombo Creek and Forest Creek are identified as a sensitive receiving environment (Type 1 – Highly Sensitive Key Fish Habitat) because the waterways are known to support threatened species listed under the EPBC Act and FM Act.

3.7. Pests

3.7.1. Terrestrial pests

The following pest species were identified during surveys:

- Rabbit (*Oryctolagus cuniculus*)
- Brown Hare (*Lepus capensis*)
- Fox (*Vulpes vulpes*)
- Common Starling (*Sturnus vulgaris*).

3.7.2. Aquatic pests

The following aquatic pests are known to occur within the Yanco system:

- Common Carp (*Cyprinus carpio*)
- Goldfish (*Carassius auratus*)
- Redfin Perch (*Perca fluviatilis*)
- Eastern Gambusia (*Gambusia holbrooki*)
- Oriental Weatherloach (*Misgurnus anguillicaudatus*).

3.8. Bushfire risk

Both sites are surrounded by Category 2 vegetation, which signifies lower bush fire risk.

4. Environmental aspects and impacts

4.1. Construction activities

A variety of construction activities that have the potential to impact upon biodiversity will be undertaken as part of the Project. These activities include, but are not limited to:

- Vegetation removal
- Topsoil stripping
- Earthworks
- In-stream works including riparian and aquatic vegetation removal
- Dewatering
- Concreting works
- Site access including movement of heavy vehicles around works area
- Use of chemicals / fuels (potential for spills and subsequent contamination of waterways / habitats)
- Material stockpiles
- Waterway crossings
- Use of artificial lights
- Dust
- Construction noise.

4.2. Impacts

The potential for impacts to biodiversity from the Project include:

- Loss of native vegetation/fauna habitat including the removal of hollow-bearing trees, specifically:
 - 10.99 ha of native vegetation at Hartwood
 - 5.30 ha of native vegetation at Wanganella
 - 22 hollow-bearing trees.
- Loss of aquatic vegetation/fauna habitat
- Disturbance of river/creek beds and banks
- Direct and indirect impacts to fauna including injury and mortality and loss of foraging resources
- Inadvertent impacts on adjacent habitat or vegetation (e.g. fragmentation and edge effects)
- Introduction and spread of plant diseases and pathogens
- Introduction and spread of priority weeds
- Impacts to unexpected or incidental threatened flora and fauna
- Earthworks, erosion and mobilisation of sediments
- Removal and disturbance of rocks
- Increase in pests and predators
- Reduced viability of adjacent habitat due to edge effects
- Disturbances to native fauna through excessive dust, noise and light
- Contamination of surrounding habitat with wastes.

5. Biodiversity management protocols and procedures

5.1. Definition of site boundary

Clearly delineating the Project boundary, clearing limits and biodiversity exclusion zones with fencing and signage to restrict access and protect vegetation to be retained, is paramount to ensuring that disturbance to native vegetation and habitat are kept to only the amount that has been approved to be cleared. Important boundaries (refer to Figure 5-1 and Figure 5-2) are:

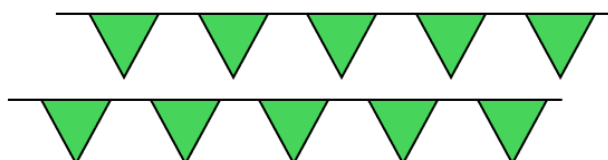
- Clearing Limits
- Environmental no-go zones
- Riparian exclusion zones
- Tree Protection Zones (TPZs).
- Construction Activity Zone (CAZ)

The delineation of boundaries shall be undertaken as follows:

- Riparian exclusion zones shall be established prior to the commencement of clearing and be maintained throughout construction.
- Exclusion zones (no-go zones) e.g. heritage items, threatened species, to be marked out by a qualified surveyor and then fenced with parawebbing attached to star pickets with plastic caps (or weighted posts that avoid ground penetration in culturally sensitive areas) and signposted. No barbed wire will be permitted for use onsite. An Environmental No-Go Zone Entry Permit is provided in Appendix B. The permit will be completed and approved by the ESR, prior to entering no-go zones.



- Construction fencing will be temporary to exclude wildlife (e.g. from open trenches): Fencing stays located inside the exclusion area, or with high visibility mesh to guide wildlife away from obstructions and potential traps. Shade cloth or other suitable deterrent will be attached to the lower 50 cm of the outside of the exclusion zone and weighted to the ground
- Erect signage to inform personnel of the purpose of fencing. Signs should be clearly visible from a distance of at least 20 m and should be general in nature, for example 'Exclusion Zone'
- Clearing limits shall be delineated by a qualified surveyor, prior to proposed commencement of clearing
- Clearing limits shall be delineated with star pickets and clearly visible double rows of green flagging to identify the boundary.



- TPZs shall be installed around retained trees within and adjacent to the Project boundary, and shall be established in accordance with Australian Standard AS 4970-2009 *Protection of trees on development sites*
- Ensure all fencing/ delineated areas are maintained (inspected as part of the weekly environmental inspection and repaired)
- Removal of any fencing/ demarcation or exclusion fencing shall only be undertaken in consultation with the Site Supervisor and Environmental Site Representative (ESR).
- Construction Activity Zones shall be delineated with star pickets and clearly visible single row of orange flagging to identify the boundary.



The Project induction shall communicate the importance of fencing/ flagging protocols and identify the exclusion zones.

Delineation of the site boundary, clearing areas and other protected zones is a hold point for construction. An audit and approval of the delineation extents (via a site inspection and a Trimble – a highly accurate GPS) by DCCEEW is required before further construction activities proceed.

Biodiversity Management Plan

Billabong Creek Environmental Water Regulators (Parts 2A & 2C)



Figure 5-1 Clearing boundaries and no-go zones – Wanganella



Figure 5-2 Clearing boundaries and no-go zones – Hartwood

5.2. Clearing protocols and surveys

5.2.1. Supplementary surveys

Initial supplementary surveys have been undertaken for threatened species and these are contained in Appendix I and summarised below. Apart from two *Swainsona murrayana* no threatened species were found. Additional supplementary surveys would be undertaken in breeding/flowering season based on the criteria below to maximise the opportunity to detect threatened species.

The additional supplementary surveys would include the following:

- The local *Swainsona murrayana* population, including:
 - Undertaken within the August to November flowering period for the species
 - Consideration of prevailing rainfall conditions in the preceding cool season and assessment of the likely health and extent of the local population
 - Definition and implementation of additional impact and avoidance measures as appropriate potentially including delayed construction activity, adjustment of construction zones, exclusion fencing and/or translocation.
- The local Southern Bell Frog population, including:
 - Undertaken within the Spring-Summer breeding and higher adult frog activity period for the species
 - Consideration of prevailing rainfall and river conditions and assessment of the likely presence and extent of potential breeding habitat in ephemeral wetlands
 - Designed to confirm the extent of occupied breeding habitat and/or mobile adult frogs in the local population. Definition and implementation of additional impact and avoidance measures as appropriate potentially including (but not limited to) delayed construction activity, adjustment of construction zones, exclusion fencing, procedures for dewatering of wetlands and/or translocation.
- Threatened bird breeding habitat, including:
 - Undertaken within the Spring-Summer breeding periods for the Little Eagle, Pink Cockatoo, Plains Wanderer and other threatened bird species
 - Inspection of the known Little Eagle nest tree location, species polygon areas, and any other suitable habitat containing candidate nest trees within 200 m of the proposal footprint
 - Designed to confirm the presence of occupied nest trees, breeding activity, and behaviour of birds in the vicinity of the proposal footprint
 - Definition and implementation of additional impact and avoidance measures as appropriate to ensure that occupied nests are not disturbed, potentially including delayed construction activity, adjustment of construction zones and exclusion fencing.

A summary of the initial supplementary survey is presented below.

At Hartwood Regulator and associated construction areas:

- Two *Swainsona murrayana* were detected outside of the construction footprint adjacent to an access track. Mitigation measures that will be implemented include the erection of exclusion fencing around the individuals and the implementation of a no-go-zone. All construction personnel informed of exclusion zone during site induction weed and pathogen hygiene controls strictly followed as per BMP. An additional survey/s will be conducted for *Swainsona murrayana* in September.

- No Southern bell frogs were detected during aural or visual surveys. As surveys were undertaken outside of the species' recognised breeding and optimal survey period, it is likely the species is still present within the Project site. Outside the breeding season, Southern bell frogs are known to shelter within deep soil cracks and ground debris. Mitigation measures that will be implemented include a suitably qualified Fauna Spotter Catcher supervising disturbance or removal of potential Southern bell frog habitat.
- All candidate breeding hollows were inspected for Pink Cockatoos, with no signs of use evident. One large raptor stick nest was recorded within 200m of the footprint and was inspected. There were no signs of use and evidence of an inactive nest due to donut shape/hole in middle of nest. The mitigation measures include a suitably qualified Fauna Spotter Catcher must be present during works that involve the disturbance or removal of any candidate breeding HBT (>3m height, >8cm diameter) or large raptor stick nests.

At Wanganella Regulator and associated construction areas:

- No targeted surveys for *Swainsona murrayana* required.
- No Southern bell frogs were detected during aural or visual surveys. As surveys were undertaken outside of the species' recognised breeding and optimal survey period, it is likely the species is still present within the Subject Land. Outside the breeding season, Southern bell frogs are known to shelter within deep soil cracks and ground debris. Mitigation measures that will be implemented include a suitably qualified Fauna Spotter Catcher supervising disturbance or removal of potential Southern bell frog habitat.
- Eleven large raptor stick nests were recorded within 200m of the footprint and were inspected. There were no signs of use in any stick nest. A 30-minute stick nest watch occurred for the known Little Eagle nest, with no evidence of use. Whitewash approximately 5m from the nest was observed suggesting birds may still be roosting adjacent to the stick nest, although this may still be present from when the nest was active. All mapped candidate hollows (>3m high, >8cm diameter) were inspected for evidence of use by breeding Pink Cockatoos. A total of 19 candidate hollows were inspected with no signs of use recorded. The mitigation measures include a suitably qualified Fauna Spotter Catcher must be present during works that involve the disturbance or removal of any candidate breeding HBT (>3m height, >8cm diameter) or large raptor stick nests.

Based on the results of the additional supplementary surveys mitigation measures will be reviewed and additional mitigation measures may be implemented including adjustment of construction zones etc. and this BMP will be updated accordingly.

5.2.2. Clearing protocols

Clearing protocols will be implemented to ensure that vegetation is removed from the site in a manner that reduces overall impacts to biodiversity. No clearing will be undertaken outside of the approved clearing area at any time during construction of the Project. An assessment would be undertaken to determine whether any vegetation (particularly trees) can be retained in the clearing area. The following guiding principles of native vegetation clearing will be adhered to:

- A daily pre-clearance fauna survey of the day's work area, undertaken by a suitably qualified ecologist prior to the clearing of native vegetation
- Seed collection to be undertaken prior to the commencement of clearing

- Native vegetation trimming and/or clearing will only occur in the presence of a suitably qualified, licensed and trained ecologist/ fauna spotter catcher
- Significant habitat resources (fallen timber, hollow logs and embedded rock) will be retained/ relocated within the Project site to provide supplementary habitat for displaced fauna, refer to Section 5.3 for more detail
- Native vegetation clearing will be staged (two-stages). The clearing of HBTs (Stage 2) is to be supervised by an ecologist or trained fauna spotter catcher to allow for resident fauna to relocate or be relocated where required (refer below).

The two-stage clearing process will involve survey and preparation work prior to the commencement of clearing. These stages are described in detail below.

Pre-clearing surveys

The purpose of pre-clearing surveys is to identify habitat features that contain resident fauna, which might otherwise be killed or injured during the removal of native vegetation that has been approved for clearing. The pre-clearing protocol also identifies vegetative and soil resources for salvage, located within the Project site that will be beneficially reused for the enhancement of the site. Steps to be taken during pre-clearing surveys are listed below:

- Pre-clearing surveys will be undertaken by a suitably qualified ecologist or fauna spotter catcher with experience in fauna handling no more than 48 hours before clearing
- The Vegetation Impact Permit attached as Appendix D will be completed. The following will occur:
 - Boundaries approved for clearing will be confirmed (marked out by surveyor and then fenced, and walked by the ESR)
 - The ecologist or fauna spotter catcher will mark any habitat within the approved clearing limits, as either:
 - For staged clearing (hollow bearing trees, habitat features marked with a 'H')
 - For relocation (i.e. fallen logs, hollows, tree trunks, root balls) or
 - For removal (non-hollow bearing trees)
 - Descriptions on how to remove habitat features and relocation practices and final location will be described by the ecologist to the machine operators
 - Suitable topsoil (weed free) resources salvage for reuse in the enhancement or rehabilitation of disturbed sites (rehabilitation) shall also be identified and retained for later use
 - Targeted searches for threatened species will be conducted
 - Confirmation that biodiversity offsets have been retired (where applicable) for the vegetation that is to be cleared
- Fauna recorded within the approved clearing limits may be relocated prior to the commencement of clearing, as determined by the supervising ecologist or fauna spotter catcher (i.e. nests as appropriate). This will be done as per Fauna Rescue and Release Procedure, refer to Appendix F
- In the case of unexpected or incidental threatened species finds, the procedure outlined in Appendix C shall be followed
- Contact will be made with the local vet and/ or wildlife rescue organisation (contact details outlined in Section 6.5.2) approximately 14 days prior to the commencement of clearing works to ensure a local wildlife carer is available in the case that injured native fauna or dependent young are found and need care.

Clearing (Stage One)

Before vegetation is removed from the site, the following will be undertaken:

- A qualified ecologist or fauna spotter catcher with experience in fauna handling must be present on site during the clearing of vegetation to supervise the works
- Machine operators are to be informed of:
 - The clearing boundary and exclusion zones
 - Habitat features to be relocated, how to remove them and where to relocate them to (i.e. bush rock, fallen logs)
 - Hollow bearing trees to be cleared in Stage 2.
- During clearing, bush rocks and suitable logs (as determined by ecologist or fauna spotter catcher, in accordance with bushfire management requirements) will be relocated to the adjacent retained vegetation areas for habitat enhancement
- Details on fauna rescue and release (such as relocation of nests) is provided in Appendix F
- In the event that an unexpected or incidental threatened species is observed/ recorded (i.e. a species not predicted or known to occur within the site) during the native vegetation removal process, the Unexpected or Incidental Threatened Species Finds Procedure is to be followed (refer to Appendix C)
- Pruning of mature trees, if required, is to be in accordance with Part 5 of the *Australian Standard 4373-2007 Pruning of amenity trees* and completed by an AQF Level 3 Arborist
- Hollow-bearing trees shall not be cleared during this stage (Stage one). Hollow-bearing trees must only be cleared during Stage Two (refer below).

Habitat features (Stage Two)

Hollow-bearing trees

At the completion of Stage one, only HBTs (marked with 'H') will remain within the clearing area. Stage two clearing will involve:

- An Ecologist/ fauna spotter catcher will undertake a survey to confirm clearing boundaries, trees marked to be cleared and relocate any fauna or nests identified in the tree in accordance with procedure provided in Stage One above
- Using an excavator, the machine operator shall gently shake/tap the HBT to encourage any resident fauna to vacate the tree. The tree is then to be left overnight (at a minimum) before being removed. Any HBT that has been left for longer than 48 hours since being shaken/tapped, is to be re-shaken/tapped at least 24 hours prior to removal
- When removing HBTs, the ecologist/ fauna spotter catcher must be present at each tree to be removed, to look for signs of animal movement in the tree to be cleared. The ecologist / fauna spotter-catcher should be able to communicate directly with plant operators
- Prior to clearing hollow-bearing trees, use an excavator or loader to hit the trunk as high up the tree as possible several times. Wait at least 30 seconds. Repeat this process several times
- The tree will be felled in a controlled manner with an excavator to minimise break up of tree and impact/crushing risk to fauna
- If taking the tree down in stages, remove non-hollow-bearing limbs first. Then remove hollow-bearing limbs
- Once the hollow-bearing limbs or hollow-bearing tree are on the ground, the fauna spotter catcher must check each hollow for signs of wildlife before the next limb/tree is removed
- Records of any animals removed or injured must be recorded (refer to Appendix F)

- The salvaged fallen hollows have the potential to support fauna and should be placed in adjacent habitat until the following day for further inspection by an ecologist or fauna spotter catcher to verify no fauna is present
- Ecologist or the fauna spotter catcher shall select appropriate hollows to be attached to younger trees to be retained or placed in adjacent areas to provide habitat
- A GPS coordinate and a photo record of where each of the salvaged fallen hollows are relocated to will be taken.

Other habitat features

A pre-clearance survey will be undertaken for all other habitat features (e.g. man-made structures, nest trees, floodplain depressions (that may contain breeding habitat for the Southern Bell Frog) and cracking clay soils or woody debris (that may harbour Grey Snakes or Southern Bell Frogs) occurring within the Project site.

The Project Ecologist/ fauna spotter catcher will be consulted to determine the best survey method for each habitat feature.

Post-clearing survey

Following clearing, the ecologist or fauna spotter catcher will survey the cleared area using the post-clearing checklist attached as Appendix E.

A post-clearing report will be prepared, documenting all animals that are handled, or otherwise managed, within the site. Data to be recorded (refer to Appendix F) includes:

- Date and time of the sighting and details of the observer
- Species
- Number of individuals recorded
- Adult/juvenile
- Condition of the animal (living/dead/injured/sick)
- Management action undertaken (e.g. captured, handled, taken to vet)
- Results of any management actions (e.g. released, placed in a nest box, euthanised, placed with carer).

An inventory of hollows and fallen timber salvaged and relocated will also be maintained.

5.3. Enhancement of retained vegetation

Retained vegetation occurring within the Project site will be enhanced through the following:

- Re-use of coarse woody debris, plant material, rocks and topsoil retrieved from the development footprint during construction (refer below)
- Natural recruitment
- Weed and pathogen management
- Pest management.

Where reuse is not possible, relevant council(s), Local Land Services, local Landcare groups, DPIRD Fisheries and any additional relevant government agencies will be consulted prior to the removal of vegetation and other habitat to determine if:

- Hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and root balls salvaged from native vegetation impacted by the SSI; and

- Collected plant material, seeds and/or propagated plants from native vegetation impacted by the Project, could be used by others in the local area in habitat enhancement and rehabilitation work which is currently underway or planned within 6 months of removal, before pursuing other disposal options. If the timber can be re-used by others, the Proponent will advise them and facilitate access for salvage.

5.3.1. Re-use of coarse woody debris

Where practicable, felled timber with a diameter between 200 millimetres (mm) and 600 mm will be reused as coarse woody debris (CWD) to enhance habitat values within retained vegetation areas and maximise the beneficial reuse of site resources.

CWD can provide:

- Habitat for micro-invertebrates and macro-invertebrates
- Habitat for vertebrates using fallen timber for shelter, e.g. skinks, geckoes, dunnarts
- Habitat for vertebrates using fallen timber for foraging, e.g. treecreepers, robins
- A source of nutrients and microorganisms for native vegetation growth
- Increased habitat complexity.

CWD will be placed as discrete logs (no more than 10 m per 1000 metres squared (m²)), rather than in piles to reduce fire risk and potential use by feral animals such as foxes and rabbits.

CWD will be placed sparingly in grassland environments (5 m per 1000 m²), to provide shelter habitat while maintaining the open structure and floristic integrity of the grassland.

CWD will not be placed in Plains Wanderer (*Pedionomus torquatus*) habitat (refer to Figure 3-3).

The transportation and placement of CWD will be carried out in a manner that minimises disturbance to native vegetation, including the canopy, trees, shrubs, standing dead timber, fallen timber and groundcover, as well as topsoil. Felled timber greater than 600 mm in diameter (primarily tree trunks) will be used as CWD where practicable or left on site where it is too large to transport.

Felled timber between 10 mm and 200 mm in diameter will be chipped and reused onsite. Mulched or chipped vegetation that is free from weeds, and that has been salvaged during the vegetation clearing process may also be used to return groundcover to areas where bare ground is observed.

Any large woody debris and snags (>3m long or 30cm wide) occurring within the waterway that have to be removed from the construction footprint will be moved to a suitable location upstream or downstream of the site in consultation with a qualified ecologist and WaterNSW.

5.3.2. Plant material, seeds and/or propagated plants

Where practicable, plant material, seeds and/or propagated plants from native vegetation to be impacted by the Project will be collected and re-used during the rehabilitation of the Project site. The onsite ecologist will provide guidance regarding best practice seed collection, storage and propagation for each species.

5.3.3. Reuse of rocks

Rocks greater than 300 mm in diameter at their widest point removed during construction will be retained and relocated to retained woodland areas and planted visual screens. Removal, transportation, and

placement of rocks will be carried out in a manner that minimises disturbance to vegetation constraints, including the canopy, trees, shrubs, standing dead timber, fallen timber and groundcover, as well as topsoil.

Rocks will not be placed in Plains Wanderer (*Pedionomus torquatus*) habitat (refer to Figure 3-3).

5.3.4. Reuse of soil resources

During construction, excess topsoil from within the Project site will be stockpiled for beneficial reuse during rehabilitation works.

5.4. Weed and pathogen management

The WPCP will be implemented during the construction of the Project, refer to Appendix G.

5.5. Pest management

The contractor and operator are responsible for the management of pests within the Project Site. The landholder is responsible for pest management in areas beyond the site (or lease area). Abergeldie will implement the following measures to prevent the introduction or spread of pest species onsite:

- Barrier exclusions and covers will be implemented within and surrounding construction compounds and work sites in conjunction with construction fencing, particularly where monitoring has identified the incursion of pest species
- Materials or practices that may improve pest species habitat will be avoided
- Organic waste will be appropriately stored in a manner that is inaccessible to animals (including pest species) and disposed off-site at a suitably licenced facility.

5.6. Fauna protection, handling and release

Lower impact construction activities have been targeted in breeding season of threatened species. More intensive construction activities will be undertaken in Autumn and Winter, generally avoiding the breeding seasons identified above, with less intensive construction activities undertaken in Spring and Summer, as detailed in the program below.

Early Works / Major Works (May – July 2026)

- Site establishment & mobilisation: mid Apr – May 2026
- Construction commencement: early May 2026
- Clearing, grubbing, erosion & sediment controls: May – Jun 2026
- Diversion channel / flow isolation works: May – mid Jun 2026
- Bulk earthworks & excavation: mid Jun – early Jul 2026
- Permanent sheet piling: late Jun – early Jul 2026

In-Channel Structural Works (Jul – Oct 2026)

- Structural concrete works (basin, apron, wing walls): Jul – Aug 2026
- Fishway construction: Jul – Sep 2026
- Mechanical installation (gates, actuators, bulkheads): Sep – Oct 2026
- Electrical installation & conduits: Jul – Oct 2026 (progressive)

- Control building works: Sep – Oct 2026
- Staged backfilling within controlled footprint: Aug – Sep 2026

Commissioning / Completion Works (Oct – Dec 2026)

- Mechanical completion: Oct 2026
- Static & dynamic testing: mid Oct 2026
- Dry commissioning: late Oct 2026
- Wet commissioning (client-led): Nov 2026
- Demobilisation & site finishing works: Oct – Dec 2026

Handover & Final Completion (Dec 2026 – Apr 2027)

- As-built documentation / close-out: Dec 2026 – Jan 2027
- Existing structure demolition: Feb – Apr 2027
- Final completion: Apr 2027

During the breeding season period, the remaining works are primarily driven by structural completion, installation, and commissioning requirements. These activities are generally confined to the constructed footprint within the channel and do not rely on additional large-scale disturbance or expansion of work areas outside the main regulator structure and backfill zones.

As the site would be cleared, it would not contain breeding habitat for threatened bird species. However the most likely potential additional impacts are to the:

- Southern Bell Frog (*Litoria raniformis*) - may potentially migrate into the construction area
- Little Eagle (*Hieraaetus morphnoides*) – which may nest in close proximity to construction zone and could be impacted by noise and other indirect impacts from construction activities

The Southern Bell Frog breeds in areas of shallow water, submerged vegetation, and on floating debris. These types of habitat are unlikely to occur in the construction area as most riparian and aquatic vegetation would have been removed and the main channel of Billabong Creek has relatively high water velocities from the delivery of water to the environment and water users. Weekly inspections would include targeting any shallow low velocity areas for gelatinous egg clumps or tadpoles and if detected would be managed in accordance with Appendix F.

Where practicable, open trenches will not be left overnight. Where trenches cannot be closed, trenches will be checked at the start of each day and ramps would be installed to aid animal escape. The Environmental Site Representative (who has received training in fauna identification) would be contacted if fauna is detected in a trench

If the Little Eagle or other raptor species are observed nesting in areas near the construction areas at any time or during the additional supplementary surveys, the Unexpected and Incidental Threatened Species Finds Procedure (Appendix C) will be implemented. Where nesting occurs within 100m of construction activities this would trigger a cessation of the relevant construction activities and consultation with CPHR to develop appropriate mitigation measures.

A Fauna Handling, Rescue and Release Procedure has been developed and is included in Appendix F. The Fauna Handling, Rescue and Release Procedure must be implemented whenever fauna is encountered

within the Project site which require rescuing or relocation. Fauna rescue and/or relocation will be carried out by an experienced ecologist or licenced wildlife handler/carer.

5.6.1. Protection of Plains-wanderer (*Pedionomus torquatus*) and its habitat

The Plains-wanderer (*Pedionomus torquatus*) is a Serious and Irreversible Impacts (SAIL) listed species. Habitat suitable for this species was identified within the Hartwood site, refer to Figure 3-3.

The following management measures will be implemented during the construction of the Project (within the Hartwood site):

- Vegetation clearing of the Plains-wander habitat was minimised during detailed design and the identification of ancillary construction areas as assessed in the EIS. Further construction planning has not identified any additional opportunities to minimise impacts.
- The clearing protocols provided in Section 5.2 will be implemented
- No CWD or rocks will be placed into Plains-wander habitat
- Plains Wander Habitat would be designated as no-go zones and flagged as such
- Appropriate speeds for all construction and contractor vehicles will be enforced to minimise fauna mortality
- Site inductions and toolbox talks (at the Hartwood site) will include details about the species and management measures for the Plains-wanderer (*Pedionomus torquatus*). Refer to Table 3-2 for a photo of the species.

5.7. Unexpected and incidental threatened species finds

An Unexpected and Incidental Threatened Species Finds Procedure has been developed and is included in Appendix C. The procedure is to be implemented following the discovery of any known or suspected threatened flora or fauna within the Project site.

5.8. Soil and water management

A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP) have been prepared for this Project. These plans outline a range of site-specific measures to minimise soil disturbance and prevent erosion during the construction phase. Key provisions include:

- Installation of sediment control devices (such as silt fencing, sediment basins, and drainage diversions) to intercept and manage surface runoff and reduce downstream sediment transport
- Construction sequencing and staged earthworks to limit exposed soil areas, combined with progressive stabilisation and re-vegetation of the Project site

In the event that dewatering is required onsite, the Dewatering Procedure (as appended to the SWMP **Error! Reference source not found.**) will be implemented. The Dewatering Plan includes a fauna salvage and relocation measures to protect aquatic and riparian species.

To minimise impacts to Key Fish Habitat (KFH), the following measures will be implemented:

- Minimise in-stream disturbance to the greatest extent practicable
- Install and maintain erosion and sediment controls in accordance with the SWMP and ESCPs

- Restrict in-stream works to low flow periods where practicable
- Avoid unnecessary removal of snags and large woody debris
- Rehabilitate disturbed aquatic and riparian areas following construction

5.9. Bushfire management

Bushfire risk will be managed in accordance with the Bushfire Emergency Management Plan.

5.10. Rehabilitation

Rehabilitation works will be undertaken in accordance with the Project's, yet to be developed, Rehabilitation Plan.

The land subject to potential rehabilitation activities is owned by various stakeholders including WaterNSW, Edward River Council, Crown Lands and private landowners. Agencies that have an interest in rehabilitation includes CPA and DPIRD-Fisheries. There are also different rehabilitation environments including grasslands, woodlands, riparian zones and road reserves. The development of the Rehabilitation Plan will require substantial design, consultation, review and approval from landowners and stakeholders.

The process for the development of the Rehabilitation Plan will be:

- Initial consultation with landowners and stakeholders to identify preferences, scopes, guidelines and objective of for rehabilitation - June 2026
- Development of preliminary Rehabilitation Plan including design of landforms and hard structure and planting requirements - July 2026 - August 2026
- Review of preliminary Rehabilitation Plan by landowners and stakeholders including any additional consultation - September 2026
- Development of final Rehabilitation Plan - October 2026
- Final consultation and close out of Rehabilitation Plan - November 2026

Although practical completion of the regulators is planned for December 2026, there will be at least another 4 months of activities post December 2026 that will include both waterway and terrestrial rehabilitation, demolition of the existing weirs and site demobilisation.

Appropriate quantities of CWD and other habitat features will be retained and stockpiled for use in rehabilitation.

As noted above there is a complex matrix of landowners, stakeholders and environments requiring rehabilitation.

Presented in Table 5-1 below, are the areas of native vegetation that will be cleared – noting that there will also be areas of non-native vegetation impacted (i.e. paddock or crop areas). The majority of native vegetation that will be cleared are grasslands or shrublands and the objective of rehabilitation in these areas will be to restore the pre-clearance grassland/shrubland PCT. Some areas of woodland will also be cleared, and these areas are generally immediately adjacent to the regulator sites. Generally, these areas will not be rehabilitated to their pre-clearance PCT as these areas will contain auxiliary features to the regulators such as access roads, power lines, maintenance access areas and their associated asset protection zones. However, during the development of detailed rehabilitation plans, opportunities for tree planting will be

investigated. Where rehabilitation of the woodland is not possible the objective of rehabilitation will be based upon the associated derived native grassland PCT.

Table 5-1 Area of native vegetation cleared

	Wanganella (ha)	Hartwood (ha)
Woodland	2.33	3.72
Grassland/Shrubland	3.25	6.99

5.10.1. Timing and Type of Rehabilitation Measures

Presented in Table 5-2 below is an initial assessment of the areas requiring rehabilitation and the associated impacts and considerations for rehabilitation. Table 5-2 Rehabilitation areas and initial assessment of impacts and issues

Area	Impacts and Issues
Waterway immediately upstream and downstream of regulators	These areas will be substantially impacted by construction of the regulators and will require remedial earthworks and bank restoration. Furthermore, during operations these areas will be subject to high and variable water velocities and to protect the banks and regulators, erosion protection is the main objective.
Waterway further upstream and downstream of regulators	These areas will generally have experienced minor disturbance during construction and rehabilitation efforts will be focused on rehabilitating any disturbance areas, mitigating any issues (e.g. erosion prone areas) and identifying opportunities for enhancement of bank vegetation and KFH.
Cleared areas immediately surrounding regulators	These areas will be impacted by construction of the regulators and will require remedial earthworks. It is unlikely that these areas will be rehabilitated to their initial condition (i.e. woodland) due to bushfire, access and maintenance requirements. However, any plantings will reflect surrounding grassland conditions.
Cleared areas not immediately surrounding regulators	These areas will have a range of impacts, a range of different landowners and different rehabilitation measures including: - Some areas will require minor remedial earthworks - For private landowners there are agreements on the final rehabilitation outcomes, with the general objective of rehabilitating to pre-construction conditions - For grassland areas the rehabilitation objective will be

Area	Impacts and Issues
	restoration of the pre-clearing PCT - For cleared woodland areas, rehabilitation objectives will depend on the landowner, asset protection zone requirements and ancillary regulators. Where possible restoration of the woodland will be prioritised – and where this is not possible the associated derived native grassland PCT will be the target.

Presented in Table 5-3 below is a preliminary assessment of rehabilitation objectives, measures and timings. The ability to undertake progressive rehabilitation is limited due to the nature of regulator construction i.e. generally all cleared construction areas are required until the regulators are fully completed. However, opportunities for progressive rehabilitation will be investigated during detailed rehabilitation planning. There will also be a need for stabilisation of some cleared areas during construction to minimise erosion risks and this may include revegetation with locally native grasses where appropriate.

Table 5-3 Rehabilitation objectives, measures and timing

Area	Landowner	Other stakeholder consultation	Rehabilitation objectives	Rehabilitation measures	Timing
Waterway immediately upstream and downstream of regulators	WaterNSW	DPIRD- Fisheries	Erosion protection Bank stabilisation	Bank reforming Rock beaching and protection	Completed progressively as construction is completed – Nov 2026 to April 2027
Waterway further upstream and downstream of regulators	WaterNSW Private Landowners Crown Land	DPIRD- Fisheries CPHR	Erosion protection Bank stabilisation Re-establishment of riparian vegetation Creation of key fish habitat	Localised rock protection Planting of pre-clearance PCT native riparian vegetation in banks Placement of snags and rootballs	Jan 2027 to April 2027
Cleared areas immediately surrounding regulators	WaterNSW	CPHR	Erosion mitigation Grassland habitat restoration Bush fire protection	Land reforming Planting of pre-clearance PCT native grassland species	Jan 2027 to April 2027
Cleared areas not immediately surrounding regulators	Crowns Lands/ ERC	CPHR	Erosion mitigation Habitat restoration and enhancement	Minor land reforming Planting of pre-clearance PCT native species which could	Jan 2027 to April 2027

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Area	Landowner	Other stakeholder consultation	Rehabilitation objectives	Rehabilitation measures	Timing
				include trees, mid-story and groundcover or grassland species Placement of habitat features including CWD where appropriate	
Cleared areas not immediately surrounding regulators	Private landowners		Erosion mitigation Restoration to pre-construction conditions	Land reforming Planting of pre-clearance PCT native grassland species Restoration of paddock or cropping lands	Jan 2027 to April 2027

5.11. Key Fish Habitat Offset Strategy

A Key Fish Habitat Offset Strategy will be prepared in consultation with DPIRD Fisheries in accordance with Condition E9.

Measures identified within the Strategy will be implemented within 5 years of the Strategy being finalised, in accordance with Condition E10.

The Strategy will be developed and published within 12 months of Infrastructure Approval and will include measures to offset impacts to Key Fish Habitat in accordance with relevant policies and guidelines.

5.12. Mitigation and management measures

Table 5-4 Mitigation and management measures relevant to the BMP

ID	Measure	Resources	Timing	Responsibility	Reference
General					
BM1	Implement the Biodiversity Management Plan.	Biodiversity Management Plan (BMP)	Pre-construction	Abergeldie PM	CoA C10
BM2	Training will be provided to all Project personnel, including relevant sub-contractors on biodiversity management practices and the requirements from this plan. This includes training in the form of inductions, toolbox talks and activity-specific training. Training shall include environmentally sensitive areas, important flora and fauna habitat, locations of threatened species, populations or ecological communities, measures to be implemented to protect native species and penalties for breaches.		Pre-construction Construction	All	BD03 B03
BM3	Pre-construction supplementary survey/s will be undertaken to confirm the extent of threatened species within and adjacent to the Project site. Additional supplementary Surveys be undertaken during the breeding period for each species, and will include an assessment of the local <i>Swainsona murrayana</i> and Southern Bell Frog populations, as well as threatened bird (including the Little Eagle and Pink Cockatoo) breeding habitat. Should additional threatened species be identified during the survey/s, this BMP will be updated accordingly.		Pre-construction	Abergeldie ESR / PM	CoA C10 B05 B06 B07
BM4	Prior to the commencement of any activities that could directly or indirectly impact the biodiversity values requiring offset, the following will be undertaken: - Retire biodiversity credits of a number and class specified in Tables 3 and Table 4 in accordance with the <i>Biodiversity Conservation Act 2016</i> - Where evidence of compliance with the Ancillary rule: biodiversity conservation action has been provided to the Planning Secretary, and/or - Making a payment into the Biodiversity Conservation Fund of an amount equivalent to the class and number of ecosystem and species credits.		Pre-construction	Abergeldie ESR / PM	CoA E6
BM5	The Applicant will ensure that vegetation and habitat clearing limits specified in Tables 3 and 4 are not exceeded through survey delineation, site controls and ongoing monitoring during construction		Pre-construction Construction	Applicant Abergeldie ESR / PM	CoA E4
BM6	Prior to carrying out any development that could directly or indirectly impact the biodiversity values requiring offset, the Applicant will provide evidence to the Planning Secretary that biodiversity credits have been retired.		Pre-construction Construction	Applicant Abergeldie ESR / PM	CoA E5
Vegetation protection					
BM7	The clearing of native vegetation will be minimised to the greatest extent practicable with the objective of reducing impacts to threatened ecological communities and threatened species habitat.		Pre-construction Construction	Abergeldie ESR / PM	CoA E2
BM8	The Applicant must not clear any native vegetation or fauna habitat located outside the development corridor.		Pre-construction Construction	Applicant Abergeldie ESR / PM	CoA E3
BM9	Disturbance to riparian vegetation and snags within the assessed clearing areas will be minimised. Complete removal will be		Pre-construction	Abergeldie ESR / PM	SWQ09

ID	Measure	Resources	Timing	Responsibility	Reference
	avoided wherever possible.		Construction		
BM10	Prior to the commencement of any work in or adjoining areas of native vegetation, a survey will be carried out to mark the construction impact boundary. The perimeter of this area would be fenced using high visibility fencing and clearly marked as the limits of clearing. All vegetation outside this fence line will be clearly delineated as an exclusion zone to avoid unnecessary vegetation and habitat removal and the transmission of weeds or disease. Fencing and signage will be maintained for the duration of the construction period. Fencing will be designed to allow fauna to exit the site during clearing activities.		Pre-construction Construction	Abergeldie Construction Manager (CM) / PM	B08
BM11	Trees within the construction footprints that do not require felling and proposed to be retained will be protected in accordance with Australian Standard 4970-2009 <i>Protection of Trees on Development Sites</i> . Trees located just outside the clearing boundary that are identified during the pre-clearing inspection as being at risk of damage during the construction phase will also be protected in accordance with Australian Standard 4970-2009 <i>Protection of Trees on Development Sites</i> .	Australian Standard 4970-2009 <i>Protection of Trees on Development Sites</i> . Flagging	Pre-construction Construction	All	Best practice
BM12	A pre-clearing inspection will be undertaken 48 hours prior to any native vegetation clearing by a suitably qualified ecologist and the Site Environmental Officer (or delegate). The pre-clearing inspection will include, as a minimum: • A check of the physical demarcation of the clearing boundary and construction footprint • Identification of trees that are just outside the marked clearing boundary that require protection to avoid unintended damage during the clearing and subsequent construction works • Identification of hollow bearing trees that need to be removed in accordance with the hollow- bearing tree removal procedure • Identification of other habitat features that need to be relocated outside the clearing boundary • Identification of any threatened flora and fauna • Implementation of the erosion and sediment control plan for the worksite, including erosion control structures. The completion of the pre-clearing inspection will form a hold point requiring sign-off from the Principal.	Vegetation Impact Permit (Appendix D) Ecologist	Pre-construction Construction	Abergeldie ESR / CM	SWQ12
BM13	Where feasible, materials, plant, equipment, work vehicles and stockpiles will be stored, parked or placed as applicable away from the driplines of trees that are outside the clearing boundaries or that are within the clearing boundaries but proposed for retention.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
Fauna protection					
BM14	Where practicable, construction activities will be avoided during the breeding season of the following threatened species: • Southern Bell Frog (<i>Litoria raniformis</i>) – September to April • Little Eagle (<i>Hieraaetus morphnoides</i>) – August to December		Pre-construction Construction	Abergeldie ESR / CM	CoA C10
BM15	Implement the Unexpected and Incidental Threatened Species Finds Procedure.	Unexpected and Incidental Threatened Species Finds Procedure (Appendix B)	As required	Abergeldie ESR / PM	CoA E7 B09
BM16	Fauna encounters within the Project sites will be managed in accordance with the Fauna Handling and Rescue Procedure.	Fauna Handling and Rescue Procedure (Appendix F)	As required	Abergeldie ESR / PM	B13
BM17	Exclusion zones to be marked out by a qualified surveyor and then fenced with highly visible and durable product (e.g. high		Pre-construction	Abergeldie ESR / CM	SWQ13

ID	Measure	Resources	Timing	Responsibility	Reference
	visibility string of bunting or plastic mesh (not transparent) attached to star pickets with plastic caps (or weighted posts that avoid ground penetration in culturally sensitive areas)). No barbed wire will be permitted for use onsite.		Construction		
BM18	Fencing will be temporary to exclude wildlife (e.g. from open trenches): Fencing stays located inside the exclusion area, or with high visibility mesh to guide wildlife away from obstructions and potential traps. Shade cloth or other suitable deterrent will be attached to the lower 50 cm of the outside of the exclusion zone and weighted to the ground. Temporary fencing will be inspected prior to sunrise and prior to sunset to ensure no fauna are trapped.		Pre-construction Construction	Abergeldie ESR / CM	SWQ13
BM19	Trenches will not be left open overnight, where practicable. Where trenches cannot be closed, trenches will be checked at the start and end of each day (i.e. dawn/dusk), and consider feasibility of measures (e.g. ramps) to aid animal escape.		Pre-construction Construction	Abergeldie ESR / CM	SWQ13
BM20	Construction and worker vehicles and machinery will be checked at the start and end of each workday to ensure fauna are not entrapped.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
BM21	Vegetation clearing will be minimised within Plains-wandered habitat as much as practicable.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
BM22	No CWD or rocks will be placed into Plains-wanderer habitat. No-go zones and flagging would be implemented for Plains-wanderer habitat for the duration of construction.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
Habitat protection					
BM23	Monitoring of clearing activities would include particular focus on habitat features that may harbour threatened species that are vulnerable to direct or indirect harm including during: - Felling of habitat trees that may contain roosting threatened birds or microbats - Earthworks in or near floodplain depressions that may contain breeding habitat for the Southern Bell Frog - Earthworks affecting cracking clay soils or woody debris that may harbour Grey Snakes or Southern Bell Frogs.		Pre-construction Construction	Abergeldie ESR / PM	B12
BM24	Impacts to Key Fish Habitat (KFH) will be minimised, as per the Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013 update).	Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013 update).	Pre-construction Construction	Abergeldie ESR / PM	CoA E8
BM25	Native vegetation and other habitat features approved for removal will be reused onsite wherever practicable. Where reuse is not possible, relevant council(s), Local Land Services, local Landcare groups, DPIRD Fisheries and any additional relevant government agencies will be consulted prior to the removal of vegetation and other habitat to determine if: - Hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and rootballs salvaged from native vegetation impacted by the SSI; and - Collected plant material, seeds and/or propagated plants from native vegetation impacted by the SSI, can be used by others in the local area in habitat enhancement and rehabilitation work (which is currently underway or planned within 6 months of removal) before pursuing other disposal options. If the timber can be re-used by others, the Proponent must advise them and facilitate access for salvage.		Pre-construction Construction	Proponent Abergeldie CM / PM	CoA E11
BM26	Before reusing rootballs and other vegetative material by (or offering to others), this material will be checked by a suitably qualified arborist/ecologist pathologist to determine that Pathogens (including but not limited to <i>Phytophthora cinnamomi</i> ,		Pre-construction Construction	Proponent Abergeldie CM / PM	CoA E11

ID	Measure	Resources	Timing	Responsibility	Reference
	Chytrid fungus, Myrtle rust and Fusarium wilt / Panama disease) are absent from the construction footprint and the material is not showing signs of infection or pests.				
BM27	Any large woody debris and snags (>3m long or 30cm wide) occurring within the waterway (and construction footprint) that have to be removed will be moved to a suitable location upstream or downstream of the site in consultation with a qualified ecologist and WaterNSW.		Pre-construction Construction	Abergeldie ESR / PM	SWQ09
Weeds, pathogens and pests					
BM28	Implement the Weed and Pathogen Control Plan.	Weed and Pathogen Control Plan (Appendix G)	Pre-construction Construction	Abergeldie ESR / PM	SWQ08
BM29	Food waste accumulated on site will be stored in inaccessible bins and disposed off-site regularly so that the waste doesn't attract predatory pests such as cats and foxes.		Pre-construction Construction	Abergeldie CM / PM	SWQ11
BM30	Declared priority weeds will be managed according to requirements of the NSW <i>Biosecurity Act</i> .		Construction	Abergeldie CM / PM	B15
BM31	Soil material and stripped groundcover vegetation with the potential to contain priority weeds will not be removed from the proposal footprint. Soil disturbance will be avoided as much as possible to minimise the potential for spreading weeds.		Pre-construction Construction	Abergeldie ESR / CM	B15
BM32	All machinery entering the site will be appropriately washed down and disinfected prior to work on site to prevent the potential spread of weeds and disease in accordance with the NSW best practice Protocols to protect priority biodiversity areas (DPIE 2020f).		Pre-construction Construction	Abergeldie ESR / CM	B14
BM33	Protocols to prevent introduction or spread of chytrid fungus will be implemented following the NSW hygiene guidelines for wildlife (DPIE 2020f).		Pre-construction Construction	Abergeldie ESR / CM	B14
BM34	Vehicle washdown logbooks will be maintained.		Pre-construction Construction	Abergeldie ESR / CM	B14
Noise, vibration and lighting					
BM35	Avoid unnecessary light spill to avoid attracting insects and subsequently their predators (bats and birds).		Pre-construction Construction	Abergeldie ESR / CM	SWQ14
BM36	Night works will be avoided during periods of high insect/bird/bat activity (October to March) as far as reasonably practical, so as to minimise disturbance to fauna communication, foraging and other behaviours that depend on sound and darkness.		Pre-construction Construction	Abergeldie ESR / CM	SWQ14
Traffic					
BM37	Construction site personnel will be informed of speed requirements when driving around site to reduce fauna strike and also to report fauna strikes to the Environmental Representative or Supervisor.		Pre-construction Construction	Abergeldie ESR / CM	BD03
BM38	Appropriate speeds for all construction and contractor vehicles will be enforced to limit dust generation and minimise risk of fauna mortality through vehicle strike during construction and operation.		Pre-construction Construction	Abergeldie ESR / CM	B18

ID	Measure	Resources	Timing	Responsibility	Reference
Bushfire					
BM39	Implement the Bushfire Emergency Management Plan.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
BM40	No materials will be burnt onsite.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
Rehabilitation					
BM41	Implement the Rehabilitation Plan.	Rehabilitation Plan	Post-construction	Proponent Abergeldie Construction Manager (CM) / PM	SWQ10
BM42	Disturbed areas will be revegetated with endemic riparian and floodplain species (replacing like for like) to be undertaken as soon as practical, via progressive reinstatement.	Rehabilitation Plan	Post-construction	Proponent Abergeldie Construction Manager (CM) / PM	SWQ10
BM43	Rehabilitation at construction sites will include replacing topsoil from the site stockpile.	Rehabilitation Plan	Post-construction	Proponent Abergeldie Construction Manager (CM) / PM	SWQ10

6. Compliance management

6.1. Roles and responsibilities

The Project's organisational structure and overall roles and responsibilities are outlined in Section 5.1 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 5.12 of this BMP.

6.2. Training

All employees, contractors and utility staff working on site will undergo site induction training that includes biodiversity requirements. The induction training will address elements related to biodiversity management including:

- Existence and requirements of this sub-plan
- Relevant legislation
- Specific species likely to be affected by the construction works and how these species can be recognized
- Vegetation communities and trees to be retained
- Site speed limits (i.e. 10 km per hour) and their enforcement in minimising fauna strike. Areas that have a higher risk of fauna strikes are wooded areas and include the riparian zones around the regulator sites and the northern access road to the Wanganella site. The higher risk of fauna strike in these areas would be included in the site induction.
- Vehicle hygiene and biosecurity risks and procedures
- Fauna rescue requirements
- General biodiversity management measures.

Targeted training in the form of toolbox talks, posters, signage or specific training will also be delivered to personnel with a key role in biodiversity management. Examples of training topics include:

- Clearing and grubbing EWMS
- Clearing procedures including Clearing Permit process and the Pre-clearing and Clearing Procedures
- Ecologically sensitive areas
- No-go zones
- Threatened species within the Project site
- Feral animal reporting requirements
- Fauna strike speed limits and reporting requirements
- Fauna handling, rescue and release requirements (Appendix F)
- Unexpected and incidental finds procedure for threatened species (Appendix B)
- Hygiene practices for weeds and pathogens.

Further details on staff inductions and training requirements are outlined in Section 5.3 of the CEMP.

6.3. Monitoring and inspections

Monitoring and inspection requirements and responsibilities are documented in Section 6 of the CEMP. Monitoring and inspections relevant to the BMP will be undertaken in accordance with Table 6-1 below.

Table 6-1 Details of biodiversity management monitoring and inspection program

Monitoring details	Record	Responsibility	Weekly
Fauna entrapment monitoring- monitor site including excavations and in-stream works to check for any potentially trapped fauna Construction and worker vehicles and machinery will be checked at the start and end of each workday to ensure fauna are not entrapped.	Daily diary/Pre-start Checklist Fauna handling record sheet	Supervisor / Fauna Spotter All construction personnel/ ESR	Daily
Aquatic biota monitoring of key in-stream construction works such as dewatering, riparian in-stream construction works, removal of Large Woody Debris and channel bed excavation to manage impacts	Fauna handling record sheet	Supervisor / Ecologist/ Fauna Spotter	Key in-stream works
Pre and post construction weed, pest and pathogen surveys	Baseline survey report Post-construction report	ESR / Ecologist	Prior to the commencement of construction
Pre-clearing threatened species survey/s	Pre-clearing threatened species report	ESR / Ecologist	Prior to the commencement of clearing
Pre-clearing Inspection	Vegetation Impact Permit Pre-clearing checklist	ESR/Ecologist	48 hours prior to clearing
Post-clearing Inspection	Post-clearing checklist	ESR	Within 24 hours of clearing
Fauna handling and rescue	Fauna handling record sheet	Fauna spotter	As discovered

Monitoring details	Record	Responsibility	Weekly
Unexpected and incidental threatened species	Recording sheet	ESR	As discovered
Inspection of the performance and effectiveness of revegetation; and exclusion fencing, exclusion signage, adherence to exclusion zones, and weeds when works are being undertaken in the vicinity.	Environmental Inspection Checklist	ESR	Weekly
Fauna strike mitigation – driver reporting on near misses and incidental observations	Environmental incident register	ESR	As reported

6.4. Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this BMP, CoA and other relevant approvals, licenses and guidelines. Audit requirements are detailed in Section 6.3 of the CEMP.

6.5. Reporting

Reporting requirements and responsibilities are documented in Section 7 of the CEMP.

Post clearing reports will be compiled progressively by the Project Ecologist during the clearing phase of the Project and provided to the ESR, who will submit the reports to the Proponent. The post-clearing reports will include:

- The name and qualifications of the Ecologist or wildlife carer present during clearing
- An assessment of the habitat and handling of fauna
- Information on clearing operations, dates, procedures, areas
- The number of trees and hollows cleared
- Live animal sightings, captures, any releases or injured/shocked wildlife
- Any dead animals located
- Photographs of rescued fauna.
- Pre and post clearing reports will be prepared by the Ecologist engaged during clearing activities.

6.5.1. Incident and non-compliance reporting

In accordance with Condition A33 of the Infrastructure Approval, the Department must be notified in writing (via the Major Projects website) within 24 hours of becoming aware of an incident. The notification must identify the:

- (a) date, time and location;
- (b) a brief description of what occurred and why it has been classified as an incident;
- (c) a description of what immediate steps were taken in relation to the incident; and
- (d) identifying a contact person for further communication regarding the incident.

Environmental incidents relating to biodiversity may include, but not be limited to:

- Unauthorised clearing or clearing beyond the extent of the Project boundary
- Unauthorised damage to or interference with threatened species, TECs or critical habitat
- Death of or injury to native fauna
- Any potential breach of legislation, including a potential breach of a mitigation measure
- Breaches or hygiene management requirements.

The Department must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.

A non-compliance notification must identify:

- The SSI (including the application number and the name of the SSI if it has one), set out the condition of approval that the SSI is non-compliant with, why it does not comply, the reasons for the non-compliance (if known), and what actions have been undertaken, or will be undertaken, and when, to address the non-compliance.

6.5.2. Contact details for wildlife carers and veterinarian clinics

Before starting each stage of clearing, the ecologist or ESR must contact the two local wildlife carer organisations to confirm their availability to assist with injured native wildlife if needed and to inform them of the planned activities.

In the event that local wildlife carers are not available, the national WIRES contact number can be used to identify other local qualified wildlife carers.

Table 6-2 Wildlife carer / vet contact details

Role	Organisation	Contact
Project Ecologist	NGH Pty Ltd	TBC
Veterinary Clinic	Deniliquin Veterinary Clinic	389 Poictiers St, Deniliquin NSW 2710 (03) 5880 2888
	Jerilderie Veterinary Clinic	73 Jerilderie St, Jerilderie NSW 2716 (03) 5886 1436
WIRES		1300 094 737

7. Review and improvement

7.1. Continuous improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

7.2. BMP updates and amendment

The processes described in Section 7.3 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Management reviews will be undertaken annually (at a minimum) and will be led by the Environmental Site Representative and the Project Manager, who will include relevant project team members and stakeholders, as required. Any revisions to the BMP will be in accordance with the process outlined in Section 7.3.2 of the CEMP.

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Appendix A Consultation

Appendix B Environmental No-Go Zone Entry Permit

Appendix C Unexpected and Incidental Threatened Species Finds Procedure

Purpose

This procedure outlines the actions to be undertaken when a threatened flora or fauna species is unexpectedly encountered during site activities, or when a threatened species previously identified during preparation of the EIS is observed within the Project site.

Training

All personnel are to be trained through inductions and toolboxes of the biodiversity values of the Project, including the potential for the identification of threatened species and this unexpected threatened species finds procedure.

Supporting documents

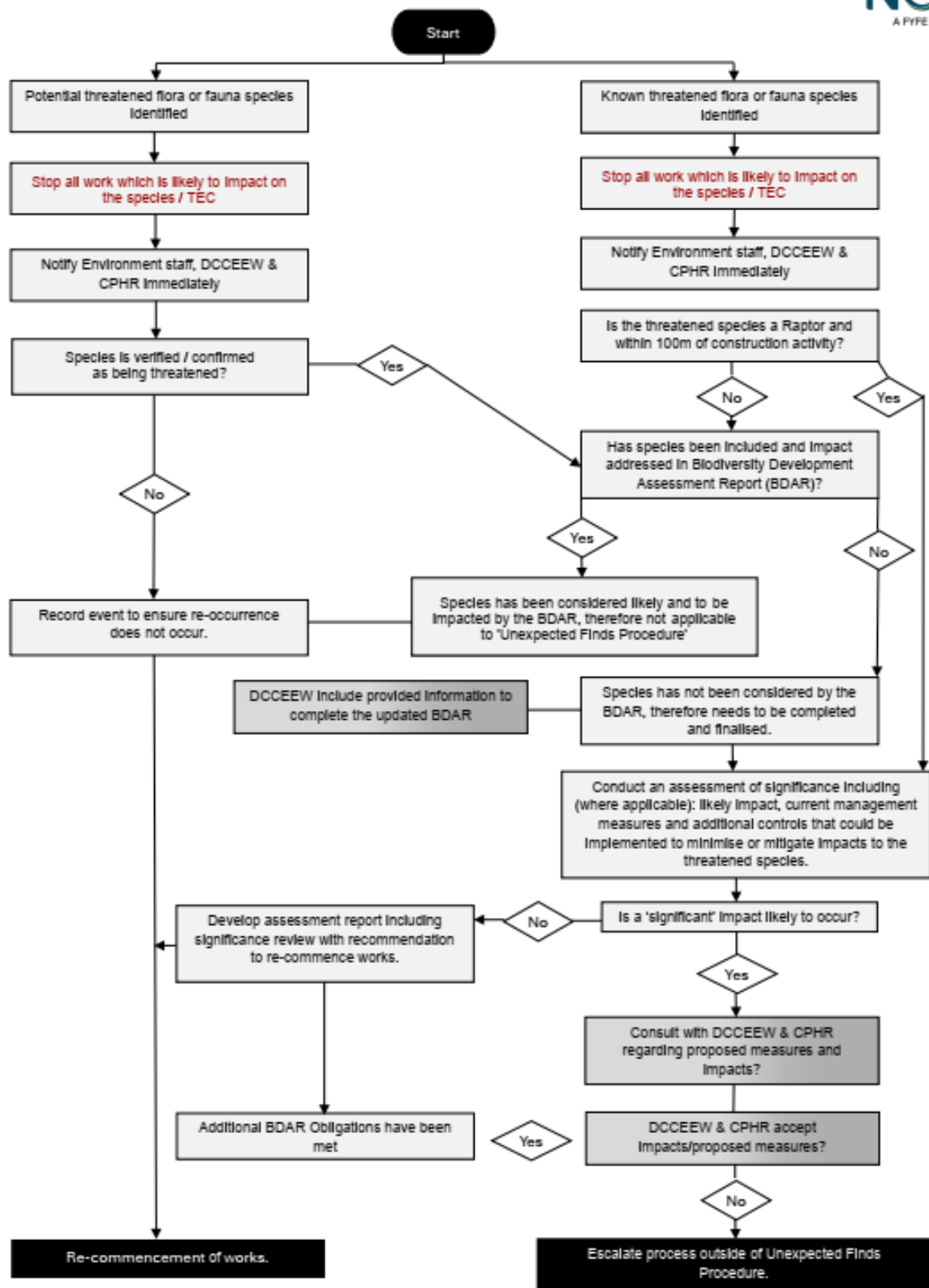
This procedure shall be read and implemented in conjunction with the Biodiversity Management Plan.

Implementing this procedure

This procedure applies to all Project activities with the potential to impact threatened flora and fauna species. Sensitive Area Maps will be used to clearly identify locations where threatened species are known or likely to occur.

If a threatened species is unexpectedly discovered on site or a raptor is observed nesting adjacent to the construction area, DCCEEW and CPHR will be informed within 1 day and DPHI will be notified within 7 days as per the Conditions of Approval.

Where a threatened species identified during preparation of the EIS is observed on site – noting this would only be the Southern Bell Frog or *Swainsona murrayana*, the occurrence will be recorded as an incident. The incident reporting process outlined in Section 6.5.1 of the Biodiversity Management Plan will be implemented.



Appendix D Vegetation Impact Permit

Appendix E Post-clearing checklist

Inspection Date:		Time:	
Project Ecologist/ Fauna Spotter Catcher:		Location:	
#	Control Measure	Status (Yes/ No/ NA)	Comments/ Corrective Action
1	Was clearing of vegetation within the boundaries?		
2	Were any hollow-bearing trees, hollow logs and/or bush rocks impacted?		
3	Were any fauna, nests or other fauna features impacted?		
4	Were any animals shocked, injured or killed as a result of the clearing works?		
5	Were the fauna recovery procedures followed? If yes, what actions were taken?		
6	Any other comments or issues?		

Appendix F Fauna Handling, Rescue and Release Procedure

Purpose

This procedure explains the actions to be taken in the event fauna (included injured, shocked, juvenile or other animal) are discovered on the site that require handling or rescue during vegetation removal or ongoing construction activities.

Scope

This procedure is applicable to all native and introduced fauna species that are found on the Project site.

If there is an unexpected threatened species finding, the unexpected threatened species finds procedure outlined in Appendix C will be followed.

Induction and training

All site personnel and subcontractors will be made aware of the actions to be taken in the event that fauna is discovered on the Project. This training will occur on site during the Project induction and as required in toolbox talks.

Procedure

If wildlife is discovered on the site during site construction activities that may harm the animal or pose risk to site personnel, the following steps will be taken:

1. Stop all work in the vicinity of the fauna and immediately notify the Environmental Site Representative (ESR) who is then to notify the Project Manager and engage an ecologist or wildlife handler
2. Preferably allow fauna to leave the area without intervention if it is not injured or in shock and if safe to do so (i.e. no machinery in the immediate vicinity)
3. Call the appropriate rescue agency immediately and follow any advice provided by the agency. Once the rescue agency arrives at site they are responsible for the animal. Any decisions regarding the care of the animal will be made by the rescue agency. The Project ecologist, rescue services and local veterinary surgery's contact details are below:

Role	Organisation	Contact
Project Ecologist	-	TBC
Veterinary Clinic	Deniliquin Veterinary Clinic	389 Poictiers St, Deniliquin NSW 2710 (03) 5880 2888

Role	Organisation	Contact
	Jerilderie Veterinary Clinic	73 Jerilderie St, Jerilderie NSW 2716 (03) 5886 1436
WIRES		1300 094 737

In the event the rescue service and/or local veterinary service cannot be contacted, the injured animal will be delivered to the relevant agency as soon as practically possible.

1. Where necessary, to minimise stress to native fauna and/or remove the risk of further injury before the appropriate rescue agency arrives onsite, the ESR or ecologist or wildlife handler shall:
 - a. Cover the animal with a towel or blanket and place in a cardboard box and/or hessian bag. Appropriate temporary housing for fauna is species dependent:
 - Gliders, possums, bats, snakes, lizards and frogs can be held individually in a calico bag until release in adjacent habitat
 - Place small animals in a cotton bag, tied at the top
 - Nesting birds and eggs are best placed in a covered cardboard box equipped with soft cloth
 - Frogs / tadpoles / egg clumps should be placed separately in a single use zip lock plastic bag with a small amount of water and/or the litter / vegetation in which they were found
 - Fish and other aquatic life (i.e. turtles) place in plastic aquaria or plastic container with sufficient water
 - b. Rescued fauna must be protected from exposure to heat and removed from the areas undergoing clearing activities to minimise exposure to noise. Keep the animal in a quiet, warm, ventilated and dark place. A designated site will be decided upon in advance of any construction work
 - c. Some animals require particular handling (e.g. venomous reptiles, raptors) and should only be handled by appropriately qualified personnel
 - d. If handling bats, the handler must be vaccinated against the Australian Bat Lyssavirus (ABL), which is a form of rabies
 - e. Equipment for fauna rescue (hessian sack, calico bags, gloves and transport boxes) will be kept in designated locations for emergency use by site staff if required. The fauna specialist will carry a fauna rescue kit in a site vehicle, and an additional kit will be located in the site office
2. If the animal cannot be handled, exclude personnel from the vicinity, record the exact location of the animal and contact the rescue agency
3. If the fauna species is identified as a threatened species that is not a species identified in the BMP, the ESR must:
 - a. Immediately cease all work likely to affect the threatened species
 - b. If the fauna is injured, call the rescue agency
 - c. Implement the Unexpected and Incidental Threatened Species Find procedure (C).
4. If the fauna is to be released, the ecologist must identify suitable fauna release locations within or near the site.

All fauna handling and rescue events will be recorded via the Fauna interaction register provided below.

F.1 Fauna Interaction Register

Date	Time	Location	Fauna species	Threatened species?*	No. of individuals recorded	Adult / juvenile	Healthy, injured or deceased?	Released? (Y/N)	Required rescue or veterinary attention?	Release or rescue location	Comments

* If yes, implement Unexpected and Incidental Threatened Species Finds Procedure

Appendix G Weed and Pathogen Control Plan

Purpose and objectives

Purpose

The purpose of this Weed and Pathogen Control Plan (WPCP) is to describe how the Principal and Abergeldie will manage weed and pathogen impacts during the construction of the Project.

Objectives

The key objective of this WPCP is to detail weed, pathogen and pest animal management measures and inform site procedures for implementation so that biosecurity impacts are avoided or minimised. To achieve this, the Principal and Abergeldie will:

- Ensure appropriate measures are implemented to address the relevant CoA
- Detail the existing weeds and pathogens identified within the Project site
- Ensure reasonable and feasible measures are implemented during construction to avoid or minimise weed and pathogen impacts
- Detail the relevant hygiene practices in the *Hygiene Guidelines* (DPIE, 2020) aimed at addressing the following key threatening processes (KTP) listed under the *Biodiversity Conservation Act 2016* (BC Act):
 - Infection of native plants by *Phytophthora cinnamomi*
 - Introduction and establishment of exotic rust fungi of the order *Pucciniales* pathogenic on plants of the family *Myrtaceae* (myrtle rust)
 - Infection of frogs by amphibian chytrid causing the disease *chytridiomycosis* (chytrid fungus).

Specific on-site management measures identified within this WPCP will be incorporated into site documents where relevant. These site-specific documents will be prepared for construction activities and will detail the management measures which are to be implemented on the ground. Construction personnel will be required to undertake works in accordance with the mitigation measures identified in the site-specific documents.

Existing environment

Weeds

Refer to Table F1 for priority and high threat weeds recorded in the Project site.

Table F1 Priority and high threat weeds recorded in the Project site

Common name	Scientific Name	Relevant site	NSW status
Bathurst Burr	<i>Xanthium spinosum</i>	Hartwood site	• Species of concern for NSW • High threat exotic weed
Lippia	<i>Phyla canescens</i>	Hartwood site	• High-threat environmental weed (inland floodplains)

Common name	Scientific Name	Relevant site	NSW status
			Regional priority weed
	<i>Xanthium strumarium</i>	Hartwood site	- Declared priority weed in NSW - High-threat exotic weed
Noogoora Burr	<i>Xanthium occidentale</i>	Hartwood site	- Declared priority weed in NSW - High-threat exotic weed
Great Brome	<i>Bromus diandrus</i>	Both sites	- Regional priority weed (Murray CMA) - Environmental weed
Sagittaria	<i>Sagittaria platyphylla</i>	Hartwood site	- Weed of National Significance (WoNS) - Priority aquatic weed in NSW.

Pathogens

No pathogens have been observed within the Project site. No testing has been undertaken to date.

Environmental aspects and impacts

Construction activities

A variety of construction activities have the potential to influence the abundance of weeds and pathogens within the Project site. These activities include, but are not limited to:

- Movement of vehicles
- General earthworks
- Operation of compounds
- Human presence and activity
- Clearing / maintenance of vegetation and habitat
- Works conducted around waterways.

Impacts

Environmental impacts associated with construction activities include:

- An increase in weed species, resulting in:
 - Increased competition for native species
 - A reduction in populations of native flora species
 - Impacts to nearby sensitive receivers.
- Spread or movement of weeds and pathogens to and from the Project site.

Weed and pathogen management measures

Management measures for control of pests and weed species will generally involve the following:

- Baseline surveys
- Prevention
- Control
- Disposal.

Subject to the outcome of preventative measures and monitoring, control measures will be implemented in consultation with the Proponent and local landholders.

Baseline surveys

Prior to the commencement of construction, baseline surveys will be conducted within the Project site.

Baseline surveys will include the following:

- The location of all priority, regional and/or high threat weeds will be mapped
- Inspecting for signs of plant pathogens (e.g., *Phytophthora* or other soil-borne diseases) and collecting samples, if required
- Incidental inspections for signs of *Chytrid* fungus on frogs.

Following the completion of the baseline survey, a report will be produced. This baseline survey can be undertaken as part of the pre-clearance surveys (refer to Section 5.2.2 of the BMP).

Prevention

Abergeldie will implement the following measures to prevent the introduction or spread of weeds and pathogens onsite:

- Hygiene inspections of vehicles, plant and equipment being transported to site
- Application of washdown locations and/or disinfection points at key locations onsite.

Before reusing rootballs and other vegetative material (or offering the material to others), it must be checked by a suitably qualified arborist/ecologist pathologist to determine that Pathogens (including but not limited to *Phytophthora cinnamomi*, Chytrid fungus, Myrtle rust and Fusarium wilt / Panama disease) are absent from the construction footprint and the material is not showing signs of infection or pests.

Vehicle and heavy machinery hygiene protocols

Abergeldie, its contractors, and all suppliers of plant and equipment, will be informed of their general obligation under the *Biosecurity Act 2015* to prevent the introduction and spread of weeds and pathogens within and outside of the Project site. Suppliers will be expected to present their materials and equipment clean and free of soil, seed and biological materials including weeds, seeds and other organisms.

Where vehicles and heavy machinery have been off-road prior to site arrival, the hygiene protocol in Table F2 will be implemented.

Table F2 Hygiene protocol for vehicles and heavy machinery (Source: DPIE 2020)

Step	Description
1. Disinfect	Check the exterior and interior of vehicles and machinery for soil, plant material and other debris. A <i>Vehicle and Mobile Equipment Weed and Hygiene Inspection Form</i> will be used to ensure the relevant vehicle and machinery components are thoroughly cleaned as per Figure 2 of the <i>Hygiene Guidelines</i> (Department of Planning, Industry and Environment, 2020).
2. Clean	- Remove large clods of dirt and soil using a stiff brush or crowbar - Remove all soil, plant material and other debris from the interior using a vacuum or dustpan and brush. Focus on the cabin floor, floor mats and pedals. Place debris in a bag and dispose of in a commercial waste bin - If returning from a potentially-contaminated area, wash vehicle and/or machinery as soon as possible (e.g. at a commercial carwash) before heading back to base. If a carwash facility is not available, spray tyres thoroughly with a disinfectant - If leaving a potentially-contaminated area and travelling to a new site, reassess hygiene requirements in accordance with Decision tree 1 for <i>Phytophthora</i> and myrtle rust in the <i>Hygiene Guidelines</i> (Department of Planning, Industry and Environment, 2020).
3. Dry	Where practical, allow vehicle or machinery to dry before proceeding.

Hygiene declaration and inspections

Abergeldie will establish a checkpoint at the site entry and carry out visual inspections of plant and equipment to ensure compliance with the Hygiene Declaration Form (provided below).

Biosecurity check/inspections will be conducted for all vehicles entering the Project site for plant material, seeds and soils containing organic matter.

Where cleanliness standards are not met (plant and equipment do not meet requirements of the Hygiene Declaration Form), thorough wash down will be required prior to site access being granted. Wash down or brush down locations must be away from production and other sensitive areas and not drain into waterways or cropping areas.

The completed Hygiene Declaration Form will be:

- Kept in the relevant vehicle during transportation and activities with the Project site
- Completed Hygiene Declaration Forms will be kept in the Project office for audit and compliance tracking purposes.

Hygiene Declaration Form (template)

Part A: Information			
Date			
Time			
Description of Equipment / Building / Container ID			
Make / Model / Building Type			
Registration No.			
Vehicle / Plant Number			
Name of Operator / Driver			
Travelling / Delivered From			
Travelling / Delivered To			
Part B: Washdown Log			
Location of Washdown and Inspection			
Is the equipment, or building clean (i.e. free of all mud, seed, vegetative material, bio-security risks such as insects, animals, nests, etc.)?	☐ Yes	☐ No	☐ N/A
If travelling / delivered from outside the Project site, has the vehicle, plant, equipment and/or building been disinfected? If so, with what?"	☐	☐ No	☐ N/A
Part C: Declaration (I, the undersigned declare that the information that I have provided in this			

declaration is true and correct)

Name

Signature

Date

Part D: Check at Entry to Site (to confirm the above)

**Is the equipment / building
clean and disinfected?**

☐ Yes

☐ No

Name

Signature

Date

**If no, what remedial action is
required?**

**e.g. return to supplier,
washdown offsite.**

Part E: Check at Entry to Site to Have Remedial Actions Completed

(only complete is answered no to Part D)

**Have the remedial actions
been completed?**

☐ Yes

☐

Name

Signature

Date

Part F: Attached Photos of inspection (if required)

Myrtle Rust Hygiene Protocol

All vehicles and machinery engaged in earthworks and vegetation clearance activities will follow the Myrtle Rust hygiene protocol for vehicles and heavy machinery in accordance with Table 5 of the *Hygiene Guidelines* (Department of Planning, Industry and Environment, 2020), which is summarised in Table F3 below. Vehicles and machinery must be disinfected as per the table below when arriving to site from another area, which is infested with Myrtle Rust.

A list of approved disinfectants is provided in Table F4, which should be used for vehicles and machinery involved with earthworks and vegetation clearing to reduce the number of residual spores and other pathogens. For disinfectants to be effective, all surfaces must first be cleaned of soil and organic matter.

All site personnel must take reasonable care for their health and safety, and the health and safety of others, by following product safety instructions and wearing appropriate personal protection equipment when preparing and using disinfectants. Commercially available fungicides should generally not be mixed with other chemicals (unless the manufacturer explicitly states it is safe to do so). This is especially important for chlorine-based compounds as these may produce toxic vapours when mixed with fungicides (Allan & Gartenstein 2010).

Table F3 Myrtle rust hygiene protocol for vehicles and heavy machinery (Source: DPIE 2020)

Step	Description
Disinfect	Use 70% alcohol wipes or a spray bottle to apply disinfectant (refer Appendix A for list of approved disinfectants) to the interior of vehicle (focus on seats, steering wheel, gear stick, pedals and floor).
	Spray the exterior with disinfectant or hand pressure sprayer. Allow the disinfectant to remain in contact with the surface for at least 30 seconds before rinsing with clean water.

Table F4 Approved disinfectants for Myrtle Rust (Source: DPIE (2020))

Disinfectant	Application	Notes
70% methylated spirits in water	Spraying absorbent and non-absorbent materials, including vehicle interiors. Can also be used to disinfect hands.	Store in a closed container to reduce evaporation. Solutions at lower or higher concentrations may be less effective or even completely ineffective. Can be used on clothing.
1% sodium hypochlorite in water	Soaking non-absorbent materials	Dilution of household bleach is sufficient. Use only in a well-ventilated area. Do not use on clothing. Bleach has a limited shelf life. Degradation increases with exposure to UV

Disinfectant	Application	Notes
		light and at higher temperatures. See manufacturer's details for further information.
Benzalkonium chloride (various concentrations)	Spraying or soaking materials (e.g., equipment, vehicles, boot-cleaning stations)	Some commercial fungicidal products are available (e.g., Phytoclean®). Use as per manufacturer's instructions. Avoid contact with skin or items likely to come into contact with skin (e.g., clothing).
Industrial strength detergent	Cleaning and disinfecting vehicle exteriors, shoes and equipment	There are several commercial products available. Use as per manufacturer's instructions.
Chloramine and chlorhexadine-based products	Disinfecting hands, footwear and equipment	Examples include Halamid®, Halasept® and Hexifoam®. Use as per manufacturer's instructions.
Alcohol wipes	Wiping down vehicle interiors	For multi-use packets, ensure the packaging is properly sealed between uses.
Alcohol gel	Disinfecting hands	

Boot scrub stations

If pathogens are detected onsite, boot-cleaning stations will be installed at the site entrance/exit and office to help reduce their potential spread. The boot-cleaning station may be a simple system with fixed brushes that construction personnel can use to scrub their shoes (see Figure F1).



Figure F1 Boot-cleaning station (Source: DPIE, 2020)

Chytrid Fungus Hygiene Protocol

All vehicles and machinery engaged in earthworks and vegetation clearance activities will follow the Chytrid Fungus Hygiene Protocol for vehicles, machinery and equipment, consistent with NSW frog hygiene guidance.

Vehicles, machinery and equipment must be cleaned and disinfected when arriving at site from other areas that may contain amphibian habitat, or when moving between distinct areas of the site, particularly where wet or damp conditions are present.

For disinfectants to be effective, all surfaces must first be cleaned of soil, mud and organic matter. Personnel must follow product safety instructions and wear suitable personal protective equipment. Disinfectants must not be mixed unless explicitly permitted by the manufacturer, particularly chlorine-based products.

Table F5 Chytrid Fungus hygiene protocol for vehicles and heavy machinery

Step	Description
Clean	Remove all visible mud, soil and organic material from tyres, tracks, undercarriage, tools and equipment in a designated cleaning area away from waterways.
Disinfect	Apply disinfectant to all cleaned surfaces using a spray or pressure sprayer. Allow sufficient contact time (minimum 30–60 seconds) as per manufacturer instructions.
Dry	Allow equipment to dry completely before reuse or transport where practicable.

Approved disinfectants for chytrid fungus include:

- 70% methylated spirits or ethanol
- Sodium hypochlorite (approximately 1%)
- Benzalkonium chloride
- Chloramine- or chlorhexidine-based products
- Industrial detergent
- Alcohol wipes and alcohol gel.

Boot scrub stations

As per the Myrtle Rust Hygiene Protocol, where works occur in or near amphibian habitat, or if Chytrid Fungus risk is identified onsite, boot-cleaning stations will be installed, refer to Figure F1.

Control**Weeds**

Weed management be undertaken prior to the commencement of clearing works in each work area in accordance with the BC Act. Weeds will be managed in a manner to ensure there is no risk of spread of weeds during their transportation and disposal. Table F5 below provides a list of recommended control methods for weeds recorded within the Project site.

Weeds will be controlled by a suitably qualified and experienced contractor in accordance with the following:

- Best Practice Weed Management Guide for Environmental Weeds (CRC, 2002)
- New South Wales Weed Control Handbook – A guide to weed control in non-crop, aquatic and bushland situations 7th Edition (DPI, 2018)
- *Pesticides Act 1999*
- Pesticides Regulation 2017.

Table F5 Recommended control methods for weeds recorded within the Project site

Species	NSW status	Recommended control methods
Bathurst Burr (<i>Xanthium spinosum</i>)	• Species of concern for NSW • High threat exotic weed	• Chemical control: Bathurst Burr is susceptible to some herbicides, particularly on young plants. Directions specified on the labels and material safety data sheets must be adhered to • Mechanical control: Repeated cultivation of seedlings after each germination event is effective on arable land. Mechanical slashing should be undertaken before the burrs have formed.
Lippia (<i>Phyla canescens</i>)	• High-threat environmental weed (inland floodplains) • Regional priority weed	• Integrated control: Improve ground cover with competitive perennial grasses • Chemical control: Spot spraying with registered herbicides.
<i>Xanthium strumarium</i>	• Declared priority weed in NSW • High-threat exotic weed	• Chemical control: Herbicide application on seedlings. • Mechanical control: Cultivation and slashing before burr formation.
Noogoora Burr (<i>Xanthium occidentale</i>)	• Declared priority weed in NSW • High-threat exotic weed	• Chemical control: Bathurst Burr is susceptible to some herbicides, particularly on young plants. Directions specified on the labels and material safety data sheets must be adhered to • Mechanical control: Repeated cultivation of seedlings after each germination event is effective on arable land. Mechanical slashing should be undertaken before the burrs have formed.
Great Brome (<i>Bromus diandrus</i>)	• Regional priority weed (Murray CMA) • Environmental weed	• Mechanical control: Cultivation before seed set • Chemical control: Pre-emergent herbicides in cropping systems.

Species	NSW status	Recommended control methods
Sagittaria (<i>Sagittaria platyphylla</i>)	• Weed of National Significance (WoNS) • Priority aquatic weed in NSW	• Chemical control: Aquatic-approved herbicides • Mechanical control: Physical removal of plants and tubers • Biosecurity control: Prevent spread via machinery and water movement.

Pathogens

The prevention measures outlined above will prevent the spread of any pathogens to site from these known and potential pathogen infected areas.

Primary control methods for *Phytophthora* and other pathogens (if applicable) is prevention (outlined above), and adaptive management i.e., identify die back, confirm if an infestation is identified onsite, put controls in place to prevent its spread.

Controls will be based on site-specific risk exposure and may include, but not be limited to, the following:

- ESR demarcates and signposts the restricted area to reduce disturbance and control access
- Establishment of washdown and disinfection stations at the access and exit points of the restricted area
- Utilisation of mobile disinfectant pump packs to address pathogen risk where required
- Toolbox on the restricted area to communicate the risks and new controls in place
- Abergeldie will review site activities in the area to determine if activities can be modified to prevent further disturbance to the restricted area. Modification of activities will include re-route access around the restricted area within the Project site
- If works are required in the restricted area, works are to be undertaken during periods of dry soil conditions
- Establishment and monitoring of restricted areas.

Disposal

All weeds, propagules, other plant parts and/or excavated topsoil material that is likely to be infested with weed propagules will be treated on site or bagged, removed from site, and disposed of at a suitably licensed waste facility. Securely cover loads of weed-contaminated material to prevent weed plant material falling or blowing off vehicles. They are not to be mulched for re-use. Remove weeds immediately onto suitable trucks/containers and dispose of without stockpiling.

Monitoring

Baseline survey

Prior to any clearing and grubbing the ESR or weed control contractor will survey the Project site and record the locations and extent of weed infestations, to be used as a baseline for ongoing monitoring. Information recorded will include species, distribution, and density.

Any priority weed species, or significant environmental weeds will also be identified during any pre-clearing inspections and recommendations for control and limiting spread will be made in associated reports.

Weeds and pathogens

A weed monitoring program will be implemented to qualitatively track weed management activities required for the Project.

As detailed above in the baseline surveys, prior to any clearing and grubbing, the ESR or weed control contractor will undertake a site inspection to map weed species and gather baseline data prior to construction commencing. This inspection will serve as a basis for future monitoring and should ideally be completed before spring (around August). Abergeldie, or the weed control contractor will prepare a weed inspection report following the weed inspection to inform controls onsite. This report will include detailed mapping of weed occurrences and a clear weed management methodology for all located weed species. The report will consider factors such as proximity to aquatic environments, proximity to ecologically sensitive areas, weed density and timing of year to assess appropriate treatment.

Weed surveys will occur quarterly during construction. The surveys will inform the implementation of targeted weed control measures of priority weeds in the Project site. A report will be prepared following each monitoring event including mapping of priority weeds, photographs to aid identification and comparison over time, and recommending specific control measures. Each report will also include an assessment against the following performance criteria:

- Evidence of implementation of appropriate control measures for priority weeds
- No incidences of new weed infestations within the Project footprint and in the area immediately surrounding the Project footprint.

If dieback is noted during weed monitoring periods, management measures described above will be implemented in the first instance (restricting access, hygiene measures) to control the spread of the observed occurrence. Stakeholders (Local Land Services and local landholders) will be notified and further consulted regarding follow up soil testing and mapping, and adaptive management steps will be implemented (investigation of the spread, prohibiting access, revising hygiene strategies).

Management measures

Table F6 Mitigation and management measures relevant to the WPCP

ID	Measure	Resources	Timing	Responsibility	Reference
General					
WP1	Training will be provided to all Project personnel, including relevant sub-contractors on biosecurity management practices and the requirements from this plan. Training shall include the key requirements of this Sub-Plan including hygiene practices required on-site.	Weed and Pathogen Control Plan (this Plan)	Pre-construction	Abergeldie PM	BD03
WP2	Site Environmental Plans will include information regarding hygiene practices, locations of surveyed high threat weeds and no-go zones.	Site Environmental Plans (SEPs)	Pre-construction	Abergeldie ESR / PM	Best practice
Weed and Hygiene Inspections and protocols					
WP3	A weed and pathogen checkpoint will be established at the site entry points. This checkpoint will check and document inspection for weeds, vegetative, soil and organic material on and within plant, vehicles and equipment being brought to site.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
WP4	Prior to site arrival ensure that all vehicles and equipment have been washed down and inspected prior to entry and that as a minimum, all heavy vehicles have been washed down off site, inspected prior to entry and accompanied by a Hygiene Declaration Form. The Contractor shall maintain a copy of this form in the vehicle and in the Project Office at all times for audit and inspection purposes	Hygiene Declaration Form	Pre-construction Construction	Abergeldie ESR / CM	B14
WP5	If a vehicle or equipment arrives to site unclean and/or without a certificate, they will be refused entry and turned back to travel to the established washdown point at the nearest township.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
WP6	Implement appropriate hygiene practices to prevent the spread of weed species, including regular cleaning of equipment used on-site, vehicle washdown and boot scrub stations.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
WP7	All vehicles and machinery engaged in earthworks and vegetation clearance activities will follow the Myrtle Rust hygiene protocol for vehicles and heavy machinery in Table 5 of the <i>Hygiene Guidelines</i> (Department of Planning, Industry and Environment, 2020).	Table 5 of the <i>Hygiene Guidelines</i> (Department of Planning, Industry and Environment, 2020).	Pre-construction Construction	Abergeldie ESR / CM	Best practice
WP8	If dieback is observed within the Project site, management measures will be implemented to control the spread of the occurrence (restricting access, hygiene measures), and appropriately manage it (investigation of the spread, prohibiting access, revising hygiene strategies).		Pre-construction Construction	Abergeldie ESR / CM	Best practice
Topsoil stripping and material stockpiling					
WP9	Where possible topsoil cleared will be stored locally for re-distribution across the same location. Topsoil that cannot be locally stored shall be stockpiled and quarantined.		Pre-construction Construction	Abergeldie ESR / CM	Best practice

ID	Measure	Resources	Timing	Responsibility	Reference
WP10	Topsoil, mulch and spoil stockpiles should be monitored between spring and autumn and, where weeds establish on the stockpiles, chemical weed control will be undertaken to prevent further stockpile contamination.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
Movement of sand, soil, rocks, gravel, fill and other weed risk material					
WP11	All material being imported to site must be certified as Virgin Excavated Natural Material (VENM) or subject to a Resource Recovery Order/Exemption e.g. Excavated Natural Material, Mulch, Recovered Aggregate.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
WP12	Prior to the movement of any weed risk material to the Project site, the material is to be accompanied with a certificate stating that this material is free from weeds. If a certificate is not available, the Contractor is to conduct and document a weed inspection prior to the first movement of material from the source location and on a regular basis while material is still being delivered and during operation of the source location.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
Weed control					
WP13	Weed management will be undertaken (in areas affected by construction) prior to any clearing works, in accordance with the BC Act. Weeds will be managed in a manner that ensures there is no risk of spread of weeds during transportation and disposal.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
WP14	Declared priority weeds will be managed according to requirements of the NSW <i>Biosecurity Act 2015</i> .		Pre-construction Construction	Abergeldie ESR / CM	B15
WP15	Where weed infestations have been physically removed and stockpiled away from works, check and control the treated area for regrowth and new seedlings throughout construction.		Pre-construction Construction	Abergeldie ESR / CM	Best practice
WP16	Soil material and stripped groundcover vegetation with the potential to contain priority weeds will not be removed from the proposal footprint. Soil disturbance would be avoided as much as possible to minimise the potential for spreading weeds.		Pre-construction Construction	Abergeldie ESR / CM	B15

Appendix H Dewatering Plan



ABERGELDIE
COMPLEX INFRASTRUCTURE

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**YANCO CREEK MODERNISATION LARGE
REGULATORS (PARTs 2A & 2C)
CONTRACT No. SR00696**

ACI PROJECT No. T6661

COFFERDAM DEWATERING PROCEDURE

17 January 2026

REVISION No: A



WATER



BRIDGES



TRANSPORT



UNDERGROUND



ENERGY



REMEDIATION

1. DOCUMENT CONTROL

1.1 APPROVAL

A record of the approval (and re-approval of any revisions) will be maintained in Table 1-1.

Table 1-1 Review and Approval Register

FUNCTION	POSITION	NAME	SIGNATURE	DATE
Prepared by	Abergeldie Environmental Site Representative	Glen Isbester		17/01/2026
Reviewed by	Abergeldie Project Manager	Balwanth Kondakindi		
Approved by	Abergeldie Project Manager	Balwanth Kondakindi		

1.2 DOCUMENT REVISION STATUS

Each page of this document bears a document name and revision date. When revisions to the document are issued, Table 1-2 will be updated to show the most recent revision level. The revised document will be forwarded to the holders of controlled copies as shown in Table 1-3. Recipients are responsible for destroying or marking “superseded” on the previous revision. The document is uncontrolled when printed.

Table 1-1 Revision Register

REVISION #	REVISION DATE	AMENDMENT DESCRIPTION
A	17/01/2026	Initial Draft

1.3 DISTRIBUTION (CONTROLLED COPIES)

Table 1-2 Distribution Register

ISSUED TO	COMPANY/POSITION	DATE
Jonas Ball	Client Environment Manager	17/01/2026



2. INTRODUCTION

2.1 PURPOSE

This Cofferdam Dewatering Procedure outlines the process and measures to be implemented in the dewatering of cofferdams.

2.2 SCOPE

This procedure is applicable for the following:

- Dewatering of cofferdams

Should any threatened species be identified, the Unexpected Threatened Species Finds Procedure will be implemented.



3. INDUCTION AND TRAINING

All Project personnel are to be inducted on the existence of this Procedure during the Project Induction and in more detail as required in Site Inductions, Toolbox Talks, daily prestart briefings, or targeted training as required. Records of all training, including inductions, will be maintained. Records will include the name and role of the attendee, the date of training/induction as well as the name of the course.

Handling of fauna may be necessary for fauna to be relocated or, if injured, taken to a vet or wildlife carer. A wildlife licence and/or scientific licence must be held by any staff handling fauna and should be undertaken either by the Project Ecologist or a person skilled in handling the species of fauna encountered.

A Scientific Licence under Part 2 of the *Biodiversity Conservation Act 2016* (including Animal Ethics Approval under the *Animal Research Act 1985*) is required for fauna handling/rescue and survey work. Where rescued fauna requires rehabilitation and care, only wildlife rehabilitation organisations authorised under Part 2 of the *Biodiversity Conservation Act 2016* may be used. A wildlife licence and/or scientific licence must be held by any staff handling fauna.

4. COFFERDAM DEWATERING PROCEDURE

A Dewatering Permit is required for dewatering of a coffer dam and needs approval by a member of the Environmental Team prior to commencement. There are two options for dewatering a coffer dam. These include:

1. Reuse on-site
2. Controlled discharge

An uncontrolled discharge of a coffer dam, typically due to heavy rain or regional flood events when the design capacity of the coffer dam is exceeded, will not conform to the process outlined in this procedure and may not meet water quality criteria. As such, design of the coffer dam will include a stable overflow point to direct the water to an appropriate discharge location to minimise impacts of any uncontrolled discharge. Where observed, uncontrolled discharges will be recorded in the post rainfall inspections.

The Project Ecologist must supervise dewatering of cofferdams. The Project Ecologist will capture native aquatic fauna entrained within the coffer dams and relocate to a nearby suitable habitat.

The Hygiene Guidelines (DPIE, 2020) must be followed for all frog handling to prevent pathogen spread amongst individuals and between catchments. General rescue approach for frogs:

- Single-use, non-latex, non-powdered (i.e. nitrile) disposable gloves to be worn when handling individuals if gloves are not available, then avoid touching the frog with bare hands by using implements to transfer to a container.
- Healthy frogs are to be placed in separate single-use plastic bags which should be partially inflated and include a small amount of leaf litter or clean (i.e. washed in a 0.1% concentration of a benzalkonium chloride-based disinfectant solution such as F10SC at 1:250 dilution and not re-used) damp cloth bag containing a small amount of leaf litter.
- Sick or injured individuals would be euthanised immediately unless there is a high probability of recovery, in which case treatment would be as for healthy frogs.
- Handling equipment, hands and boots to be cleaned of all soil and sprayed with a 0.1% concentration of a benzalkonium chloride-based disinfectant solution (i.e. F10SC at 1:250 dilution) or a Chlorhexidine-based product (e.g. Halamid©) and rinsed when moving between water bodies. Hands may be disinfected using 70% methylated spirits in water.
- Frogs and tadpoles are not to be moved between catchments.
- Dead frogs would be handled only using single-use gloves and buried in situ to avoid movement of pathogens.

General rescue approach for fish:

- Netting and removal of fish should be undertaken by the Project Ecologist at the late stages of dewatering regardless of any positive identification of fish.
- Fish to be placed in a plastic aquarium or plastic bag with a sufficient amount of water sourced from the point of collection.
- Any fish captured via netting should be released unharmed into adjacent waters downstream of the worksite.

If fauna is handled or moved during cofferdam dewatering activities, this will be recorded in post-dewatering reports.

Appendix I Supplementary Survey

General Information	
Item	Detail
Ecologist / Fauna Spotter(s) completing Pre-clearance Survey	Name: Darcy Brady Qualification: NGH Field Ecologist / Fauna Spotter Catcher
Ecologist completing Pre-construction Survey	Name: Dominic De Lorenzo Qualification: Graduate Ecologist
Date of Pre-clearance and Pre-construction Survey	02/04/2026
Specific Pre-clearance and Pre-construction Survey location	Survey Extent: Yanco Creek Modernisation Large Regulators Hartwood site 2A – Hartwood regulator and associated construction areas
Scope methodology	Desktop Survey: N/A Infield Survey: In field visual inspection by ecologist of the proposed Hartwood site 2A – Hartwood regulator and associated construction areas Including: • Check for the evidence of presence of threatened flora and fauna species. • Targeted surveys undertaken for Bush stone-curlew, Little eagle, Plains wanderer, Pink cockatoo, Southern bell frog and Slender Darling-pea. • Flag key habitat features, including nests, hollow bearing trees or large logs. • Confirm nearby habitat suitable for the release of any fauna that may be encountered during clearing works. • Identification of habitat features (snags, log piles, hollow-bearing trees, stumps, etc). • Identify trees that are just outside the marked vegetation clearing boundary that require protection to avoid unintended damage during the clearing and subsequent construction works.
Pre-construction scope methodology	Desktop Survey: N/A Infield Survey: In field targeted threatened species surveys were conducted by an ecologist for the proposed Hartwood site 2A – Hartwood regulator and associated construction areas, including: • Threatened flora surveys (Slender Darling-pea) ○ Inspection of known records as a reference population ○ 10m flora transects within mapped species polygons. • Threatened frog surveys (Southern bell frog) ○ Aural-visual with added call playback (CPB) surveys occurred after sunset (8:00pm) ○ This involved one, two minutes of listening, two minutes of CPB and at least 5 minutes of spotlighting ○ Locations of CPB points considered the known records within the site, species polygon, most suitable habitat present at the time of surveys and to maximise the capture the spatial extent of the site ○ Spotlighting transects predominantly targeted areas of most suitable breeding habitat including the creek edge, emergent vegetation and creek bank, as previously flooded areas were dry • Threatened bird surveys (Little eagle and Pink cockatoo)

		○ Inspections of mapped candidate breeding hollows within the footprint ○ Inspection of mapped candidate stick nests within 200m of the footprint ○ Meandering bird survey throughout site inspection ○ An area of Plains wanderer habitat was also opportunistically inspected during the nocturnal works.	
Pre-clearance Survey Details			
Infrastructure surveyed			
Proposed Offtake area	☐	Regulators ☒	
Site Access Tracks	☒	☐	
Laydown Areas	☒	Other ☐	
Protected Matters			
Item	Presence identified		Comments
	Yes	No	
The aquatic ecological community in the natural drainage system of the lower Murray River catchment.	☒	☐	Billabong Creek, within the Project site, and the nearby connected Colombo Creek and Forest Creek are identified as a sensitive receiving environment (Type 1 – Highly Sensitive Key Fish Habitat) because the waterways are known to support threatened species listed under the EPBC Act and FM Act. NOTE: There was no water present within the Hartwood site 2A – Hartwood regulator and associated construction areas.
Threatened Ecological Community (TEC)	☐	☒	Two TECs identified within the Project site, however, vegetation within the Project site does not meet the condition listing requirements for a TEC (refer to Protected Matters below).
Threatened fauna species – Southern bell frog (<i>Ranoidae raniformis</i>)	☐	☒	No Southern bell frogs were detected during aural or visual surveys. As surveys were undertaken outside of the species' recognised breeding and optimal survey period, it is likely the species is still present within the Subject Land. Outside the breeding season, Southern bell frogs are known to shelter within deep soil cracks and ground debris. Disturbance of this habitat, including removal or vibration associated with heavy machinery, has the potential to cause individuals to emerge. Accordingly, appropriate mitigation measures outlined in the approved BMP will be implemented. These measures include: • A suitably qualified Fauna Spotter Catcher (FSC) is required during disturbance or removal of potential Southern bell frog habitat.
Threatened Flora – Slender Darling-pea (<i>Swainsona murrayana</i>)	☒	☐	Two Slender Darling-peas (<i>S. murrayana</i>) individuals were detected during the targeted flora transects at Hartwood 2A. The individuals were detected outside of the footprint, in between two laydown areas, adjacent to a site access track. As the individuals found are in close proximity (~5-7m) to the construction footprint it is recommended that the appropriate mitigation measures are implemented as per the BMP. The required mitigation measures include: • clear exclusion fencing to be erected around the individuals • no-go-zone to remain and strictly followed.
Threatened breeding habitat – Pink cockatoo (<i>Lophochroa</i>)	☐	☐	All candidate breeding hollows were inspected for Pink cockatoos with no signs of use evident. Mitigation measures

Pre-clearance Survey Details			
<i>leadbeateri</i>) and Little eagle (<i>Hieraaetus morphnoides</i>)			as per the BMP is required, including the presence of a FSC should be implemented.
Management measures required to avoid or minimise impacts to Protected Matters: Clearing works to be completed in accordance with the approved Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Parts 2A & 2C) (section 5.2.2 Clearing protocols). Slender Darling-pea (<i>Swainsona murrayana</i>) As a result of the detection of two <i>S. murrayana</i> individuals in close proximity of the footprint, appropriate management measures are required to avoid and minimise impacts as per the BMP. These mitigation measures include: - the use of high visibility fencing to demarcate an exclusion zone around the plants where no personnel, vehicle or storage of equipment/materials can occur - the no-go-zone remain and to be strictly followed by all personnel on site - all construction personnel informed of exclusion zone during site induction - weed and pathogen hygiene controls strictly followed as per BMP. Southern Bell Frog (<i>Ranoidae raniformis</i>) Although no Southern Bell Frogs were identified during the pre-construction surveys it is recommended that a suitably qualified Fauna Spotter Catcher (FSC) should be present during all ground-disturbing works that involve the disturbance, removal, or vibration of potential Southern Bell Frog shelter habitat, including deep soil cracks, ground debris, and similar refugia. This includes vegetation clearing, soil disturbance, and works involving heavy machinery where vibration may cause frogs to emerge from shelter. The FSC presence should be maintained for the duration of works within areas containing potential habitat. Threatened bird breeding habitat – Pink cockatoo (<i>Lophochroa leadbeateri</i>) and Little eagle (<i>Hieraaetus morphnoides</i>) A suitably qualified Fauna Spotter Catcher (FSC) must be present during works that involve the disturbance or removal of any candidate breeding HBT (>3m height, >8cm diameter) or large raptor stick nests. Key Fish Habitat (KFH) Billabong Creek, within the Project site, and the nearby connected Colombo Creek and Forest Creek are identified as a sensitive receiving environment (Type 1 – Highly Sensitive Key Fish Habitat) because the waterways are known to support threatened species listed under the EPBC Act and FM Act. Threatened aquatic fauna, known to, or predicted to occur, within the Project site include (refer to BMP section 3.5.2, Table 3-3): - Silver perch (<i>Bidyanus bidyanus</i>) (Critically Endangered under the EPBC Act, Vulnerable under the FM Act) - Murray cod (<i>Maccullochella peelii</i>) (Vulnerable under the EPBC Act) - Freshwater catfish (<i>Tandanus tandanus</i>) (Endangered population under the FM Act) - Murray crayfish (<i>Eustacus armatus</i>) (Vulnerable under the FM Act). Threatened Ecological Communities (TEC) Two PCTs identified within the Project site are associated with Threatened Ecological Communities (TEC) under the BC Act and/or EPBC Act (refer to the BMP section 3.2, Table 3-1). However, PCTs identified within the Project site do not meet the condition listing requirements for a TEC. The two PCTs identified within the Heartwood Regulator site include: - PCT 44: <i>Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion</i> - PCT 46: <i>Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain, Riverina Bioregion.</i> An Ecologist/Fauna Spotter Catcher to be present during clearing activities.			
Hollow Bearing / Habitat Trees			
Habitat trees and habitat features identified & marked?	Yes ☒	No ☐	Comments: Eighty-two hollow bearing trees (HBT) identified within the clearing zone. Nineteen ground burrow/fauna

Pre-clearance Survey Details			
			habitat/hollow logs. Ground vegetation to be checked before clearing commences. Detailed in Appendix 1.
GPS coordinates and habitat trees recorded?	Yes ☒	No ☐	Comments: Illustrated in field with Pink spray-painted 'H' for HBT; Pink spray-painted line for other habitat feature. Detailed in Appendix 1.
Nest boxes required?	Yes ☐	No ☒	Comments: No nest boxes have been proposed for installation.
Fauna spotter required to be present during clearing activities?	Yes ☒	No ☐	Comments: Fauna Spotter Catcher required due to the presence of habitat/breeding place features.
Weeds			
Were any Weeds of National Significance or Priority Weeds identified?	Yes ☒	No ☐	Comments: Five weeds were identified in total. African Boxthorn (<i>L. ferocissimum</i>), Silver-leaf Nightshade (<i>S. elaeagnifolium</i>), Bathurst Burr (<i>X. spinosum</i>), Great Brome (<i>B. diandrus</i>) and Paddy Melon (<i>C. myriocarpus</i>). Two of which are WoNS (African Boxthorn & Silver-leaf Nightshade) and three of which are Priority weeds (Bathurst Burr, Great Brome & Paddy Melon).
Environmental exclusion zones			
Threatened Species Identified within Disturbance Area?	Yes ☐	No ☒	Details: No fauna or individual flora species that are protected under EPBC and/or BC act, were found within the survey area, additional to PCT species that form the TEC within the clearing area. Note: that two <i>S. murrayana</i> individuals were recorded within 5-7m of the footprint and will need to be appropriately mitigated as per the BMP and as outlined within this report.
Environmental exclusion zones required?	Yes ☒	No ☐	Details: Yes, environmental exclusion zones are required around the two <i>S. murrayana</i> individuals detected.
Unexpected Finds			
Were any Unexpected Finds identified?	Yes ☒	No ☐	Details: Yes, unexpected finds were identified during the pre-clearing and pre-construction surveys. One threatened flora species (<i>S. murrayana</i>) was identified just outside the survey area, and three previously unidentified weeds (<i>L. ferocissimum</i> , <i>S. elaeagnifolium</i> & <i>C. myriocarpus</i>) were identified within the survey area. One potential cultural scar tree (DB025) was also identified during the pre-clearance survey.
If yes, has the Environmental Manager been notified?	Yes ☒	No ☐	Details: While the Slender Darling-pea and the potential cultural scar tree finds were both reported, the three unexpected weeds were not identified as missing from the Biodiversity Management Plan until after the pre-clearance surveys were completed,

Pre-clearance Survey Details			
			therefore, this report will serve as notification of their absence.
Additional comments:			
Pre-construction targeted surveys: For pre-construction ecology survey methodologies, refer to section 5.2.1. of the Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Parts 2A & 2C). • Targeted flora surveys – Slender Darling-pea (<i>Swainsona murrayana</i>) ○ All previous records were inspected as a reference with no above ground or flowering observed. ○ Two flowering plants were opportunistically identified approximately 5m from the footprint, triggering 10m parallel transects throughout all species polygons within the footprint. ○ No other plants were detected throughout the surveys. ○ Additional mitigation measures are to be implemented to avoid and minimise impact to above ground extent of the population. • Targeted frog surveys – Southern bell frog (<i>Litoria raniformis</i>) ○ Seven frog surveys were completed throughout Hartwood Site 2A ○ These points were chosen based on previous records and the mapped species polygons ○ Each point had one aural and CPB station followed by at least 5 minutes of spotlighting, targeting suitable breeding habitat ○ Most suitable breeding habitat had evaporated at the point of surveys, with the main creek channels being the only residual water bodies ○ No target frogs were heard or seen throughout the surveys ○ Common frog species including the Giant banjo frog (<i>Limnodynastes interioris</i>), Common eastern froglet (<i>Crinia signifera</i>) and Spotted marsh frog (<i>Limnodynastes tasmaniensis</i>) were identified during the surveys. • Threatened bird breeding habitat surveys – Pink cockatoo (<i>Lophochroa leadbeateri</i>) and Little eagle (<i>Hieraaetus morphnoides</i>) ○ One large raptor stick nest was recorded within 200m of the footprint and was inspected. ○ There were no signs of use and evidence of an inactive nest due to donut shape/hole in middle of nest. ○ All mapped candidate hollows (>3m high, >8cm diameter) were inspected for evidence of use by breeding Pink cockatoos. ○ A total of 47 candidate hollows were inspected with no signs of use recorded. ○ A meandering bird survey was completed during the site inspection with no threatened birds recorded. Habitat features: ○ Eighty-two hollow-bearing trees (HBT) identified within the clearing zone and are anticipated to be removed. HBT details have been added below in Appendix 1 – Hollow-bearing tree register. ○ Nineteen ground burrow/fauna habitat/hollow logs identified within the clearing zone. Refer to Appendix 2 for photos. Weeds: ○ Two Weeds of National Significance (WoNS) were present across the survey area in abundance, African Boxthorn (<i>Lycium ferocissimum</i>) and Silver-leaf Nightshade (<i>Solanum elaeagnifolium</i>). Three Priority weeds were present across the survey area in abundance, Bathurst Burr (<i>Xanthium spinosum</i>), Great Brome (<i>Bromus diandrus</i>), and Paddy Melon (<i>Cucumis myriocarpus</i>). ○ Three weed species have been identified as missing from the BMP including African Boxthorn (<i>Lycium ferocissimum</i>), Silver-leaf Nightshade (<i>Solanum elaeagnifolium</i>) and Paddy Melon (<i>Cucumis myriocarpus</i>), having previously not been identified within the area. ○ Weed management be undertaken prior to the commencement of clearing works in each work area in accordance with the BC Act. Weeds will be managed in a manner to ensure there is no risk of spread of weeds during their transportation and disposal. Refer to the BMP Appendix G Weed and Pathogen Control Plan (WPCP) Table F5 for recommended control methods for weeds recorded within the Project site. For clearing protocols, refer to section 5.2.2. of the Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Parts 2A & 2C). The relevant mitigation and management measures from the Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Part 2A & 2C) (section 5.1.1 - Table 5-1) are listed below:			

Pre-clearance Survey Details

- **General**

- Prior to the commencement of construction activities, additional survey/s will be undertaken to confirm the extent of threatened species within the Project site. Surveys be undertaken during the Spring-Summer breeding period for each species and will include an assessment of the local *Swainsona murrayana* and Southern Bell frog populations, as well as threatened bird (including the Little eagle and Pink cockatoo) breeding habitat.
 - An additional survey/s will be conducted for *Swainsona murrayana* in September.
 - Should additional threatened species be identified during the survey/s, this BMP will be updated accordingly. A pre-clear threatened species survey report will be provided to the Proponent, following completion of the survey/s.

- **Vegetation protection**

- The clearing of native vegetation will be minimised to the greatest extent practicable with the objective of reducing impacts to threatened ecological communities and threatened species habitat.
- The Applicant must not clear any native vegetation or fauna habitat located outside the development corridor.
- Disturbance to riparian vegetation and snags within the assessed clearing areas will be minimised. Complete removal will be avoided wherever possible.
- Prior to the commencement of any work in or adjoining areas of native vegetation, a survey will be carried out to mark the construction impact boundary. The perimeter of this area would be fenced using high visibility fencing and clearly marked as the limits of clearing. All vegetation outside this fence line will be clearly delineated as an exclusion zone to avoid unnecessary vegetation and habitat removal and the transmission of weeds or disease. Fencing and signage will be maintained for the duration of the construction period. Fencing will be designed to allow fauna to exit the site during clearing activities.
- Trees within the construction footprints that do not require felling and proposed to be retained will be protected in accordance with Australian Standard 4970-2009 Protection of Trees on Development Sites. Trees located just outside the clearing boundary that are identified during the pre-clearing inspection as being at risk of damage during the construction phase will also be protected in accordance with Australian Standard 4970-2009 Protection of Trees on Development Sites.
- A pre-clearing inspection will be undertaken 48 hours prior to any native vegetation clearing by a suitably qualified ecologist and the Site Environmental Officer (or delegate). The pre-clearing inspection will include, as a minimum:
 - A check of the physical demarcation of the clearing boundary and construction footprint
 - Identification of trees that are just outside the marked clearing boundary that require protection to avoid unintended damage during the clearing and subsequent construction works
 - Identification of hollow bearing trees that need to be removed in accordance with the hollow-bearing tree removal procedure
 - Identification of other habitat features that need to be relocated outside the clearing boundary
 - Identification of any threatened flora and fauna
 - Implementation of the erosion and sediment control plan for the worksite, including erosion control structures.

The completion of the pre-clearing inspection will form a hold point requiring sign-off from the Principal.

- Where feasible, materials, plant, equipment, work vehicles and stockpiles will be stored, parked or placed as applicable away from the driplines of trees that are outside the clearing boundaries or that are within the clearing boundaries but proposed for retention.

- **Fauna protection**

- Where practicable, construction activities will be avoided during the breeding season of the following threatened species:
 - Southern bell frog (*Ranoidea raniformis*) – September to April
 - Little eagle (*Hieraaetus morphnoides*) – August to December
- Fauna encounters within the Project sites will be managed in accordance with the Fauna Handling and Rescue Procedure.
- Exclusion zones to be marked out by a qualified surveyor and then fenced with highly visible and durable product (e.g. high visibility string of bunting or plastic mesh (not transparent) attached to star pickets with plastic caps (or weighted posts that avoid ground penetration in culturally sensitive areas)). No barbed wire will be permitted for use onsite.
- Fencing will be temporary to exclude wildlife (e.g. from open trenches): Fencing stays located inside the exclusion area, or with high visibility mesh to guide wildlife away from obstructions and potential traps. Shade cloth or other suitable deterrent will be attached to the lower 50 cm of the outside of the exclusion zone and weighted to the ground. Temporary fencing will be inspected prior to sunrise and prior to sunset to ensure no fauna are trapped.
- Trenches will not be left open overnight, where practicable. Where trenches cannot be closed, trenches will be checked at the start and end of each day (i.e. dawn/dusk) and consider feasibility of measures (e.g. ramps) to aid animal escape.

Pre-clearance Survey Details

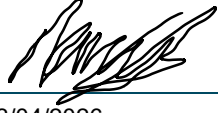
- Construction and worker vehicles and machinery will be checked at the start and end of each workday to ensure fauna are not entrapped.
- Vegetation clearing will be minimised within Plains wanderr habitat as much as practicable.
- Prior to moving CWD or rocks into Plains wanderer habitat, the Ecologist will inspect the area, to confirm that no individuals or nests are present. If nests are observed, then that area will be appropriately demarcated and marked as a 'no-go' zone for the duration of construction.
- For aquatic fauna protection and dewatering methodology, refer to the BMP Appendix H – Dewatering Plan.
- **Habitat protection**
 - Monitoring of clearing activities would include particular focus on habitat features that may harbour threatened species that are vulnerable to direct or indirect harm including during:
 - Felling of habitat trees that may contain roosting threatened birds or microbats
 - Earthworks in or near floodplain depressions that may contain breeding habitat for the Southern bell frog
 - Earthworks affecting cracking clay soils or woody debris that may harbour Grey snakes or Southern bell frogs.
 - Impacts to Key Fish Habitat (KFH) will be minimised, as per the Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013 update).
 - Native vegetation and other habitat features approved for removal will be reused onsite wherever practicable. Where reuse is not possible, relevant council(s), Local Land Services, local Landcare groups, DPIRD Fisheries and any additional relevant government agencies will be consulted prior to the removal of vegetation and other habitat to determine if:
 - Hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and rootballs salvaged from native vegetation impacted by the SSI; and
 - Collected plant material, seeds and/or propagated plants from native vegetation impacted by the SSI, can be used by others in the local area in habitat enhancement and rehabilitation work (which is currently underway or planned within 6 months of removal) before pursuing other disposal options. If the timber can be re-used by others, the Proponent must advise them and facilitate access for salvage.
 - Before reusing rootballs and other vegetative material by (or offering to others), this material will be checked by a suitably qualified arborist/ecologist/pathologist to determine that Pathogens (including but not limited to *Phytophthora cinnamomi*, Chytrid fungus, Myrtle rust and Fusarium wilt / Panama disease) are absent from the construction footprint and the material is not showing signs of infection or pests.
 - Any large woody debris and snags (>3m long or 30cm wide) occurring within the waterway (and construction footprint) that have to be removed will be moved to a suitable location upstream or downstream of the site in consultation with a qualified ecologist and WaterNSW.
- **Weeds, pathogens and pests**
 - Implement the Weed and Pathogen Control Plan.
 - Declared priority weeds will be managed according to requirements of the NSW Biosecurity Act.
 - Soil material and stripped groundcover vegetation with the potential to contain priority weeds will not be removed from the proposal footprint. Soil disturbance will be avoided as much as possible to minimise the potential for spreading weeds.
 - All machinery entering the site will be appropriately washed down and disinfected prior to work on site to prevent the potential spread of weeds and disease in accordance with the NSW best practice Protocols to protect priority biodiversity areas (DPIE 2020f).
 - Protocols to prevent introduction or spread of chytrid fungus will be implemented following the NSW hygiene guidelines for wildlife (DPIE 2020f).
 - Vehicle washdown logbooks will be maintained.
- **Noise, vibration and lighting**
 - Avoid unnecessary light spill to avoid attracting insects and subsequently their predators (bats and birds).
 - Night works will be avoided during periods of high insect/bird/bat activity (October to March) as far as reasonably practical, so as to minimise disturbance to fauna communication, foraging and other behaviours that depend on sound and darkness.
- **Rehabilitation**
 - Implement the Rehabilitation Plan.
 - Disturbed areas will be revegetated with endemic riparian and floodplain species (replacing like for like) to be undertaken as soon as practical, via progressive reinstatement.
 - Rehabilitation at construction sites will include replacing topsoil from the site stockpile.

Refer to section 5.11. Table 5-1 of the Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Part 2A & 2C) for the complete list of measures.

Pre-clearance Survey Details

An Ecologist/Fauna Spotter Catcher to be present during clearing activities.

NGH Ecologist

Name	Darcy Brady
Signature	
Date	8/04/2026

ABERGELDIE

Name	James Jabour
Position	Environmental Site Representative
Signature	
Date	14/04/2026

Appendix 1 – Hollow-bearing tree register

Table 1 – Hollow-bearing tree register

Tree ID	Tree Species	Coordinates	Notes
DB001	<i>Eucalyptus largiflorens</i>	-35.310883, 145.285826	
DB002	<i>Eucalyptus largiflorens</i>	-35.310402, 145.286477	
DB003	<i>Eucalyptus largiflorens</i>	-35.310332, 145.286433	
DB004	<i>Eucalyptus largiflorens</i>	-35.310287, 145.286687	
DB005	<i>Eucalyptus largiflorens</i>	-35.310254, 145.286558	
DB006	<i>Eucalyptus largiflorens</i>	-35.310245, 145.286552	
DB007	<i>Eucalyptus largiflorens</i>	-35.310236, 145.286511	
DB008	<i>Eucalyptus largiflorens</i>	-35.310177, 145.286594	
DB009	<i>Eucalyptus largiflorens</i>	-35.310124, 145.286593	
DB010	<i>Eucalyptus largiflorens</i>	-35.310313, 145.286880	
DB011	<i>Eucalyptus largiflorens</i>	-35.310045, 145.286965	
DB012	<i>Eucalyptus camaldulensis</i>	-35.309630, 145.287768	
DB013	<i>Eucalyptus largiflorens</i>	-35.309529, 145.287718	
DB014	<i>Eucalyptus largiflorens</i>	-35.309834, 145.287930	
DB015	<i>Eucalyptus largiflorens</i>	-35.309872, 145.287789	
DB016	<i>Eucalyptus largiflorens</i>	-35.309823, 145.287744	
DB017	<i>Eucalyptus largiflorens</i>	-35.309790, 145.287693	
DB018	<i>Eucalyptus largiflorens</i>	-35.310065, 145.287612	
DB019	<i>Eucalyptus largiflorens</i>	-35.309952, 145.287619	
DB020	<i>Eucalyptus largiflorens</i>	-35.310013, 145.287636	
DB025	<i>Eucalyptus largiflorens</i>	-35.310369, 145.287434	Potential cultural scar tree.
DB021	<i>Eucalyptus largiflorens</i>	-35.310034, 145.287449	
DB022	<i>Eucalyptus largiflorens</i>	-35.310090, 145.287453	
DB023	<i>Eucalyptus largiflorens</i>	-35.310212, 145.287475	

Tree ID	Tree Species	Coordinates	Notes
DB024	<i>Eucalyptus largiflorens</i>	-35.310317, 145.287456	
DB026	<i>Eucalyptus largiflorens</i>	-35.310320, 145.287143	
DB027	<i>Eucalyptus largiflorens</i>	-35.310080, 145.287172	
DB028	<i>Eucalyptus largiflorens</i>	-35.310090, 145.287171	
DB029	<i>Eucalyptus largiflorens</i>	-35.310514, 145.287309	
DB030	<i>Eucalyptus largiflorens</i>	-35.310570, 145.287170	Not marked with Pink 'H' due to proximity to water.
DB030	<i>Eucalyptus largiflorens</i>	-35.310489, 145.287032	
DB031	<i>Eucalyptus largiflorens</i>	-35.310414, 145.286934	
DB032	<i>Eucalyptus largiflorens</i>	-35.310511, 145.286733	
DB033	<i>Eucalyptus largiflorens</i>	-35.311392, 145.286178	
DB034	<i>Eucalyptus largiflorens</i>	-35.311042, 145.286537	
DB035	<i>Eucalyptus largiflorens</i>	-35.310695, 145.286869	
DB036	<i>Eucalyptus largiflorens</i>	-35.309769, 145.288258	
DB037	<i>Eucalyptus largiflorens</i>	-35.309970, 145.288238	
DB038	<i>Eucalyptus cameldulensis</i>	-35.309895, 145.288115	
DB039	<i>Eucalyptus largiflorens</i>	-35.310024, 145.288241	
DB038	<i>Eucalyptus largiflorens</i>	-35.310171, 145.288195	
DB040	<i>Eucalyptus largiflorens</i>	-35.310294, 145.288204	
DB041	<i>Eucalyptus largiflorens</i>	-35.310239, 145.288160	
DB042	<i>Eucalyptus largiflorens</i>	-35.310369, 145.288074	
DB043	<i>Eucalyptus largiflorens</i>	-35.310533, 145.287981	
DB044	<i>Eucalyptus largiflorens</i>	-35.310597, 145.288059	
DB045	<i>Eucalyptus largiflorens</i>	-35.310584, 145.287930	
DB046	<i>Eucalyptus cameldulensis</i>	-35.310607, 145.287675	
DB047	<i>Eucalyptus largiflorens</i>	-35.310809, 145.287458	
DB047	<i>Eucalyptus largiflorens</i>	-35.310815, 145.287492	
DB048	<i>Eucalyptus largiflorens</i>	-35.310879, 145.287512	
DB049	<i>Eucalyptus largiflorens</i>	-35.310889, 145.287620	
DB050	<i>Eucalyptus largiflorens</i>	-35.310990, 145.287779	

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Tree ID	Tree Species	Coordinates	Notes
DB051	<i>Eucalyptus largiflorens</i>	-35.310989, 145.287787	
DB052	<i>Eucalyptus largiflorens</i>	-35.311178, 145.287937	
DB053	<i>Eucalyptus largiflorens</i>	-35.311323, 145.287569	
DB054	<i>Eucalyptus largiflorens</i>	-35.311391, 145.287583	
DB055	<i>Eucalyptus largiflorens</i>	-35.311343, 145.287537	
DB056	<i>Eucalyptus largiflorens</i>	-35.311333, 145.287472	
DB057	<i>Eucalyptus largiflorens</i>	-35.311335, 145.287442	
DB058	<i>Eucalyptus largiflorens</i>	-35.311222, 145.287382	
DB059	<i>Eucalyptus largiflorens</i>	-35.311138, 145.287496	
DB060	<i>Eucalyptus largiflorens</i>	-35.311109, 145.287364	
DB061	<i>Eucalyptus largiflorens</i>	-35.311159, 145.287180	
DB062	<i>Eucalyptus largiflorens</i>	-35.311068, 145.287234	
DB063	<i>Eucalyptus largiflorens</i>	-35.310985, 145.287323	
DB064	<i>Eucalyptus largiflorens</i>	-35.310892, 145.287379	
DB065	<i>Eucalyptus camaldulensis</i>	-35.310778, 145.287279	
DB066	<i>Eucalyptus largiflorens</i>	-35.326359, 145.294974	
DB067	<i>Eucalyptus largiflorens</i>	-35.326641, 145.294746	
DB069	<i>Eucalyptus largiflorens</i>	-35.326379, 145.294777	
DB068	<i>Eucalyptus largiflorens</i>	-35.326359, 145.294686	
DB069	<i>Eucalyptus largiflorens</i>	-35.326268, 145.294588	
DB070	<i>Eucalyptus largiflorens</i>	-35.326407, 145.294461	
DB071	<i>Eucalyptus largiflorens</i>	-35.326484, 145.294272	
DB072	<i>Eucalyptus largiflorens</i>	-35.326456, 145.294256	
DB073	<i>Eucalyptus largiflorens</i>	-35.326663, 145.293989	
DB074	<i>Eucalyptus largiflorens</i>	-35.326785, 145.294056	
DB075	<i>Eucalyptus largiflorens</i>	-35.326733, 145.294108	
DB076	<i>Eucalyptus largiflorens</i>	-35.326697, 145.294150	
DB077	<i>Eucalyptus largiflorens</i>	-35.326793, 145.294292	
DB078	<i>Eucalyptus largiflorens</i>	-35.326613, 145.294275	

Tree ID	Tree Species	Coordinates	Notes
DB079	<i>Eucalyptus camaldulensis</i>	-35.326559, 145.294377	
DB080	<i>Eucalyptus largiflorens</i>	-35.326559, 145.294451	
DB081	<i>Eucalyptus largiflorens</i>	-35.326706, 145.294595	
DB082	<i>Eucalyptus largiflorens</i>	-35.326758, 145.294592	

Appendix 2 – Threatened species register

Table 2 – Threatened species register

Common Name	Scientific Name	Coordinates	Notes
Slender Darling-pea	<i>Swainsona murrayana</i>	-35.312673, 145.284219	Two individuals found 5m west of access track. In between two stockpile/laydown areas.
Slender Darling-pea	<i>Swainsona murrayana</i>	-35.312770, 145.284277	Two individuals found 5m west of access track. In between two stockpile/laydown areas.



Figure 1. Site photos

Figure 1. Site photos

2. Site Photos



Figure 3. Site photos



Figure 4. Site photos



Figure 5. Threatened flora species: Slender Darling-pea (*S. murrayana*).



Figure 7. Potential cultural scar tree



Figure 6. Hollow-bearing tree

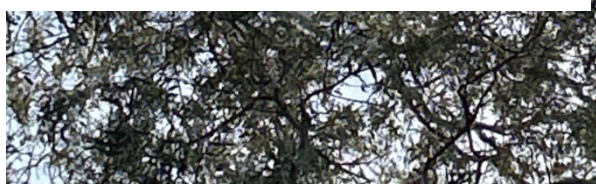
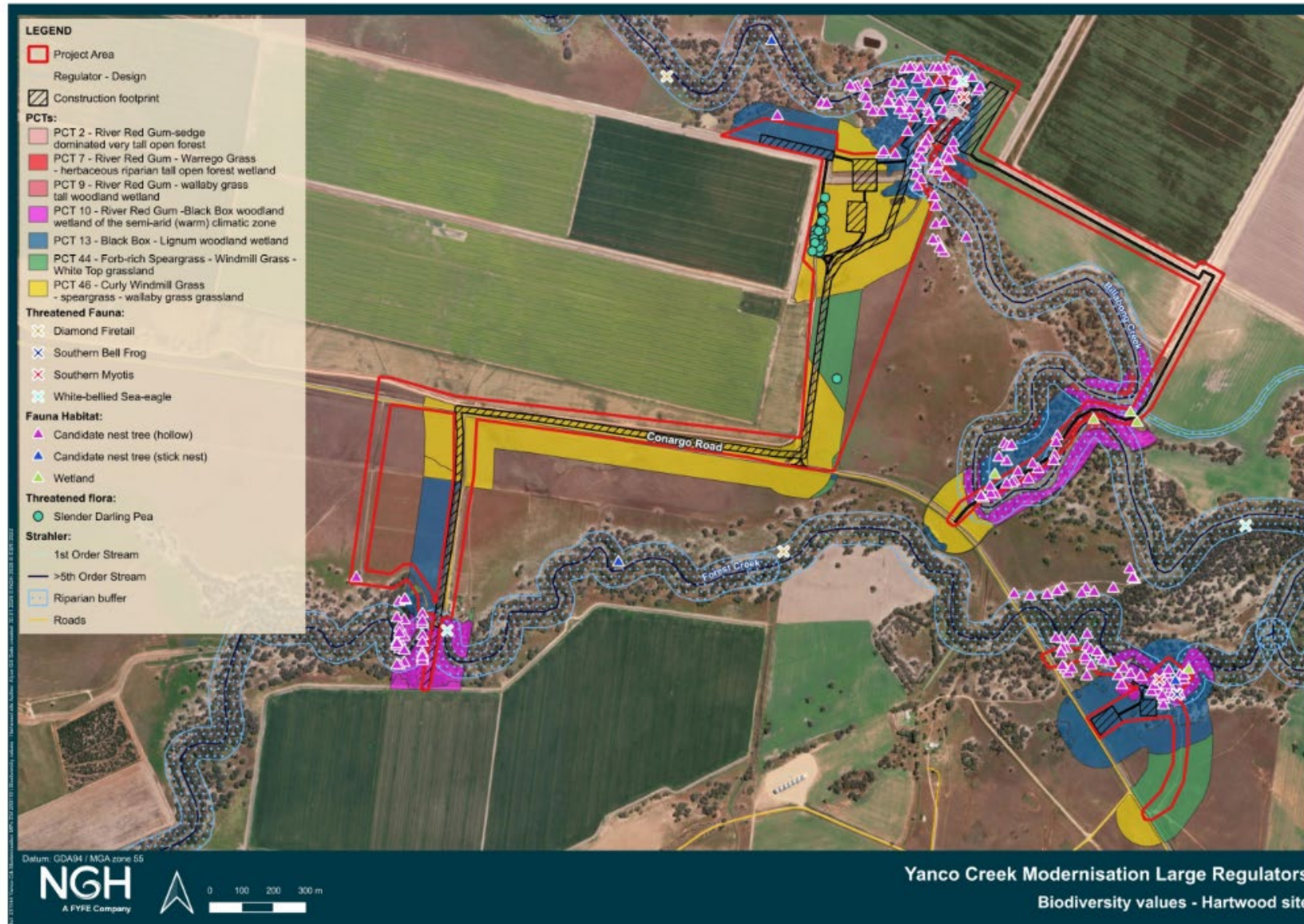


Figure 8. Large platform stick nest

Appendix 4 – Project Biodiversity Impact Assessment Map



General Information	
Item	Detail
Ecologist / Fauna Spotter(s) completing Pre-clearance Survey	Name: Darcy Brady Qualification: NGH Site Ecologist / Fauna Spotter Catcher
Ecologist completing Pre-construction Survey	Name: Dominic De Lorenzo Qualification: Graduate Ecologist
Date of Pre-clearance Survey	02/04/2026
Specific Pre-clearance Survey location	Survey Extent: Yanco Creek Modernisation Large Regulators Wanganella Site 2C
Scope methodology	Desktop Survey: N/A Infield Survey: In field visual inspection by ecologist of the proposed Wanganella Site 2C – Wanganella Regulator Including: • Check for the evidence of presence of threatened flora and fauna species. • Targeted surveys undertaken for Bush stone-curlew, Little eagle, Pink cockatoo, Southern bell frog and Slender Darling-pea • Flag key habitat features, including nests, hollow bearing trees or large logs. • Confirm nearby habitat suitable for the release of any fauna that may be encountered during clearing works. • Identification of habitat features (snags, log piles, hollow-bearing trees, stumps, etc). • Identify trees that are just outside the marked vegetation clearing boundary that require protection to avoid unintended damage during the clearing and subsequent construction works.
Pre-construction scope methodology	Desktop Survey: N/A Infield Survey: In field targeted threatened species surveys were conducted by an ecologist for the proposed Wanganella 2C site, including: • Threatened flora surveys (Slender Darling-pea) ○ Inspection of known records as a reference population ○ 10m flora transects within mapped species polygons. • Threatened frog surveys (Southern Bell Frog) ○ Aural-visual with added call playback (CPB) surveys occurred after sunset (8:00pm) ○ This involved one, two minutes of listening, two minutes of CPB and at least 5 minutes of spotlighting ○ Locations of CPB points considered the known records within the site, species polygon and most suitable habitat present at the time of surveys ○ Spotlighting transects predominantly targeted areas of most suitable breeding habitat including the creek edge, emergent vegetation and creek bank, as previously flooded areas were dry • Threatened bird surveys (Little eagle and Pink cockatoo) ○ Dawn stick nest watch of known Little eagle nest ○ Inspection of mapped candidate stick nests within 200m of the footprint

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		○ Inspection of mapped candidate breeding hollows within the footprint ○ Meandering bird survey during surveys within species polygons and throughout site for Little eagle and Pink cockatoo	
Pre-clearance Survey Details			
Infrastructure surveyed			
Proposed Offtake area	☐	Regulators ☒	
Site Access Tracks	☒	☐	
Laydown Areas	☒	Other ☐	
Protected Matters			
Item	Presence identified		Comments
	Yes	No	
The aquatic ecological community in the natural drainage system of the lower Murray River catchment.	☒	☐	Billabong Creek, within the Project site, and the nearby connected Colombo Creek and Forest Creek are identified as a sensitive receiving environment (Type 1 – Highly Sensitive Key Fish Habitat) because the waterways are known to support threatened species listed under the EPBC Act and FM Act. NOTE: There was no water present within the Wanganella 2C site and associated construction areas.
Threatened Ecological Community (TEC)	☐	☒	Vegetation within the Project site does not meet the condition listing requirements for a TEC.
Threatened fauna species – Southern bell frog (<i>Ranoidea raniformis</i>)	☐	☒	No Southern bell frogs were detected during aural or visual surveys. As surveys were undertaken outside of the species' recognised breeding and optimal survey period, it is likely the species is still present within the Subject Land. Outside the breeding season, Southern bell frogs are known to shelter within deep soil cracks and ground debris. Disturbance of this habitat, including removal or vibration associated with heavy machinery, has the potential to cause individuals to emerge. Accordingly, appropriate mitigation measures outlined in the approved BMP will be implemented. These measures include: • A suitably qualified Fauna Spotter Catcher (FSC) is required during disturbance or removal of potential Southern bell frog habitat.
Threatened Flora – Slender Darling-pea (<i>Swainsona murrayana</i>)	☐	☒	No Slender Darling-pea specimens observed at time of pre-clearance survey.
Threatened breeding habitat – Pink cockatoo (<i>Lophochroa leadbeateri</i>) and Little eagle (<i>Hieraaetus morphnoides</i>)	☐	☒	No Pink cockatoos or Little eagles were observed during surveys with no signs of use of breeding habitat within the site.
Management measures required to avoid or minimise impacts to Protected Matters: Clearing works to be completed in accordance with the approved Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Parts 2A & 2C) (section 5.2.2 Clearing protocols). Slender Darling-pea (<i>Swainsona murrayana</i>) No Slender Darling-peas were detected within Wanganella Site 2C and therefore no additional mitigation measures need to be implemented.			

Pre-clearance Survey Details

Southern bell frog (*Ranoidea raniformis*)

Although no Southern bell frogs were identified during the pre-construction surveys it is recommended that a suitably qualified Fauna Spotter Catcher (FSC) should be present during all ground-disturbing works that involve the disturbance, removal, or vibration of potential Southern bell frog shelter habitat, including deep soil cracks, ground debris, and similar refugia. This includes vegetation clearing, soil disturbance, and works involving heavy machinery where vibration may cause frogs to emerge from shelter. The FSC presence should be maintained for the duration of works within areas containing potential habitat.

Threatened bird breeding habitat – Pink cockatoo (*Lophochroa leadbeateri*) and Little eagle (*Hieraaetus morphnoides*)

A suitably qualified Fauna Spotter Catcher (FSC) should be present during all works that involve the disturbance or removal of any candidate breeding HBT (>3m height, >8cm diameter) or any candidate raptor stick nest.

Key Fish Habitat (KFH)

Billabong Creek, within the Project site, and the nearby connected Colombo Creek and Forest Creek are identified as a sensitive receiving environment (Type 1 – Highly Sensitive Key Fish Habitat) because the waterways are known to support threatened species listed under the EPBC Act and FM Act. Threatened aquatic fauna, known to, or predicted to occur, within the Project site include (refer to BMP section 3.5.2, Table 3-3):

- Silver perch (*Bidyanus bidyanus*) (Critically Endangered under the EPBC Act, Vulnerable under the FM Act)
- Murray cod (*Maccullochella peelii*) (Vulnerable under the EPBC Act)
- Freshwater catfish (*Tandanus tandanus*) (Endangered population under the FM Act)
- Murray crayfish (*Eustacus armatus*) (Vulnerable under the FM Act).

Threatened Ecological Communities (TEC)

One PCTs identified within the Project site are associated with Threatened Ecological Communities (TEC) under the BC Act and/or EPBC Act (refer to the BMP section 3.2, Table 3-1). However, the PCTs within the Project site **do not** meet the condition listing requirements for a TEC. However, this PCTs identified within the Wanganella 2C site is:

- PCT 160: Nitre Goosefoot shrubland wetland on clays of the inland floodplains.

An Ecologist/Fauna Spotter Catcher to be present during clearing activities.

Hollow Bearing / Habitat Trees

Habitat trees and habitat features identified & marked?	Yes ☒	No ☐	Comments: Twenty-five hollow bearing trees (HBT) identified within the clearing zone. One significant aquatic snag and one log/woody debris. Ground vegetation to be checked before clearing commences. Detailed in Appendix 1.
GPS coordinates and habitat trees recorded?	Yes ☒	No ☐	Comments: Illustrated in field with Pink spray-painted 'H' for HBT; Pink spray-painted line for other habitat feature. Detailed in Appendix 1.
Nest boxes required?	Yes ☐	No ☒	Comments: No nest boxes have been proposed for installation.
Fauna spotter required to be present during clearing activities?	Yes ☒	No ☐	Comments: Fauna Spotter Catcher required due to the presence of habitat/breeding place features.

Weeds

Were any Weeds of National Significance or Priority Weeds identified?	Yes ☒	No ☐	Comments: Three weeds were identified in total. Silver-leaf Nightshade (<i>S. elaeagnifolium</i>), Paddy Melon (<i>C.</i>
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Pre-clearance Survey Details			
			<i>myriocarpus</i>) and Bladder Hibiscus (<i>Hibiscus trionum</i>). One is a WoNS (Silver-leaf Nightshade), one is a Priority weed (Paddy Melon) and one is a common/environmental weed (Bladder Hibiscus).
Environmental exclusion zones			
Threatened Species Identified within Disturbance Area?	Yes ☐	No ☒	Details: No fauna or individual flora species that are protected under EPBC and/or BC act, were found, additional to PCT species that form the TEC within the clearing area.
Environmental exclusion zones required?	Yes ☐	No ☒	Details: No environmental exclusion zones required.
Unexpected Finds			
Were any Unexpected Finds identified?	Yes ☒	No ☐	Details: Yes, two previously unidentified weeds (<i>S. elaeagnifolium</i> & <i>C. myriocarpus</i>) were identified within the survey area.
If yes, has the Environmental Manager been notified?	Yes ☐	No ☒	Details: The two unexpected weeds were not identified as missing from the Biodiversity Management Plan until after the pre-clearance surveys were completed, therefore, this report will serve as notification of their absence.
Additional comments:			
Pre-construction targeted surveys: For Pre-construction ecology survey methodologies, refer to section 5.2.1. of the Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Parts 2A & 2C). • Targeted flora surveys – Slender Darling-pea (<i>Swainsona murrayana</i>) ○ No targeted flora surveys need for Wanganella Site 2C. • Targeted frog surveys – Southern bell frog (<i>Ranoidea raniformis</i>) ○ Five frog surveys were completed throughout Wanganella Site 2C. ○ These points were chosen based on previous records and the mapped species polygons. ○ Each point had one aural and CPB station followed by at least 5 minutes of spotlighting, targeting suitable breeding habitat. ○ Most suitable breeding habitat had evaporated at the point of surveys, with the main creek channels being the only residual water bodies. ○ No target frogs were heard or seen throughout the surveys. ○ Common frog species including the Giant banjo frog (<i>Limnodynastes interioris</i>), Common eastern froglet (<i>Crinia signifera</i>) and Spotted marsh frog (<i>Limnodynastes tasmaniensis</i>) were identified during the surveys. • Threatened bird breeding habitat surveys – Pink cockatoo (<i>Lophochroa leadbeateri</i>) and Little eagle (<i>Hieraaetus morphnoides</i>) ○ Eleven large raptor stick nests were recorded within 200m of the footprint and were inspected. ○ There were no signs of use in any stick nest. ○ A 30-minute stick nest watch occurred for the known Little Eagle nest, with no evidence of use. ○ Whitewash approximately 5m from the nest was observed suggesting birds may still be roosting adjacent to the stick nest, although this may still be present from when the nest was active. ○ All mapped candidate hollows (>3m high, >8cm diameter) were inspected for evidence of use by breeding Pink cockatoos. ○ A total of 19 candidate hollows were inspected with no signs of use recorded. ○ A meandering bird survey was completed within the mapped species polygons and throughout the site inspection with no threatened birds recorded.			

Pre-clearance Survey Details

- Common bird species recorded included: Willy wagtail (*Rhipidura leucophrys*), White-plumed honeyeater (*Ptilotula penicillata*), Galah (*Eolophus roseicapilla*), Red-rumped parrot (*Psephotus haematonotus*), Australian magpie (*Gymnorhina tibicen*), Fairywren (*Maluridae* sp.), Raven (*Corvus coronoides*), White-faced heron (*Egretta novaehollandiae*), Tree Martin (*Petrochelidon nigricans*) and Magpie-lark (*Grallina cyanoleuca*).

Habitat Features:

- Twenty-five hollow bearing trees (HBT) were identified within the clearing zone. Refer to Appendix 1 – Hollow-bearing tree register.
- One significant aquatic snag and one hollow log/woody debris were identified within the survey area. As dictated by the BMP section 5.3.1. any large woody debris and snags (>3m long or 30cm wide) occurring within the waterway that have to be removed from the construction footprint will be moved to a suitable location upstream or downstream of the site in consultation with a qualified ecologist and WaterNSW. Section 5.11. Table 5-1 of the BMP for further mitigation measures around aquatic snags/woody debris.

Weeds:

- One Weed of National Significance (WoNS), Sliver-leaf Nightshade (*Solanum elaeagnifolium*), and one Priority weeds, Paddy Melon (*Cucumis myriocarpus*) were present across the survey area in abundance. Bladder Hibiscus (*Hibiscus trionum*) was also identified within the survey area; however, it is not considered a WoNS or a Priority weed in NSW.
- Two weed species have been identified as missing from the BMP including Silver-leaf Nightshade (*Solanum elaeagnifolium*) and Paddy Melon (*Cucumis myriocarpus*), having previously not been identified within the area.
- Weed management be undertaken prior to the commencement of clearing works in each work area in accordance with the BC Act. Weeds will be managed in a manner to ensure there is no risk of spread of weeds during their transportation and disposal.

Refer to the BMP Appendix G Weed and Pathogen Control Plan (WPCP) Table F5 for recommended control methods for weeds recorded within the Project site.

For clearing protocols, refer to section 5.2.2. of the Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Parts 2A & 2C).

The relevant mitigation and management measures from the Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Part 2A & 2C) (section 5.1.1 - Table 5-1) are listed below:

- General**
 - Prior to the commencement of construction activities, additional survey/s will be undertaken to confirm the extent of threatened species within the Project site. Surveys be undertaken during the Spring-Summer breeding period for each species and will include an assessment of the local *Swainsona murrayana* and Southern bell frog populations, as well as threatened bird (including the Little eagle and Pink cockatoo) breeding habitat.
 - An additional survey/s will be conducted for *Swainsona murrayana* in September.
 - Should additional threatened species be identified during the survey/s, this BMP will be updated accordingly. A pre-clear threatened species survey report will be provided to the Proponent, following completion of the survey/s.
- Vegetation protection**
 - The clearing of native vegetation will be minimised to the greatest extent practicable with the objective of reducing impacts to threatened ecological communities and threatened species habitat.
 - The Applicant must not clear any native vegetation or fauna habitat located outside the development corridor.
 - Disturbance to riparian vegetation and snags within the assessed clearing areas will be minimised. Complete removal will be avoided wherever possible.
 - Prior to the commencement of any work in or adjoining areas of native vegetation, a survey will be carried out to mark the construction impact boundary. The perimeter of this area would be fenced using high visibility fencing and clearly marked as the limits of clearing. All vegetation outside this fence line will be clearly delineated as an exclusion zone to avoid unnecessary vegetation and habitat removal and the transmission of weeds or disease. Fencing and signage will be maintained for the duration of the construction period. Fencing will be designed to allow fauna to exit the site during clearing activities.

Pre-clearance Survey Details

- Trees within the construction footprints that do not require felling and proposed to be retained will be protected in accordance with Australian Standard 4970-2009 Protection of Trees on Development Sites. Trees located just outside the clearing boundary that are identified during the pre-clearing inspection as being at risk of damage during the construction phase will also be protected in accordance with Australian Standard 4970-2009 Protection of Trees on Development Sites.
- A pre-clearing inspection will be undertaken 48 hours prior to any native vegetation clearing by a suitably qualified ecologist and the Site Environmental Officer (or delegate). The pre-clearing inspection will include, as a minimum:
 - A check of the physical demarcation of the clearing boundary and construction footprint
 - Identification of trees that are just outside the marked clearing boundary that require protection to avoid unintended damage during the clearing and subsequent construction works
 - Identification of hollow bearing trees that need to be removed in accordance with the hollow-bearing tree removal procedure
 - Identification of other habitat features that need to be relocated outside the clearing boundary
 - Identification of any threatened flora and fauna
 - Implementation of the erosion and sediment control plan for the worksite, including erosion control structures.

The completion of the pre-clearing inspection will form a hold point requiring sign-off from the Principal.
- Where feasible, materials, plant, equipment, work vehicles and stockpiles will be stored, parked or placed as applicable away from the driplines of trees that are outside the clearing boundaries or that are within the clearing boundaries but proposed for retention.
- **Fauna protection**
 - Where practicable, construction activities will be avoided during the breeding season of the following threatened species:
 - Southern bell frog (*Ranoidea raniformis*) – September to April
 - Little eagle (*Hieraaetus morphnoides*) – August to December
 - Fauna encounters within the Project sites will be managed in accordance with the Fauna Handling and Rescue Procedure.
 - Exclusion zones to be marked out by a qualified surveyor and then fenced with highly visible and durable product (e.g. high visibility string of bunting or plastic mesh (not transparent) attached to star pickets with plastic caps (or weighted posts that avoid ground penetration in culturally sensitive areas)). No barbed wire will be permitted for use onsite.
 - Fencing will be temporary to exclude wildlife (e.g. from open trenches): Fencing stays located inside the exclusion area, or with high visibility mesh to guide wildlife away from obstructions and potential traps. Shade cloth or other suitable deterrent will be attached to the lower 50 cm of the outside of the exclusion zone and weighted to the ground. Temporary fencing will be inspected prior to sunrise and prior to sunset to ensure no fauna are trapped.
 - Trenches will not be left open overnight, where practicable. Where trenches cannot be closed, trenches will be checked at the start and end of each day (i.e. dawn/dusk) and consider feasibility of measures (e.g. ramps) to aid animal escape.
 - Construction and worker vehicles and machinery will be checked at the start and end of each workday to ensure fauna are not entrapped.
 - Vegetation clearing will be minimised within Plains wanderer habitat as much as practicable.
 - Prior to moving CWD or rocks into Plains wanderer habitat, the Ecologist will inspect the area, to confirm that no individuals or nests are present. If nests are observed, then that area will be appropriately demarcated and marked as a 'no-go' zone for the duration of construction.
 - For aquatic fauna protection and dewatering methodology, refer to the BMP Appendix H – Dewatering Plan.
- **Habitat protection**
 - Monitoring of clearing activities would include particular focus on habitat features that may harbour threatened species that are vulnerable to direct or indirect harm including during:
 - Felling of habitat trees that may contain roosting threatened birds or microbats
 - Earthworks in or near floodplain depressions that may contain breeding habitat for the Southern bell frog
 - Earthworks affecting cracking clay soils or woody debris that may harbour Grey snakes or Southern bell frogs.
 - Impacts to Key Fish Habitat (KFH) will be minimised, as per the Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013 update).
 - Native vegetation and other habitat features approved for removal will be reused onsite wherever practicable. Where reuse is not possible, relevant council(s), Local Land Services, local Landcare

Pre-clearance Survey Details

groups, DPIRD Fisheries and any additional relevant government agencies will be consulted prior to the removal of vegetation and other habitat to determine if:

- Hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and rootballs salvaged from native vegetation impacted by the SSI; and
- Collected plant material, seeds and/or propagated plants from native vegetation impacted by the SSI, can be used by others in the local area in habitat enhancement and rehabilitation work (which is currently underway or planned within 6 months of removal) before pursuing other disposal options. If the timber can be re-used by others, the Proponent must advise them and facilitate access for salvage.
- Before reusing rootballs and other vegetative material by (or offering to others), this material will be checked by a suitably qualified arborist/ecologist pathologist to determine that Pathogens (including but not limited to *Phytophthora cinnamomi*, Chytrid fungus, Myrtle rust and Fusarium wilt / Panama disease) are absent from the construction footprint and the material is not showing signs of infection or pests.
- Any large woody debris and snags (>3m long or 30cm wide) occurring within the waterway (and construction footprint) that have to be removed will be moved to a suitable location upstream or downstream of the site in consultation with a qualified ecologist and WaterNSW.
- **Weeds, pathogens and pests**
 - Implement the Weed and Pathogen Control Plan.
 - Declared priority weeds will be managed according to requirements of the NSW Biosecurity Act.
 - Soil material and stripped groundcover vegetation with the potential to contain priority weeds will not be removed from the proposal footprint. Soil disturbance will be avoided as much as possible to minimise the potential for spreading weeds.
 - All machinery entering the site will be appropriately washed down and disinfected prior to work on site to prevent the potential spread of weeds and disease in accordance with the NSW best practice Protocols to protect priority biodiversity areas (DPIE 2020f).
 - Protocols to prevent introduction or spread of chytrid fungus will be implemented following the NSW hygiene guidelines for wildlife (DPIE 2020f).
 - Vehicle washdown logbooks will be maintained.
- **Noise, vibration and lighting**
 - Avoid unnecessary light spill to avoid attracting insects and subsequently their predators (bats and birds).
 - Night works will be avoided during periods of high insect/bird/bat activity (October to March) as far as reasonably practical, so as to minimise disturbance to fauna communication, foraging and other behaviours that depend on sound and darkness.
- **Rehabilitation**
 - Implement the Rehabilitation Plan.
 - Disturbed areas will be revegetated with endemic riparian and floodplain species (replacing like for like) to be undertaken as soon as practical, via progressive reinstatement.
 - Rehabilitation at construction sites will include replacing topsoil from the site stockpile.

Refer to section 5.11. Table 5-1 of the Biodiversity Management Plan Yanco Creek Modernisation Large Regulators (Part 2A & 2C) for the complete list of measures.

An Ecologist/Fauna Spotter Catcher to be present during clearing activities.

NGH Ecologist

Name	Darcy Brady
Signature	
Date	08/04/2026

ABERGELDIE

Name	James Jabour
Position	Environmental Site Representative

Signature	
Date	14/04/2026

Appendix 1 – Hollow-bearing tree register

Table 1 – Hollow-bearing tree register

Tree ID	Tree Species	Coordinates	Notes
DB083	<i>Eucalyptus camaldulensis</i>	-35.218021, 144.806786	
DB084	<i>Eucalyptus camaldulensis</i>	-35.218053, 144.806363	
DB085	Stag tree	-35.218037, 144.806186	Standing in the creek.
DB086	<i>Eucalyptus camaldulensis</i>	-35.218247, 144.807575	
DB087	<i>Eucalyptus camaldulensis</i>	-35.217579, 144.807358	Has memorial plaque nailed into tree.
DB088	<i>Eucalyptus camaldulensis</i>	-35.217509, 144.807020	
DB089	<i>Eucalyptus camaldulensis</i>	-35.217668, 144.807077	
DB090	<i>Eucalyptus camaldulensis</i>	-35.217741, 144.806875	
DB091	Stag tree	-35.217456, 144.806871	Potential cultural scar tree.
DB092	<i>Eucalyptus camaldulensis</i>	-35.217765, 144.806703	
DB093	<i>Eucalyptus camaldulensis</i>	-35.217676, 144.806706	
DB094	<i>Eucalyptus camaldulensis</i>	-35.217712, 144.806544	
DB095	<i>Eucalyptus camaldulensis</i>	-35.217513, 144.806438	
DB096	<i>Eucalyptus camaldulensis</i>	-35.217668, 144.806354	
DB097	<i>Eucalyptus camaldulensis</i>	-35.217675, 144.806226	
DB098	<i>Eucalyptus camaldulensis</i>	-35.217691, 144.806103	
DB099	<i>Eucalyptus camaldulensis</i>	-35.217692, 144.806009	
DB100	<i>Eucalyptus camaldulensis</i>	-35.217456, 144.806127	
DB101	<i>Eucalyptus camaldulensis</i>	-35.217489, 144.806309	
DB102	<i>Eucalyptus largiflorens</i>	-35.210987, 144.809584	
DB103	<i>Eucalyptus largiflorens</i>	-35.210939, 144.809578	
DB104	<i>Eucalyptus largiflorens</i>	-35.210593, 144.809769	

DB105	<i>Eucalyptus largiflorens</i>	-35.210192, 144.808901	
DB106	<i>Eucalyptus largiflorens</i>	-35.210365, 144.808774	
DB107	<i>Eucalyptus largiflorens</i>	-35.210272, 144.808763	

Appendix 2 – Site Photos



Figure 1 Near rubbish tip



Figure 2. North of creek



Figure 3. Near rubbish tip



Figure 4. South of creek



Figure 5. North of creek



Figure 6. Hollow-bearing tree



Figure 7. Bladder Hibiscus weed



Figure 8. Waterbody

Appendix 3 – Project Biodiversity Impact Assessment Map

