BIODIVERSITY MANAGEMENT PLAN

Sebastopol Solar Farm

December 2020

Project Number: 20-495

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ACRONYMS AND ABBREVIATIONS

BCD	Biodiversity Conservation Division
As soon as practicable	Autumn is a suitable planting time, if autumn is too long away then plant when weather permits
BAM	Biodiversity Assessment Method
BDAR	Biodiversity Assessment Report
CEMP	Construction environmental management plan
Clearing	Vegetation removal (including groundcover)
CoC	Conditions of Consent
Cwth	Commonwealth
DC	Direct Current
DECCW	Refer to OEH
DPIE	Department of Primary Industry and Environment
EEC	Endangered ecological community – as defined under relevant law applying to the proposal
EIA	Environmental impact assessment
EMS	Environmental Management System
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Cwth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
ESD	Ecologically Sustainable Development
FRV	Fotowatio Renewable Ventures
Ground disturbance	Soil movement or vegetation damaged caused by construction, operational or decommissioning activities.
ha	hectares
km	kilometres
m	Metres
MW	Megawatt
MNES	Matters of National environmental significance under the EPBC Act (*c.f.*)
Noxious Weeds Act	*Noxious Weeds Act 1993* (NSW)
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
NV Act	*Native Vegetation Act 2003* (NSW)
PV	Photovoltaic
REF	Review of Environmental Factors
RTS	Response to Submissions
SIS	Species Impact Statement
SoC	Statement of Commitments
sp/spp	Species/multiple species
SSD	State Significant Development
TSC Act	*Threatened Species Conservation Act 1995* (NSW)
VEZ	Vegetation Exclusion Zone

1. INTRODUCTION

1.1. PURPOSE

Planning approval was granted for the Sebastopol Solar Farm on the 27th February 2019, and subsequently modified on 3rd July 2020 (Modification 1), for the construction and operation of a 110 megawatt (MW) photovoltaic (PV) solar farm and associated transmission infrastructure at Sebastopol, NSW. The Sebastopol Solar Farm ('the project') is located around 17 km south of Temora, within the Temora Local Government Area. The project is a State Significant Development (SSD), and this Biodiversity Management Plan (BMP) has been made in reference to:

- The Department of Planning, Industry, and Environment (DPIE) Consolidated Conditions of Consent (CoC) for SSD 9098, issued 03/07/2020
- Response to Submissions Report (RTS) dated 30/11/2018
- Approved Modification 1 for intersection upgrade works (approved 03/07/2020)
- The original approved Biodiversity Development Assessment Report (BDAR) for the project (excluding the intersection upgrade) dated 16/11/2018
- The approved additional BDAR for Modification 1 (intersection upgrade) dated 01/04/2020.

Details of the requirements of these documents are outlined in Section 2.3.

This BMP forms part of the Environmental Management Strategy (EMS) for Sebastopol Solar Farm, and has been prepared to address the relevant requirements of:

- Consolidated Conditions of Consent (CoC) (03/07/2020).
- Safeguards and Mitigation Measures in the RTS, and the approved additional BDAR for Modification 1 (intersection upgrade) dated 01/04/2020 (referred to as the Statement of Commitments (SoC) hereafter).
- All applicable legislation, during the construction and operation of the Project.

The purpose of this BMP is to provide a framework for the management of biodiversity issues during the construction and operation of the project. Some management measures are only applicable during the construction period, while others continue throughout the operation, as summarised below (Table 1-1).

Table 1-1: Timeframe of environmental management measures.

Construction	Operation
Ground disturbance	N/A
Vegetation clearance	N/A
Re-use of resources protocol	N/A
Threatened Species Finds	
Weed and Pest Management	
Vehicle Hygiene	
Vegetation Condition Management	
Groundcover Management	

Following the secretary's approval of the plan and any subsequent versions, the approved BMP will be implemented. Implementing this BMP will ensure that the Project team meets the Project requirements in a systematic manner and continually improves its performance.

1.2. THE PROJECT

The Scope of Works includes all works necessary to design, construct, test, commission, energise, decommission and train staff in the operation of a 110 MW direct current (DC) solar farm. The scope of works consists of but is not limited to:

- Approximately 308,000 PV solar arrays mounted on single axis tracking systems.
- Electrical cables and conduits.
- Inverter/transformer units.
- On site substation containing transformers, associated switchgear and control and protection equipment.
- Site office, compound, parking, access tracks and perimeter fencing.
- Operations and maintenance buildings with associated car parking.
- Access point via Eurolee Road.
- Internal access tracks.
- Lighting, CCTV system, security fencing.
- An overhead powerline connecting to the existing Essential Energy 99U 132kV power line located to the west of the site.
- Vegetative screening.

During construction and operation, the project site will be accessed from Eurolee Road, which runs along the southern boundary and intersects with Goldfields Way (B85).

The project will require the subdivision of the property for the purpose of the substation and leasing of parts of two lots comprising the solar farm array area. The substation will become Essential Energy's assets at the completion of construction.

An internal road system will be established for the construction and maintenance of the solar farm infrastructure. Key road works for the project will involve upgrading the intersection of Eurolee Road and Goldfields Way (as per Modification).

The project is expected to operate for 30 years. The construction phase of the project is expected to take 10-12 months and will commence in mid to late 2020. After the operating phase, the project will either be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or upgraded with new equipment.

The estimated Capital Investment Value of the project is around $120.4 million.

1.3. ENVIRONMENTAL MANAGEMENT SYSTEMS OVERVIEW

This BMP is part of the Fotowatio Renewable Ventures' (FRV) environmental management framework for the project as described in the overall Environmental Management Strategy (EMS).

Used together the EMS, BMP and other sub-plans and procedures form management guides that clearly identify required environmental management actions for reference by FRV personnel and contractors.

The review and document control processes for this plan are described in the EMS.

1.4. ENVIRONMENTAL MANAGEMENT POLICY

The Quality, Health and Safety and Environmental Management Policy describes FRV's commitment to minimise the environmental impacts of their products.

A copy of the environmental policy is provided in the EMS.

1.5. CONTINUOUS IMPROVEMENT

Management plan reviews are undertaken as part of the continual improvement process. The review process will be detailed in the EMS.

Communication is also key for continuous improvement as discussed in Section 12.1.

1.6. CONSULTATION

On 26 May 2020, NGH provided the draft BMP to BCD for their review and comment.

A response was received on 25 June 2020 (Appendix A). A summary of their recommendations is as follows:

1. Provide a separate map of the development footprint, including the location of all infrastructure.
2. Update Tables to show clearer responsibility for management actions.
3. Update Table 10.2 with more specific monitoring information.
4. Express pest animal management targets relative to baseline condition.
5. Express targets to maintain or improve vegetation condition in SMART format.
6. Describe the perimeter fence construction and initial mitigation measures to minimise impacts on fauna.
7. Develop a 'Hollow-bearing tree removal guideline'.
8. Update Table 4.1.
9. Include the vegetation zones and vegetation integrity scores in Appendix C with the BAM plot data.
10. Provide separate figures showing threatened species locations from surveys.

1.7. SUMMARY OF BIODIVERSITY IMPACTS

The Biodiversity Assessment Reports (BDARs) for the Project describe the biodiversity impacts of the development.

- The proposal involves the removal of 11 paddock trees, 6 of which are hollow bearing.
- 3 additional hollow bearing trees located in a patch (Zone 2 of BDAR 2) will also be removed
- 41 ha of vegetation containing suitable breeding habitat for the Superb Parrot and Major Mitchell Cockatoo will be retained.
- The Superb Parrot and Brown Treecreeper was recorded within the vicinity of the development site (Figure 3-1)
- Clearing of approximately 0.07 ha of White Cypress Woodland
- Clearing of approximately 0.19 ha of Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion.
- Clearing of approximately 0.08 ha of White Cypress Pine woodland on sandy loams in central NSW wheatbelt
- Clearing of an additional 0.64 ha of Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (intersection modification)

The indicative map below, Figure 1-1, illustrates the scope of the works and biodiversity constraints.

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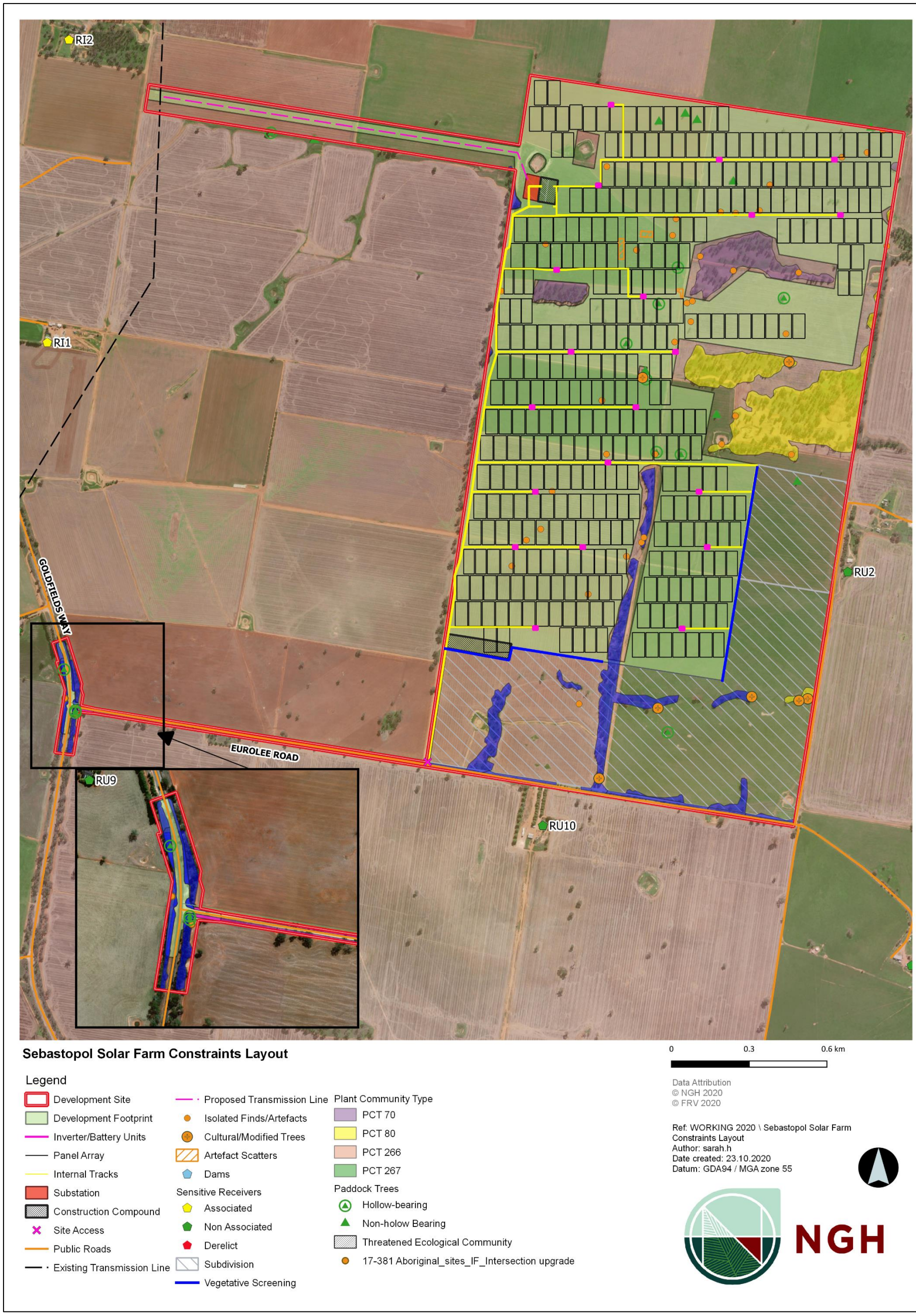


Figure 1-1 General layout of development area and site constraints.

2. PLANNING

2.1. LEGISLATIVE AND OTHER ENVIRONMENTAL MANAGEMENT REQUIREMENTS

2.1.1. Legislation

Legislation relevant to this Biodiversity Management Plan includes:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- *Environmental Planning and Assessment Act 1979* (EP&A Act).
- *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.*

2.1.2. Guidelines

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

- 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.
- DECCW. 2008. Hygiene protocol for the control of disease in frogs.
- Australian Standard AS 4373 Pruning of Amenity Trees.
- Australian Standard 4970 – 2009 Protection of Trees.
- Relevant recovery plans, priority action statements and best practice guidelines.

2.2. OBJECTIVES AND TARGETS

2.2.1. Objectives

Construction and Operation

The key objective of the BMP during construction is to ensure that the impacts of this project on biodiversity are managed and are within the scope permitted by the planning approval. The key objective of the BMP during operation is to ensure that the impacts of this project on biodiversity are managed and the condition of site biodiversity values maintained over the lifetime of the project.

To achieve this objective, FRV will:

- Ensure appropriate controls and procedures are implemented during construction and operation to avoid or minimise or manage potential adverse impacts to biodiversity values.
- Ensure appropriate measures are implemented to address the mitigation measures detailed in the CoC and SoC.
- Ensure appropriate measures are implemented and maintained to comply with all relevant legislation and other requirements as described in Section 2 and Section 9 of this BMP.
- Protect areas outside the Project impact areas (but within the site boundaries).
- Ensure biodiversity monitoring is carried out regularly, particularly for vegetation under the panels and maintain biodiversity values in these areas.

2.2.2. Targets

The following general targets have been established for the management of biodiversity impacts for the Project:

Construction and Operation

- Ensure full compliance with the relevant legislative requirements.
- Ensure full compliance with relevant requirements of the CoC and SoC.
- No unpermitted disturbance to biodiversity
- Minimise disturbance to biodiversity.

Construction

- Protect vegetation exclusion zones (VEZ) from all adverse impacts throughout the construction period.
- Survey weed abundance in VEZ
- Survey and map weed distribution across the project site
- Targeted weed control measures will be implemented for any seasonal weed outbreaks within a year of discovery.
- No native fauna mortality or injury during construction.
- No pollution or siltation of aquatic ecosystems, wetlands, endangered ecological communities or threatened species habitat.
- Rehabilitate all disturbed areas not required for the operation of the solar farm.

Operation

- Maintain or improve the baseline vegetation condition class of VEZ throughout the operation period.
- Survey weed abundance in VEZ quarterly during operation
- Survey weed distribution across the project site quarterly during operation and use to implement targeted weed control measures.
- Targeted weed control measures will be implemented for any seasonal weed outbreaks within a year of discovery.
- No native fauna mortality or injury during operation.
- No pollution or siltation of aquatic ecosystems, wetlands, endangered ecological communities or threatened species habitat.
- Ground cover established and maintained in line with the Groundcover Management Plan.
- Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements

Note, rehabilitation of operational areas is covered by the Groundcover Management Plan in Appendix E.

2.3. CONDITIONS OF CONSENT

The NSW Department of Planning, Industry and Environment (DPIE) issued approval for the project initially on the 27th February 2019. Modification 1 for road intersection upgrade works was subsequently approved on 3rd July 2020.

The Consolidated Conditions of Consent (CoC) include specific conditions relating to biodiversity which are detailed in Table 2-1, along with where they are addressed in this BMP.

Table 2-1: Conditions of Consent relating to biodiversity.

<table>
<tr><th>Condition of Consent</th><th>Condition requirement</th><th>Where addressed</th></tr>
<tr><td colspan="2">Land Management</td><td></td></tr>
<tr><td>Schedule 3
CoC 9.</td><td>Following any construction or upgrading on the site, the Applicant must:
restore the ground cover of the site as soon as practicable.
maintain the ground cover with appropriate perennial species; and
manage weeds within this ground cover.</td><td>Appendix E</td></tr>
<tr><td colspan="2">Biodiversity</td><td></td></tr>
<tr><td>Schedule 3
CoC 10.</td><td>Within two years of commencing construction under this consent, unless the Secretary agrees otherwise, the Applicant must retire biodiversity credits of a number and class specified in Table 1 and Table 2 below to the satisfaction of BCD.
The retirement of credits must be carried out in accordance with the NSW Biodiversity Offset Scheme and cab be achieved by:
a) acquiring or retiring ‘biodiversity credits’ within the meaning of the Biodiversity Conservation Act 2016;
b) making payments into an offset fund that has been developed by the NSW government; or
c) providing suppletory measures.
Table 1: Ecosystem Credit Requirements<table><tr><th>Vegetation Community</th><th>PCT ID</th><th>Credits Required</th><th>Total</th></tr><tr><td>White Cypress Pine woodland on sandy loams in Central NSW wheatbelt</td><td>70</td><td>1</td><td rowspan="3">29.75</td></tr><tr><td>White Box – White Cypress – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion</td><td>267</td><td>25.75</td></tr><tr><td>White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion</td><td>266</td><td>3</td></tr></table>Table 2: Species Credit Requirements<table><tr><th>Species Credit Species</th><th>Credits Required</th><th>Total</th></tr><tr><td>Austrostipa metatoris</td><td>3</td><td rowspan="3">48</td></tr><tr><td>Pine Donkey Orchid (Diuris tricolor)</td><td>11</td></tr><tr><td>Small Purple-pea (Swainsona recta)</td><td>14</td></tr></table></td><td>As part of this BMP</td></tr>
</table>

Condition of Consent	Condition requirement	Where addressed
	Silky Swainson-pea (*Swainsona sericea*) — 14 Superb Parrot (*Polytelis swainsonii*) — 6	
Schedule 3 CoC 11.	Prior to commencing construction, the applicant must prepare a biodiversity management plan for the development in consultation with BCD, and to the satisfaction of the secretary. This plan must: a) Include a description of the measures that will be implemented for: • Managing the remnant vegetation and fauna habitat on site; • Minimising clearing and avoiding unnecessary disturbance of vegetation that is associated with the construction and operation of the development; • Minimising the impacts to fauna on site and implementing fauna management protocols; • Avoiding the removal of hollow-bearing trees during spring to avoid the main breeding period for hollow-dependent fauna; • Rehabilitating and revegetating temporary disturbance areas with species that are endemic to the area; • Protecting vegetation and fauna habitat outside the approved disturbance areas; • Maximising the salvage of vegetative and soil resources within the approved disturbance area for beneficial reuse in the enhancement or the rehabilitation of the site; and • Controlling weeds and feral pests; and b) Include details of who will be responsible for monitoring, reviewing and implementing the plan, and timeframes for completion of actions. Following the secretary's approval, the applicant must implement the biodiversity management plan. *Note: if the biodiversity credits are retired via a biodiversity stewardship agreement, then the biodiversity management plan does not need to include any of the matters that are covered under the biodiversity stewardship agreement.* Construction requirement covered by this report.	Construction requirement covered by this report. a) Whole BMP b) Section 7 Section 8 Section 9 Section 10 Section 11 Section 12

2.4. STATEMENT OF COMMITMENTS

Statement of Commitments (SoC) to protect biodiversity over the life of the project were contained in the original approved BDAR (also documented in the RTS), and the additional approved BDAR for Modification 1 (intersection upgrade). The commitments are listed in Table 2-2. The SoC are in addition to the CoC, except where there is any inconsistency in which case the CoC prevails.

Table 2-2 Statement of Commitments relating to biodiversity.

Commitment reference	Commitment requirement	Where addressed
BD1	The following plans are will be prepared and approved by the relevant authorities: • Biodiversity Management Plan. • Construction Environmental Management Plan (CEMP). • Weed Management Plan (WMP). • Erosion and Sediment Control Plan (ESCP). The plans should include but not be limited to the relevant commitments below.	This report satisfied the need for a BMP and WMP. A CEMP and ESCP will be prepared separate to the BMP.
BD2	Timing works to avoid critical life cycle events such as breeding or nursing: • Hollow-bearing trees will not be removed during breeding and hibernation season (June to January) to mitigate impacts on Superb Parrots, Major Mitchell's Cockatoo and Corben's Long-eared Bat. • If clearing outside of this period cannot be achieved, pre-clearing surveys will be undertaken by an ecologist or suitably qualified person to ensure no impacts to fauna will occur.	Section 7.2.5 Appendix B
BD3	Instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing, the presence of a trained ecologist or licensed wildlife handler during clearing events, including: • Pre-clearing checklist. • Tree clearing procedure.	Section 7.2.3 Section 7.2.4 Section 7.2.5
BD4	Relocation of habitat features (fallen timber, hollow logs) from within the development site. Tree-clearing procedure including relocation of habitat features to adjacent area for habitat enhancement.	Section 7.3 Section 7.2.5
BD5	Spring Flora surveys for EPBC listed species along Eurolee Road and Goldfields Way for *Austrostipa wakoolica* and *Austrostipa metatoris*.	Completed as part of the RTS process
BD6	Clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; for example, removal of native vegetation by chainsaw, rather than heavy machinery, is preferable in situations where partial clearing is proposed: • Approved clearing limits will be clearly delineated with temporary fencing or similar prior to construction commencing. • No stockpiling or storage within dripline of any mature trees. • In areas to clear adjacent to areas to be retained, chainsaws will be used rather than heavy machinery to minimise risk of unauthorised disturbance.	Section 7.1 Section 7.2 Section 7.6
BD7	Noise barriers or daily/seasonal timing of construction and operational activities to reduce impacts of noise. Construction Environmental Management Plan will include measures to avoid noise encroachment on adjacent habitats such as avoiding night works as much as possible.	Section 5.1 Section 7.7.3 Section 7.8

Commitment reference	Commitment requirement	Where addressed
BD8	Light shields or daily/seasonal timing of construction and operational activities to reduce impacts of light spill: • Avoid Night Works. • Direct lights away from vegetation.	Section 5
BD9	Adaptive dust monitoring programs to control air quality: • Daily monitoring of dust generated by construction and operation activities. • Construction will cease if dust observed being blown from site until control measures were implemented. All activities relating to the proposal will be undertaken with the objective of preventing visible dust emissions from the development site.	Section 10.2
BD10	Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas. This will be incorporated into the Pest and Weed Management Plan.	Section 7.5 Section 7.6 Project CEMP Appendix D.5 Appendix F
BD11	Staff training and site briefing to communicate environmental features that will be protected and measures that will be implemented: • Site induction. • Toolbox talks. • Awareness training during site inductions regarding enforcing site speed limits. Site speed limits will be enforced to minimise fauna strike.	Section 10 Section 7
BD12	Preparation of a Vegetation Management Plan to regulate activity in vegetation: • Protection of native vegetation that will be retained. • Best practice removal and disposal of vegetation. • Staged removal of hollow-bearing trees and other habitat features such as fallen logs with attendance by an ecologist. • Weed management. • Unexpected threatened species finds. • Rehabilitation of disturbed areas.	Section 7
BD13	Sediment barriers and spill management procedures to control the quality of water runoff released from the site into the receiving environment: Spill management procedures will be implemented.	CEMP ESCP
BD14	Fencing or other measures to control animal and vehicle interactions. Use plain wire fencing in area of Zone 2 (PCT 267_Grazed understory) which intersects the woodland to avoid potential entrapment of fauna on fence.	Section 4 Section 7
SO2	A Groundcover Management Plan will be developed in consultation with a soil scientist and an agronomist and taking account of soil survey results to ensure perennial grass cover is established across the site as soon as practicable after construction and maintained throughout the operation phase. The plan will cover: • Soil restoration and preparation requirements. • Species selection.	Appendix E

Commitment reference	Commitment requirement	Where addressed

	• Soil preparation.
	• Establishment techniques.
	• Maintenance requirements.
	• Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements:
	  ○ Live grass cover will be maintained at or above 70% at all times to protect soils, landscape function and water quality.
	  ○ Any grazing stock will be removed from the site when cover falls below this level.
	  ○ Grass cover will be monitored on a fortnightly basis using an accepted methodology.
	• Contingency measures to respond to declining soil or groundcover condition.
	• Identification of baseline conditions for rehabilitation following decommissioning.	

3. EXISTING ENVIRONMENT

3.1. SOILS

Full details of the soil characteristics are contained in the project Environmental Impact Statement (EIS). Details below are relevant to this BMP.

Two soil characteristics exist at the site, Chromosols and Sodosols, classified using the Australian Soil Classification System (Isbell 1996).

Chromosols soils have low-moderate fertility and water-holding capacity.

Sodosols are sodic and not strongly acid. Sodic soils are dispersive Sodosols found within the site are in the drainage lines on the development site and are considered sodic to strongly sodic. Dispersible soils are easily eroded by water. There is an extremely high risk of erosion in sodic soils and this is often reflected in the formation of gullies and tunnels.

The potential landscape limitations include acid soil (chromosols), and a risk that contamination associated with agricultural activities (such as use and storage of pesticides) could be present.

Construction activities, such as excavation and earthworks, have the potential to disturb soils, cause soil erosion and subsequent sedimentation. Earthworks are required during the construction phase including for the construction of access roads, compound, laydown and parking areas, pile erection, trenching and boring and fencing. Excavation of soils will be limited where possible, and excavated subsoil stockpiled and contained to avoid potential dispersion. No stockpiling is to occur within the dripline of any mature tree. Groundcover will also be maintained where possible to reduce erosion and sedimentation risk. Deep rooted vegetation will be maintained, with limited ground disturbance and clearing.

3.2. FLORA

About 49.16ha of native vegetation occurs within the development site (Figure 1-1).About 364 ha of non-native vegetation occurs within the development site. This vegetation is comprised of sown exotic pastures, farm tracks and broadacre crops including Canola *(*Brassica sp.),* Wheat (**Triticum aestivum*) and Lupins (**Lupinus*).

18 paddock trees occur within the development site (Figure 1-1). Paddock trees were defined as:

- A tree or a group of up to three trees less than 50 m apart from each other, and
- Over an exotic groundcover, and more than 50 m away from any other living tree greater than 20 cm dbh, and
- On category 2 land surrounded by category 1 land (as defined by the bam, 2017) vegetation communities.

Four plant community types were identified within the development site including:

- PCT 70 White Cypress Pine woodland on sandy loams in central NSW wheatbelt: occurred as 6.89 ha native vegetation with exotic understorey.
- PCT 80 Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion: occurred as 17.87 ha of native vegetation.
- PCT 267 White Box - White Cypress Pine - Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion: occurs as 12.86 ha of native vegetation within the southern section of the development, along Eurolee Road and Goldfields Way.
- PCT 266 White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion: occurs as 0.79 ha of native vegetation along Eurolee Road.

3.3. FAUNA

No Koalas (or signs of Koalas), Squirrel Gliders or Grey-headed Flying foxes were observed during the targeted mammal surveys. These species are not considered to occur within the development site.

The field and targeted surveys were carried out in years 2017 and 2018 for the Solar Farm development. These results formed part of the Original BDAR (NGH 2018) and Modification 1 BDAR (NGH 2019). The results identified two threatened species Superb Parrot and Brown Treecreeper. The Superb Parrot which is listed as vulnerable in NSW (Figure 3-1). These were observed opportunistically during all six field surveys. 0.91 ha of native vegetation will be impacted by the development. Three hollow bearing trees will be impacted, which may be suitable for the Superb Parrot within PCT 266 and PCT 267.

Weeds and Pests

Non-native vegetation within the development area was predominantly crops of wheat and canola. Dams within the development site were noted to be heavily grazed and dominated by exotic species. The following high threat exotics were recorded: White Horehound (*Marrubium vulgare)*, Rhodes Grass (*Chloris gayana*), Bathurst Burr (*Xanthium spinosum*), and Paspalum (*Paspalum dilatatum*).

Some non-native bird species were observed during the site surveys.

Figure 3-1 Threatened species survey sightings

4. IMPACTS ON BIODIVERSITY

The project has the potential to impact biodiversity values at the site. This will occur through direct impacts such as habitat clearance and installation of infrastructure, and potential indirect impacts including weed ingress, soil and water contamination, and generation of excessive dust, light, or noise.

Key aspects of the Project that could result in impacts to biodiversity as reported from the original approved BDAR and additional approved BDAR for Modification 1 have been described in Table 4-1.

Table 4-1 Potential biodiversity impacts as a result of the Project.

Nature of impact	Intensity	Frequency	Duration and timing	Consequence
Direct impacts Original BDAR (v2.0, NGH 2018)				
Clearing vegetation for permanent and temporary construction facilities (e.g. solar infrastructure, transmission lines, compound sites, stockpile sites, access tracks)	0.4ha.	One-off	Construction phase: Short-term	• Direct loss of native flora and fauna habitat • Loss of potential breeding habitat • Potential over-clearing of habitat outside proposed development footprint • Injury and mortality of fauna during clearing of fauna habitat and habitat trees • Disturbance to stags, fallen timber, and bush rock
Displacement of resident fauna due to disturbance from the building and operation of the solar farm	Unknown	Regular	Construction & Operational Phase: Long-term	• Direct displacement of native fauna • Potential decline in local fauna populations • Increased risk of starvation, exposure and loss of shade or shelter
Injury or death of Fauna due to vehicle strike/fence entanglement	Unknown	Irregular	Construction & Operation Phase: Long-term	• Direct loss of native fauna • Decline in local fauna populations
Removal of habitat features e.g. HBTs	6 HBTs	One-off	Construction Phase: Long-term	• Direct loss of native fauna habitat • Injury and mortality of fauna during clearing of habitat features
Shading by habitat by solar infrastructure	203.7ha	Constant	Operational Phase: Long-term	• Modification of native fauna habitat
Barrier created by perimeter fence	Moderate	Constant	Operational Phase: Long-term	• Fauna movements across landscape interrupted or stopped • Mortality of birds and microbats from collision or entanglement with fences.
Indirect impacts Original BDAR v2,0 (NGH 2018)				
Inadvertent damage of vegetation protection areas during clearing operations	Unknown	Rare	Construction Phase: Short-term	• Minor direct loss of native flora and fauna habitat • Low potential for Injury and mortality of fauna during • clearing of fauna habitat and habitat trees • Minor disturbance to stags, fallen timber, and bush rock • Increased edge effects The combined impacts are likely to be minor in nature if they occur at all and will result in a negligible consequence for bioregional persistence

Nature of impact	Intensity	Frequency	Duration and timing	Consequence
Increase edge effects in retained vegetation	Unknown	Constant	Operational Phase: Long-term	• Degradation of Inland Grey Box Woodland EEC. • Degradation of White Box Yellow Box Woodland EEC Minor loss of native flora and fauna habitat The combined impacts are likely to be minor in nature if they occur at all and will result in a negligible consequence for bioregional persistence
Noise, dust or light spill from construction and operation of the solar farm.	Unknown	Rare	Operational Phase: Short-term	• May alter fauna activities and/or movements in adjacent habitats • Minor loss of foraging or breeding habitat • Reduced viability of adjacent habitat The combined impacts are likely to be minor in nature if they occur at all and will result in a negligible consequence for bioregional persistence
Transport of weeds and pathogens from the site to adjacent vegetation	Unknown	Irregular	Construction & Operational Phase: Long-term	• Degradation of Inland Grey Box Woodland EEC through weed encroachment • Degradation of White Box Yellow Box Blakleys' Red Gum Woodland EEC through weed encroachment • Minor loss of native flora and fauna habitat. The combined impacts are likely to be minor in nature if they occur at all and will result in a negligible consequence for bioregional persistence
Trampling of threatened flora species due to maintenance workers/sheep walking on site	Unknown	Rare	Construction Phase: Short-term	• Minor loss of threatened species and genetic diversity
Earthworks and mobilisation of sediments	Unknown	Regular	Construction	• Erosion and sedimentation and/or pollution of soils, dams and downstream habitats. • Potential loss of ground cover resulting in unstable ground surfaces and sedimentation of adjacent waterways.
Rubbish dumping	Unknown	Regular	Construction & Operational	• Degradation of Inland Grey Box Woodland EEC • Degradation of White Box Yellow Box Woodland EEC
Direct impacts Additional BDAR (v3.0, NGH 2019)				
Clearing vegetation for permanent and temporary construction facilities (e.g. solar infrastructure, transmission lines, compound sites, stockpile sites, access tracks)	0.64ha.	One-off	Construction phase: Short-term	• Direct loss of native flora and fauna habitat • Loss of potential breeding habitat • Potential over-clearing of habitat outside proposed development footprint • Injury and mortality of fauna during clearing of fauna habitat and habitat trees • Disturbance to stags, fallen timber, and bush rock
Displacement of resident fauna due to disturbance from the	Unknown	Regular	Construction & Operational Phase: Long-term	• Direct displacement of native fauna • Potential decline in local fauna populations • Increased risk of starvation, exposure and loss of shade or shelter

Nature of impact	Intensity	Frequency	Duration and timing	Consequence
building and operation of the solar farm				
Injury or death of fauna due to vehicle strike/fence entanglement	Unknown	Irregular	Construction & Operation Phase: long-term	• Direct loss of native fauna • Decline in local fauna populations
Removal of habitat features e.g. HBTs	3 HBTs	One-off	Construction Phase: long-term	• Direct loss of native fauna habitat Injury and mortality of fauna during clearing of habitat features
Indirect impacts Additional BDAR (v3.0 NGH 2019)				
Inadvertent damage of vegetation protection areas during clearing operations	Unknown	Rare	Construction Phase: Short-term	• Minor direct loss of native flora and fauna habitat • Low potential for Injury and mortality of fauna during clearing of fauna habitat and habitat trees • Minor disturbance to stags, fallen timber, and bush rock • Increased edge effects The combined impacts are likely to be minor in nature if they occur at all and will result in a negligible consequence for bioregional persistence
Increase edge effects on retained vegetation	Unknown	Constant	Operational Phase: Long-term	• Degradation of White Box Yellow Box Woodland EEC • Minor loss of native flora and fauna habitat • Reduced viability of adjacent habitat The combined impacts are likely to be minor in nature if they occur at all and will result in a negligible consequence for bioregional persistence.
Noise, dust or light spill from construction and operation of the solar farm	Unknown	Rare	Operational Phase: Short-term	• May alter fauna activities and/or movements in adjacent habitat • Minor loss of foraging or breeding habitat • The combined impacts are likely to be minor in nature if they occur at all and will result in a negligible consequence for bioregional persistence
Transport of weeds and pathogens from the site to adjacent vegetation	Unknown	Irregular	Construction & Operational Phase: Long-term	• Degradation of White Box Yellow Box Blakley's Red Gum Woodland EEC through weed encroachment • Minor loss of native flora and fauna habitat. The combined impacts are likely to be minor in nature if they occur at all and will result in a negligible consequence for bioregional persistence
Trampling of threatened flora species while working on the intersection	Unknown	Rare	Construction Phase: Short-term	• Minor loss of threatened species and genetic diversity

Nature of impact	Intensity	Frequency	Duration and timing	Consequence
Earthworks and mobilisation of sediments	Unknown	Regular	Construction	• Erosion and sedimentation and/or pollution of soils, dams and downstream habitats. Potential loss of ground cover resulting in unstable ground surfaces and sedimentation of adjacent waterways.
Rubbish dumping	Unknown	Regular	Construction & Operational	• Degradation of Inland Grey Box Woodland EEC • Degradation of White Box Yellow Box Woodland EEC

5. WORK SCHEDULE

5.1. CONSTRUCTION AND OPERATION ACTIVITIES

The following work schedule is indicative of the staging that will be implemented at the project site. Some activities may occur in parallel, particularly given the size of the project site.

The schedule in Table 5-1 is indicative of construction sequencing and mitigation measures. The schedule in Table 5-2 is indicative of sequencing and mitigation measures during operation. These mitigation measures, where relevant, will be incorporated into EWMSs.

Table 5-1 Schedule of construction works.

Project phase	Potential disturbance	Key actions and mitigation	Performance target
Early works construction (fencing, establish site compound, establish site accesses (intersection upgrades).	• Disturbance to native groundcover from vehicle movements. • Disturbance and removal of fauna habitat including woody debris. • Spread of priority weeds. • Collision with wildlife causing injury or death. • Disturbance of native fauna by light or noise at night.	• Prior to the commencement of any vegetation clearing, a physical vegetation clearing boundary at the approved clearing limit will be clearly demarcated and implemented. The delineation of such a boundary may include the use of temporary fencing, flagging tape, para-webbing etc. • Stockpiling materials and equipment and parking vehicles will be avoided within the dripline (extent of foliage cover) of any native tree. • Implement vehicle hygiene controls outlined in the CEMP and section 7.6. • Hollow-bearing trees will not be removed during breeding and hibernation season (June to January) to mitigate impacts on Superb Parrots, Major Mitchell's Cockatoo and Corben's Long-eared Bat. • Pre-clearing surveys will be carried out by an ecologist and will include general fauna surveys, general tree hollow inspections and dam/waterway inspections. Habitat trees will be clearly marked with flagging tape. • Relocation of habitat features (fallen timber, hollow logs) from within the development site. Tree-	• No disturbance to biodiversity outside the approved development footprint. • Maintenance and retention of VEZ. fencing/demarcations. • Weeds and pests are managed. • Speed limits are enforced. • No native fauna mortalities during construction. • No works causing light or noise impacts occurring near exclusion zones at night. • Completion of and adherence to the Pre-clearing checklist. • Adherence to the Tree clearing procedure.

Project phase	Potential disturbance	Key actions and mitigation	Performance target
		clearing procedure including relocation of habitat features to adjacent area for habitat enhancement. • Include awareness training in site inductions regarding site speed limits. Site speed limits will be enforced. • The majority of construction maintenance and operation work will occur during the day, however, emergency works and delivery of oversize overmass vehicles can occur at night. • Direct lights away from vegetation (point at the ground), fit light shields. • Noise-emitting plant will be oriented so that noise will be directed away from VEZ wherever possible. • When not in use, vehicles and plant will not be left idling, but will be switched off whenever possible.	
Internal road construction	• Disturbance to native groundcover from vehicle movements. • Disturbance and removal of fauna habitat including woody debris. • Disturbance to native fauna from lights and noise. • Collision with wildlife causing injury or death. • Disturbance of groundcover from stockpiles. • Spread of priority weeds. • Spills from vehicles, plant, and storage facilities. • Pollution of waterways or native vegetation.	• Implement vehicle hygiene controls outlined in the CEMP and section 7.6. Stockpiling and storage of materials and machinery will occur only within the approved development footprint. • Stockpiling materials and equipment and parking vehicles will be avoided within the dripline (extent of foliage cover) of any native tree. • The majority of construction maintenance and operation work will occur during the day, however, emergency works and delivery of oversize overmass vehicles can occur at night. • Direct lights away from vegetation where possible. • Include awareness training in site inductions regarding site speed limits. • Site speed limits will be enforced. • Carry out refuelling of plant and equipment, chemical storage and decanting off site or at least 50 m away from farm dams in impervious bunds. • Ensure that dry and wet spill kits are readily available.	• No disturbance to biodiversity outside the approved development footprint. • No disturbance or alteration to VEZ condition. • Protect VEZ from adverse impacts during construction. • No mortality of native fauna during construction. • Weeds and pests are controlled. • Speed limits are enforced. • No native fauna mortalities. • No pollution or siltation of aquatic ecosystems, wetlands, endangered ecological communities or threatened species habitat.

Project phase	Potential disturbance	Key actions and mitigation	Performance target
Construction of solar farm and ancillary infrastructure	• Disturbance to native fauna from lights and noise. • Collision with wildlife causing injury or death. • Disturbance of groundcover from stockpiles. • Spread of priority weeds • Spills from vehicles, plant, and storage facilities. • Pollution of waterways or native vegetation.	• Implement vegetation clearance protocol • Place course woody debris (CWD) in remaining vegetated areas where practicable. • Provide awareness training during site inductions and toolbox talks – emphasise the importance of native habitat. • Machinery, trucks and equipment will be restricted to the approved development footprint. No parking on roadside vegetation will occur. • Stockpiles and storage of materials and machinery will avoid the dripline (extent of foliage cover) of any native tree. • Stockpiling and storage of materials will occur only within the approved development footprint. • Implement vehicle hygiene controls outlined in the CEMP and section 7.6. • Avoid night works where possible. • Direct lights away from vegetation where possible. • Excess topsoil will be salvaged where possible within the approved disturbance area and stockpiled for beneficial reuse in the enhancement or the rehabilitation of the site where practicable, as per the Weed Management Procedure (section 7.5.1). • Carry out refuelling of plant and equipment, chemical storage and decanting off site or at least 50 m away from farm dams in impervious bunds. • Ensure that dry and wet spill kits are readily available.	• No disturbance to biodiversity outside the approved development footprint. • Protect VEZ from all adverse impacts throughout the construction period. • Survey weed abundance in VEZ seasonally during construction and use as basis for implementing seasonal targeted weed control measures in each zone. • Survey weed abundance across the project site seasonally during construction and use to implement targeted weed control measures to control weed infestations. • Targeted weed control measures will be implemented for any seasonal weed outbreaks within a year of discovery. • No mortality of native fauna during vegetation removal. • Weeds and pests are controlled. • Speed limits are enforced. • No native fauna mortalities during construction.
Revegetation (note this activity may occur following construction, early in the operation phase)	• Loss of groundcover • Spread of priority weeds	• Restore the ground cover of the site as soon as practicable (autumn is a suitable planting time, if autumn is too long away then plant when weather permits). • Maintain the ground cover with appropriate perennial species.	• Live grass cover will be maintained at or above 70% at all times to protect soils, landscape function and water quality.

Project phase	Potential disturbance	Key actions and mitigation	Performance target
		• Manage weeds within this ground cover.	• Any grazing stock will be removed from the site when cover falls below this level. • Groundcover will be monitored periodically as per the Groundcover Management Plan (Appendix E).

Table 5-2 Schedule of operation works.

Project phase	Potential disturbance	Key actions and mitigation	Performance target
Operation and Maintenance	• Spread of priority weeds. • Disturbance to native groundcover from vehicle movements. • Collision with wildlife causing injury or death. • Disturbance of native fauna by light or noise at night. • Decline in vegetation condition of VEZ.	• Maintain ground cover with appropriate perennial species (Appendix E). • Manage weeds within ground cover. • Manage weeds within VEZ. • Implement vehicle hygiene controls outlined in section 7.6 of this plan and the environmental management plan for operation. • Machinery, trucks and equipment will be restricted to designated parking areas where practicable. No parking on roadside vegetation will occur. • Include awareness training in site inductions regarding site speed limits. • Site speed limits will be enforced. • Avoid night works where possible. • Direct lights away from vegetation where possible. • Noise-emitting plant will be oriented so that noise will be directed away from VEZ wherever possible. • When not in use, vehicles and plant will not be left idling near VEZ but will be switched off whenever possible.	• Live grass cover maintained at or above 70% at all times to protect soils, landscape function and water quality. • Any grazing stock will be removed from the site when cover falls below this level. • Groundcover monitored as per the Groundcover Management Plan (Appendix E).

6. ENVIRONMENTAL MANAGEMENT ZONES

The random meander, overview inspection and detailed floristic plots have been used to assist the delineation of vegetation zones. Four PCTs were identified in the development site, only the vegetation zones and PCTs to be impacted or within the project area are in the tables (Appendix C.1). Each PCT was stratified into an Environmental Management Zone representative of a similar broad condition state. These zones are based on the overstory condition, understorey condition and observed land management practices. 62 plant species were identified within the 12 vegetation integrity survey plots comprising 31 native species and 31 exotic species. The results of the plot field data can be found in Appendix C.2. Maps with the zones are in Appendix C.3.

The plot data from the vegetation integrity survey plots were entered into the BAM calculator by accredited assessor (Julie Gooding- BAAS18074). The results of the vegetation integrity assessment are summarised in Appendix C-I for the vegetation zones that are impacted. Only PCTs to be impacted or within the project area have been allocated a zone ID. The location of each zone is mapped in Appendix C.3.

7. ENVIRONMENTAL MANAGEMENT PROCEDURES

The following protocols and procedures have been developed to manage the environmental impacts of the project. Table 7-1 below summarises the stage of the project to which the protocol/procedure applies.

Table 7-1 Summary of protocols.

Protocol	Construction	Operation
Ground Disturbance Protocol	*Yes*	*NA*
Vegetation Clearance Protocol	*Yes*	*NA*
Re-use of Resources Protocol	*Yes*	*NA*
Threatened Species Finds Procedure	*Yes*	*Yes*
Weed and Pest Management Protocol	*Yes*	*Yes*
Vehicle Hygiene Protocol	*Yes*	*Yes*
Vegetation Constraints Management Protocol	*Yes*	*Yes*
Noise Light and Dust Management	*Yes*	*Yes*

Each of these protocols/procedures is described in detail in this section below.

Risks to fauna from vehicle collision will be managed through the implementation of speed limits and sign posting. Monitoring of fauna fatalities has been included as part of this BMP in Section 11. This section provides a summary of the key performance criteria for the protocols and procedures detailed in this BMP, appropriate triggers for corrective actions and responses.

7.1. GROUND DISTURBANCE PROTOCOL

A ground disturbance permit process will be implemented during construction. The ground disturbance permit process is integral to communicate the distinction between vegetation protection areas and the ground disturbance footprints in which construction contractors will be working. This process is also vital to enable the construction contractor to track and control vegetation clearing on a daily, weekly, and monthly basis.

The ground disturbance permit process is managed by the HSEQ Manager. The steps that will be implemented are detailed below:

- Contractors are informed in their contract and site induction that all ground disturbing activities require them to obtain a ground disturbance permit prior to undertaking the work.
- The ground disturbance permit must be submitted to the HSEQ Manager via email at least 48 hours before the work is undertaken.
- The HSEQ Manager will compare the proposed ground disturbance area to the project footprint detailed in the current approved development design.

- The HSEQ Manager will visit the site to digitally capture and demarcate VEZ.
- The HSEQ Manager will either issue the permit unamended or contact the contractor for further clarification.
- Once the permit has been issued, the construction contractor may undertake ground works as per their contract.
- Once the work has been completed (date specified in the permit), the HSEQ Manager will inspect the site, request any additional clean up or remediation activities and sign-off that the conditions of the permit have been met.

The HSEQ Manager will then record the disturbed area as part of a running total disturbed area for the Project.

An example of a ground disturbance permit form is provided in Appendix D.

7.2. VEGETATION CLEARANCE PROTOCOL

The vegetation clearance procedure will be implemented for vegetation clearance during construction.

7.2.1. Clearing near vegetation exclusion zones (VEZ)

Temporary exclusion fencing will define any vegetation to be retained. Temporary fencing may be bunting, parawebbing, fencing or similar. Any existing farm fencing may be used as the barrier if appropriate.

Figure 7-1 Example of exclusion zone signage.

Figure 7-2 Example of exclusion zone fencing.

7.2.2. Monitoring total clearing footprint

Vegetation clearance is only permitted in the areas identified in the original approved BDAR and additional approved BDAR for Modification 1. The original BDAR identifies 0.079 ha of PCT 70, 0.16ha of PCT 267 and 0.03ha of PCT 266 will be removed. No more than 0.58 ha of PCT 267 and 0.07 ha of PCT 266 will be removed as per the additional approved BDAR for Modification 1. Any additional clearance required will first require a project modification.

The cumulative amount of vegetation cleared will be progressively monitored and recorded by the HSE Advisor.

7.2.3. Pre-clearing surveys

Pre-clearing surveys (i.e. the day before clearing) will be carried out by an Ecologist prior to any vegetation clearing. The following pre-clearing surveys will be carried out when habitat trees are to be removed, including hollow-bearing trees and other woody vegetation:

- Identifying any potential breeding/roosting habitat.
- Recording number, location and type of tree hollows present for use during hollow-bearing tree removal.
- Clearly marking habitat trees with flagging tape and demarcating area to be cleared.
- Targeted surveys for Superb Parrot, Major Mitchell's Cockatoo and Corben's Long-eared Bat, if clearing within breeding and core hibernation period between June and January

A ground disturbance permit is required to be completed and approved prior to the commencement of clearing (Appendix D.1). The results of the surveys and the ground clearance permits will be provided to site staff (including equipment operators) involved in vegetation clearing, through site inductions, toolbox talks, and targeted training (Section 10.1).

A preclearing checklist will be completed prior to commencement of clearing detailed below:

Preclearing checklist:

- Ground disturbance permit approval (Apprendix D.1)
- Pre-clearing surveys completed
- Ecologist available to be present during clearing
- Vegetation Exclusion Areas clearly marked
- Hollow bearing trees clearly marked

7.2.4. General process

When undertaking vegetation clearing, the process shown in Figure 7-3 will be followed to minimise the area of disturbance and the amount of vegetation to be cleared.

An ecologist (or otherwise trained professional, i.e. a qualified fauna spotter) will be present during clearing of all vegetation within the development footprint.

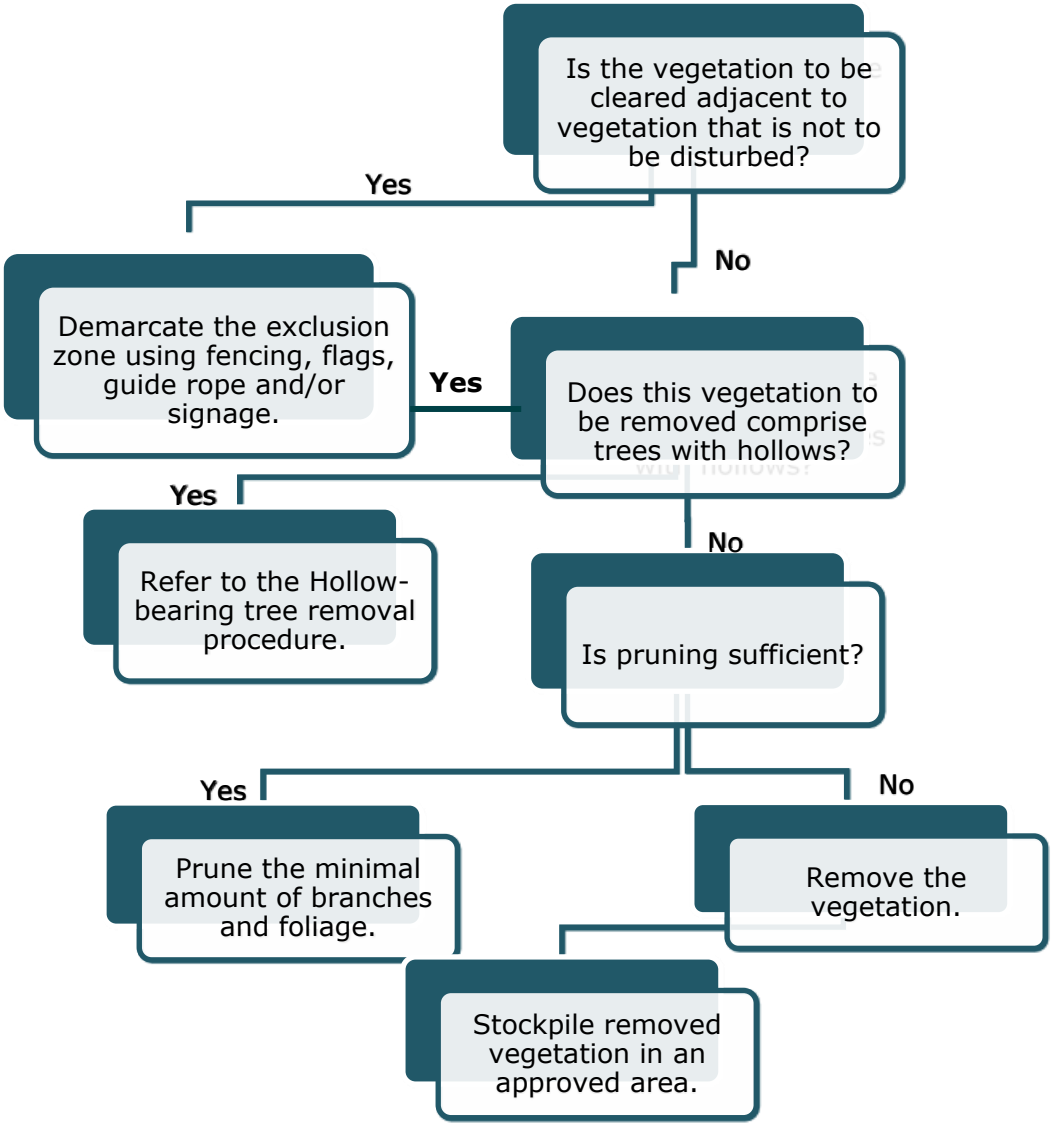


Figure 7-3 Vegetation clearance procedure

Heavy machinery will not be used for clearing in areas that are adjacent to areas to be retained. Appropriate tools to use are loppers, chain saws and vehicle mounted saws.

In the first instance, hollow bearing limbs will be retained using the avoid and minimise principles under the BAM. If this is not possible the hollow bearing limb will be inspected by the Project Ecologist / suitably qualified expert, as per our HBT removal guideline Appendix B, and placed in nearby undisturbed vegetation (or VEZ) to provide fauna habitat.

Tree limbs are to be removed using the three cut method as shown below in Figure 7-4.

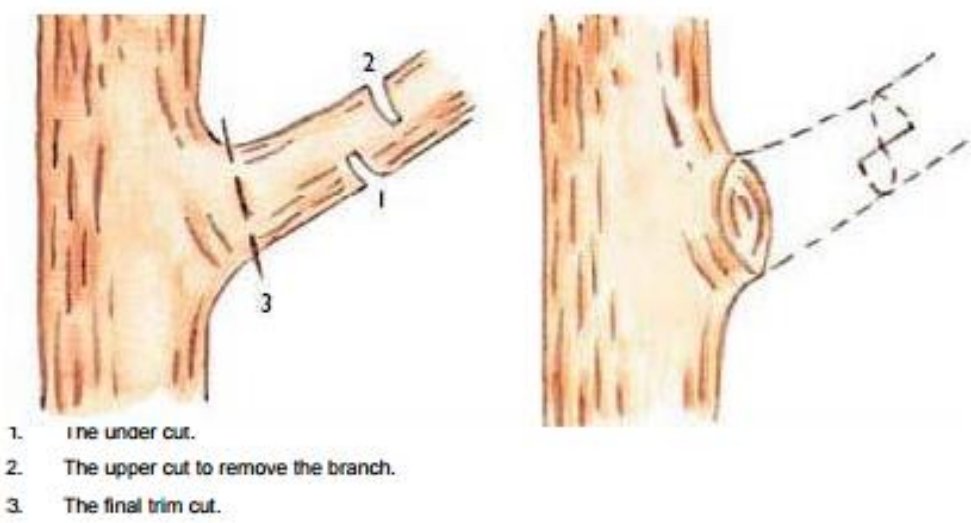


Figure 7-4 Three-cut method of removing branches.

7.2.5. Hollow-bearing tree removal procedure

Hollow-bearing trees are important habitat feature for a variety of native animals such as possums, gliders, birds and bats. Before clearing any hollow-bearing trees, it is important to consider if animals are present. The HBT removal guideline in Appendix B will be implemented and describes a procedure to enable removal of HBT's in a way that minimises the impacts on fauna inhabiting trees.

An ecologist or trained handler will be on-site to inspect and supervise all HBT removal and relocate any displaced fauna species. Hollow bearing logs and limbs will be retained and used for habitat enhancement, see Section 7.3.1.

7.3. RE-USE OF RESOURCES

7.3.1. Re-use of coarse woody debris (CWD)

Felled timber (including hollow bearing logs and limbs) greater than 200 mm and less than 600 mm in diameter will be used as CWD for habitat enhancement and to maximize the salvage of resources within the disturbance area for beneficial reuse. CWD can be used to enhance habitat values in existing vegetation and rehabilitated areas including derived native grassland. CWD can provide:

- Habitat for micro-invertebrates.
- Habitat for macro-invertebrates.
- Habitat for vertebrates using fallen timber (including hollow bearing logs and limbs) for shelter, e.g. skinks, geckoes.
- Habitat for vertebrates using fallen timber (including hollow bearing logs and limbs) for foraging, e.g. treecreepers, robins.

- A source of nutrients for native vegetation.
- Increased habitat complexity.

CWD will be placed as discrete logs rather than in piles to reduce fire risk and potential for use as shelter by feral animals such as foxes and rabbits. CWD will be placed at discrete intervals at densities to ensure that the CWD Benchmark for the receiving PCT is not exceeded. For PCT 267 (White Box – White Cypress – Western Grey Box shrub/grass/forb woodland in NSW South) and for PCT 266 (White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes) this benchmark is listed as 41 m per 1000 m^2. That is, in any 50 x 20 m plot, the total linear length of CWD greater than 10 cm in diameter will not exceed 41 m in total. The density of CWD must take into account existing fallen timber.

Removal, 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 in a safe location where it is too large to transport.

Felled timber (except hollow bearing logs and limbs) between 10 and 200 mm in diameter will be chipped and used for disturbed area rehabilitation if appropriate.

7.3.2. Re-use of rocks

Rocks greater than 300 mm diameter at their widest point removed during construction will be retained and relocated to suitable areas based on the advice of an Ecologist. 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.

7.3.3. Re-use of soil resources

Excess topsoil will be salvaged where possible within the approved disturbance area and stockpiled for beneficial reuse in the enhancement or rehabilitation of the site where appropriate, as per Appendix E.3 Groundcover Establishment.

Stockpiles and storage of materials and machinery will avoid the dripline (extent of foliage cover) of any mature tree.

7.4. THREATENED SPECIES FINDS PROCEDURE

The threatened species finds procedure will be implemented whenever a threatened species is unexpectedly found throughout construction and operation.

Any nests found in habitat features to be removed will be inspected by the Ecologist to determine whether fauna are using the nest, and whether relocation of the fauna and the nest to an adjacent area is viable.

As a general principle, any native animals found with the construction area will be avoided. Fauna will only be handled/captured by a qualified ecologist or wildlife carer with relevant skills and experience (e.g. snake handling), and only when absolutely necessary.

Any onsite protected fauna found within a habitat feature to be removed will be captured and relocated according to the following steps. Any onsite protected fauna injured during a construction activity will be captured and a registered wildlife handler or veterinarian contacted.

Should threatened fauna, or suspected threatened fauna, be encountered, the procedure outlined in Figure 7-5 will be followed.

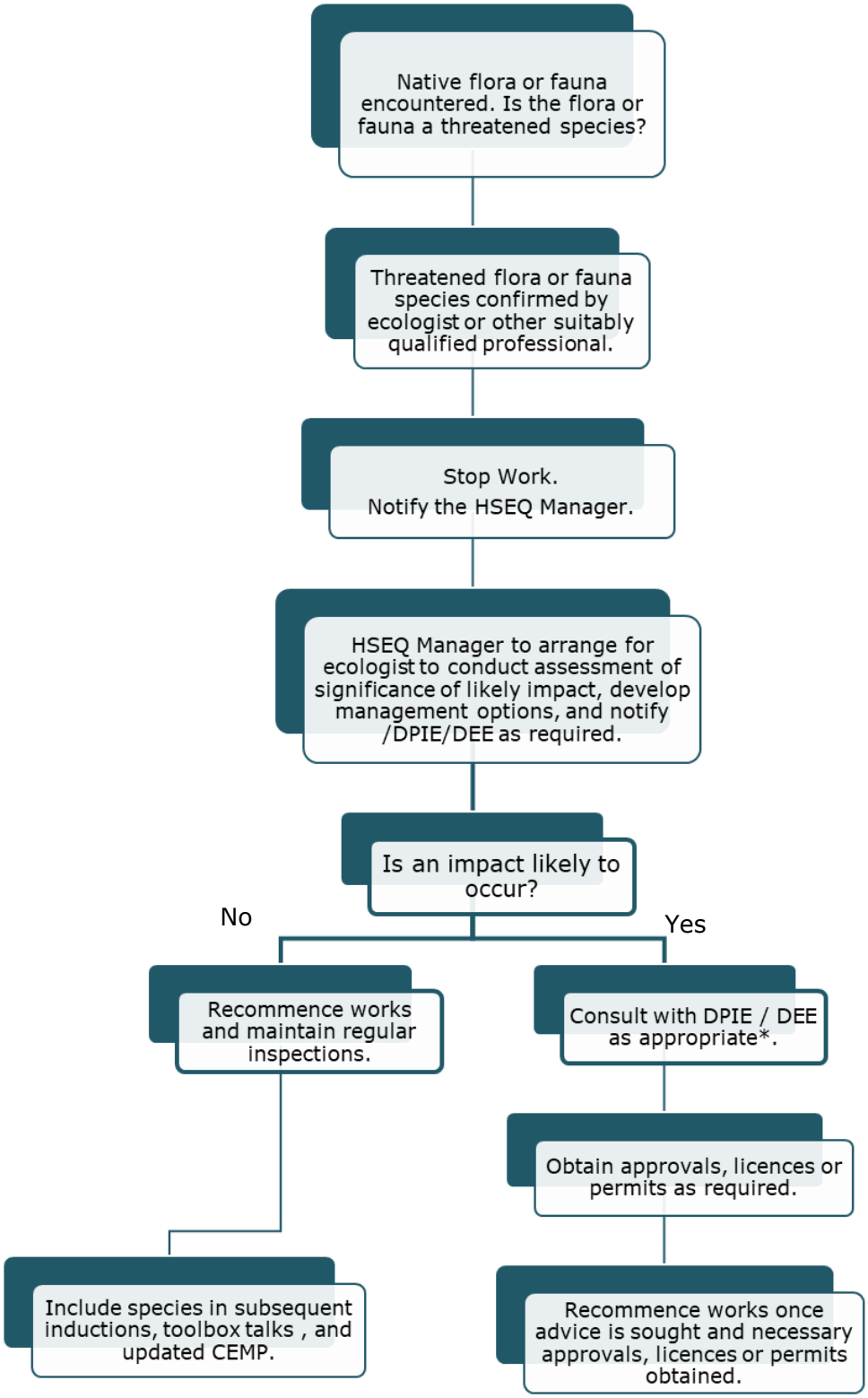


Figure 7-5 Threatened species finds procedure.

*Contact information for DPIE is as follows: (02) 9995 5000 (main switchboard), 131 555 (environment line). Contact information for DEE is as follows: 1800 803 772 (general enquiries line).

7.4.1. Fauna Capture and Relocation Protocol

Step 1

Remove any threat to the animal that could cause or exacerbate an injury.

Step 2

Use appropriate equipment to capture the animal. This may include:

Frogs: disposable gloves, disinfectant on hands and equipment between animals, disposable plastic bags (one per animal, one use only).

Mammals: gloves, cloth bags/cotton pillow slips, up-to-date Australian Bat Lyssavirus vaccinations.

Capture must be undertaken by qualified fauna spotters.

Step 3

Contain the animal to minimise stress. Gently place the animal in a holding box specifically designed for holding animals. Cotton pillowslips may be used to cover mammals, or mammals may be placed inside them. Boxes will be placed in a quiet, safe, dark location (not in a vehicle unless temperature is constantly monitored). Do not give the animal food or water.

Step 5

Call WIRES on 1300 556 686 for injured or juvenile species, who will provide advice on what to do until a trained WIRES rescuer can come to take the animal away. If you cannot contact WIRES, contact Temora Veterinary Clinic on 02 6977 1451.

Step 6

Release uninjured and/or mature fauna into similar habitats, as near as possible to their capture location. This must be done by qualified fauna handlers. Day-active fauna will be released during the day of capture. Night-active fauna will be released at or after dusk. Arboreal (tree-dwelling) fauna will be slowly released from their bag onto the trunk of a tree, with bats and gliders placed on a tree with rough or peeling bark and hollows.

Step 7

Details of fauna captured and relocated will be recorded in a threatened species finds register (Appendix D.1). Any injury or death of a threatened species will be reported to the HSE Advisor.

7.5. WEED AND PEST MANAGEMENT PLAN

Weeds and pests will be controlled on site throughout construction and operation. The Site Manager or HSE Advisor will collaborate with adjoining landholders as necessary to control animal pests and weeds that may traverse property boundaries.

7.5.1. Weed management procedure

Weeds in this BMP are defined as non-native flora species, and particularly refers to those listed in the plot data in Appendix C.2. Thirty-one species of weed were recorded in the project area. Significant invasive weeds that were recorded include White Horehound (*Marrubium vulgare)*, Bathurst Burr (*Xanthium spinosum*), Rhodes Grass (*Chloris gayana*), and Paspalum (*Paspalum dilatatum*). Bathurst Burr and White Horehound are listed as priority weeds with a General Biosecurity Duty (see Appendix F).

Work for the Project has the potential to spread weeds through the movements of heavy machinery and light vehicles during construction, and the movements of light vehicles during operation. Weeds will be controlled through:

- An adaptive management approach whereby management actions will be adjusted to optimise the groundcover growth addressing on-site observations.
- For more intensive infestations of weeds, the use of selective herbicides may be warranted to prevent seed set and promote weed control. The advice of an ecologist and agronomist will be sought to advise on the control of weed infestations. 10% non-native groundcover is the target requiring corrective action.
- Any supplementary feeding of livestock will use treated or processed feed to prevent viable weed seeds being introduced to the site.

A detailed weed management procedure is provided below and in Table 10-1.

Weed inspection

During construction and operation the HSE Advisor or delegate will undertake weed inspections as prescribed by Table 10-1:

Infestations of invasive weeds will be mapped with GPS, including noting the species and degree of infestation, and capturing an image for monitoring purposes. Data collected from inspections will be used as a basis for implementing seasonal targeted weed control measures.

Priority Weeds

Eliminate priority weed species as soon as practicable in accordance with recommended control methods and timing by Department of Primary Industries, NSW WeedWise. Increase targeted weed or pest animal control measures detailed below. Seek additional advice from Local Land Services and adhere to recommendations.

Weed treatment

During operation, weed control will be based on data collected from the seasonal inspections of the development site. Weed control measures for any recorded weed outbreaks will be implemented within a year of discovery, with priority given any listed priority weeds, or high threat invasive weeds found onsite. The aims of operational weed treatment are detailed in Table 11-1

More detailed information, including herbicide types and application rates, can be sought from a suitably qualified person or from the NSW WeedWise website (http://weeds.dpi.nsw.gov.au/).

The introduction and spread of weeds via vehicles and plant will be managed by the Vehicle Hygiene Procedure provided in Section 7.6.

Herbicide application record

Herbicide application will only be carried out by authorised personnel (i.e. ChemCert accreditation – AQF 3) in accordance with SafeWork requirements.

Herbicides will only be applied in accordance with the Safety Data Sheet (SDS) for that product.

A Herbicide Application Record (Appendix D.3) will be completed and public notifications made in accordance with relevant legislation, where herbicides will be used in areas that could be accessed by members of the public.

Follow-up inspection

The HSE Advisor will ensure that a follow-up inspection is undertaken of identified weed infestation sites to ensure treatment was successful.

Weed disposal

Where invasive weed areas are disturbed by construction activities, weeds and topsoil that may contain weed propagules will be removed and disposed of appropriately.

Where weeds cannot be effectively destroyed prior to topsoil stripping, weed contaminated topsoil will be isolated and either encapsulated by deep burying, or disposed of at an approved offsite licensed facility as directed by the HSE Advisor.

Ongoing management and monitoring

Monitoring of weed infestations will occur as part of the routine environmental inspections throughout construction and operation to determine effectiveness of management controls. The presence of any weeds and the necessary management actions will be noted on the Environmental Inspection Checklist.

7.5.2. Animal pest management procedure

No pest animal species were identified during the site surveys. Whilst no specific control measures are warranted, pest species could still be present at the site. Monitoring of signs of pest activity will occur as part of routine inspections during construction and operation, including for the following species as a minimum:

- European Rabbit.
- European Hare.
- Red Fox.
- Feral Cat.

The following data will be recorded and used to determine the need for pest animal control measures:

- Number and location of any tracks, traces or sightings.
- Whether the level of activity is negligible, minimal, moderate or high.

If any are identified that are required to be controlled, the appropriate management actions listed at https://www.dpi.nsw.gov.au/biosecurity/vertebrate-pests/pest-animals-in-nsw will be implemented, and noted on the Environmental Inspection Checklist.

Pesticide application record

As with herbicide applications, pesticides will only be administered by authorised personnel with ChemCert accreditation – AQF 3 and in accordance label instructions. A Pesticide Application Record (Appendix D.4) will be completed and public notifications made in accordance with relevant legislation, where pesticides will beused in areas that could be accessed by members of the public. Only pesticides registered for use near water may be used near any waterways.

7.6. VEHICLE HYGIENE PROCEDURE

Vehicle hygiene procedures will be implemented for any vehicle that enters the development site during construction and operation which is likely to come into contact with the natural ground or weeds. The procedures include:

- Inspection upon arrivals in laydown area.
- Removal of dirt and/or plant matter from newly arrived vehicles at a designated washdown area by
- trained site personnel.
- Washing and inspection prior to vehicles being given the ‘all clear’ to enter indirect disturbance areas.
- Inspection and washing after leaving indirect disturbance areas and prior to leaving the site.
- Inspections and washdowns will be recorded on a Vehicle Hygiene Register. An example is shown in Appendix D.5 .

Any water from the washdown area will be managed in accordance with the ESCP

7.7. VEGETATION CONDITION MANAGEMENT

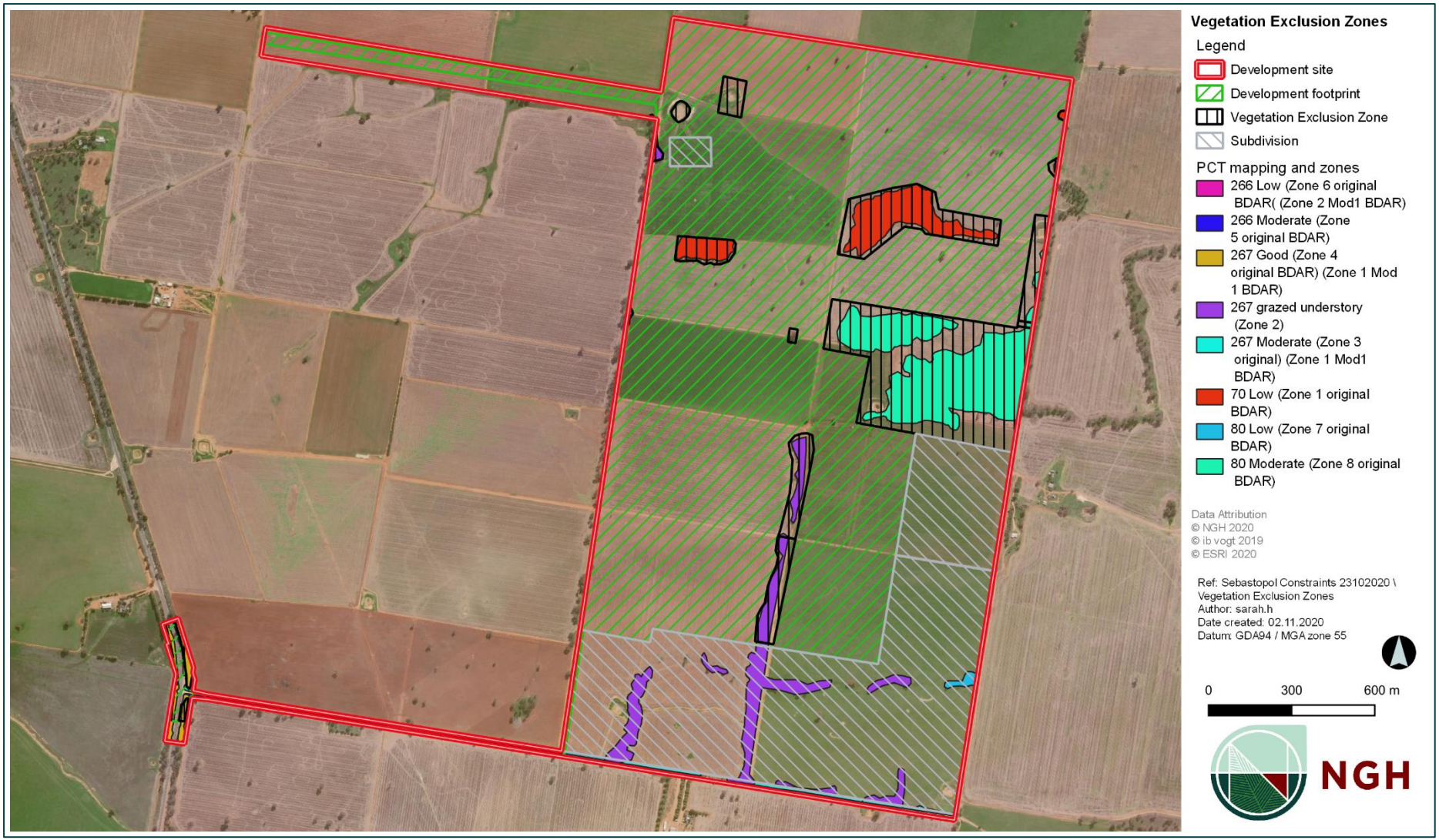
7.7.1. Management areas

Vegetation not in the development footprint, but within the project land, is considered the VEZ. The land within the Subdivision is not included as a VEZ or in the management and monitoring of the project, as ownership and use will be retained with the relevant landowner.

The aim of vegetation condition management is for the condition of this vegetation to be maintained or improved during the lifetime of the project (baseline conditions in Appendix C).

The following targets have been established:

- Maintain Vegetation Integrity from BAM plots in VEZ equal to or above baseline levels during operation.
- Quarterly surveys of weed abundance in VEZ and use as baseline for implementing targeted weed control measures in each zone throughout construction and operation.


Vegetation Exclusion Zones
Legend
Development site
Development footprint
Vegetation Exclusion Zone
Subdivision
PCT mapping and zones
266 Low (Zone 6 original BDAR((Zone 2 Mod1 BDAR)
266 Moderate (Zone 5 original BDAR)
267 Good (Zone 4 original BDAR) (Zone 1 Mod 1 BDAR)
267 grazed understory (Zone 2)
267 Moderate (Zone 3 original) (Zone 1 Mod1 BDAR)
70 Low (Zone 1 original BDAR)
80 Low (Zone 7 original BDAR)
80 Moderate (Zone 8 original BDAR)
Data Attribution
© NGH 2020
© ib vogt 2019
© ESRI 2020
Ref: Sebastopol Constraints 23102020 \ Vegetation Exclusion Zones
Author: sarah.h
Date created: 02.11.2020
Datum: GDA94 / MGA zone 55
0
300
600 m
NGH

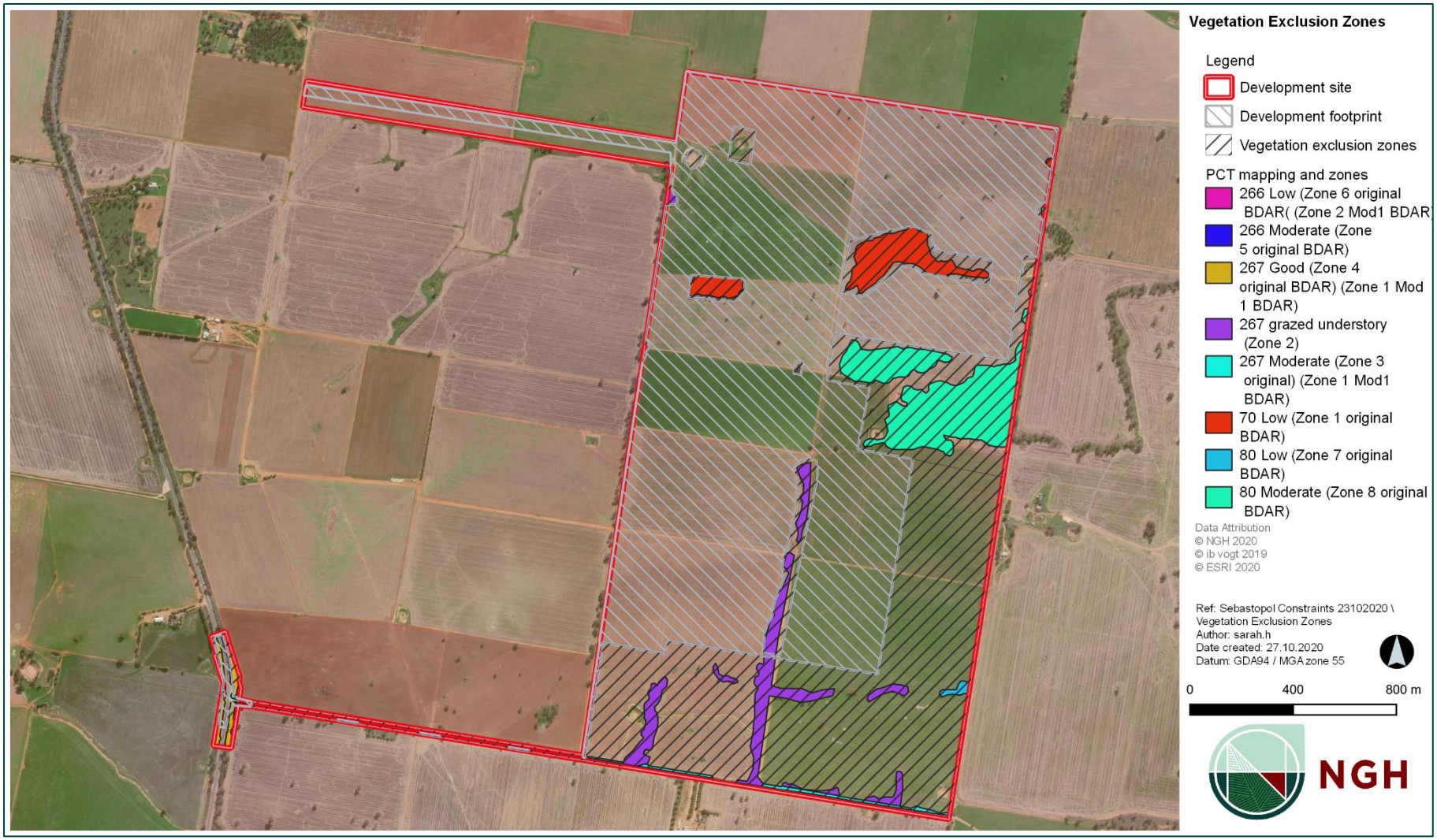


Figure 7-6 Vegetation Exclusion Zones

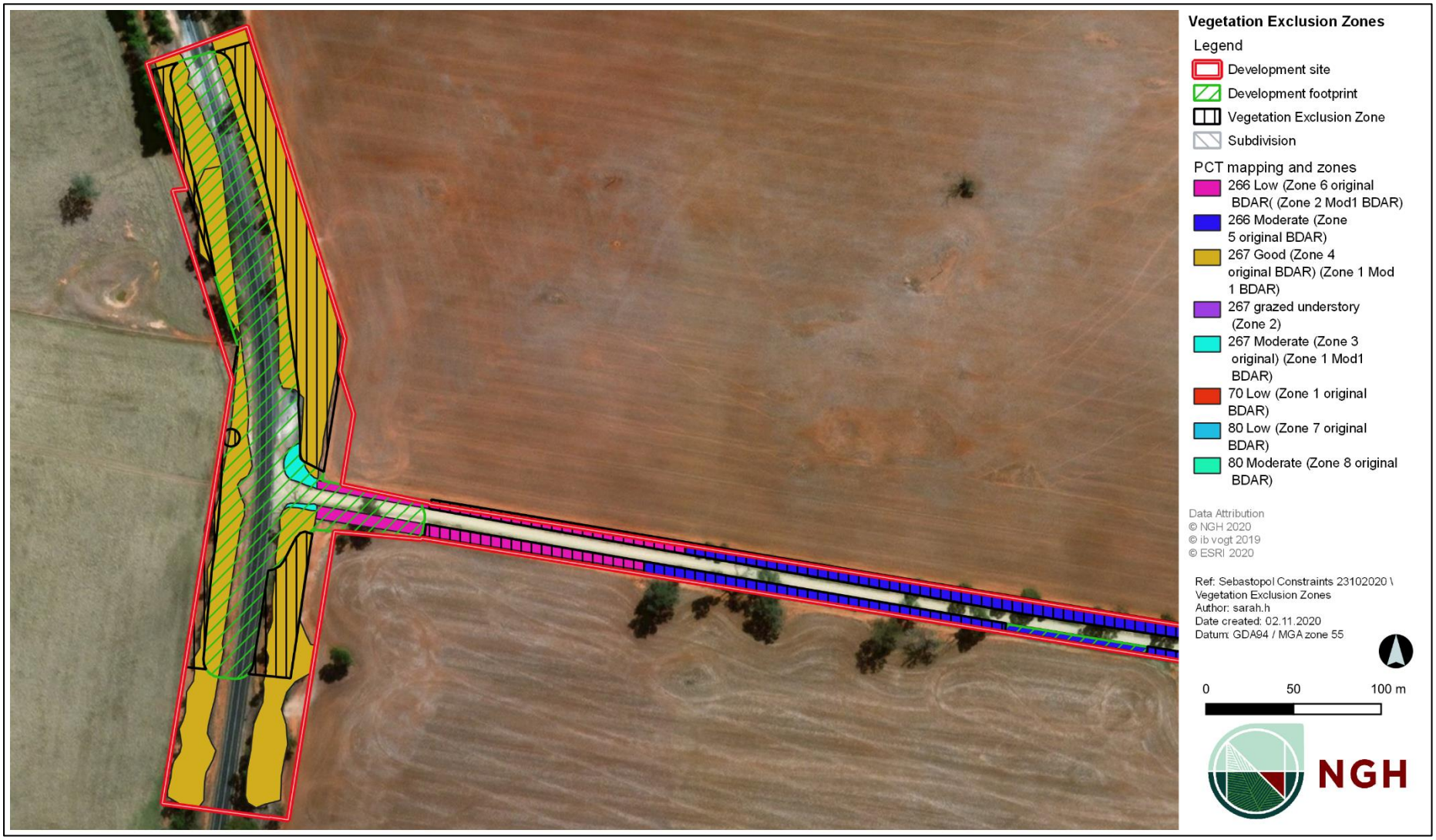


Figure 7-7 Vegetation Constraints in VEZ at the intersection of Eurolee Road and Goldfields Way

Figure 7-8 Vegetation constraints in exclusion zones along Eurolee Road.

7.7.2. Vegetation condition

In order to monitor changes in the vegetation condition of VEZ, the baseline vegetation condition has been quantified using Biometric plots prior to construction commencing. Plots will be conducted shortly following construction to determine an updated condition assessment at the commencement of the operation phases.

An ecologist will conduct Biometric assessments within Zones 2 and 4 every five years throughout operation. If vegetation condition recorded below baseline this will trigger the need for an assessment to determine the appropriate management response (see Table 11-1).

The VEZ will be included in the quarterly weed monitoring during construction to manage weed ingress during construction

7.7.3. Management actions

Vegetation Exclusion Zones (VEZ)

VEZ will be temporarily demarcated prior to clearing in accordance with the Vegetation Clearance Procedure (Section 7.2).

The location of exclusion areas will be communicated to site staff (including equipment operators) through site inductions, toolbox talks and targeted training prior to works taking place in the vicinity.

Indirect impacts on vegetation constraints will be reduced by:

- Avoiding vehicle or plant access within VEZ.
- Where night works cannot be avoided, work must not take place within 100 m of VEZ.
- Directing lights away from VEZ.
- Noise-emitting plant will be oriented so that noise will be directed away from VEZ.
- When not in use, vehicles and plant will not be left idling near VEZ, but will be switched off whenever possible.
- All internal fencing will be stock proof with no barbed wire.

Weed management

There is a risk of weed encroachment during construction and operation from infested areas into VEZ, and potentially from VEZ into disturbed areas following groundcover rehabilitation. To manage these risks, weed management will include monitoring VEZ and implementing weed control measures as required throughout construction and operation, in accordance with the Weed and Pest Management Plan in Section 7.5 .

Response to decline in condition

If monitoring shows vegetation condition is below baseline this of determines the need for an additional management response, actions may include but are not limited to:

- Check fencing to ensure exclusion of all stock and humans/vehicles. Repair any fences as required.
- Targeted weed or pest control.
- Groundcover rehabilitation and shrub/tree plantings for habitat enhancement.

- Ecological burns in consultation with appropriate authorities to reduce fuel loads or control over-dominant groundcover species, in accordance with relevant fire regime for the vegetation community.

Use plain chainwire fencing (i.e. with no barbed wire) in area of Zone 2 (PCT 267_Grazedunderstory) which intersects the woodland to avoid potential entrapment of fauna on fence (no barbed wire). If stock will be on site during operation and condition declines, then the fencing in area of Zone 2 will be stock-proof.

7.7.4. Security fencing

During operations monthly monitoring will occur. If fauna mortality occurs increase monitoring frequency. The security fencing will be cyclone with no barbed wire on the top strand to reduce fauna impacts.

7.8. NOISE, LIGHT AND DUST MANAGEMENT

Light controls include light shields. Noise controls include working during the day. The majority of construction maintenance and operation work will occur during the day. However, emergency works and delivery of oversize overmass vehicles can occur at night. Construction will avoid night work where possible, if night works are required lights will be directed towards the ground and machines will be switched off when not in use. Adaptive dust monitoring programs will be implemented to control air quality. Construction will cease if dust is observed being blown from site until control measures are implemented. Control measures include limited work on windy days and apply water to dusty area. All activities relating to the proposal will be undertaken with the objective of preventing visible dust emissions from the development site. Further details of noise, light and dust management will be detailed in the CEMP.

8. ROLES AND RESPONSIBILITIES

The FRV Project Team's organisational structure and overall roles and responsibilities are outlined in the EMS.

Roles and responsibilities relevant to environmental management are outlined in Table 8-1 below.

Table 8-1 Construction team roles and responsibilities

Role	Responsibility	Authority
EPC Project Manager	• Ensure resources are made available to enable works to comply with EMS and other environmental management requirements. • Ensure that all procedures are followed adequately. • Ensure appropriate approvals and licences are held. • Ensure all staff and contractors are aware of environmental compliance requirements and environmental controls. • Responsible for reporting pollution incidents.	• Order Stop-work for an activity that may cause material or environmental harm. • Release of environmental hold points, if required.
EPC Health Safety and Environment (HSE)Advisor	• Maintaining all environmental management documents. • Identifying where environmental measures are not meeting the targets and where improvements can be achieved. • Monitoring and reporting environmental compliance. • Reviewing Project environmental documents. • Reporting of pollution incidents.	• Recommend Stop-work for an activity that may cause material or environmental harm. • Release of environmental hold points, if required.
EPC Site Manager	• Responsible for the implementation of environmental management plans. • Responsible for the induction of staff and contractors. • Responsible for all aspects of the worksite including the coordination and management of all staff and contractors. • Undertake routine environmental site inspection. • Maintaining environmental records. • Receiving plant, materials and chemicals and ensuring all items are appropriately stored. • Responsible for addressing corrective actions arising from Environmental Inspections.	• Order Stop-work if any items in the CEMP are in danger of breach. • Approve and accept waste disposal methods requested by staff or contractors. • Approve minor changes to environmental sub-plans, including Erosion and Sediment Control Plans (ESCP).
FRV staff: • **FRV Project Manager/Site Superintendent** • **FRV Steering Committee** • **FRV Technical Team**	• Ensure contractors are working in accordance with the requirements of the EMS, as required under the EPC contract. • Undertake site visits during construction to monitor compliance with EMS requirements. • Report and raise any issues that arise that may have an environmental impact. • Report and raise the discovery of any artefacts, Aboriginal relics or places and cease work until the matter has been addressed.	• Report any issues that may have the potential to cause material or environmental harm. • Report any incidents or near-misses that may impact on the environment or breach conditions set-out in this EMS.

Further details regarding specific responsibilities for the implementation of environmental controls are detailed in the EMS.

9. CROSS REFERENCE OF BIODIVERSITY MITIGATION AND MANAGEMENT MEASURES

A range of mitigation requirements and control measures are identified in the CoCs and SoC. Specific measures to address impacts to biodiversity and responsibility is outlined in Table 9-1. Table 8-1 further describes roles and responsibilities for FRV staff and EPC contractors. The measures have been listed to cover broad activities, and as such there may be some repetition of mitigation measures.

Table 9-1 Biodiversity management and mitigation measures.

Measure/requirement	Where addressed	Work stage	Responsibility	Reference
Following any construction or upgrading on the site, the Applicant must: (a) restore the ground cover of the site as soon as practicable. (b) maintain the ground cover with appropriate perennial species; and (c) manage weeds within this ground cover.	Groundcover Management Plan Appendix C Section 7.1 + Groundcover Management Plan Appendix C Section 7.5.1	Construction phase, post construction phase.	Site Manager/ HSE Advisor	Schedule 3 CoC 9
Within two years of commencing construction under this consent, unless the Secretary agrees otherwise, the Applicant must retire biodiversity credits of a number and class specified in Table 1 and Table 2 below to the satisfaction of BCD. (a) acquiring or retiring 'biodiversity credits' within the meaning of the Biodiversity Conservation Act 2016; (b) making payments into an offset fund that has been developed by the NSW Government; or (c) providing suppletory measures.	As part of this BMP	Within two years of commencement of construction	Site Manager	Schedule 3 CoC 10

Measure/requirement	Where addressed	Work stage	Responsibility	Reference

Table 1: Ecosystem Credit Requirements

Vegetation Community	***PCT ID***	***Credits Required***	***Total***
White Cypress Pine woodland on sandy loams in Central NSW wheatbelt	70	1	29.75
White Box – White Cypress – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion	267	25.75	
White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion	266	3	

Table 2: Species Credit Requirements

Species Credit Species	***Credits Required***	***Total***
Austrostipa metatoris	3	48

Measure/requirement	Where addressed	Work stage	Responsibility	Reference
Pine Donkey Orchid (Diuris tricolor) 11 Small Purple-pea (Swainsona recta) 14 Silky Swainson-pea (Swainsona sericea) 14 Superb Parrot (*Polytelis swainsonii*) 6 • *Note: Following repeal of the Threatened Species Conservation Act 1995 on 25 August 2017, credits created under that Act are taken to be "biodiversity credits" under the Biodiversity Conservation Act 2016 by virtue of clause 22 of the Biodiversity Conservation (Savings and Transitional) Regulation 2017.*				
Prior to commencing construction, the applicant must prepare a biodiversity management plan for the development in consultation with BCD, and to the satisfaction of the secretary. This plan must: a) Include a description of the measures that will be implemented for: • Managing the remnant vegetation and fauna habitat on site; • Minimising clearing and avoiding unnecessary disturbance of vegetation that is associated with the construction and operation of the development; • Minimising the impacts to fauna on site and implementing fauna management protocols;	Construction requirement covered by this report. a) Whole BMP b) Section 10 Section 11 Section 12	Pre-commencement of early works.	Project Manager	Schedule 3 CoC 11

Measure/requirement	Where addressed	Work stage	Responsibility	Reference
• Avoiding the removal of hollow-bearing trees during spring to avoid the main breeding period for hollow-dependent fauna; • Rehabilitating and revegetating temporary disturbance areas with species that are endemic to the area; • Protecting vegetation and fauna habitat outside the approved disturbance areas; • Maximising the salvage of vegetative and soil resources within the approved disturbance area for beneficial reuse in the enhancement or the rehabilitation of the site; and • Controlling weeds and feral pests; and • Include details of who will be responsible for monitoring, reviewing and implementing the plan, and timeframes for completion of actions. Following the secretary's approval, the applicant must implement the biodiversity management plan. *Note: if the biodiversity credits are retired via a biodiversity stewardship agreement, then the biodiversity management plan does not need to include any of the matters that are covered under the biodiversity stewardship agreement.*				
The following plans will be prepared and approved by the relevant authorities: • Biodiversity Management Plan. • Construction Environmental Management Plan. • Weed Management Plan. • Erosion and Sediment Control Plan. The plans will include but not be limited to the relevant commitments below.	This report satisfied the need for a BMP and WMP. A CEMP and ESCP will be prepared separate to the BMP.	Prior to construction	Project Manager	BD1

Measure/requirement	Where addressed	Work stage	Responsibility	Reference
Timing works to avoid critical life cycle events such as breeding or nursing: • Hollow-bearing trees will not be removed during breeding and hibernation season (June to January) to mitigate impacts on Superb Parrots, Major Mitchell's Cockatoo and Corben's Long-eared Bat. If clearing outside of this period cannot be achieved, pre-clearing surveys will be undertaken by an ecologist or suitably qualified person to ensure no impacts to fauna will occur.	Section 7.2.5	Construction phase	HSE Advisor /Site Manager	BD2
Instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing, the presence of a trained ecologist or licensed wildlife handler during clearing events, including: • Pre-clearing checklist. • Tree clearing procedure.	Section 7.2.3 Section 7.2.4 Section 7.2.5	Construction phase	Site Manager/Contractors	BD3
Relocation of habitat features (fallen timber, hollow logs) from within the development site. Tree-clearing procedure including relocation of habitat features to adjacent area for habitat enhancement.	Section 7.3 Section 7.2.5	Construction phase	Site Manager/Contractors	BD4
Spring Flora surveys for EPBC listed species along Eurolee Road and Goldfields Way for *Austrostipa wakoolica* and *Austrostipa metatoris*.	Completed as part of the RTS process	Complete	Site Manager	BD5
Clearing protocols that identify vegetation will be retained, prevent inadvertent damage and reduce soil disturbance; for example, removal of native vegetation by chainsaw, rather than heavy machinery, is preferable in situations where partial clearing is proposed: • Approved clearing limits will be clearly delineated with temporary fencing or similar prior to construction commencing.	Section 7.1 Section 7.2 Section 7.6	Construction phase	HSE Advisor	BD6

Measure/requirement	Where addressed	Work stage	Responsibility	Reference
• No stockpiling or storage within dripline of any mature trees. In areas to clear adjacent to areas will be retained, chainsaws will be used rather than heavy machinery to minimise risk of unauthorised disturbance.				
Noise barriers or daily/seasonal timing of construction and operational activities to reduce impacts of noise. Construction Environmental Management Plan will include measures to avoid noise encroachment on adjacent habitats such as avoiding night works as much as possible.	Section 7.2.5	Construction and operation phases	Site Manager	BD7
Light shields or daily/seasonal timing of construction and operational activities to reduce impacts of light spill: • Avoid Night Works. Direct lights away from vegetation.	Section 5	Construction, operation, and decommission phases	HSE Advisor	BD8
Adaptive dust monitoring programs to control air quality: • Daily monitoring of dust generated by construction and operation activities. • Construction will cease if dust observed being blown from site until control measures were implemented. All activities relating to the proposal will be undertaken with the objective of preventing visible dust emissions from the development site.	Section 10.2	Construction phase	HSE Advisor /Site Manager	BD9
Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas. This will be incorporated into the Pest and Weed Management Plan.	Section 7.5; Section 7.6 Appendix D.5 Appendix F Project CEMP	Construction and operation	Project Manager/HSE Advisor	BD10
Staff training and site briefing to communicate environmental features that will be protected and measures that will be implemented:	Section 10	Construction and operation	Site Manager	BD11

Measure/requirement	Where addressed	Work stage	Responsibility	Reference
• Site induction. • Toolbox talks. • Awareness training during site inductions regarding enforcing site speed limits. Site speed limits will be enforced to minimise fauna strike.				
Preparation of a vegetation management plan to regulate activity in vegetation: • Protection of native vegetation that will be retained. • Best practice removal and disposal of vegetation. • Staged removal of hollow-bearing trees and other habitat features such as fallen logs with attendance by an ecologist. • Weed management. • Unexpected threatened species finds. Rehabilitation of disturbed areas.	Section 7	Construction	Project Manager	BD12
Sediment barriers and spill management procedures to control the quality of water runoff released from the site into the receiving environment: Spill management procedures will be implemented.	CEMP ESCP	Construction	Project Manager/HSE Advisor / Site Managers	BD13
Fencing or other measures to control animal and vehicle interactions. Use plain wire fencing in area of Zone 2 (PCT 267_Grazedunderstory) which intersects the woodland to avoid potential entrapment of fauna on fence.	Section 4 Section 7	Construction phase	Contractors/Site Manager/ HSE Advisor	BD14
A Groundcover Management Plan will be developed in consultation with a soil scientist and an agronomist and taking account of soil survey results to ensure perennial grass cover is established across the site as soon as practicable after construction and maintained throughout the operation phase. The plan will cover:	Appendix E	Construction and operation phases	Project Manager	SO2

Measure/requirement	Where addressed	Work stage	Responsibility	Reference

• Soil restoration and preparation requirements.
• Species selection.
• Soil preparation.
• Establishment techniques.
• Maintenance requirements.
• Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements:
  ○ Live grass cover will be maintained at or above 70% at all times to protect soils, landscape function and water quality.
  ○ Any grazing stock will be removed from the site when cover falls below this level.
  ○ Grass cover will be monitored on a fortnightly basis using an accepted methodology.
• Contingency measures to respond to declining soil or groundcover condition.
Identification of baseline conditions for rehabilitation following decommissioning.				

10. COMPLIANCE MANAGEMENT

10.1. TRAINING

All employees, contractors and utility staff working on site will undergo site induction training which will include a component on biodiversity issues. Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in biodiversity management, including vegetation clearing. Targeted training will address the requirements of the environmental management measures (Section 7), and all conditions and commitments relating to biodiversity (Section 2.3, Section 2.4). Further details regarding staff induction and training are outlined in the EMS and CEMP.

10.2. MONITORING AND INSPECTION

Regular monitoring and inspections will be undertaken during construction and operation. The table below include monitoring and inspection requirements during construction and operation (Table 10-1), with the trigger and response columns contributing to the TARP for the project.

Table 10-1 Monitoring and inspection requirements during construction and operation.

Requirement	Timing	Responsibility	Trigger for additional action	Response proposed
PRIOR TO CONSTRUCTION				
BD5: Spring Flora surveys for EPBC listed species along Eurolee Road and Goldfields Way for *Austrostipa wakoolica* and *Austrostipa metatoris*.	Prior to construction	N/A	N/A	Surveys undertaken
Zone 2 (PCT 267 Grazed understorey) which intersects the woodland will have plain wire fencing to avoid potential entrapment of fauna on fence.	Prior to construction	Project Manager and Site Manager	Fauna entrapment on fence. Fauna mortality.	Monitoring increased.
VEZ will be demarcated using protective fencing to ensure that vegetation is not impacted accidentally, which may consist of star pickets at 4 to 5 m intervals with a strand of plain wire and flagging tape	Prior to construction	Project Manager and Site Manager	Damaged fence or VEZ, Vehicles or staff entering VEZ	Repair fence. Monitor clearing in vicinity of VEZ. Corrective action.
Clearing areas and paddock trees that will be removed will be delineated using temporary fencing or similar prior to construction.	Pre-clearing	Site Manager	Temporary fence, tape or rope not present before clearing about to commence	Implement required action ie. Delineate clearing areas.
CONSTRUCTION				
Pre-clearing inspections including checking for roosting/breeding habitat, recording tree hollows,	Before vegetation clearing	Ecologist	Pre-clearance surveys not completed.	• Pre-clearing checklist • Tree clearing procedure • Undertake surveys

Requirement	Timing	Responsibility	Trigger for additional action	Response proposed
marking habitat trees, demarcating area that will be cleared, and targeted surveys of Superb Parrot, Major Mitchell's Cockatoo and Corben's Long-eared Bat if clearing within breeding and core hibernation period between June and January. Daily surveys and staged clearing, with the presence of a trained ecologist or licensed wildlife handler during clearing events.			Clearing outside of approved clearing areas. Clearing of trees not identified for removal.	• Re-use of resources identified in BMP • HBT removal guideline
Details of resource re-use placement	Recorded as it occurs	Site Manager/HSE Advisor	Resources stacked, not distributed	Resources will be moved under direction of an Ecologist
Progressive monitoring of the cumulative amount of vegetation cleared (Section 7.2.2), including inspecting VEZ to confirm that they have not been disturbed (Section 7.2.1). Prior to undertaking any vegetation clearing, this value will be compared to the total approved area that will be cleared.	Before and after all vegetation clearing	Site Manager/HSE Advisor	Clearing outside of approved clearing areas	HSE Advisor to manage incident as required by EMS and relevant legislation/ approvals
No stockpiling or storage within dripline of any mature trees.	During construction	Site Manager/HSE Advisor	Stockpile or storage within dripline of a mature tree.	Remove and inform staff so they are aware
Ensure noise barriers or daily/seasonal timing of construction and operational activities in place.	During construction and operation.	Site Manager	Noise complaints	Development of a Construction and Operation Noise Management Protocol

Requirement	Timing	Responsibility	Trigger for additional action	Response proposed
Light impact reduction.	During evenings construction and operation	Site Manager	Presence of injured or deceased fauna	Light shields or daily/seasonal timing of construction. Operational activities to reduce impacts of light spill: • Avoid Night Works. • Direct lights away from vegetation.
A review of any fauna killed or injured on site. Threatened fauna mortalities will be reported to BCD and deaths of any birds from contact with fences or solar panels will be recorded. **Fauna relocations due to vegetation clearing will be recorded.**	Monthly during construction	HSE Advisor	Presence of injured or deceased fauna	Report where necessary, record details of incident. Implement mitigation measures along perimeter fence if required
Weed and pest survey and mapping across project site	Weed distribution in project site and VEZ seasonally Targeted weed inspections prior to clearing and grubbing in the affected area. Survey weed distribution and abundance where a potential weed infestation has been identified.	HSE Advisor	10% non-native ground cover. Presence of priority weeds. New weed species on site.	Implement targeted weed and pest control measures Pest and Weed Management Plan
Inspection of waterways.	Monthly during construction	Site Manager	Evidence of siltation or pollution	Rehabilitate waterway and review spill procedures.
Staff training and site briefing to communicate environmental	As required (new staff) throughout construction and operation	Site Manager	Breach of speed limit Damage to protected environmental areas	Site induction Toolbox talks

Requirement	Timing	Responsibility	Trigger for additional action	Response proposed
features that will be protected and measures that will be implemented			Fauna strike by vehicle	Awareness training during site inductions regarding enforcing site speed limits.
Biometric plots will be conducted at the locations of plots conducted during the assessment process. Additional plots will be established if required.	Immediately following completion of construction (spring). Every five years during operation (spring).	Site Manager	Vegetation condition below baseline	Investigation into reasons for decline by suitable qualified person(s) and adherence to recommendations.
Adaptive dust monitoring programs to control air quality: **All activities relating to the proposal will be undertaken with the objective of preventing visible dust emissions from the development site.**	Daily monitoring of dust generated during construction activities.	Site Manager	Dust observed being blown from site.	Implement control measures.
In the first 6 months after establishment, the groundcover will be monitored every fortnight. After that **period, the groundcover will be monitored every 6 months until operation, when it will be monitored annually. If grazing occurs on site then groundcover will be monitored fortnightly**	Fortnightly for first six months after establishment. 6 months after establishment. Fortnightly when livestock are grazing groundcover.	Site Manager	Groundcover below 70% of 90% of disturbed areas. Groundcover below baseline. After 12 months of establishment. Failed vegetation patches greater than 5 m2. Scours greater than 50 millimetres (mm) deep and 100 m long. Grassland weed cover greater than 10%. Presence of priority weeds.	Bare patches greater than 5 m^2 will be recultivated and revegetated. Additional watering of seeded areas. Weeds controlled where required. Treat soil conditions such as compaction, frequency of traffic movements, low seedbank storage, lack of soil moisture and nutrient imbalance.
OPERATION				

Requirement	Timing	Responsibility	Trigger for additional action	Response proposed
Adaptive dust monitoring programs to control air quality: **All activities relating to the proposal will be undertaken with the objective of preventing visible dust emissions from the development site.**	Daily monitoring of dust generated during operation activities.	Site Manager	Dust observed being blown from site.	Implement control measures
If stock are will beon site during operation, then stock-proof exclusion fencing will be required. Using plain wire fencing	Operation	Site Manager	Fence damaged or stock entering VEZ	Remove stock. Repair fence
Monitoring of boundary fence lines,	Weekly throughout operation	Site Manager/ EPC Contractor	Exclusion boundary fences are damaged. Entangled animals	Repair fences.
A review of any fauna killed or injured on site. Threatened fauna mortalities will be reported to BCD and deaths of any birds from contact with fences or solar panels will be recorded.	Annually throughout operation	HSE Advisor	Presence of injured or dead animals	Report where necessary, record details of incident Implement mitigation measures along perimeter fence if required
Weed surveys **Areas of priority weeds across project site will be mapped (GPS, note species and degree of infestation, take photo) and controlled**	Survey weed distribution across the project site seasonally, timed to identify weeds before they flower. Survey abundance in VEZ seasonally. Survey weed distribution and abundance where a potential weed infestation has been identified	HSE Advisor	Presence of priority weeds	Targeted weed control measures (Section 7.5.1, Table 11-1)

Requirement	Timing	Responsibility	Trigger for additional action	Response proposed
Weed abundance in VEZ kept below baseline during operation.	Seasonally throughout operation.	HSE Advisor	Weed abundance above baseline	Weed control measures (Section 7.5)
A suitably qualified person will walk over the site to identify if vertebrate pests are present. **The following data will be recorded and used to determine the need for pest animal control measures:** ○ **Number and location of any tracks, traces or sightings** **Whether the level of activity above/at/below baseline.**	Annually throughout operation (August)	EPC Contractor	Above baseline observation of feral animal activity	Targeted pest animal control measure (Section 7.5).
Groundcover monitoring	Fortnightly for first six months after establishment. 6 months after establishment. Fortnightly when livestock are grazing groundcover. Annually during operation (spring).	Site Manager/ EPC Contractor	Groundcover below 70% of 90% of disturbed areas. Groundcover below baseline. After 12 months of establishment. Failed vegetation patches greater than 5 m2. Scours greater than 50 millimetres (mm) deep and 100 m long. Grassland weed cover greater than 10%. Presence of priority weeds.	Bare patches greater than 5 m^2 will be recultivated and revegetated. Additional watering of seeded areas. Weeds controlled where required. Treat soil conditions such as compaction, frequency of traffic movements, low seedbank storage, lack of soil moisture and nutrient imbalance.

10.3. ADAPTIVE IMPLEMENTATION

This BMP will be reviewed every 5 years during operation following monitoring of the VEZ to ensure that it is still relevant and appropriate for the management of the site and that required adaptations have been included as required. Where additional actions have been implemented, they will be incorporated as required.

10.4. INCIDENT MANAGEMENT

All incidents will be managed in accordance with the incident response procedures contained in section 10.1 of the draft EMS.

10.5. AUDITING

Audit requirements are detailed in section 11.1 of the draft EMS.

10.6. REPORTING

Reporting requirements and responsibilities are outlined in section 11.2 of the draft EMS.

11. PERFORMANCE CRITERIA, TRIGGERS AND RESPONSES

Table 11-1 below provides a summary of the key performance criteria and triggers for corrective actions. The actions that will be implemented should the trigger arise are also described. This combined with the monitoring described in Section 10.2 forms the Trigger, Action Response Plan (TARP) for the Project. The monitoring triggers have been used to inform the triggers for protocols and procedures that require monitoring in Table 11-1.

Table 11-1 Summary of performance criteria, triggers for actions and responses for environmental management protocols.

Management protocol (applicable zones)	Performance criteria	Risk of not achieving performance criteria	Trigger for additional actions	Action proposed	Responsibility
Vegetation clearance procedure (refer to Section 7.2 and 7.6). (Original BDAR Zones 1, 3 and 5, Mod1 zones 1 and 2)	• No more than specified areas of native vegetation will be removed. • Pre-clearance surveys conducted. • No impacts on VEZ.	Low – Clearing area will be clearly demarcated prior to clearing commencing. Pre-clearance requirements are detailed in this BMP. Exclusion areas will be clearly identified.	• Pre-clearance surveys not completed. • Clearing outside of approved clearing areas. • Clearing of trees not identified for removal.	Clearing works will not commence until required surveys completed. If clearing occurs outside of marked clearing areas or of marked trees, works will cease immediately, and advice sought from BCD as to whether further assessment/approval requirements are applicable.	Site Manager/HSE Advisor
Re-use of resources protocol (Original BDAR Zones 1, 3 and 5,	• CWD, rocks and topsoil (as described in Section 7.3) removed during construction are retained.	Low – Standard construction practice.	Resources stockpiled and not relocated.	Resources that will be relocated immediately under the Guidance of an Ecologist to ensure minimal damage.	Site Manager/HSE Advisor

Management protocol (applicable zones)	Performance criteria	Risk of not achieving performance criteria	Trigger for additional actions	Action proposed	Responsibility
Mod1 zones 1 and 2)	• Retained resources are relocated into appropriate areas.				
Threatened Species Finds Procedure (Original BDAR Zones 1, 3 and 5, Mod1 zones 1 and 2)	• Threatened Species Finds Procedure followed if threatened species found. • No harm to threatened species.	Moderate – Not all personnel on site will have the skill to be able to identify threatened species.	Threatened species found to be present (living or dead) that was not previously identified through site assessments.	Prepare and implement an education program for personnel working on site to increase awareness of threatened species that may be encountered.	Project Manager/HSE Advisor /Site Manager
Weed and Pest Management Plan (All Environmental Management Zones/VEZ)	• Annual reduction in invasive weed distribution by at least 50% of mapped infestation areas from previous year's inspections, until reach 10% non-native groundcover threshold . • Maintain 10% non-native groundcover. • Survey weed abundance in VEZ, quarterly during construction and use	Low to moderate – Weed abundance is highly dependent on seasonal conditions and the amount of seed stored within the seed bank. Similarly, Pest animal abundance is seasonally variable and influenced by external factors such as management by adjacent landholders.	• 10% non-native ground cover. • Presence of priority weeds detected during quarterly or annual monitoring. • New weed species on site detected during monitoring. • Above baseline observed pest animal activity.	Eliminate priority weed species as soon as practicable in accordance with recommended control methods and timing. Increase targeted weed or pest animal control measures (Section 7.5). Seek additional advice from Local Land Services and/or a qualified person and adhere to recommendations.	HSE Advisor/Site Manager/Contractors

Management protocol (applicable zones)	Performance criteria	Risk of not achieving performance criteria	Trigger for additional actions	Action proposed	Responsibility
	this as a baseline for targeted weed control. • Survey and map weed distribution seasonally during construction and use as a baseline for target weed control • Weed abundance in VEZ, and across the project site kept below baseline level during operation. • New invasive weeds detected in project area compared to baseline surveys are controlled during operation. • African Boxthorn and listed priority weeds eradicated from project area within 3 years of detection. • Pest animal populations reduced below baseline levels of activity during operation	However, weeds and pests are manageable with appropriate treatment applied in a coordinated approach by trained personnel.			

Management protocol (applicable zones)	Performance criteria	Risk of not achieving performance criteria	Trigger for additional actions	Action proposed	Responsibility
Vehicle Hygiene controls (All zones)	• Vehicle hygiene controls implemented	Low – Standard site procedure.	• Vehicle hygiene controls not being implemented.	Will be raised with HSE management on site. Ensure it is included in site inductions, toolbox talks etc and that staff responsible are implementing the procedure.	All staff on site
Vegetation Condition Management (Zones 2 and 4)	• Vegetation condition in VEZ will not decline below baseline Vegetation Integrity throughout construction and operation of the project.	Moderate – Condition of vegetation in general is highly dependent on climatic conditions and is variable from year to year. Active management measures can be implemented to improve the condition of vegetation in VEZ with a reasonable degree of confidence of success.	• Vegetation condition below baseline in VEZ.	Investigation into reason for decline by suitable qualified person(s). Recommendations following investigation will be followed which may include but not be limited to: • Erect permanent fencing to exclude stock and human/vehicle access. • Targeted weed or pest control. • Groundcover rehabilitation and shrub/tree plantings for habitat enhancement. • Ecological burns in consultation with appropriate authorities to reduce fuel loads or control over-dominant groundcover species, in accordance with relevant	HSE Advisor /Site Manager/ Contractors

Management protocol (applicable zones)	Performance criteria	Risk of not achieving performance criteria	Trigger for additional actions	Action proposed	Responsibility
				fire regime for the vegetation community.	
Groundcover Management Plan	• Monitor fortnightly for first six months after establishment, 6 months after establishment, fortnightly when livestock grazing groundcover and annually during operation • Rehabilitate all disturbed areas not required for the operation of the solar farm. • Groundcover of disturbed areas and areas under panels will be at baseline (Appendix B) within 12 months of establishment and maintained throughout operation until contract completion. • Bare patches greater than 5 m^2 will be revegetated.	Moderate – Condition of groundcover will be dependent on climatic conditions and will also be affected by other management measures such as weed treatment. Success of sowing and seed set will also be dependent on climatic conditions and other variables.	• Groundcover below baseline. After 12 months of establishment. • Failed vegetation patches greater than 5 m^2. • Scours greater than 50 millimetres (mm) deep and 100 m long. • Grassland weed cover greater than 10%. • Presence of priority weeds.	Remove grazing stock. Bare patches greater than 5 m^2 will be recultivated and revegetated. Additional watering of seeded areas. Weeds controlled where required. Treat soil conditions such as compaction, frequency of traffic movements, low seedbank storage, lack of soil moisture and nutrient imbalance. Seek additional advice from an agronomist if seed set is not occurring.	Site Manager/HSE Advisor /Contractors

Management protocol (applicable zones)	Performance criteria	Risk of not achieving performance criteria	Trigger for additional actions	Action proposed	Responsibility
	• Native species will be used for revegetation wherever practicable in areas identified as native grassland as well as exotic vegetation. • Scours greater than 50 mm deep and 100 m long will be revegetated. • Targeted weed control measures will be implemented if weed cover exceeds 10% of groundcover or if priority weeds are detected. • Establish perennial native pasture under solar panels prior to completion of construction.				

12. REVIEW AND IMPROVEMENT

12.1. CONTINUOUS IMPROVEMENT

Continuous improvement of this BMP will be achieved by the ongoing evaluation of performance against the BMP environmental policies, objectives and targets to identify 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.

Review procedures are contained in the EMS. Ongoing evaluation and performance against the BMP will be measured against the monitoring and inspection requirements detailed in Table 10-1 and performance criteria in Table 11-1. The timing monitoring and inspection requirements are detailed in Table 10-1.

12.2. BMP UPDATE AND AMENDMENT

This BMP will be reviewed every 5 years during operation following monitoring of the VEZ to ensure that it is still relevant and appropriate for the management of the site and that required adaptations have been included. This BMP will be revised whenever the construction scope of work, or work methods change, whenever the work methods are found to be ineffective, or if directed by the Proponent. This will occur as needed and in accordance with the process outlined in the EMS. Any revisions of the BMP will be submitted to the secretary for approval. The BMP and any subsequent versions approved will be implemented.

APPENDIX A CONSULTATION

BCD

No.	BCD comments	Response
1	Responsible Officer for adaptive management actions. Recommendation: Update Table 8.1 and 9.1 to show clearer responsibility for management actions.	Table 8-1 (now Table 11-1) and Table 9-1 have been updated.
2	The Responsibility for management actions in Table 9.1 is listed as FRV for all line items. This may be the case for some higher-level activities (like offsets) but for operational matters the responsibility in the BMP must lie with a person or a position in the management hierarchy that will oversee the specific management actions. Also, Table 8.1 is in the form of trigger action response management framework that would also benefit from having a column for a Responsible officer for adaptive management actions. Recommendation: Update Tables 8.1 and 9.1 to show clearer Responsibility for management actions.	Table 8-1 (now Table 11-1) and Table 9-1 have been updated with responsibilities assigned.
3	Table 10.2 does not appear to describe monitoring and inspection procedures. For each of the conditions and commitments, what will be monitored and how frequently? (see Gregadoo Solar Farm draft BMP). Recommendation: Update Table 10.2 with more specific monitoring information.	Table 10-2 (now Table 10-1) has been updated with more specific monitoring information.
4 & 5	There are three areas of management that need targets expressed in a more specific form: Weed control, Remnant vegetation condition and Rehabilitation. Some weed management performance criteria in Table 8.1 are already expressed in the more specific format. Examples are given below Recommendations: Express the targets for controlling pest animals relative to their baseline abundance - e.g. Pest animal populations reduced below baseline levels and maintained at a low level of activity during operation. Express effort to maintain or improve the condition of vegetation in exclusion zones against measurable targets - e.g. Maintain Vegetation Integrity scores from BAM plots in Vegetation Exclusion Zones above baseline (or updated baseline) levels during operation.	Targets changed to be expressed as SMART targets. (Section 7.7.1, Section 7.7.2, Section 7.7.3, Table 8-1).
6	The EIS refers to various temporary and permanent fences, including the high-grade security fence around the substation and secure fencing around construction areas. There is reference to a perimeter security fence that will be installed for the operational phase of project and the BMP has fence mitigation measures for certain parts of the project area. Recommendation: State clearly in the BMP what the entire perimeter security fence will be made of	Perimeter security fence description added to section7.7.4 Table 10-1 states: If mortalities occur monitoring will be increased.

No.	BCD comments	Response
	(e.g. not with barbed wire on top strands) and what mitigation measures will be used to reduce the likelihood of fauna collisions and entanglement.	
7	A Hollow-bearing tree removal guideline is a document used by numerous consultants that outlines procedures for removing hollow-bearing trees to minimise impacts on fauna. Procedures for removing HBTs have been included in the BMP already in Fig 7-5 but having a separate guideline allows this information to be included in an Appendix. Other HBT removal guidelines also consider ambient temperature in the work procedures, e.g. do not remove HBTs in hot weather due to potential to add additional stress to fauna. Recommendation: Develop a 'Hollow-bearing tree removal guideline'.	A more detailed guideline has been provided in Appendix B.
8	The Nature of Impact column in Table 4-1 should have items that directly relate to construction or operation activities such as tree clearing, building infrastructure etc. The effect of that activity on biodiversity is in the Consequence column. This will make the impacts of activities associated with building and operating the solar farm clearer. Recommendation: Update Table 4.1.	Table 4-1 updated with direct and indirect impacts from the tables in both the original BDAR and the intersection BDAR.
9	Include the vegetation zones and vegetation integrity scores in Appendix A with the BAM plot data.	Vegetation zones and integrity scores added to Appendix C with BAM plot data.
10	Provide separate figures showing threatened species locations from surveys.	Figure 3-1 provides locations where threatened species sighted.
SS1	Section 1.1. There aren't any objectives in this section	The word 'objectives' removed from section 1.1.
SS2	Section 1.5. Technically Continuous when applied to the principle of improvement.	The word 'continual' changed to 'continuous' in section 1.5.
SS3	Does NGH have a separate hollow bearing tree removal guideline that they routinely use for projects? We have seen versions that deal not only with procedures but also set limits on when it can occur if temps are too high.	Appendix B Hollow Bearing Tree Removal Guideline updated
SS4	This section has a mixture of general goals and more specific targets. Some of the more specific targets should be expressed later in the document in the SMART format.	Throughout the document, specific targets expressed in SMART format.
SS5	Consider amalgamate Construction and Operation dot points and shorten this section. Also this can be either general statements that are expanded on in later tables or make the specific targets here. But mixing both general and specific targets leads to repetition.	Section 2.2.1: Construction and Operation dot points amalgamated. Specific targets removed.
SS6	Given the BMP is based on the final assessment information what is the purpose of two vegetation descriptions citing different areas ie this set and the PCT set below.	One set of descriptions removed from section 3.2

No.	BCD comments	Response
SS7	Does this include the small amount of clearing identified in the original BDAR, not Mod 1	Section 3.3: The small amount of clearing for Mod 1 has been added.
SS8	Isn't IMPACTS ON BIODIVERSITY a more precise heading?	Section 4 heading changed to 'Impacts on biodiversity'
SS9	The Nature of impact column should be more specific for some rows.	Table 4-1: nature of impact column made more specific for some rows.
SS10	I don't see how this is a line item. Displacement would occur as a result of clearing so it is a consequence of one-off clearing. What is this Operation phase displacement that occurs regularly?	Table 4-1: Displacement of resident fauna due to disturbance from the building and operation of the solar farm
SS11	This is a Consequence of clearing isn't it?	Table 4-1: It can be a consequence of clearing; it can also be a consequence of vehicle collision. 'vehicle collision' words added to nature of impact column
SS12	Inadvertent impacts on adjacent habitat or vegetation'= Too general. Or is this an indirect impact from clearing (or an impact if clearing goes wrong)? How are these different to the direct impacts? It is not really a category if the indirect impact is a result of poor clearing practice that should be eliminated by implementing the mitigation in this document. This is more a compliance issue.	Table 4-1: Wording changed to BCD suggested wording: 'Inadvertent damage of vegetation protection areas during clearing operations.'
SS13	This is really a consequence of something - are you referring to displace fauna? Ie. What is the impact that is causing this as a result of construction or operation?	Table 4-1: Removed and put in consequence column
SS14	Loss of breeding habitats'= This is a direct impact of clearing and removing HBTs that should be consequence in the first row of the direct impacts.	Table 4-1: 'loss of breeding habitats' moved to relevant consequence column
SS15	There is a lot of repeated information in the next 5 pages - is there any way to condense it?	Information kept for thoroughness and clarity.
SS16	Possible in an undamaged and unaltered condition' Unfinished sentence?	Table 5-1: Changed to 'no disturbance or alteration to condition'
SS17	What does controlled mean here? Completely removed or abundance down to a specific level?	Table 5-1: Changed 'controlled' to 'managed'
SS18	This section contains baseline data that will allow you to measure progress towards the target of maintaining or improving vegetation condition on site during the life of the project? Consider amalgamating it with the information in Appendix A	Section 6 Table has been moved to Appendix C.1. The mapping has been moved to Appendix C.3
SS19	Is ground disturbance different to clearing?	Section 7.1: Yes, disturbance can be from machinery driving over vegetation, not actual removal of vegetation.
SS20	This appears to be good procedure to ensure that disturbance is double checked before occurring	Noted
SS21	This does not appear to include the 0.27ha on the SF site from the original BDAR.	Section 7.2.2: figures adjusted

No.	BCD comments	Response
SS22	7.5.1. Adaptive management means SMART targets - any specific aims should be expressed in this format somewhere in the document	Section 7.5.1: specific aims altered and now expressed as SMART targets
SS23	Unhelpful title - could it be Remnant Vegetation Management or Vegetation condition management? Might be more self-explanatory.	Title changed to 'Vegetation Condition Management'
SS24	These general aims are the type that can be expressed in SMART target terminology	Section 7.7.1 altered to SMART target terminology
SS25	This is one of several more specific aims that can be expressed in SMART target terminology because you have baseline data and a time frame to work with. For instance, the Vegetation Integrity scores from BAM plots in VEZs will not fall below baseline.	Section 7.7.1 altered to SMART target terminology
SS26	SMART target terminology	Section 7.7.2 altered to SMART target terminology
SS27	SMART target terminology	Section 7.7.2 altered to SMART target terminology
SS28	What quantitative assessment? It would be clearer to spell out under this heading what assessment will take place to determine decline in condition	Section 7.7.3 altered to SMART target terminology
SS29	Is the assumption that stock will generally stay in the solar panel areas because there will be good ground cover from rehab?	Section 7.7.3 – sentence reworded. To 'check fencing to ensure exclusion of all stock and humans/vehicles. Repair any fences required.'
SS30	Table 8.1. How is general reduction measured?	Table 8-1 now Table 11-1. Wording changed to SMART target terminology
SS31	Table 8.1. What is a low level? Relative to baseline level?	Table 8-1 now Table 11-1. Wording changed to SMART target terminology
SS32	Table 8.1. This could be expressed as 'condition will not decline below baseline Vegetation Integrity indices'.	Table 8-1 now Table 11-1. Wording changed to SMART target terminology
SS33	Table 8.1. These could be expressed like the triggers for Rehab in the next section.	Table 8-1 now Table 11-1. Wording changed to SMART target terminology
SS34	Table 8.1. Isn't this the same as the weed control target of reducing level by 50% from previous years inspection?	Table 8-1 now Table 11-1. This performance criteria is referring to quarterly surveys being undertaken. The other performance criteria are referring to a total annual reduction of 50%.
SS35	Table 8.1. These are repeats	Table 8-1 now Table 11-1. Repeats removed.
SS36	The Responsibility needs to be assigned to a position or person in the company hierarchy – Site Manager or Environmental Manager or Contractor	Table 9-1: positions added to the responsibility column
SS37	Table 10.2 Is this table correct for the section? The proposed techniques are not specifically monitoring procedures? Also, it is not a TARP plan. Is this trigger and response column wording a reference to Table 8-1? It isn't relevant to Table 10-2	Table 10-2 now Table 10-1. Has been updated with more specific monitoring information. Sentence mentioning TARP removed.

No.	BCD comments	Response
SS38	Table 10.2. What are these headings in bold for? They are a few of the total number of biodiversity impacts that are identified in previous tables	Table 10-2 now Table 10-1. Has been updated with more specific monitoring information.
SS39	Table 10.2. I added Commitment codes added for easy cross referencing	Table 10-2 now Table 10-1. Has been updated with more specific monitoring information. Table information is very different now to the original. not able to assign commitments to all of the requirements.
SS40	Table 10.2. What are Prescribed Biodiversity Impacts in the context of this BMP. This is BAM wording for specific types of impacts.	Table 10-2 now Table 10-1. Has been updated with more specific monitoring information.
SS41	Table 10.2 Reveg along fence lines is also provides some mitigation.	Table 10-2 now Table 10-1. Has been updated with more specific monitoring information.

DPIE

Comments on the draft BMP were received from DPIE on 18 November 2020.

DPIE Comments	Response
Table 2-1 - Amend to reference this is addressed in Appendix E	Amended to reference Appendix E
Revise the BMP and include information detailing/defining the following activities/terms: • Ground disturbance • Clearing • As soon as practicable	Added definitions to acronym and abbreviation table.
Please review statement of commitments section further below, regarding specific commitments that need to be addressed in the BMP.	Specific commitments to be addressed in the BMP have been reviewed and addressed accordingly as per responses to comments.
Table 2.1 - should reference Section 8 and Section 9	Table 2-1 now references Section 8 and Section 9.
Review Section 12 and include details of: • Details of how the ongoing evaluation of performance against the BMP environmental policies, objectives and targets will be undertaken/achieved. • Review of the BMP as outlined in Section 10.3. • Revision required to be submitted for approval and note that BMP and any subsequent versions approved will be implemented	Comments added to section 12.1: 'Ongoing evaluation and performance against the BMP will be measured against the monitoring and inspection requirements detailed in Table 10-1 and performance criteria in Table 11-1. The timing monitoring and inspection requirements are detailed in Table 10-1.' Comments added to section 12.2:- information from section 0 - 'Any revisions of the BMP will be submitted for approval. The BMP and any subsequent versions approved will be implemented.'

DPIE Comments	Response
See above - Revise the plan and include a sentence along the lines of "*following the secretary's approval of the plan and any subsequent versions, the approved BMP will be implemented.*"	Sentence added to Section 1.1: "following the secretary's approval of the plan and any subsequent versions, the approved BMP will be implemented." The proponent will be paying into the biodiversity trust fund not via biodiversity stewardship agreement.
Table 2.2 – Also include the reference Appendix B	Referencing in Table 2-2 added Appendix B.
Section 7.2.5 – Amend to reference the correct appendix of the HBT removal guideline. Also revise to ensure clear wording that the HBT removal guideline will be implemented.	Section 7.2.5 changed reference from Appendix A-I to Appendix B. Wording altered to include: 'the HBT removal guideline will be implemented.'
Appendix B – Revise the section in relation to clearing during June to January to include details that a preclearing survey will be undertaken by an ecologist and/or suitably qualified person to ensure no impacts to fauna will occur.	Wording in Appendix B added: 'All clearing requires a pre clearing survey and ecologist/suitably qualified person to ensure no impacts to fauna will occur'.
Section 7.2.4 – Amend to an ecologist "will be" present during clearing of all vegetation within the development footprint Revise and amend to detail that a ground disturbance permit is required to be completed and approved prior to the commencement of clearing. Consider the inclusion of a preclearing checklist that includes a checklist identifying the following activities to be completed prior to clearing commencing eg ground disturbance permit approved, VEZ marked, HBT marked, preclearing survey completed, ecologist present etc. Also revise the general procedure and/or the HBT removal guideline to detail that clearing will occur in a 2- stage process first being non HBT and second HBT. Also, HBT will be retained for approximately 24-48 hours after initial clearing of non HBT to allow any fauna to escape.	Section 7.2.4 updated to 'will be'. Information added to Section 7.2.3: 'A ground disturbance permit is required to be completed and approved prior to the commencement of clearing (Appendix D.1).' Summary checklist added in section 7.2.3. Stage 1 & 2 clarified in Appendix B.
Section 7.3.1 CWD – Revise and amend to detail the retention of hollow logs/limbs and their reuse on site. Section 7.2.4 – Revise the paragraph and provide further details on how hollow limbs will be retained.	Hollow bearing logs and limbs added to section 7.2.5 and 7.3. Updated 7.2.4 to include 'hollow bearing limbs will be retained using the avoid and minimie principles under the BAM'.
Section 7.1 – Review and amend the sentence "*The ground disturbance permit process is managed by the HSEQ Manager and is summarised below*" to clearly detail that those are the steps to be implemented.	Sentence added in section 7.1: '. The steps that will be implemented are detailed below.'
Section 7.2.4 – Revise to ensure the requirement that clearing in areas adjacent retained vegetation, chainsaws will be used rather than heavy machinery	Section 7.2 wording amended to include 'Heavy machinery will not be used for clearing in areas that are

DPIE Comments	Response
	adjacent to areas to be retained'
The requirement "*No stockpiling or storage within dripline of any mature trees*" advise where this have been addressed in the BMP. Details are required on how this will be achieved on site eg stockpiling/ storage plan and/or location.	Avoidance of tree dripline is mentioned in Section 7.3.3, Table 5-1, Table 10-1 and Appendix D.1 (Ground disturbance permit form). It has been added to Section 3.1. Stockpile location is a construction decision and will be decided once construction commences. The location of the stockpile will be within the approved construction footprint The BMP states that stockpiles are not to be within the dripline of any mature trees.
The requirement "*Noise barriers or daily/seasonal timing of construction and operational activities to reduce impacts of noise*" advise where this have been addressed in the BMP and details on how it will be achieved.	Reference in Table 2-2 changed from 7.2.5 to section 5.1, 7.7.3 and 7.8. We addressed this requirement through daily timing of construction in that night time works will be avoided where possible. See Table 5.1: Added: 'majority of construction maintenance operation work will occur during the day, however emergency works and delivery of oversize overmass vehicles can occur at night. Section 7.8 Noise light and dust management added for further clarification.
Section 5 – Revise table 5-1 and use definitive terminology for example amend the word "Possible" on mitigation measures, will the measures be implemented. Where in the BMP has this requirement been addressed and further details is required on how it will be implemented/achieved.	Table 5-1 wording altered to: 'The majority of construction maintenance and operation work will occur during the day, however, emergency works and delivery of oversize overmass vehicles can occur at night.' Section 7.8 Noise light and dust management added: ' Direct lights away from vegetation (point at the ground), fit light shields. The majority of construction maintenance and operation work will occur during the day, however, emergency works and delivery of oversize overmass vehicles can occur at night'
The BMP requires further details on how dust management measures will be implemented/achieved eg what measures would be implemented to mitigate dust being blown from site.	Section 7.8 Noise light and dust management added: 'Control measures include limited work on windy days and apply water to dusty area.'
Table 2.2 - should reference Appendix F Section 7.5 – Revise to include more details on weed management specifically in relation to protocol for	Appendix F is now referenced in Table 2.2 and Section 7.5.1. More information added to Section

DPIE Comments	Response
declared priority weeds (Appendix F) and in relation to weed hygiene protocols and the declaration forms.	7.5.1: '• Any supplementary feeding of livestock will use treated or processed feed to prevent viable weed seeds being introduced to the site.' Section 7.6 Vehicle hygiene procedure has been added. Vehicle hygiene register added (Appendix D.5). Information added to Section 7.5.1 on priority weeds and Appendix F: 'The NSW Department of Primary Industries website 'WeedWise' identifies the following measures as suitable for achieving the general biosecurity duty outcome for this weed….'.
The BMP requires further details on how speed management measures to minimise fauna strike and how these measures will be implemented/achieved eg what measures would be implemented to manage speed limits.	Section 7 added to reference section in Table 2-1 and Table 2-2 . Added to Section 7:'Risks to fauna from vehicle collision will be managed through the implementation of speed limits and sign posting.'
Section 7.2.5 – The Plan needs to provide in more detail the staged clearing of HBT from non-HBT.	Further clarified the staged clearing of HBT from non-HBT in Appendix B.
Provide evidence that this requirement has been addressed in the CEMP and ESCP	The CEMP and ESCP have not been created by the EPC contractor yet and will not be drafted or provided prior to approval to construct.
Section 7.6.3 – revise to ensure it is clear that the use of plain wire fencing in area of Zone 2 is required at all times, regardless of stock coming on to site.	Wording altered in Section 7 to clarify fencing in Zone 2 will be required at all times.
Appendix E – Revise and provide a definition as to what "as soon as partible" is defined as when it comes to the rehabilitation and revegetation of ground cover.	As soon as practicable definition added to acronym and abbreviation table: 'Autumn is a suitable planting time, if autumn is too long away then plant when weather permits'
Appendix E E4 – Amend paragraph along the lines of "*In the first 6 months after establishment, the groundcover will be monitored every fortnight. After that period, the groundcover will be monitored every 6 months, until operation. Once operation commences the groundcover will be monitored annually*."	Changed wording in Appendix E.4 to: 'In the first 6 months after establishment, the groundcover will be monitored every fortnight. After that period, the groundcover will be monitored every 6 months until operation, when it will be monitored annually. If grazing occurs on site then groundcover will be monitored fortnightly.'
Provide evidence that this requirement has been addressed in the EMS. The BMP should be a stand-alone plan, therefore any	Incident management auditing reporting will be addressed in section 10 and 11 of the EMS however we cannot provide evidence of the EMS

DPIE Comments	Response
references where requirements have been addressed in the EMS, CEMP and ESCP should be included in the BMP.	yet as previous advice from DPIE is that they want to see all other management plans approved prior to the EMS. The CEMP and ESCP is the ECP contractors responsibility and has not been provided. They will not be drafted or provided prior to approval to construct. References to the draft EMS have been added to section 10.4, 10.5 and 10.6.
Section 10 Table 10-1 - Revise so that the sentence in relation to groundcover monitoring is clear when the monitoring will be undertaken.	Changed wording in Table 10-1: 'In the first 6 months after establishment, the groundcover will be monitored every fortnight. After that period, the groundcover will be monitored every 6 months until operation, when it will be monitored annually. If grazing occurs on site then groundcover will be monitored fortnightly.'
Revise management plan so that definitive terminology is used for all mitigation measures, actions and steps etc.	Management plan revised, definitive terminology used
Section 1.6 Point 9 – Amend to reference Appendix B	Amended to Appendix C (this information is in Appendix C now).
Note: Any references in the BMP where requirements have been addressed in the following plans such as the EMS, CEMP and ESCP have not been cross referenced back to those plans to ensure the requirements has been adequately addressed. The reviewer is not an expert in Biodiversity Management. The review includes compliance against relevant consent conditions and not necessarily the adequacy of management measures in addressing the relevant aspects.	The EMS is cross referenced within the BMP now, however it is only in draft form. The CEMP and ESCP are not completed yet.

APPENDIX B HOLLOW BEARING TREE REMOVAL GUIDELINE

Hollow Bearing Tree Clearing Guideline

This guideline provides instruction on how to remove Hollow Bearing Trees (HBTs) in a way that minimises the impacts on fauna inhabiting trees and includes;

- Optimum timing for tree removal to minimise impacts on hollow-dependant fauna.
- Detailed information about felling hollow bearing trees (2 staged felling protocol).

Clearing timing

1. Avoid breeding or core hibernation period (between June and January) for fauna inhabiting HBT such as the Superb Parrot, Major Mitchell's Cockatoo and Corben's Long-eared Bat. All clearing requires a pre clearing survey and ecologist/suitably qualified person to ensure no impacts to fauna will occur.
2. During summer/hot days (greater than 30°C), HBT are left in situ until the end of the day, so any captured animals are not subjected to heat stress before release. Wildlife is not to be held in a vehicle on hot days, unless the engine and air conditioning is on.

Pre-clearing survey

1. Prior to works commencing, the fauna spotter[1] /ecologist is to undertake a brief site inspection to ensure that each HBT to be removed is (still) clearly marked so that machinery operators and site construction workers are aware of their presence. This is to avoid any indirect impacts occurring beyond, or in a manner not consistent with the methodology specified in this or other regulatory documents. Marking of the HBTs that will be removed and/or retained is to be clear and must differentiate between removed/retained trees such as through the use of different coloured flagging tape or spray paint.
2. All known hollows must be individually inspected for occupancy and current use. This will require a pole mounted inspection camera or support from an arborist on an Elevated Work Platform. If hollows are found to be occupied, then a plan for how to minimise impacts to the fauna will be prepared (by the fauna spotter/ecologist) specific to the species and its lifecycle and implemented prior to tree removal commencement.
3. A fauna spotter/ecologist will undertake a visual inspection of all hollows and habitat features within 24 hours of clearing to identify resident fauna species that might require relocation.
4. Contact veterinarian/wildlife carers in the area prior to clearing starting. At least one must confirm to be willing to accept wildlife if orphaned or injured fauna are encountered.
5. The fauna spotter/ecologist must assess the surrounding area for alternative hollows suitable for fauna relocation. If these are not present then nest boxes will be made available, and if fauna detected, installed so that mobile hollow dependent fauna have alternative locations to relocate. Nest boxes will be installed within 100m of the tree

[1] The 'fauna spotter'/ ecologist must be trained and experienced in handling fauna, , and recognise fauna species and required habitats. If handling microbats the spotter/ ecologist must be appropriately vaccinated.

removal site and must be suitably sized and designed to accommodate the species of concern[2].

Clearing of habitat features

1. The fauna spotter/ecologist must have appropriate catching, handling and housing equipment present on site in the event of the need to detain fauna. This includes enclosures suitable for common and suspected threatened species of varying needs and sizes. Housing and transport of wildlife must be in accordance with the Code of Practice for Injured, Sick and Orphaned Protected Fauna: https://www.environment.nsw.gov.au/research-and-publications/publications-search/code-of-practice-for-injured-sick-and-orphaned-protected-fauna.
2. Stage 1: Clear Non-HBTS first and mechanically disturb HBTS.
   Non HBT trees will be removed 24-48 hours prior to removal of HBTs (if applicable). HBTs will be disturbed using an excavator (preferable) or loader to hit the trunk as high up the tree as possible several times. This will encourage any fauna to vacate from adjacent HBTs overnight. These disturbance actions will be performed at the end of the day to encourage nocturnal species to relocate overnight. Ensure that entire area within drop radius of the HBT has been cleared of debris.
3. Stage 2: Clear HBTs
   Prior to clearing the HBTs, employ the mechanical disturbance protocol again. An excavator (preferable) or loader will be used to shake the trunk as high up the tree as possible. Repeat this process several times. Waiting 30 seconds between each shake.
4. Stage 2 clearing will be completed within 24-48 hours of stage 1. Any HBT that has been left for longer than 48 hours since being shaken/tapped, will be re-shaken/tapped at least the day prior to removal.
5. When removing hollow-bearing trees, a fauna spotter/ecologist will be present at each tree to be removed to look for signs of animal movement in the tree to be cleared. The fauna spotter must be able to communicate directly with plant operators, ideally utilising a UHF radio. If an excavator or large machinery (as opposed to a chain saw) is used to clear hollow bearing trees, an inspection of each hollow must be undertaken by the fauna spotter/ecologist prior to commencement of clearing even if tapping has occurred the night before.
   •
6. The excavator or equivalent machinery operator will slowly lower HBT trees. HBTs must not be pushed and left to fall under their own weight as this can cause direct injury or death to resident fauna.
7. If taking the tree down in stages, remove non-hollow-bearing limbs first. Then remove hollow-bearing limbs
8. Once the hollow-bearing limbs or hollow-bearing tree are on the ground, the fauna spotter/ecologist must check each hollow for signs of wildlife before the next limb/tree is removed. Remove any fauna into a handling bag or suitable secure housing. The fauna spotter will release any adult uninjured fauna into the designated release area (a distance of ~50m outside the clearing footprint at the appropriate time of day for the species.
9. Where practical, relocate fauna in their hollow by relocating entire hollow sections to areas of retained vegetation.
10. If dependent young or injured fauna are discovered following or during tree felling, WIRES or similarly qualified and licensed Wildlife care organisation will be contacted to treat any injured or orphaned individuals. If no wildlife handler is available, the fauna

[2] Common Brushtail Possum are the most common species encountered in tree removal, therefore this sized nest box will be made available as a minimum if no suitable hollows exist within 100m. If other species are encountered, then alternative nest boxes must be sourced.

must be delivered to a licensed wildlife carer or veterinarian (previously notified of the works).

11. Records of any animals removed or injured must be retained.
12. Once felling, if uninjured nocturnal fauna is detected within the felled tree and the hollow is in good condition, the fallen tree will be marked and left in situ over night to allow the fauna to self-relocate if safe to do so. The following day fallen trees will be left in place or moved to a nearby area to retain fauna habitat once the fauna has relocated.

Handling wildlife

1. Direct contact with any wildlife will be avoided wherever possible. Wildlife will be encouraged to leave hollows through controlled disturbance as detailed above.
2. Any uninjured wildlife that does not include dependent young (unless in the company of its healthy parent) must be encouraged to leave the development site.
3. If wildlife is injured, WIRES or similarly qualified and licensed Wildlife care organisation will contacted to treat any injured or orphaned individuals. This organisation will be notified of the tree removal works, prior to works commencing.
4. No handling of microbats unless trained and vaccinated for Australian Bat Lyssavirus with current titre levels.

Clearing during June to January

1. Should clearing of hollow-bearing trees be required during the breeding or hibernation periods of threatened species, consultation will be undertaken with local wildlife carers and/or specialist carers for those faunal groups (e.g. microbats, parrots). Confirmation will be sought from these groups that they will accept rescued fauna.
2. Should inspections identify threatened parrots attending hollows, a detailed assessment will be undertaken of their activity within the hollow. If investigating only, clearing may proceed with the above measures employed. Where parrots are actively building nests (i.e. bringing material to hollows), it is recommended that clearing be postponed until fledging. Where parrots are attending eggs, it is recommended that clearing be postponed until fledging. Where parrots are attending young, it is recommended that clearing be postponed until fledging.
3. Hibernating microbats are likely to occur throughout the winter months, and bats in torpor may occur year-round. Where it is considered highly likely that microbats will be in hibernation, it is recommended that supervised clearing occur, and that recovered bats are relocated to a dedicated bat carer to ensure they are sufficiently fed throughout the remainder of winter, prior to release back to the site in spring. The removal of bats from hibernation puts excessive stress on their fat reserves, which may be depleted prior to them being able to forage effectively in spring, thus intervention is recommended.

APPENDIX C BASELINE PLOT DATA FROM BIODIVERSITY ASSESSMENT REPORTS

C.1 VEGETATION INTEGRITY SCORES

Zone ID	Composition score	Structure score	Function score	Vegetation Integrity Score
Original BDAR				
1. 70_Low	2.9	47.4	44.7	**18.2**
2 267_grazedunderstory	9.1	32.5	68.1	**27.2**
3 266_Moderate	54	54.6	63.9	**57.3**
4 267_Good	19.5	58.7	85.7	**46.1**
5 266_Moderate	17.7	14.6	32.4	**20.3**
Modification Report 1 and Addendum BDAR (Intersection)				
1. PCT 267_good to moderate	29.1	47	85.7	**48.9**
2. PCT 266_low to moderate	54	54.6	63.9	**57.3**

C.2 VEGETATION INTEGRITY PLOT RESULTS

Numbers indicate percentage cover of species in each 20 x 20 m plot. The foliage cover of species is based on visual estimates of foliage cover within a standard 20 x 20 m plot. Incidentals are recorded using the random meander method (Cropper 1993). Where uncertainty exists due to the unavailability of reproductive material, plants are identified to genus level only. Introduced species are denoted by an asterisk. Priority or significant environmental weeds are indicated with a 'Δ' symbol, '*' indicates species is exotic. (%) = Foliage cover in 20 x 20 m plot. (#) = number of individuals in 20 x 20 m plot. Scientific nomenclature follows Harden (1990-2002) and the Sydney Royal Botanic Gardens PlantNet website, updated with recent changes accepted by the Angiosperm Phylogeny Group (2016) and the Australian Plant Census (2017). The location of each plot is shown below.

Scientific Name		Common Name	Plot 1 PCT 276 Zone 3		Plot 2 PCT 266 Zone 5		Plot 3 Exotic Zone 9		Plot 4 PCT 267 Zone 2		Plot 5 Exotic Zone 9		Plot 6 PCT 70 Zone 1		Plot 7 PCT 80 Zone 8	
			%	#	%	#	%	#	%	#	%	#	%	#	%	#
TREES																
	Brachychiton populneus	Kurrajong														
	Callitris glaucophylla	White Cypress Pine											30	5		
	Eucalyptus albens	White Box	0.1	1	10	8			15	1						

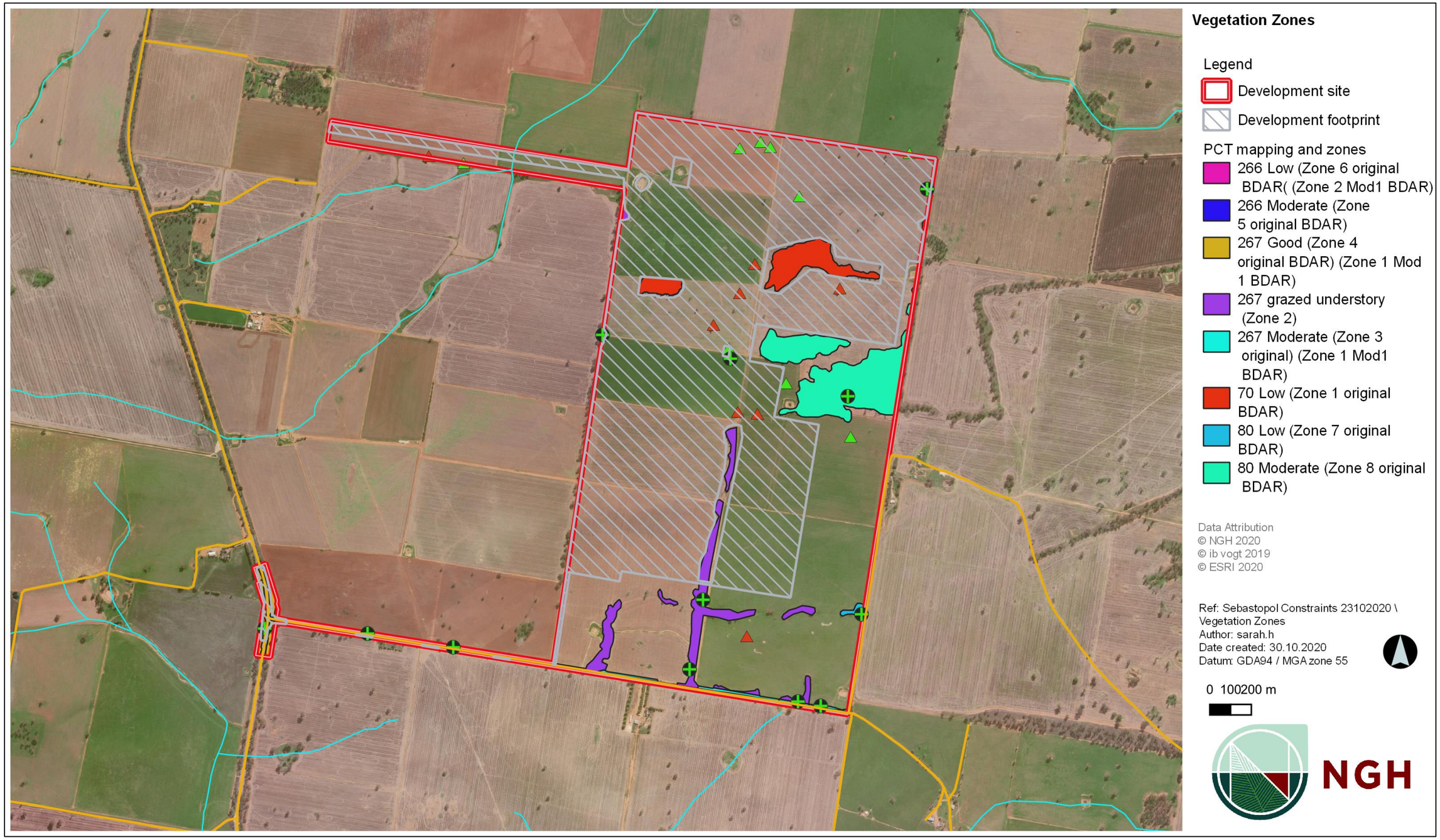
	Scientific Name	Common Name	Plot 1 PCT 276 Zone 3		Plot 2 PCT 266 Zone 5		Plot 3 Exotic Zone 9		Plot 4 PCT 267 Zone 2		Plot 5 Exotic Zone 9		Plot 6 PCT 70 Zone 1		Plot 7 PCT 80 Zone 8	
			%	#	%	#	%	#	%	#	%	#	%	#	%	#
	Eucalyptus blakelyi	Blakely's Red Gum			5	1										
	Eucalyptus melliodora	Yellow Box														
	Eucalyptus microcarpa	Western Grey Box													5	4
SHRUBS																
	Acacia decora	Western Silver Wattle	0.5	2	6	30										
	Acacia paradoxa	Hedge wattle														
FORBS																
*	*Brassica rapa*	Wild turnip					0.1	5	0.1	30					0.1	3
*	*Brassica napus*	Canola											0.1	30		
	calotis cuneifolia	Purple Burr Daisey														
*	*Chondrilla juncea*	Skeleton Weed			0.1	10					10	50				
	Convolvulus angustissimus	Bind weed			2	3										
*	*Conyza spp.*	A Fleabane	0.1	20			0.1	5								
*	*Cucumis myriocarpus*	Paddy melon											0.2	10		
	Dianella revoluta	Dianella			0.1	1										
	Dysphania pumilio	Small Crumbweed														
*	*Echium plantagineum*	Patterson's Curse			0.1	30										
	Euphorbia drummondii	Caustic Weed			0.1	10										
*	*Heliotropium europaeum*	Potato Weed					0.1	1	0.1	1	5	50				
*	*Hypochaeris radicata*	Catsear													1	20
*	*Lactuca serriola*	Prickly Lettuce	1	50	0.1	30	0.1	1								
*	*Malva parviflora*	Small-flowered Mallow											0.1	10		
Δ	*Marrubium vulgare*	White Horehound	1	5												
*	*Modiola caroliniana*	Red-flowered Mallow	0.1	1												
	Oxalis perennans	Oxalis			0.1	5									1	20
*	*Reseda lutea*	Cut leaf Mingonette														
*	*Salvia verbenaca*	Vervain			0.1	1										
	Sida corrugata	Corrugated Sida	0.1	1	3	30										
	Sida cunninghamii	Ridge Sida													2	100
*	*Solanum nigrum*	Black-berry Nightshade	1	10	0.2	30										

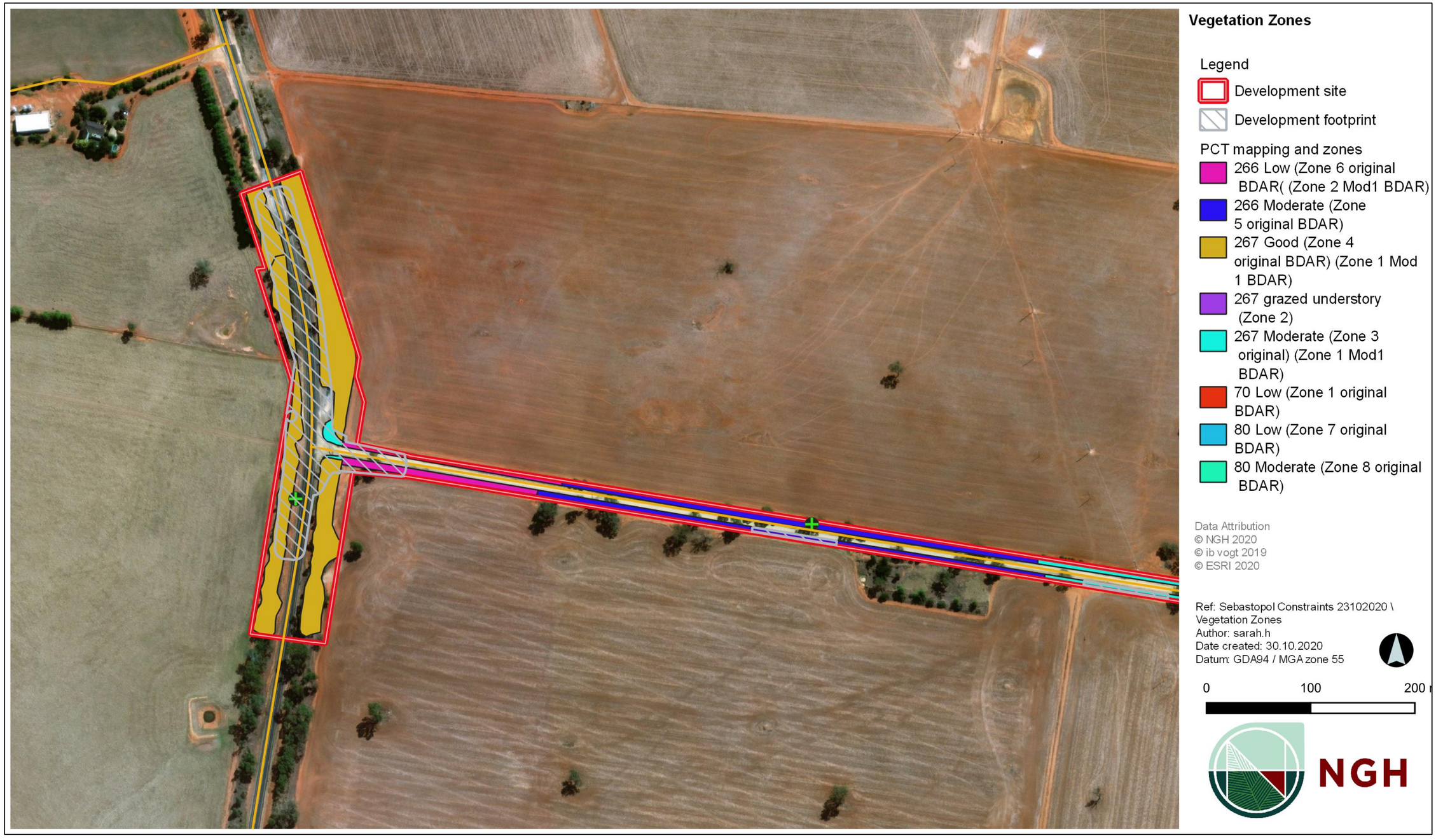
	Scientific Name	Common Name	Plot 1 PCT 276 Zone 3		Plot 2 PCT 266 Zone 5		Plot 3 Exotic Zone 9		Plot 4 PCT 267 Zone 2		Plot 5 Exotic Zone 9		Plot 6 PCT 70 Zone 1		Plot 7 PCT 80 Zone 8	
			%	#	%	#	%	#	%	#	%	#	%	#	%	#
*	*Sonchus oleraceus*	Common Sowthistle					1	20							0.1	8
	Tricoryne elatior	Yellow Autumn-lily													5	80
	Unidentified forb	Unidentified forb			0.1	2										
	Vittadinia gracilis	Woolly New Holland Daisy													0.1	1
	Wahlenbergia spp.	Blue bell													0.1	2
Δ	*Xanthium spinosum*	Bathurst Burr														
GRASSES																
*	*Eragrostis minor*	Minor stink grass							0.1	1	1	50				
	Aristida behriana	Bunch Wiregrass													0.1	10
	Austrostipa scabra	Speargrass													2	50
	Austrostipa sp.	Austrostipa sp.	2	10	5	100										
*	*Avena fatua*	Wild Oats	2	20	1	30										
	Bothriochloa macra	Red Grass	2	10	2	50										
*	*Bromus catharticus*	Praire Grass			5	100										
*	*Bromus diandrus*	Great Brome			1	30									20	1000
	Carex sp.	Sedge			0.1	1										
Δ	*Chloris gayana*	Rhodes Grass	10	100												
	Cynodon dactylon	Common Couch	10	100	0.5	30										
	Elymus scaber	Common Wheatgrass													0.1	5
*	*Hordeum leporinum*	Barley Grass									10	100				
*	*Lolium spp.*	A Ryegrass			0.5	100			50	1000					30	1000
	Lomandra spp.	Mat-rush	0.1	1	2	100									5	500
*	*Panicum capillare*	Witch Grass	20	50	5	100					20	500	0.1	30		
Δ	*Paspalum dilatatum*	Paspalum	20	50	30	500										
	Rhytidosporum spp.	Wallaby Grasses													2	100
*	*Romulea spp.*	Onion grass													1	100
*	*Setaria sp.*	Pigeon Grass			5	500										
*	*Setaria spp.*	Pigeon Grass	10	50												
*	*Triticum aestivum*	Wheat					30	500								
*	*Vulpia spp.*	Rat's-tail Fescue													2	500
VINES AND CLIMBERS (other)																
	Cheilanthes austrotenuifolia	Rock Fern													0.1	10
	Glycine clandestina	Glycine	0.1	1	1	30									0.1	2

	Scientific Name	Common Name	Plot 8 PCT 80 Zone 7		Plot 9 PCT 267 Zone 2		Plot 10 PCT 267 Zone 4		Plot 11 PCT 267 Zone 3		Plot 12 PCT 267 Zone 2		Incidental
			%	#	%	#	%	#	%	#	%	#	
TREES													
	Brachychiton populneus	Kurrajong			1	1							
	Callitris glaucophylla	White Cypress Pine					20	30					
	Eucalyptus albens	White Box			20	1			5	3	8	1	
	Eucalyptus blakelyi	Blakely's Red Gum											
	Eucalyptus melliodora	Yellow Box							2	1	2	1	
	Eucalyptus microcarpa	Western Grey Box	10	2	5	1	5	5					
SHRUBS													
	Acacia decora	Western Silver Wattle											
	Acacia paradoxa	Hedge wattle											X
FORBS													
*	*Brassica rapa*	Wild turnip											
*	*Brassica napus*	Canola											
	calotis cuneifolia	Purple Burr daisey					1	20					
*	*Chondrilla juncea*	Skeleton Weed											
	Convolvulus angustissimus	Bind weed											
*	*Conyza spp.*	A Fleabane											
*	*Cucumis myriocarpus*	Paddy melon	1	50									
	Dianella revoluta	Dianella					20	100					
	Dysphania pumilio	Small Crumbweed	2	50									
*	*Echium plantagineum*	Patterson's Curse							10	500			
	Euphorbia drummondii	Caustic Weed							0.1	10			
*	*Heliotropium europaeum*	Potato Weed											
*	*Hypochaeris radicata*	Catsear											
*	*Lactuca serriola*	Prickly Lettuce											
*	*Malva parviflora*	Small-flowered Mallow	1	50									
Δ	*Marrubium vulgare*	White Horehound											
*	*Modiola caroliniana*	Red-flowered Mallow											
	Oxalis perennans	Oxalis											
*	*Reseda lutea*	Cut leaf Mingonette							0.1	2			
*	*Salvia verbenaca*	Vervain											
	Sida corrugata	Corrugated Sida							1	50	0.1	10	
	Sida cunninghamii	Ridge Sida											
*	*Solanum nigrum*	Black-berry Nightshade											
*	*Sonchus oleraceus*	Common Sowthistle											
	Tricoryne elatior	Yellow Autumn-lily											

	Scientific Name	Common Name	Plot 8 PCT 80 Zone 7		Plot 9 PCT 267 Zone 2		Plot 10 PCT 267 Zone 4		Plot 11 PCT 267 Zone 3		Plot 12 PCT 267 Zone 2		Incidental
			%	#	%	#	%	#	%	#	%	#	
	Unidentified forb	Unidentified forb											
	Vittadinia gracilis	Woolly New Holland Daisy					0.1	2					
	Wahlenbergia spp.	Blue bell											
Δ	*Xanthium spinosum*	Bathurst Burr	0.1	1									
GRASSES													
*	*Eragrostis minor*	Minor stink grass							0.5	20			
	Aristida behriana	Bunch Wiregrass											
	Austrostipa scabra	Speargrass											
	Austrostipa sp.	Austrostipa sp					10	5	5	20			
*	*Avena fatua*	Wild Oats											
	Bothriochloa macra	Red Grass											
*	*Bromus catharticus*	Praire Grass											
*	*Bromus diandrus*	Great Brome											
	Carex sp.	Sedge											
Δ	*Chloris gayana*	Rhodes Grass											
	Cynodon dactylon	Common Couch											
	Elymus scaber	Common Wheatgrass											
*	*Hordeum leporinum*	Barley Grass											
*	*Lolium spp.*	A Ryegrass	5	300									
	Lomandra spp.	Mat-rush											
*	*Panicum capillare*	Witch Grass											
Δ	*Paspalum dilatatum*	Paspalum	5	200									
	Rhytidosporum spp.	Wallaby Grasses							30	500			
*	*Romulea spp.*	Onion grass											
*	*Setaria sp.*	Pigeon Grass											
*	*Setaria spp.*	Pigeon Grass											
*	*Triticum aestivum*	Wheat											
*	*Vulpia spp.*	Rat's-tail Fescue											
	Cheilanthes austrotenuifolia	Rock Fern											
	Glycine clandestina	Glycine											

C.3 LOCATION OF VEGETATION ZONES/INTEGRITY PLOTS




Vegetation Zones
Legend
Development site
Development footprint
PCT mapping and zones
266 Low (Zone 6 original BDAR((Zone 2 Mod1 BDAR)
266 Moderate (Zone 5 original BDAR)
267 Good (Zone 4 original BDAR) (Zone 1 Mod 1 BDAR)
267 grazed understory (Zone 2)
267 Moderate (Zone 3 original) (Zone 1 Mod1 BDAR)
70 Low (Zone 1 original BDAR)
80 Low (Zone 7 original BDAR)
80 Moderate (Zone 8 original BDAR)
Data Attribution
© NGH 2020
© ib vogt 2019
© ESRI 2020
Ref: Sebastopol Constraints 23102020 \
Vegetation Zones
Author: sarah.h
Date created: 30.10.2020
Datum: GDA94 / MGA zone 55
0
100
200
NGH

Vegetation Zones

Legend

- Development site
- Development footprint

PCT mapping and zones

- 266 Low (Zone 6 original BDAR((Zone 2 Mod1 BDAR)
- 266 Moderate (Zone 5 original BDAR)
- 267 Good (Zone 4 original BDAR) (Zone 1 Mod 1 BDAR)
- 267 grazed understory (Zone 2)
- 267 Moderate (Zone 3 original) (Zone 1 Mod1 BDAR)
- 70 Low (Zone 1 original BDAR)
- 80 Low (Zone 7 original BDAR)
- 80 Moderate (Zone 8 original BDAR)

Ref: Sebastopol Constraints 23102020 \
Vegetation Zones
Author: sarah.h
Date created: 30.10.2020
Datum: GDA94 / MGA zone 55

0 100 200 m

NGH

Vegetation Zones

Legend

- Development site
- Development footprint

PCT mapping and zones

- 266 Low (Zone 6 original BDAR((Zone 2 Mod1 BDAR)
- 266 Moderate (Zone 5 original BDAR)
- 267 Good (Zone 4 original BDAR) (Zone 1 Mod 1 BDAR)
- 267 grazed understory (Zone 2)
- 267 Moderate (Zone 3 original) (Zone 1 Mod1 BDAR)
- 70 Low (Zone 1 original BDAR)
- 80 Low (Zone 7 original BDAR)
- 80 Moderate (Zone 8 original BDAR)

Ref: Sebastopol Constraints 23102020 \
Vegetation Zones
Author: sarah.h
Date created: 30.10.2020
Datum: GDA94 / MGA zone 55

0 100 200 m

NGH

APPENDIX D SAMPLE REGISTERS

D.1 GROUND DISTURBANCE PERMIT FORM

Project: Sebastopol Solar Farm	**Project No:**
Requested By:	
Habitat Clearing Start Date:	**Expected Completion Date:**

HABITAT CLEARING LOCATIONS – ATTACH DRAWINGS / SKETCHES IF NECESSARY

Location	Comments

This section will be completed by Ecologist and HSE Advisor for clearing of trees, logs, rocky features, and other habitat features, with reference to constraints mapping.	
Has the limit of clearing been clearly delineated?	☐ Yes ☐ No
All trees / vegetation / habitat to be retained identified and exclusion zones fenced off?	☐ Yes ☐ No
State how identified:	
Have habitat trees been identified and appropriately marked?	☐ Yes ☐ No ☐ N/A
State how identified:	
Are specific targeted surveys required?	☐ Yes ☐ No
State how survey was completed, including results:	
Is there a risk of weed infestation or spread?	☐ Yes ☐ No
Are any animals present? (If *Yes*, relocation required)	☐ Yes ☐ No
Are any active nests/burrows present? (If *Yes*, relocation required)	☐ Yes ☐ No
If soil disturbance is to occur, has an ERSED Plan been created, and have these controls been installed?	☐ Yes ☐ No
Have relevant workers been given toolbox talks on limit of clearing, fauna handling procedures and any other SHE Controls?	☐ Yes ☐ No
Can habitat features be re-used for habitat enhancement?	☐ Yes ☐ No
Can the habitat feature be re-used immediately?	☐ Yes ☐ No

If not re-used immediately, where will it be stockpiled*?	
Comments:	

APPROVALS

Inspection completed by Ecologist (if required): Ecologist Signature Required	**Date:**
Approval by HSE Advisor: HSE Advisor Signature Required	**Date:**

* Stockpiles must not be placed within the dripline (extent of foliage cover) of any native tree.

SIGN-OFF (ONCE WORKS COMPLETED)

Have the conditions of the permit been met? HSE Advisor Signature Required	**Date:**

D.2 THREATENED SPECIES REGISTER

Table D-1 Sample Threatened Species Register.

Date	Species	Location and time captured	Location and time released	Behaviour and condition on release	Details of any injuries/ death	Contact details of vet/wildlife handler if transferred to their care

D.3 HERBICIDE APPLICATION RECORD

NSW GOVERNMENT | Industry & Investment

Location, Applicator, Date of Application

Property/Holding: (residential address)					Date:
Applicator's Full Name:			Owner (if not applicator):		
Address:			Address:		
		Phone:			Phone:
Mobile:	Fax:	Email:	Mobile:	Fax:	Email:
Sensitive Areas (including distances, buffers): N / W Treated Area E / S			Comments (including risk control measures for sensitive areas):		

Host/Pest

Paddock Number/Name:	Paddock Area:	Order of Paddocks Sprayed:
Crop/Situation:	Type of Animals:	
Crop/Pasture Variety:	Age/Growth Stage:	
Growth Stage:	Mob/Paddock/Shed:	
Pest/Disease/Weed:	Animals — Number Treated:	
	Pest Density/Incidence: Heavy ❑ Medium ❑ Light ❑	

Application Data

Full Label Product Name:		Rate/Dose:	Water Rate L/ha:	
Permit No.:	Expiry Date:	Additives/Wetters:		
Total L or kg:	WHP:	ESI*:	Date Suitable for Sale:	
Equipment Type:		Nozzle Type:	Nozzle Angle:	Pressure:
Date Last Calibrated:	Water Quality (pH or description):			

Weather

Showers ❑ Overcast ❑ Light Cloud ❑ Clear Sky ❑

Rainfall (24 hours before and after)
Before: mm During: mm After: mm

Time (show time in this column)	Temperature °C	Relative Humidity (%)	Wind Speed	Direction	Variability (e.g. gusting)
Start					
Finish					

Comments:

* When using herbicides in mixtures with fungicides and insecticides, an ESI may apply to the non-herbicide component of the mixture.

Figure D-1 Sample herbicide application record sheet.

D.4 PESTICIDE APPLICATION RECORD

Pesticide Application Record Sheet

NSW GOVERNMENT Industry & Investment

Location, Applicator, Date of Application

Property/Holding: (residential address)					Date:
Applicator's Full Name:			Owner (if not applicator):		
Address:			Address:		
		Phone:			Phone:
Mobile:	Fax:	Email:	Mobile:	Fax:	Email:
Sensitive Areas (including distances, buffers): N / W / Treated Area / E / S			Comments (including risk control measures for sensitive areas):		

Host/Pest

Paddock Number/Name:	Paddock Area:	Order of Paddocks Sprayed:
Crop/Situation:	Type of Animals:	
Crop/Pasture Variety:	Age/Growth Stage:	
Growth Stage:	Mob/Paddock/Shed:	
Pest/Disease/Weed:	Animals — Number Treated:	
	Pest Density/Incidence: Heavy ❑ Medium ❑ Light ❑	

Application Data

Full Label Product Name:		Rate/Dose:	Water Rate L/ha:	
Permit No.:	Expiry Date:	Additives/Wetters:		
Total L or kg:	WHP:	ESI*:	Date Suitable for Sale:	
Equipment Type:		Nozzle Type:	Nozzle Angle:	Pressure:
Date Last Calibrated:	Water Quality (pH or description):			

Weather

Showers ❑ Overcast ❑ Light Cloud ❑ Clear Sky ❑

Rainfall (24 hours before and after)
Before: mm During: mm After: mm

Time (show time in this column)	Temperature °C	Relative Humidity (%)	Wind Speed	Direction	Variability (e.g. gusting)
Start					
Finish					

Comments:

* When using herbicides in mixtures with fungicides and insecticides, an ESI may apply to the non-herbicide component of the mixture.

Figure D-2 Sample pesticide application record sheet.

D.5 SAMPLE VEHICLE HYGIENE REGISTER

Date	Time in	Vehicle type	Destination	Driver name	Driver contact no.	Driver registration	Entrance wash (Y/N)	Exit wash (Y/N)	Time out	Inspection staff initials

APPENDIX E GROUNDCOVER MANAGEMENT PLAN

E.1 INTRODUCTION

This Groundcover Management Plan has been planned to address the requirements of the relevant conditions and commitments listed in the Consolidated Conditions of Consent (CoC) and the final amended Statement of Commitments (Table 12-1). The plan is relevant to both the construction and operation period of the project, with the timing of actions summarised in Table 12-2.

Table 12-1 Relevant conditions and commitments.

Reference	Condition/commitment requirement
Schedule 3 CoC 9	Following any construction or upgrading on the site, the Applicant must: a. restore the ground cover of the site as soon as practicable. b. maintain the ground cover with appropriate perennial species; and c. manage weeds within this ground cover.
Submissions Report (SO2)	A Groundcover Management Plan will be developed in consultation with a soil scientist and an agronomist and taking account of soil survey results to ensure perennial grass cover is established across the site as soon as practicable after construction and maintained throughout the operation phase. The plan will cover: • Soil restoration and preparation requirements. • Species selection. • Soil preparation. • Establishment techniques. • Maintenance requirements. • Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements: o Live grass cover will be maintained at or above 70% at all times to protect soils, landscape function and water quality. o Any grazing stock will be removed from the site when cover falls below this level. o Grass cover will be monitored on a fortnightly basis using an accepted methodology. • Contingency measures to respond to declining soil or groundcover condition. Identification of baseline conditions for rehabilitation following decommissioning.

Table 12-2 Timing of groundcover management activities.

	Construction	Operation
MANAGEMENT AREAS	**Temporary disturbance**	**Under panels**
	VEZ	
GROUNDCOVER ESTABLISHMENT	**Ripping**	**N/A**
	Sowing	**N/A**
	Hydromulching/hydroseeding	**N/A**
	Fertiliser	**N/A**
	Drains and batters	**N/A**
GROUNDCOVER MAINTENANCE	**Monitoring**	
	Maintenance	
	Weed control	

E.2 MANAGEMENT AREAS

Temporary disturbance areas

Areas temporarily disturbed for the Project will be rehabilitated and revegetated as soon as practicable. Temporarily disturbed areas may include:

- Grassland mowed for piling installation.
- Batters for permanent tracks and temporary tracks.
- Construction and decommissioning laydown areas.
- Cable trenches.

The aim of the rehabilitation and revegetation is to stabilise disturbed areas and to return it to a condition that is similar to its pre-disturbance state, meaning that native groundcover comprising vegetation plant communities are returned to these locations. Refer to Appendix C for baseline conditions.

The following parameters have been established:

- Soil restoration and preparation requirements.
- Species selection.
- Soil preparation.
- Establishment techniques.
- Maintenance requirements.
- Perennial groundcover targets, indicators, condition monitoring, reporting and evaluation arrangements:

- Live grass cover will be maintained at or above 70% at all times to protect soils, landscape function and water quality.
- Any grazing stock will be removed from the site when cover falls below this level.
- Grass cover will be monitored on a fortnightly basis using an accepted methodology.

- Contingency measures to respond to declining soil or groundcover condition.

Areas under solar panels

Areas which will be under solar panels during operation of the Project will be rehabilitated and revegetated as soon as practicable. The aim of the rehabilitation and revegetation of these areas is to maintain and establish a perennial native pasture underneath the panels. Refer to Appendix C for baseline conditions.

Vegetation Exclusion Zones (VEZ)

The vegetation constraints in VEZ, which are mapped in Section 7.6, will not be rehabilitated or revegetated. However, there is a risk of weed encroachment from disturbed areas into the VEZ, and potentially from VEZ into disturbed areas following groundcover rehabilitation, throughout construction and into the operation period. To manage these risks, weed management as described in Section 7.5.1will include monitoring VEZ and implementing weed control measures as required throughout construction and operation. Measures for maintaining the habitat quality of VEZ will also be included in any operational management plans.

E.3 GROUNDCOVER ESTABLISHMENT

The following methods will be used, where necessary, in establishing or improving native perennial groundcover in temporary disturbance areas and areas under the solar array. Not all methods will be used, the condition of the area to be rehabilitated will determine which are required to reach the target condition. Where groundcover is already at baseline (70% over 90% of a disturbed area), revegetation works may not be necessary. However, weed management strategies described in Section 7.5.1 may be required if exotic weed populations are greater than baseline (10%).

Due to climatic conditions (evaporation rates), native grassland establishment is best attempted over late autumn, winter or early spring. Wet summers are also able to maintain established perennial pasture growth in summer active species. Summer rainfall is less reliable than summer evaporation, and as such revegetation is also less reliable. Rehabilitation and revegetation will therefore commence in late summer/early autumn as temperatures decrease and evaporation rates fall.

Ripping and topsoiling

Topsoil will be replaced on all areas from where it has been removed. Prior to the application of topsoil, compacted areas will be tined or ripped to a depth of 150 mm to loosen the surface. Areas that are not compacted will not be ripped in order to reduce soil disturbance.

Over the surfaces, at least 30 cm of topsoil will be placed. The topsoil must be free of rocks and sticks greater than 10 mm in diameter or 500 mm in length. If the surface sets hard after rain, harrow the topsoil prior to sowing seed.

Spray any undesirable grass/weed growth on topsoil stockpiles with a knockdown herbicide before spreading topsoil. More than one application of herbicide may be required. Apply the last application of herbicide not less than 4 weeks before spreading the topsoil or as per manufacturer's instructions.

Broadcast sowing

Undertake sowing using either:

a) A tractor drawn seed drill to place seed at a depth of 5 mm or less; or
b) A spreader followed immediately by a single pass with an unweighted diamond harrow.
c) By hand, where machinery will be a hindrance.

Where safe to do so, tractor passes with the seed drill or harrow will follow the finished surface contours. Distribute seed and fertiliser evenly over the areas to be sown at the rates specified below. Apply fertiliser concurrently with the seeding operation.

Calibrate the drill and monitor the seed and fertiliser application rates to ensure an even distribution over the areas sown, in accordance with the rates nominated. Maintain records of measurements and calculations to determine actual distribution rates for areas treated.

Dry sowing native species on small areas where machinery will be a hindrance can be achieved by mixing seed to sand at a ratio of 1:10 and spreading across the area by hand.

In areas with an existing native-dominated groundcover, the ground surface will not be disturbed before sowing unless deemed necessary by an agronomist.

Hydromulching and hydroseeding

Carry out hydromulching / hydroseeding within 5 – 10 days of completed soil preparation or, if delayed by the weather conditions, as soon as conditions permit.

Continuously agitate the slurry of seed, fertiliser, binder (60 kg/ha Guar gum), mulch, and water (35 kilolitres (kL)/ha) to maintain a uniform consistency during application. Apply the sprayed slurry uniformly over the whole surface, ensuring that all surfaces are sprayed from two directions to ensure complete coverage. Within 48 hours of application, the sprayed hydro mulch layer must have a minimum thickness at any location of 5 mm when using sugar cane mulch, or 2 mm when using wood fibre or shredded paper.

Where straw (5 tonnes (t)/ha) is used for mulch, apply the straw mulch uniformly using a purpose-made blower unit. Incorporate the emulsion (bitumen) as a spray into the air stream of the mulch blower or apply it in a separate operation within 12 hours from the application of straw mulch. Within 48 hours of application, the straw mulch layer must have a minimum thickness at any location of 25 mm.

Do not apply hydroseeding/hydromulching and straw mulching if:

- Winds exceed 15 km/hr.
- Temperatures exceed 37^{o}C.
- The surface is water-logged.
- During rain periods or when rain appears imminent.

Native grass sowing

A mixture of native pasture species will be used to minimise the risk of exotic weeds encroaching into VEZ. Only locally indigenous species will be used. Care will be taken to ensure sufficient plant densities. Component groundcover species from either PCT 266 or PCT 267 as appropriate will be used for any direct seeding of bare ground triggering corrective action targets. Potential native species for seeding and indicative seeding rate are listed in Table E-3. Exact species and seeding rates for this Project will be determined in consultation with the district agronomist and landholder to determine what is most appropriate for the property.

Table E-3 Suggested native pasture species and rates for rehabilitation.

Plant type	Indicative seeding rate (kg/ha)
Ringed Wallaby Grass *Rytidosperma caespitosa*	2
Lobed Wallaby Grass *Rytidosperma auriculata*	2
Kangaroo Grass *Themeda triandra*	5
Windmill Grass *Chloris truncata*	2
Red Grass *Bothriochloa macra*	15

Sowing and fertiliser rate

Where necessary, apply pelletised poultry manure to be applied at a rate of around 250 kg/ha. Alternatively, apply Granulock® S (or similar: 16% nitrogen, 16.7% phosphorous, 12% sulphur) at around 150 kg/ha. Consult with the district agronomist and landowner to determine pasture type and fertiliser rates suitable for each site.

Open drains and batters steeper than 2:1

Lay the runs of the organic fibre mesh (jute mesh) along the direction of water flow or down the steep batter. In drains, slot the upstream end of the mesh into a trench 150 mm wide by 150 mm deep and pin the mesh to the base of the trench at 200 mm centres. Backfill the trench with soil and compact by foot. Lay the mesh taut and even over the soil surface without any air pockets, but do not stretch it. Overlap adjacent runs of mesh by 100 mm with the higher run overlapping the lower.

Pin the mesh along the sides of each run at 500 mm centres and along the middle of each run at 1 m centres. End overlaps must be 150 mm wide with the higher end overlapping the start of the lower and pinned at 200 mm centres.

Hydroseed or hand seed areas prior to jute matting. Spray a slow-setting anionic bitumen emulsion over the meshed surface at a rate of 0.8 to 1.0 litres (L) of undiluted residual bitumen emulsion per square metre.

E.4 GROUNDCOVER MAINTENANCE

Monitoring

In the first 6 months after establishment, the groundcover will be monitored every fortnight. After that period, the groundcover will be monitored every 6 months until operation, when it will be monitored annually. If grazing occurs on site then groundcover will be monitored fortnightly. Ground cover will be monitored using 1m x 1m quadrats placed within all treated locations to ensure cover does not fall below baseline (70% groundcover over 90% within 12 months) and at 30 random locations within Zone 2 and 4 where no treatment has occurred. Any grazing stock will be removed from the affected area if cover falls below baseline levels and additional planting undertaken if there is no response within the following monitoring events. Including:

- Bare patches greater than 5 m^2 will be recultivated and revegetated
- Additional watering of seeded areas
- Weeds controlled where required
- Treat soil conditions such as compaction, frequency of traffic movements, low seedbank storage, lack of soil moisture and nutrient imbalance

Maintenance

All revegetated areas will be maintained for 6 months after all sowing is complete throughout operation until contract completion. FRV will direct where and when to water areas, by means of a fine spray, which causes minimal disturbance to seeded areas.

Dead vegetation will be cleared from areas showing poor growth or damage and all lost topsoil replaced. The area will then be recultivated and reseeded. Weeds will be controlled where required with herbicide or hand removal (section 7.5.1).

APPENDIX F PRIORITY WEEDS

Several significant invasive weeds were recorded during site surveys. The following two weeds are regional level priority weeds, listed as having a General Biosecurity duty as follows:

*All plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*

Section 7.5.1 describes the weed management procedures.

White Horehound (*Marrubium vulgare)* General Biosecurity Duty

White horehound is a bushy perennial plant which, once established, can prevent desirable species from establishing. It is a common coloniser of disturbed areas and is often found along fence lines, roadsides, and other disturbed or neglected areas. The NSW Department of Primary Industries website 'WeedWise' identifies the following measures as suitable for achieving the general biosecurity duty outcome for this weed: chemical and biological controls.

Figure 12-1 White Horehound (Annie Johnson, NSW WeedWise 2020).

Bathurst Burr (*Xanthium spinosum*) General Biosecurity Duty

Bathurst Burr is one of the most common and notorious weeds in Australian agriculture. It is an annual summer growing weed that has become naturalised in NSW. The burrs contain hooked spines and readily attach to

sheep wool. The NSW Department of Primary Industries website 'WeedWise' identifies the following measures as suitable for achieving the general biosecurity duty outcome for this weed: cultivation, manual removal in small areas and herbicides.

Figure 12-2 Bathurst Burr (NSW DPI, NSW WeedWise 2020).