

Appendix B1

Construction Flora and Fauna Management Plan

Project: Keepit Dam Work Package 2 - Post Tensioning Works
Location: Keepit Dam, Namoi River, Northern NSW
Client: WaterNSW
Contract: 04532F31



Construction Flora and Fauna Management Plan

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REVIEWED:

Date: 22 - 2 - 19



(for acceptance)

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ACCEPTED:

Date: 26 - 2 - 19



(for release)

Sam Pearce
Project Manager

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Abbreviations

Term	Definition
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
CTP	Compliance Tracking Program
DPE	Department of Planning and Environment
EA	Environmental Assessment
EMR	Environmental Management Representative
EMS	Environmental Management System
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation 1999</i>
FFMP	Construction Flora and Fauna Management Plan
NSW	New South Wales
Project, the	Keepit Dam Work Package 2 – Post Tensioning Works
SoC	Statement of Commitments
SRG	SRG Limited
TSC Act	<i>Threatened Species Conservation Act 1995</i>
WaterNSW	The client

Construction Flora and Fauna Management Plan

1. Introduction

1.1. Context

This Construction Flora and Fauna Management Plan (FFMP or Plan) is a Sub plan of the Construction Environmental Management Plan (CEMP) for the Keepit Dam Stage 2, Work Package 2 – Post Tensioning Works project (Keepit Dam Post Tensioning Works) (the Project).

This FFMP has been prepared to address the requirements of the *Keepit Dam Upgrade Environmental Assessment* (PB, 2007), the *Keepit Dam Upgrade Submissions Report and Preferred Project Report* (PB, 2008), the resulting Project Approval (06_0155) issued for upgrade of Keepit Dam, and all applicable legislation.

1.2. Background

Keepit Dam is situated on the Namoi River, 13 km upstream of its confluence with the Peel River in the north-west of NSW.

The NSW Dams Safety Committee requires that Keepit Dam be upgraded to be able to safely pass the probable maximum flood and to withstand earthquake events. WaterNSW is therefore undertaking dam safety upgrade works to Keepit Dam to comply with the requirements of the NSW Dams Safety Committee.

WaterNSW has adopted a two stage approach to upgrading Keepit Dam:

- Stage 1 - Construction of two fuse plug spillways – completed in 2011.
- Stage 2 - Electrical relocation, post tensioning of the main dam wall and raising of the dam concrete monoliths and the main embankment.

The Stage 2 works have been procured into three separate contract work packages, these being:

1. Electrical relocation works – completed in 2015.
2. Post tensioning the main dam wall.
3. Raising of the dam concrete monoliths and main embankment.

This Construction Flora and Fauna Management Plan (FFMP) has been prepared for the Keepit Dam Stage 2, Work Package 2 - Post Tensioning Works.

1.3. Environmental Management System Overview

The overall Environmental Management System for the Project is described in the Construction Environmental Management Plan (CEMP).

The FFMP is part of the SRG Limited (SRG) environmental management framework for the Project, as described in Section 4.1 of the CEMP. Management measures identified in this Plan will be incorporated into site or activity specific Environmental Work Method Statements (EWMSs) or Work Method Statements (WMSs) where relevant.

EWMSs / WMSs will be developed and signed off by environment and management representatives prior to associated works, and construction personnel will be required to undertake works in accordance with the identified mitigation and management measures.

Used together, the CEMP, strategies, procedures and EWMSs form management guides that clearly identify required environmental management actions for reference by SRG personnel and contractors.

The review and document control processes for this Plan are described in Section 9 of the CEMP.

Construction Flora and Fauna Management Plan

2. Purpose and objectives

2.1. Purpose

This Construction Flora and Fauna Management Plan describes how SRG will minimise and manage flora and fauna impacts during construction of the Keepit Dam Stage 2, Work Package 2 – Post Tensioning Works project.

2.2. Objectives

The objectives of the FFMP include:

- Ensure controls and procedures are implemented during construction activities to avoid, minimise or manage potential adverse impacts to flora and fauna within and adjacent to the Project;
- To describe the measures to be implemented to minimise flora and fauna impacts;
- Ensure appropriate measures are implemented to address the relevant requirements of the Conditions of Approval outlined in Table 3-1 and Statement of Commitments in Table 3-2.
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3.1 of this Plan.

Construction Flora and Fauna Management Plan

3. Environmental Requirements

3.1. Legislation

Legislation relevant to flora and fauna management includes:

- *Environmental Planning and Assessment Act 1979.*
- *Environment Protection and Biodiversity Conservation Act 1999.*
- *Threatened Species Conservation Act 1995.*
- *Fisheries Management Act 1994.*
- *Native Vegetation Act 2003.*
- *Noxious Weeds Act 1993.*

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in the CEMP.

3.2. Guidelines and Standards

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

- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000).*
- *Australian Weeds Strategy – A national strategy for weed management in Australia.* Natural Resource Management Ministerial Council (2007).

3.3. Conditions of Approval

The FFMP has been prepared as a requirement of CoA 6.3(a). The relevant requirements stipulated by the Conditions of Approval are detailed in Table 3-1.

Table 3-1 Conditions relevant to flora and fauna management

CoA No.	Condition	Where addressed
6.2 (c)(v)	The Proponent shall prepare and implement a Construction Environmental Management Plan to outline environmental management practices and procedures to be followed during construction of the project. The CEMP shall be consistent with Guideline for the Preparation of Environmental Management Plans (DIPNR 2004) and shall include, but not necessarily be limited to: <ul style="list-style-type: none"> c) Details of how the environmental performance of the construction works will be monitored and what actions will be taken to address identified potential adverse environmental impacts. In particular, the following environmental performance issues shall be addressed in the Plan: v) Measures to minimise the impact of construction on local flora and fauna, consistent with the mitigations measures described in section 5.1.3 of the document referred to under condition 1.1(b). 	CEMP CEMP Section 8 and Appendix D This FFMP, Table 6-1, Appendix A.
6.3	As part of the Construction Environmental Management Plan for the project, required under condition 6.2 of this approval, the Proponent shall prepare and implement the following:	CEMP
(a)	A Construction Flora and Fauna Management Plan to detail how construction impacts on ecology will be minimised and managed. The Plan shall include, but not necessarily be limited to:	This document Table 6-1 and section 7.2

Construction Flora and Fauna Management Plan

CoA No.	Condition	Where addressed
	i) Details of work practices (such as fencing and construction worker education) to minimise the potential damage to vegetation and native fauna during construction;	Appendix A
	ii) Weed management measures focusing on early identification of invasive weeds and determining effectiveness of management controls;	Not relevant to this stage
	iii) Procedures to install and monitor mitigation measures, such as nest boxes, relocated hollows and fauna fencing for effectiveness and maintenance; and	Section 7.3 and 7.5
	iv) An auditing program for construction work practices to ensure that either there is no impact on threatened species or their habitats additional to that already permitted.	

3.4. Statement of Commitments

Statement of Commitments from the *Submissions and Preferred Project Report* relevant to flora and fauna management are detailed in Table 3-2.

Table 3-2 Statement of Commitments relevant to flora and fauna management

SoC No.	Condition	Where addressed
24.1	A Flora and Fauna Management Sub Plan will be prepared as part of the CEMP. The Sub Plan will be prepared in consultation with the DECC, DPI (Fisheries) and Relevant Councils and include:	This Plan
	a) plans showing:	
	i. terrestrial vegetation communities; important flora and fauna habitat areas; locations where threatened species, populations or ecological communities were recorded; and areas to be cleared. The plans will also identify vegetation adjoining the Activity where this contains important habitat areas and/or threatened species, populations or ecological communities;	Sensitive Area Plan Appendix E of the CEMP
	ii. aquatic vegetation communities; important habitat areas; locations where threatened species, populations or ecological communities were recorded; and areas to be cleared. The plans will also identify vegetation adjoining the Activity where this contains important habitat areas and/or threatened species, populations or ecological communities;	Sensitive Area Plan Appendix E of the CEMP
	b) methods to manage impacts on flora and fauna species (terrestrial and aquatic) and their habitat which may be directly or indirectly affected by the Activity. These will include:	Section 5
	i. procedures for vegetation clearing, soil management and managing other habitat damage (terrestrial and aquatic) during Construction;	Not relevant to this stage
	ii. methods to protect vegetation both retained within, and also adjoining, the Activity from damage during Construction;	Table 6-1
	iii. a habitat tree management program including fauna recovery procedures and habitat maintenance (e.g. relocating hollows or installing nesting boxes);	Not relevant to this stage
	iv. methods to minimise damage to aquatic habitats;	Table 6-1
	v. where possible, and where consistent with DECC requirements, strategies for re-using in rehabilitation works individuals of any threatened plant species that would otherwise be destroyed by the Activity;	Not relevant to this stage
	vi. performance criteria against which to measure the success of the methods	Table 6-1
	c) rehabilitation details including:	Not relevant to this stage

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SoC No.	Condition	Where addressed
	<ul style="list-style-type: none"> i. identification of locally native species to be used in rehabilitation and landscaping works, including flora species suitable as a food resource for threatened fauna species; ii. methods to remediate affected aquatic habitats or fish passages; iii. the source of all seed or tube stock to be used in rehabilitation and landscaping works including the identification of seed sources within the Activity. Seed of locally native species within the Activity should be collected before Construction commences to provide seed stock for revegetation; iv. methods to re-use topsoil (and where relevant subsoils) and cleared vegetation; v. measures for the management and maintenance of all preserved, planted and rehabilitated vegetation (including aquatic vegetation); <p>d) a Weed Management Strategy including:</p> <ul style="list-style-type: none"> i. identification of weeds within the Activity and adjoining areas; ii. weed eradication methods and protocols for the use of herbicides; iii. methods to treat and re-use weed infested topsoil; iv. strategies to control the spread of weeds during Construction; <p>e) a program for reporting on the effectiveness of terrestrial and aquatic flora and fauna management measures against the identified performance criteria. Management methods will be reviewed where found to be ineffective.</p>	<p>Table 6-1, Appendix A</p> <p>Compliance Tracking Program</p>
25.1	A Biodiversity Offset Strategy will be designed for the Activity in accordance with the principles in Section 5 of the Environmental Assessment and Section 5.1.6 of the submissions report.	Keepit Dam Upgrade Biodiversity Management Plan (2010) (approved by Department of Environment June 2010)
25.2	The Biodiversity Offset Strategy will be developed in conjunction with the NSW State Department of Environment and Climate Change and the Commonwealth Department of the Environment, Water, Heritage and the Arts with details provided to the NSW Director General of the Department of Planning.	Keepit Dam Upgrade Biodiversity Management Plan (2010) (approved by Department of Environment June 2010).
25.3	State Water will implement the biodiversity offset developed from the methodology formulated from commitment 25.1 and 25.2	Keepit Dam Upgrade Biodiversity Management Plan (2010)
25.4	No clearing of threatened species will be conducted prior to receiving any approval from the Commonwealth Minister under the EPBC Act for the biodiversity offset.	Keepit Dam Upgrade Biodiversity Management Plan (2010)
25.5	The Director-General will be provided with annual reports on the implementation and management of the elements of the Biodiversity Offset Strategy as part of the OEMP for a period of five years following completion of Construction.	Keepit Dam Upgrade Biodiversity Management Plan Annual Reports (2010, 2011, 2012, 2013, 2014, 2015, 2016)
26.1	State Water in consultation with DPI will further develop the concept of fish passage at Mollee, Gunidgera and Weeta weirs in lieu of fish passage at Keepit and Split Rock dams.	Design drawings for automated fishways at Mollee weir and Gunidgera weir (design approved by DPI Fisheries)



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SoC No.	Condition	Where addressed
26.2	If demonstrated to be viable and cost effective, State Water, subject to the availability of funding will implement fish passage at Mollee, Gunidgera and Weeta weirs.	Design drawings for automated fishways at Mollee weir and Gunidgera weir (design approved by DPI Fisheries)

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4. Existing Environment

4.1. Flora

4.1.1. Vegetation communities

Vegetation mapping undertaken in preparation of the Environmental Assessment, indicated scattered woodland patches interspersed with cleared grazing country and riparian woodlands along the Namoi and Peel Rivers.

Five native vegetation communities were identified:

- White Box, Yellow Box, Blakely's Red Gum Woodland - listed as a critically endangered ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and as an endangered ecological community under the *Threatened Species Conservation Act 1995* (TSC Act). The main occurrence is within Lake Keepit State Park on the south-eastern side of Lake Keepit.
- Poplar Box Open Woodland.
- River Red Gum Woodland.
- Silver-leaved Ironbark Open Woodland.
- Grassland.

Several sections of the area surveyed through the EA were extensively cleared for agriculture and other purposes, including the camping and recreation areas of Lake Keepit State Park.

Vegetation communities downstream of Keepit Dam are indicated in Figure 4-1.

It is noted that all vegetation clearing associated with the project has been completed and no further habitat loss is likely to occur during the Stage 2, Package 2 - Post Tensioning Works project. This was acknowledged by the Department of Planning and Environment letter dated 13 November 2015.

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Figure 4-1 Mapped vegetation communities downstream of Keepit Dam (EA)

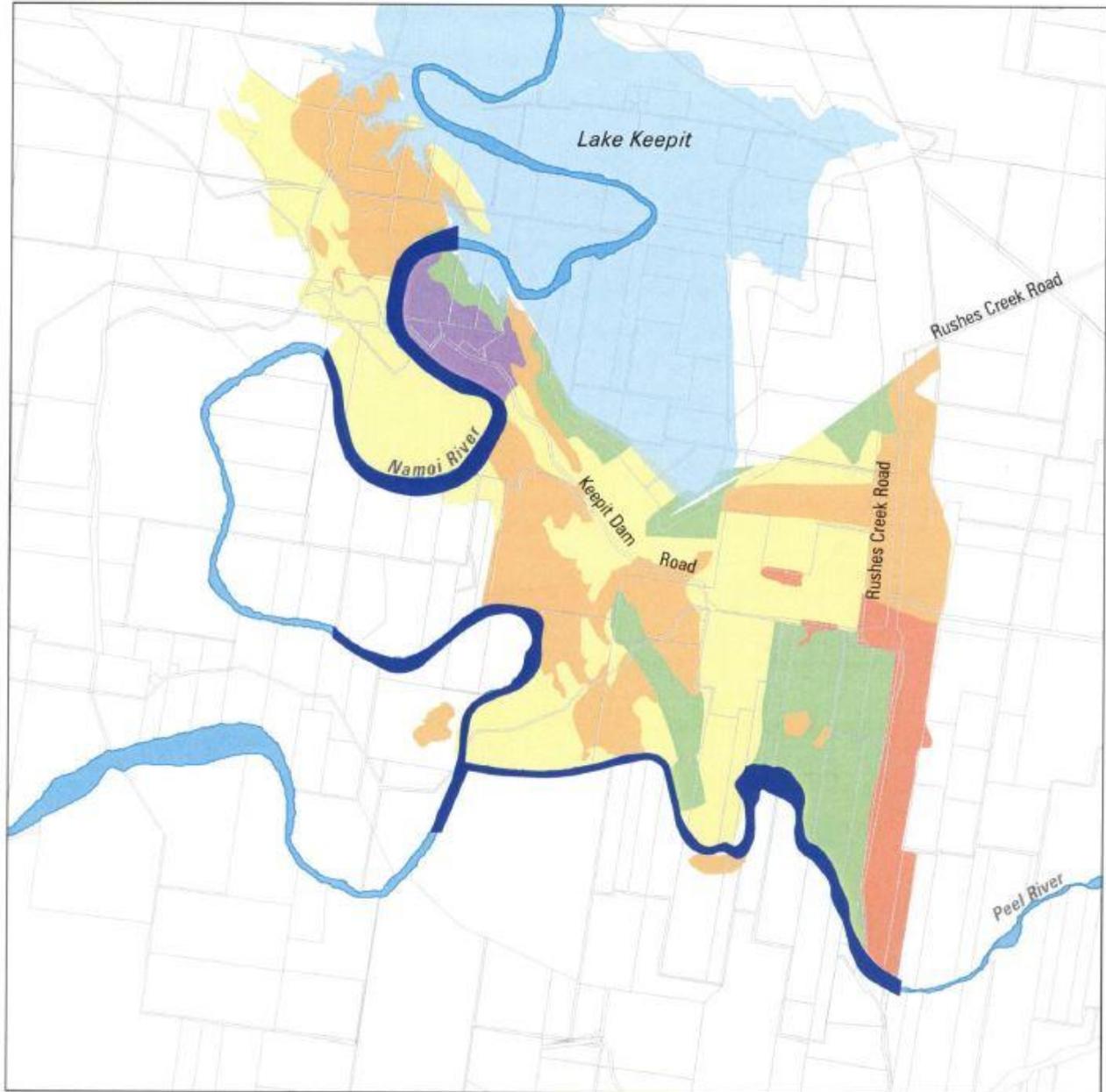


Figure 5-2 Mapped vegetation communities downstream of Keepit Dam

- Dam full supply level
- Cultivated agricultural land or otherwise highly modified
- Grassland (modified native or introduced)
- Grassland/cultivated agricultural land or otherwise highly modified
- Poplar Box Open Woodland
- River Red Gum Open Woodland
- White Box Woodland, Yellow Box Woodland (EEC)

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4.1.2. Plant species

A total of 114 plant species were recorded in the Environmental Assessment, of which 82 are native.

Two threatened species of plant have been recorded and are indicated below in Table 4-1. The only known population of *Hakea pulvinifera* grows on a steep, rocky slope on the western side of the Namoi River, approximately 2 kilometres downstream of the main dam wall. A single individual of *Bothriochloa biloba* was previously recorded beneath the subsidiary dam wall (Hunter 2002), but was not located during the field surveys undertaken for the Environmental Assessment (EA).

There is no clearing proposed as part of the Stage 2, Package 2 - Post Tensioning Works project, other than minor clearing of grass for establishment of ancillary facilities and the wastewater treatment ponds.

Table 4-1 Threatened plants

Common name	Scientific name	Status	Image
Lake Keepit Hakea	<i>Hakea pulvinifera</i>	Endangered – EPBC Act	
Lobed Blue-grass	<i>Bothriochloa biloba</i>	Vulnerable - EPBC Act	

4.1.3. Weed species

Six of the species recorded within the area are listed as noxious species.

These are detailed within Appendix A – Weed Management Strategy.

4.2. Fauna

The EA identified a total of 124 animal species within the surveyed area. These included 110 bird, 11 mammal and two reptile species.

Thirty-four threatened species either have been recorded or have the potential to occur in the surveyed area. Of these 34, two were recorded during the EA field surveys:

- Speckled Warbler (*Pyrrholaemus sagittatus*) - listed as Vulnerable under the TSC Act;
- Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*) listed as Vulnerable under the TSC Act.

This sub plan details mitigation measures which are to be implemented during construction.

Further to this, and as advised by DPI Fisheries, the Endangered Murray-Darling Basin population of Eel-Tailed Catfish is found throughout the Namoi and Peel Rivers.

Separate documents deal with monitoring (Ecological Monitoring Plan (CoA 3.1)) and biodiversity offsets ((Keepit Dam Upgrade Biodiversity Offsets (CoA 2.11)). These documents are referred to where necessary but actions are not repeated in this Plan.

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4.3. Aquatic ecosystems

An aquatic assessment was undertaken as part of the EA. The Assessment found that:

- Riparian zones were degraded.
- Dams and river regulation have impacted the physical and biological environments.
- Poor land management practices were evident.
- Water quality was poor due to high level os nutrients, turbidity and salinity.
- Native fisheries were poor.

Nine species of fish were recorded in total, comprising six native and three exotic species. Two threatened species were identified:

- Silver Perch (*Bidyanus bidyanus*), listed as Vulnerable under the *Fisheries Management Act 1994* (FM Act); and
- Murray Cod (*Maccullochella peelii peelii*) listed as Vulnerable under the EPBC Act.

The Murray-Darling Basin population of Eel-Tailed Catfish also is found within the Namoi and Peel Rivers.

Both the Namoi and Peel Rivers form part of the aquatic ecological community in the natural drainage system of the lowland catchment of the Darling River, which is listed as an endangered ecological community under the *Fisheries Management Act 1994*.

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5. Aspects and Impacts

5.1. Construction activities

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

- Works around watercourses including but not limited to, concrete surface preparation, coring, drilling and grouting activities, anchor installation, metal works and site facilities establishment and operation.
- Disturbance of soils, consequential erosion and the mobilisation of sediment resulting from the disturbance of grassed areas for the establishment of site facilities, the anchor preparation area and slurry treatment facilities.
- Use of chemicals / fuels (potential for spills) including but not limited to cements, grouts, epoxies, oils and fuels.

Note there is no clearing proposed as part of the Keepit Dam Post Tensioning Works project, other than minor clearing of grass.

Refer also to the Aspects and Impacts Register included in *Appendix A2 of the CEMP*.

5.2. Ecological impacts

Likely and/or potential impacts associated with project are discussed in Section 5 of the EA. Those relevant to Stage 2 include:

- Impact on endangered ecological communities (Lowland Darling River Aquatic Ecological Community).
- Direct impacts to aquatic fauna and indirect impacts to terrestrial fauna.
- Reduced water quality, including increased turbidity and increased nutrient levels.
- Increased turbidity, resulting in reduced light penetration and subsequent reduction of aquatic macrophyte, altering existing aquatic habitat.
- Algal growth as a result of nutrient levels.
- Increased sedimentation within watercourses.

These impacts were assessed on all stages of the project and therefore relate to both Stage 1 and 2 works.

For the Stage 2, Package 2 - Post Tensioning Works project, potential impacts are predominantly:

- Potential for reduced water quality (minor and short term increases in pH level, minor and short term increases in turbidity, minor sand and other sediment deposits in the water course) through the loss of concrete slurry to water courses from the coring, drilling and / or grouting process. Given the volume of material that may inadvertently enter water courses there is likely to be negligible to no impact on the ecology, including threatened species.

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6. Environmental Mitigation Measures

A range of environmental requirements and control measures are identified in the various environmental documents, including the EIS, Submissions and Preferred Project Report and Conditions of Approval. Specific measures and requirements to address impacts from flora and fauna are outlined in Table 6-1.

Impacts are to be minimised broadly by the following means:

- Education of the work force.
- Minimising disturbed areas and vehicle access tracks.
- Control of concrete slurry from the coring, drilling and / or grouting process at the source and the storage and suitable treatment of water. Included in the Soil and Water Management Plan and Appendix C of the CEMP.
- Monitoring flora and fauna during the project.

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Table 6-1 Environmental management measures

ID	Environmental Management Measure	When to implement	Responsibility	Reference
FF1	Training will be provided to all personnel (including subcontractors), on flora and fauna requirements from this plan through inductions and toolboxes.	Pre-construction and construction	Site SQE Representative	CoA 6.3(a)
FF2	Toolbox talks will be undertaken prior to works in or adjacent to environmentally sensitive areas.	Construction	Site SQE Representative	CoA 6.3(a)
FF3	This Flora and Fauna Management Plan will be followed and implemented to monitor the effectiveness of the mitigation measures implemented as part of the project.	Construction	Project Manager / Site SQE Representative	CoA 6.3(a)
FF4	Any work required outside of the construction footprint will be referred to the SQE Representative for advice on further assessment and approval requirements.	Pre-construction and construction	SRG's Project Manager / Site SQE Representative / WaterNSW's Project Manager	Good practice
FF5	Clearing of vegetation (trees and shrubs) will not be required for project works. Clearing of any weed species will not be required. Clearing of grasses will be required to establish the fabrication and storage bed area, the office compound, carpark and collection ponds. SRG will engage an ecologist to undertake a pre-clearing inspection of these grasses prior to clearing to enable the area to be assessed for the presence of fauna or threatened vegetation (grasses).	Construction	Project Manager / Site SQE Representative	CoA 6.3(a)
FF6	Access points or routes are not to be established within or through areas of native vegetation that is to be retained.	Pre-construction	SRG's Project Manager / Site SQE Representative / WaterNSW's Project Manager	Good practice
FF7	WIRES (or an equivalent wildlife rescue group) will be contacted if sick, injured or orphaned native animals are located during construction activities (contact 1300 094 737).	Construction	Site SQE Representative	Good practice
FF8	Measures detailed within the Soil and Water Management Plan will be implemented to assist with minimising the impacts on aquatic waterways. The measures for control of concrete slurry from coring, drilling and /or grouting are detailed in the SWMP and specifically within Appendix A.	Construction	SRG's Project Manager / Site SQE Representative / WaterNSW's Project Manager	CoA 6.3(a)
FF9	Weeds will be managed in accordance with the Weed Management Strategy (Appendix A).	Construction	SRG's Project Manager / Site SQE Representative	SoC 24.1



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ID	Environmental Management Measure	When to implement	Responsibility	Reference
			/ WaterNSW's Project Manager	
FF10	Visual monitoring of potential flora and fauna impacts will occur during environmental inspections. Any flora and fauna issues will be recorded in the Environmental Inspection Checklist.	Construction	Site SQE Representative	CoA 6.3(a)

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7. Compliance Management

7.1. Roles and Responsibilities

The organisational structure and overall roles and responsibilities are outlined in the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 4 of this Plan.

7.2. Training

All employees and contractors working on site will undergo site induction training relating to flora and fauna management issues. The induction training will address elements related to flora and fauna management including:

- Existence and requirements of this sub-plan.
- Relevant legislation.
- Flora and fauna mitigation and management measures.
- Procedure to be implemented in the event of an incident.

Further details regarding staff induction and training are outlined in Section 5 of the CEMP.

7.3. Monitoring and Inspections

Weekly inspections will be undertaken by the Site SQE Representative with the inspection form provided in Appendix D of the CEMP completed.

Weekly inspections will include a review of:

- Site environmental fencing.
- Erosion and sediment controls.
- Slurry storage and treatment basins.
- Stockpile and storage areas.
- Potential air quality impacts.
- Waste bins.
- Receiving watercourses.
- Access tracks.
- Work in progress.

7.4. Non-conformances

Non-conformances will be managed in accordance with Section 8.5 of the CEMP.

7.5. Audits

Audit requirements are detailed in Section 8 of the CEMP.

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8. Review and Improvement of the FFMP

8.1. 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.

8.2. FFMP update and amendment

The processes described in Section 8 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Only the Environmental Site Representative, or delegate, has the authority to change any of the environmental management documentation. In terms of approval of updates or amendments to this Plan, this is to be carried out by the Environmental Management Representative (EMR), with the EMR verifying that the amendments are consistent (or not) with the Project Approval.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 9 of the CEMP.



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Appendix A – Weed Management Strategy

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Weed Management Strategy

Introduction

This procedure provides detail for the management of both noxious and environmental weeds, with priorities for control based on these categories.

Noxious weeds are species declared noxious under the NSW *Noxious Weeds Act 1993*, whilst environmental weeds are generally introduced species that threaten the integrity of natural habitats.

Noxious weeds are those plants that are required by law to be controlled.

Relevant legislation

The *Noxious Weeds Act 1993* establishes a system for the identification and control of noxious weeds in NSW. The weed control classes for NSW are listed in Table 1.

Table 1: Weed control classes

Control class	Weed type	Example Control Requirements
Class 1 – State Prohibited Weed	Plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent.	The plant must be eradicated from the land and the land must be kept free of the plant. The weeds are also "notifiable" and a range of restrictions on their sale and movement exist.
Class 2 – Regionally Prohibited Weed	Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies and are not present in the region or are present only to a limited extent.	The plant must be eradicated from the land and the land must be kept free of the plant. The weeds are also "notifiable" and a range of restrictions on their sale and movement exist.
Class 3 – Regionally Controlled Weed	Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies, are not widely distributed in the area and are likely to spread in the area or to another area.	The plant must be fully and continuously suppressed and destroyed.
Class 4 – Locally Controlled Weed	Plants that pose a potentially serious threat to primary production, the environment or human health, are widely distributed in an area to which the order applies and are likely to spread in the area or to another area.	The growth of the plant must be managed in a manner that continuously inhibits the ability of the plant to spread.
Class 5 – Restricted Plant	Plants that are likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State.	There are no requirements to control existing plants of Class 5 weeds. However, the weeds are "notifiable" and a range of restrictions on their sale and movement exists.

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Background

Six of the species recorded within the study area are listed as noxious species.

These are detailed within Table 2.

Table 2 Noxious weeds

Common name	Scientific name	Noxious weed class	Image
Mother-of-millions	<i>Bryophyllum</i> species	4	
Prickly pear	<i>Cylindropuntia</i> species	4	
Prickly pear	<i>Opuntia</i> species	4	
Nagoora Burr	<i>Xanthium</i> species	4	
Willow	<i>Salix</i> species	5	

Weed Control

To control weed infestations during construction, the SQE Manager will ensure that the following is implemented:

1. Induction / Training

All construction personnel and subcontractors will be inducted in the existence and identification of noxious weeds on the Project and management procedures for weeds.

2. Weed Assessment by Ecologist

Prior to the commencement of ground disturbance, a site weed assessment will be undertaken to:

- Identify the species and location of any weeds growing in the road reserve; and
- Methods for their removal.

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3. Weed Management

Following the site assessment, identified weed species will be categorised in accordance with the *Noxious Weed Act 1993* and specific control requirements will be identified. Weed management may consist of (1) Slashing and spot spraying with herbicide; (2) Blanket spraying methods or (3) Physical removal of weed and topsoil for burial and isolation.

4. Pesticide Application

A pesticide application sheet will be completed after applying the pesticide and will be submitted to the Principal. Records sheets will not be provided when:

1. The herbicide is applied by hand or by using hand-held equipment;
2. If applied outdoors on any single occasion in quantities of no more than 5 litres/5kilograms of concentrated product or 20 litres/20 kilograms of the ready-to-use product.

5. Weed disposal

Weeds and topsoil potentially containing noxious weed propagates is to be removed and disposed of in accordance with the requirements of local Council or buried in road embankments and in accordance with the Waste Management Plan.

6. Monitoring

Monitoring of weeds will occur as part of the weekly environmental inspections. If actions are required, they will be noted in the Weekly Inspection Checklist.