

Prepared for
Australian Rail Track Corporation Ltd
ABN: 75 081 455 754



Environment Report

Attachments

Inland Rail - Beveridge to Albury

Attachment E

Inland Rail
Beveridge to Albury -
EPBC Act Offset
Management Plan

DRAFT



Inland Rail - Beveridge to Albury

EPBC Act Offset Management Plan

30-Sep-2021

DRAFT

Inland Rail - Beveridge to Albury

EPBC Act Offset Management Plan

Client: Australian Rail Track Corporation Ltd

ABN: 75 081 455 754

Prepared by

AECOM Australia Pty Ltd

Level 10, Tower Two, 727 Collins Street, Melbourne VIC 3008, Australia

T +61 3 9653 1234 F +61 3 9654 7117 www.aecom.com

ABN 20 093 846 925

30-Sep-2021

Job No.: 2-0008-110-EAP-00-RP-0056_0

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 AS/NZS4801 and OHSAS18001.

© AECOM Australia Pty Ltd (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

DRAFT**Quality Information**

Document Inland Rail - Beveridge to Albury


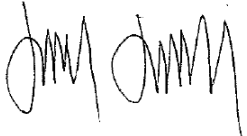

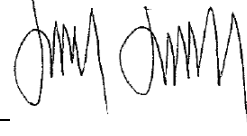
Ref 2-0008-110-EAP-00-RP-0056_0

Date 30-Sep-2021

Prepared by Sally Koehler, Chris White and Dan Lim

Reviewed by Jeff Smith

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
A	3-Sep-2021	Draft for consultation	Jeff Smith Market Sector Leader - Environment, Power & Industrial, ANZ	
B	06-Sep-2021	Approved draft for consultation	Jeff Smith Market Sector Leader - Environment, Power & Industrial, ANZ	
C	20-Sep-2021	Draft for consultation	Jeff Smith Market Sector Leader - Environment, Power & Industrial, ANZ	
0	30-Sep-2021	Approved draft for consultation	Jeff Smith Market Sector Leader - Environment, Power & Industrial, ANZ	

DRAFT**Table of Contents**

1.0	Introduction	1
2.0	Description of Offset Site: [REDACTED]	2
3.0	Offset Security and Management Responsibilities	4
3.1	Land manager	4
3.2	Ongoing management commitments	5
3.3	Adaptive management	5
4.0	Management Actions	6
4.1	Detailed site assessment	6
4.2	Fencing	7
4.2.1	Timing of installation	7
4.2.2	Location	7
4.2.3	Design	7
4.2.4	Gates	7
4.2.5	Maintenance	7
4.3	Weed monitoring and control	8
4.3.1	Woody weeds	8
4.3.2	Herbaceous weeds	9
4.4	Pest animal monitoring and control	10
4.5	Native vegetation condition	10
4.5.1	Overabundant native species	10
4.5.2	Regeneration and recruitment	10
4.5.3	Biomass / organic litter control	11
4.5.4	Understorey re-establishment	11
5.0	Monitoring	12
5.1	Fence condition	12
5.2	Vegetation condition	12
5.3	Pest animals	12
6.0	Reporting	12
7.0	Implementation	13
7.1	Management and monitoring schedule	13
7.2	Risk assessment and contingency measures	16
8.0	References	18

List of Tables

Table 1 – Offset property details	4
Table 2 – Weed management terminology (from DELWP, 2019)	8
Table 3 – Woody weeds to be control including method and timing for control	8
Table 4 – Herbaceous weeds to be controlled including method and timing for control	9
Table 5 – Pest animals to be controlled including method and timing for control	10
Table 6 – Offset management and monitoring actions	13
Table 7 – Risks to offset management success and contingency measures	17

List of Figures

Figure 1 Proposed offset site

DRAFT

1.0 Introduction

The Inland Rail – Beveridge to Albury Project (the Project) is the Victorian component of the wider Inland Rail project which aims to enable the use of double-stacked freight trains between Melbourne and Brisbane, including a critical pathway through regional Victoria. Inland Rail will transform the way freight is moved around the country, connecting regional Australia to its markets more efficiently, driving substantial cost savings for producers and consumers, and delivering significant economic benefits. The proponent for the Project is the Australian Rail Track Corporation Ltd (ARTC).

Assessment of the Project by the Victorian and Australian Governments is being undertaken through preparation of an Environment Report by ARTC. The Victorian Minister for Planning determined that an Environment Effects Statement (EES) was not required for the project but that an Environment Report is prepared to enable assessment of potential impacts. The project was also deemed to be a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requiring assessment of a number of potential ecological impacts. It was agreed that the Environment Report would form the basis of assessment by both levels of government using a Bilateral Agreement established between the Commonwealth of Australia and The State of Victoria in 2014 relating to environmental assessment. The primary focus of the Environment Report is to address the scoping requirements contained within *Scope for the Environment Report under EPBC Act Bilateral (Assessment) Agreement 2014 and the Environment Effects Act 1978* (the 'scoping document') by examining the impacts of the Project on native vegetation, habitat and biodiversity values associated with listed threatened species and communities, as well as describe any feasible alternatives and mitigation measures that could avoid or reduce relevant impacts.

One of the requirements of the Environment Report scoping document (Scoping Requirement 8h) relates to the preparation of an offset package to compensate for significant residual impacts on matters of state or national environmental significance.

Significant residual impacts are anticipated as a result of the project through the loss of 6.334 ha of Grey Box *Eucalyptus microcarpa* Grassy Woodland and derived Native Grasslands (GBGW) which is listed as endangered under the EPBC Act. This loss is likely to result in significant impacts to the GBGW in the impacted area due to reduction in extent of the ecological community and fragmentation or increased fragmentation of some patches that will remain. As such, these impacts on GBGW need to be offset and an offset package to compensate for these significant residual impacts has been prepared for the project to meet the requirements of Scoping Requirement 8h:

Any offset package to compensate for significant residual impacts on matters of state or national environmental significance consistent with EPBC Act Environmental Offsets Policy (October 2012) and to meet Victorian native vegetation offset requirements including:

- i. an offset proposal (an offset strategy) - a description of the offset site(s) including location, size, condition and evidence of MNES and other environmental values present, justification of how the offsets meet the EPBC Act Environmental Offsets Policy and the Victorian Guidelines for the removal, destruction or lopping of native vegetation, and an assessment (and justification for each input used) of the offset site(s) using DAWE's Offset Assessment Guide available at: www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy;*
- ii. key commitments and management actions for delivering and implementing proposed offsets (an offset management plan) - details on how the offset will be secured, managed, monitored, including management actions, responsibility, timing and performance criteria, and specific environmental outcomes to be achieved from management measures.*

This document is the EPBC Act Offset Management Plan (OMP) for the offset site at [REDACTED] identified for the project in the EPBC Act Offset Strategy (AECOM, 2021). This OMP has been prepared to outline the key commitments and management actions for delivering and implementing proposed offsets for the Inland Rail – Beveridge to Albury project for Matters of National Environmental Significance (MNES) protected under the EPBC Act (Scoping Requirement 8h-ii).

DRAFT

2.0 Description of Offset Site: [REDACTED]

The proposed offset site is on a [REDACTED] property on [REDACTED], approximately [REDACTED] (Figure 1). The offset property is located within the distribution of GBGW (DSEWPaC, 2012a) and has been recently acquired for the purpose of providing offsets. A large population of Golden Sun Moth *Synemon plana* has been confirmed at the site, and the bulk of the property provides suitable grassland habitat for this species. The intent of the landowner is to utilise most of the grassland areas for offsets for this species.

At least 20 hectares of the property comprises GBGW patches, and an undetermined amount (but significantly greater than 20 hectares) is derived native grassland. Four patches of GBGW have been identified for achieving the offset requirements for the Inland Rail – Beveridge to Albury project (Figure 1). The patches are at least 2 hectares in size and contain at least 8 trees per hectare which contain hollows or have a diameter at breast height (DBH) of >60cm. At least 10% of plant cover is made up of perennial native grass species. On this basis, the patches meet the criteria for being classed as GBGW threatened ecological community under the EPBC Act.

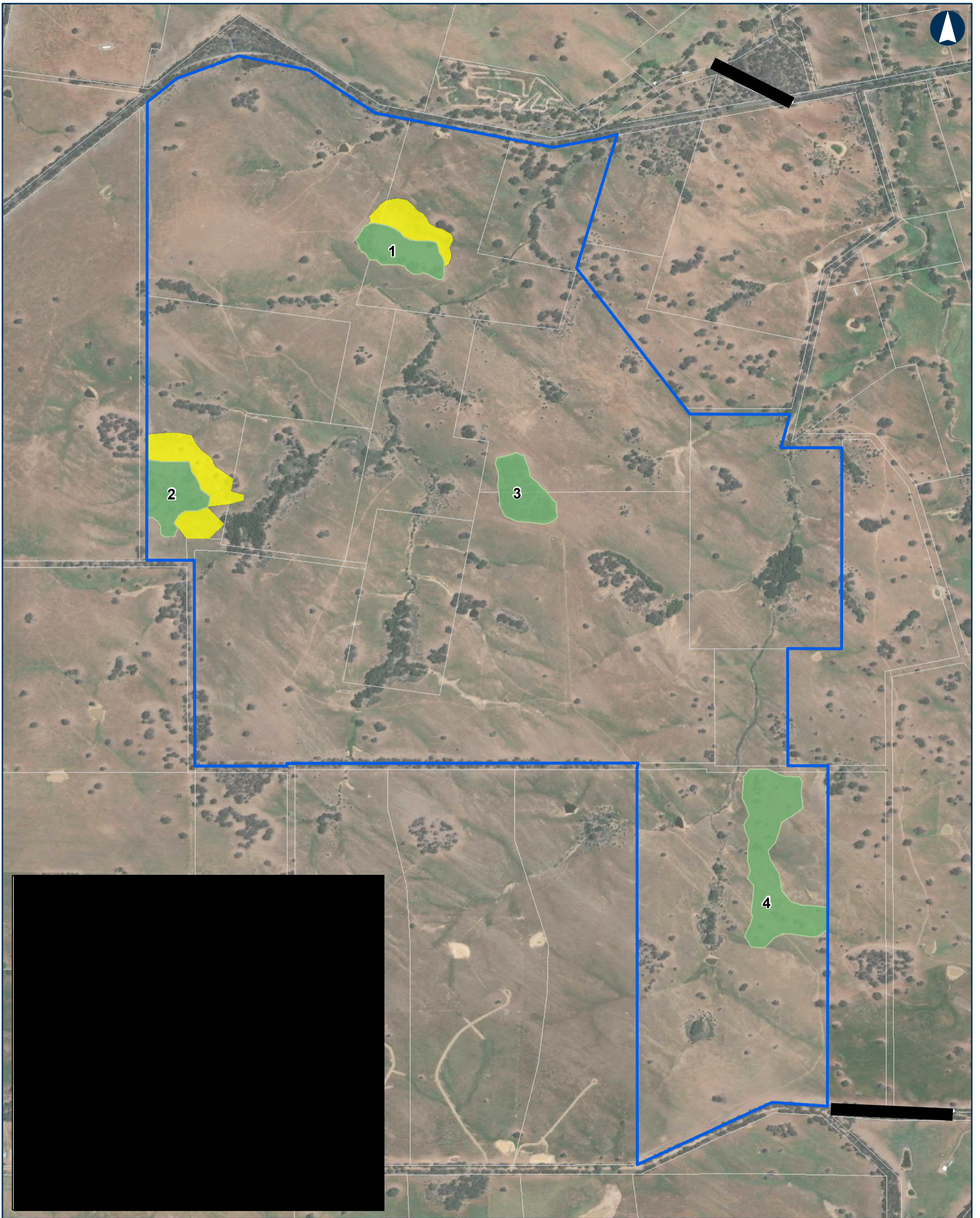
The patches of GBGW are comprised of two distinct structural forms: grassy woodland dominated by Grey Box *Eucalyptus microcarpa* and areas where trees have been historically cleared, leaving a native ground layer known as derived native grassland. In the derived native grassland, the diversity of indigenous species is high and includes Spear grass *Austrostipa* spp., Wallaby-grass *Rytidosperma* and Wheat-grass *Anthosachne scabra*.

The remainder of the property beyond the four patches supports extensive areas of grassland habitat (a significant proportion of which is native) and other patches of woodland (Figure 1). The other patches of woodland vegetation are more of a forest structure and/or associated with drainage lines and the dominant tree species are not Grey Box. As such, those patches were not included in the mapping of GBGW.

Historical land use on the property has been sheep grazing and the condition of some of the patches of native vegetation reflects the influence of the property's long-term agricultural history.

Current threats to native vegetation condition include:

- High threat weeds
- Grazing by introduced animals (domestic sheep)
- Grazing by native herbivores (kangaroos, wallabies and possums)



EPBC Offset Strategy

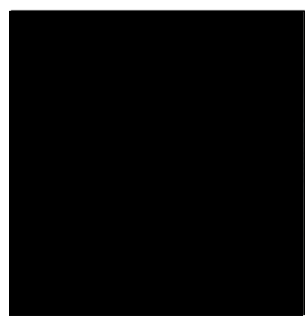
0 0.25 0.5 Km

Coordinate System: GCS GDA 1994

ARTC makes no representation or warranty and assumes no duty of care or other responsibility to any party as to the completeness, accuracy or suitability of the information contained in this GIS map. The GIS map has been prepared from material provided to ARTC by an external source and ARTC has not taken any steps to verify the completeness, accuracy or suitability of that material. ARTC will not be responsible for any loss or damage suffered as a result of any person whatsoever placing reliance upon the information contained within this GIS map.

Date: 13/08/2021 Paper: A3
 Author: Brierej Scale: 1:12,000
 Data Sources: VICMAP (2021) Figure 1

- Site Boundary
- Grey Box Grassy Woodland
- Derived Native Grassland
- Potential GBGW Extent in Victoria
- Parcel Boundaries



The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

DRAFT

3.0 Offset Security and Management Responsibilities

The landowner will enter into a Section 69 agreement *under the Conservation, Forest and Lands Act 1987* with the Secretary to the Department of Environment, Land, Water and Planning (DELWP) to protect and improve the extent and quality of native vegetation on the site. The agreement will be recorded on the title of the subject land.

A memorandum of understanding is currently being drafted to be signed by ARTC and the offset provider to commit the offset provider to holding these offsets specifically for the Inland Rail project. This will ensure that these offsets remain reserved for the project until such time as they are ratified through a Section 69 agreement and the project is approved to proceed under the EPBC Act by the Australian Government Department of Agriculture, Water and Environment (DAWE).

Table 1 – Offset property details

	Detail*
Landowner of offset site	[REDACTED]
Address	[REDACTED]
Parish	[REDACTED]
Allotment / Plan of Subdivision	[REDACTED]
Volume / Folio	[REDACTED]
Local Government Area	[REDACTED]
Catchment Management Area	[REDACTED]
SPI	[REDACTED]
Council Property Number	[REDACTED]
Bioregion	[REDACTED]

*Note that numbers 1 to 4 relate to the numbering of patches on Figure 1

3.1 Land manager

[REDACTED]

As the land manager, [REDACTED] agrees to:

- manage the site for conservation; and
- achieve the management commitments outlined in this EPBC Act Offset Management Plan.

DRAFT

3.2 Ongoing management commitments

The offset site will be managed for the purposes of conservation. All works will be conducted by the land manager who is a suitably qualified and experienced native vegetation management contractor.

From commencement of the s69 agreement, the land manager agrees to undertake the following management commitments in the patches of GBGW in perpetuity:

- Prevent uncontrolled stock access
- Eliminate all woody weeds to <1% cover with no mature plants present
- Ensure cover of herbaceous weeds does not increase beyond the current level
- Monitor for any new and emerging high threat weeds
- Monitor and control pest animals (rabbits, hares and foxes)
- Retain all standing trees (dead or alive)
- Retain all logs, fallen timber and leaf litter.

3.3 Adaptive management

This plan provides actions to manage the land for the purposes of conservation and achieving an improvement in condition for a period of 10 years. The plan is based on a premise of adaptive management whereby the implementation and timing of actions can be adjusted over time if a more appropriate approach is identified. Adjustments may be required in response to factors such as new information on the ecology of the vegetation community, the emergence of new management techniques or seasonal conditions which vary considerably from year to year. In recognition of the need for flexibility, timing of the actions will be at the discretion of the land manager.

Management actions are described in Section 4 and summarised in Table 6. An assessment of risks to the successful implementation of those management commitments/actions is provided in Table 7.

DRAFT

4.0 Management Actions

This section presents the land management activities for the offset site to achieve vegetation improvement through on-ground actions. Commitments in this plan need to be achievable and practical. They also need to be measurable against the commitments made in the EPBC Act Offset Strategy (AECOM, 2021) in the calculation of improvement over time to achieve conservation gains. Performance targets for these management actions are set in Section 7.1.

Offsets will be achieved by:

- Fencing to control stock access
- Weed monitoring and control
- Retention of logs and native organic litter
- Management of tree regeneration, if required
- Pest animal monitoring and control
- Monitoring condition of the native vegetation to continually assess the efficacy of the management actions in achieving the stated performance targets and to identify the need for adaptive management.

Management actions have been developed with reference to the following documents:

- *Management standards for native vegetation offset sites* (DELWP, 2019) which replace the BushBroker management standards for fencing, weeds, rabbits, scattered trees, supplementary planting and revegetation.
- *DELWP Output delivery standards – for the delivery of environmental activities* (DELWP, 2015)

4.1 Detailed site assessment

[Drafting note - This section will be removed from the final OMP as the detailed site assessment will be completed and the findings will inform commitments made in the final OMP]

A rapid site visit was undertaken on Thursday 29th July 2021 to confirm the occurrence of the community and provide an initial account of the extent and quality of the GBGW at the site.

A detailed site assessment will be undertaken to document the existing condition of, and threats to, GBGW at the offset site more comprehensively and establish a baseline reference for commitments to managing the site. This will include a more detailed list of dominant weed species and estimates of the total cover of weeds both woody and herbaceous weeds. Signs of pest animal occurrence will be noted.

The commitments made in this draft OMP will be reviewed following the more detailed site assessment and adjusted if required.

DRAFT

4.2 Fencing

Livestock grazing and trampling are a threat to native vegetation through processes such as soil compaction, over-grazing, exposure of bare ground and increased nutrient levels promoting weed growth.

Uncontrolled stock access must be prevented.

4.2.1 Timing of installation

Fencing must be installed (or repaired in the case of existing fences) within 3 months of commencement of the security agreement.

Fencing to exclude stock will be completed before any other vegetation management works are undertaken.

4.2.2 Location

Where an offset patch is woodland only, and does not include derived native grassland, then fencing will be installed 20 m distance from tree drip line to allow recruitment of tree canopy within 20m of the existing patch but to not substantially encroach on derived native grassland habitat.

Where an offset patch is comprised of woodland and derived native grassland, then fencing will be placed at the edge of the grassland component of the patch or at the perimeter of the pre-determined area of the patch needed to compensate for the losses.

4.2.3 Design

Stock-proof fencing will be installed as per DELWP approved standards (DELWP, 2019).

To prevent adverse impacts on wildlife, plain strand wire will be used, and the top wire will be white to increase visibility. A gap will be retained at the bottom to allow native animals to pass underneath.

The fence cannot include barbed wire or be electrified on the bottom strand.

Fencing in the broader property, beyond the GBGW offset patches, should have barbed wire and/or any electrified wires in the bottom strand removed to reduce risks to wildlife. This is a requirement of DELWP (2019).

4.2.4 Gates

Gates will be installed for each exclusion area to:

- Allow efficient removal of any stock which may stray into the area
- Facilitate livestock access for pulse grazing as a management tool
- Access for spot spraying weeds or firefighting.

4.2.5 Maintenance

Fencing will be maintained to the required standard in perpetuity.

Fencing will be monitored quarterly (each season) to ensure the integrity is maintained.

Portions of the fence that are no longer effective in managing threats to the offset site will be repaired or replaced.

DRAFT

4.3 Weed monitoring and control

Noxious weeds are listed under the *Catchment and Land Protection Act 1994* (CaLP Act). All landowners are required to take reasonable steps to prevent the growth and spread of weeds and to eradicate and/or control noxious weeds on their land.

Control of high threat weeds is a key management action for the offset site.

DELWP management standards require weed cover to not exceed current levels and for monitoring to be undertaken to identify new and emerging weed threats.

Table 2 – Weed management terminology (from DELWP, 2019)

Term	Description
Eliminate	To reduce weed cover to <1% with no mature individuals present.
New and emerging weeds	Any weed not detailed in the management plan tables.
High threat weeds	Any introduced species (including non-indigenous natives) which may outcompete and substantially reduce one or more indigenous life forms in the longer term. High threat weeds include all perennial weeds (including woody weeds), weeds listed as high impact on EVC benchmarks, weeds listed under the CaLP Act.

None of the patches support significant populations of high threat weed species. While very occasional African Boxthorn *Lycium ferocissimum* and Bridal Creeper *Asparagus asparagoides* were observed, these plants were isolated, and will be easy to eradicate from the site. The exotic species present in the ground layer were typically pasture grass species such as Rye-grass *Lolium* spp., and Panic Veldt Grass *Ehrharta erecta* and broad-leaf weeds such as Flatweed *Hypochaeris radicata*. None of these species are listed under the CaLP Act or are considered highly invasive. All are easily managed.

Overabundant Scrub Nettle *Urtica* sp. (a native species) makes up a significant proportion of the broad-leaf plants in the understorey of two of the patches.

4.3.1 Woody weeds

Existing woody weed cover is low within the offset site and there are scattered occurrences of African Boxthorn.

Woody weeds must be eliminated in a manner which avoids impacts to indigenous plants. Timing and method for control of woody weeds within the offset site are outlined in Table 3.

Table 3 – Woody weeds to be control including method and timing for control

Common name	Scientific name	Method	Timing
African Boxthorn*	<i>Lycium ferocissimum</i>	Larger plants - cut and paint stump with full strength herbicide. Younger plants – hand pull	Year round

*Victorian noxious weed listed under the CaLP Act

[Drafting note: This table will be updated for any additional woody weed species observed during the detailed site assessment to be completed.]

DRAFT

4.3.2 Herbaceous weeds

A more detailed list of weed species and an estimate of total cover of weeds will be completed during the detailed site assessment. The estimate of total cover of weeds will be the baseline reference for commitments to ensure weeds do not increase beyond current levels. Whilst a detailed cover-abundance assessment is to be undertaken during the detailed assessment of the site, all patches surveyed were considered to support a cover of ~20% herbaceous weeds. On this basis, a performance target of reducing the cover of <herbaceous weeds to <10% has been set (Section 7.1).

Weed control will primarily be undertaken through spot spaying with an appropriate herbicide.

Hand weeding and chipping using a hoe will be undertaken where populations of weeds are small or in areas where herbicide use is inappropriate. Soil disturbance will be minimised to discourage growth of new seedlings of weed species.

In areas where there is a dense weed infestation, brush-cutting or mowing may be used to stop seed set and allow for easier herbicide application (DELWP, 2019).

Pulse grazing or burning may be appropriate if fallen timber precludes access for mowing and if the land manager deems brush-cutting unlikely to be effective at stopping seed set. The use of grazing in conjunction with herbicide control is effective at further reducing weed cover. Glyphosate or similar herbicide can be applied for initial control and then the site can be grazed to reduce the cover of any plants that survive herbicide application.

Table 4 – Herbaceous weeds to be controlled including method and timing for control

Common name	Scientific name	Method	Timing
Rye-grass	<i>Lolium</i> spp.	Spot spray with an appropriate herbicide	Winter to Spring
Panic Veldt Grass	<i>Ehrharta erecta</i>	Spot spray with an appropriate herbicide	Winter to Spring
Flatweed (Cat's Ear)	<i>Hypochaeris radicata</i>	Spot spray or chip/hand pull – ensure tap root is removed	Winter to Spring
Bridal Creeper*	<i>Asparagus asparagoides</i>	Spot spray with an appropriate herbicide	Winter to Spring
Capeweed	<i>Arctotheca calendula</i>	Spot spray with an appropriate herbicide	Winter to Spring
Clovers	<i>Trifolium</i> spp.	Spot spray with an appropriate herbicide	Winter to Spring
Onion Grass	<i>Romulea rosea</i> .	Spot spray with an appropriate herbicide	Winter to Spring
Pattersons Curse*	<i>Echium plantagineum</i>	Spot spray with an appropriate herbicide	Winter and Spring
Weedy annual grasses	<i>Avena</i> spp., <i>Bromus</i> spp., <i>Vulpia</i> spp.	Spot spray with an appropriate herbicide Pulse graze in Winter, burn in early spring	Winter to Spring
Spear Thistle*	<i>Cirsium vulgare</i>	Chip out or spot spray with an appropriate herbicide.	Winter and Spring
Stork's Bill	<i>Erodium</i> spp.	Spot spray with an appropriate herbicide	Winter and Spring

*Victorian noxious weeds listed under the CaLP Act

[Drafting note - This table will be updated if required once a detailed site assessment is completed.]

DRAFT

4.4 Pest animal monitoring and control

Landowners are required under the *Catchment and Land Protection Act 1994* (CaLP Act) to take reasonable steps to prevent the spread of established pest animals on their land and eradicate if possible.

European rabbits and hares are listed as an established pest under the CaLP Act and are the primary threat to the EPBC Act values of the offset site. Rabbits will be monitored and controlled.

Pest animals to be controlled and the method and timing of control is outlined in Table 5.

Table 5 – Pest animals to be controlled including method and timing for control

Common name	Method	Timing
Rabbits	Spotlight shooting over a minimum period of 3 hours Site walkover to identify location of any warrens or other harbour. Warrens will be targeted for fumigation while non-destructive control works will be used for other harbour to avoid impacts to habitat for native fauna.	Once every 3 months
Hares	Spotlight shooting over a minimum period of 3 hours.	Once every 3 months

Fumigation of rabbit warrens will only be undertaken by an Agricultural Chemical Users Permit (ACUP) or persons directly supervised by an ACUP holder.

4.5 Native vegetation condition

4.5.1 Overabundant native species

Overabundant Scrub Nettle (a native species) makes up a significant proportion of the broad-leaf plants in the understorey of two of the patches of GBGW. Feasibility of progressively replacing this species with native grasses will be considered as part of the management regime for understorey reestablishment.

4.5.2 Regeneration and recruitment

The patches of trees are surrounded by derived native grassland which is a treeless form of GBGW.

Prolific eucalypt regeneration can have a negative biodiversity outcome through shading and exclusion of native grassy ground cover species resulting in a localised decline in species richness. Although stands of regenerating eucalypts usually self-thin over time, the natural attrition rates are slow and may take many decades. As such, manual control of eucalypt regeneration will be undertaken where eucalypt regeneration establishes within 20 m of established mature trees and is at least 2 metres tall.

Individual saplings will be selected for retention to grow into mature trees. Saplings to be retained will be at least 10 m from existing established mature trees.

Other unwanted regeneration will be managed as woody weeds. The saplings will be cut close to the ground and the stump painted with an appropriate herbicide (undiluted).

Implementation of this management action can be altered if undesirable outcomes are identified by the land manager during the implementation of this plan. Examples of such undesirable outcomes may include, but are not limited to, the failure of retained saplings to survive, thereby jeopardising the potential for canopy recruits to form the necessary overstorey or the native vegetation does not meet the benchmark of 5% cover for immature canopy trees set for the corresponding Victorian EVC 175_61 Low Rises Grassy Woodland for the Goldfields bioregion (DSE, 2004).

DRAFT

4.5.3 Biomass / organic litter control

Biomass is a term used to describe accumulated live and dead plant material in the ground layer. High biomass can reduce floristic diversity and increase fuel loads and therefore fire risk. Biomass is generally measured as g/m² or tonnes/ha but this volume-based measurement can be a poor indicator of structure, particularly for grassland management. Openness of a grassland structure is directly related to conservation outcomes like floristic diversity or fauna habitat (Morgan, 2015; Schultz et al. 2017). As such, management of grassy understorey and derived native grassland must be based on plant cover.

Sheep grazing will continue on the broader property as a means of maintaining biomass and managing fire risk. Biomass within the offset areas will be monitored as part of vegetation condition monitoring. If biomass of the ground layer becomes too dense such that some native species struggle to flourish and/or are prevented from naturally recruiting then it will be managed through pulse grazing or strategic burning.

4.5.3.1 Pulse grazing by sheep

Low intensity, 'pulse' (or short-term) grazing may be appropriate for maintaining biomass levels and understorey condition in the offset areas. Timing of grazing can provide positive selection pressure for desired species. Perennial native grasses left ungrazed from spring to late summer will set seed and conserve energy which will encourage higher recruitment rates in autumn and winter. Grazing after annual grass stem elongation but before seed heads have emerged (prior to spring) will increase the amount of seed produced while also reducing seed production of undesirable annuals (Agriculture Victoria, 2021).

If biomass management is required, pulse grazing over a period of up to 2 weeks will be implemented prior to spring.

4.5.3.2 Use of fire

Fire may be used as an ecological management tool to maintain indigenous flora and fauna values through the offset site. Use of fire within the offset site will only be undertaken with consideration of safety factors (including any necessary engagement with stakeholders and regulators) and ecological aspects including the fact that fire removes all vegetation cover which results in exposed soil (Morgan, 2015) and that prevailing site conditions at the time must support ecological burning (DELWP, 2019).

Specific methods around the use of fire as a management tool such as area and appropriate timing can only be set on a patch-by-patch, season-by-season basis and are therefore not defined in this management plan. If required by the Country Fire Authority or under local council regulations, a fire management plan will be prepared for the offset site.

4.5.4 Understorey re-establishment

Extensive areas of derived native grasslands across the broader property present the land managers with an opportunity to collect seed for use in reinstating the understorey of the GBGW patches.

Specific details of the approach to seed collection, timing and use of the seed will be developed by the land manager as management of the site gets underway. The approach will be aligned with best practice at the time and will respond to local or seasonal conditions. Broadly the method will be to reduce weed load within the patch, harvest native grass seeds, then sow the seeds and monitor native cover.

Supplementary planting of indigenous species will also be considered.

DRAFT

5.0 Monitoring

Monitoring is an important component of implementing this OMP as it allows the effectiveness of management measures to be determined and any new or emerging management issues to be identified.

5.1 Fence condition

Fences will be inspected quarterly. Any damage or fault in fencing will be promptly repaired if the damage or fault would allow uncontrolled stock access.

5.2 Vegetation condition

Condition of the native vegetation will be monitored to detect new and emerging threats.

Overstorey condition monitoring will involve a visual inspection of the health of the canopy. The Vegetation Quality Assessment Manual (DSE, 2004) provides a repeatable, standardised approach for visually assessing tree canopy cover as a proxy for tree health. This approach involves standing at the edge of the crown (tree drip line) and measuring the projective foliage cover using the guide in Appendix 5 of the manual (DSE, 2004).

Understorey condition monitoring will include the use of photo points and will note any new or emerging woody or herbaceous weeds.

Photo points

A minimum of one photo point per hectare will be established. Each point will be marked and accurately located by GPS or similar. At each photo point, a 5 m x 5 m area will be assessed for percentage total vegetation cover, percentage cover of native and exotic life-forms, inter-tussock space and average height of the vegetation.

Photo points will be monitored annually and for the 10 year duration of this OMP.

5.3 Pest animals

If significant rabbit populations are observed during regular site management activities, the site will be walked to identify location of any warrens or any other harbour.

Evidence of a significant rabbit population is defined as >2 rabbits observed in 1 ha area and/or pellets in large clumps or latrines are present.

6.0 Reporting

The land manager must submit a report annually to DAWE for each year of the ten years of this management plan. The purpose of the annual report is to assess progress of management against the commitments set out in this OMP. Reports are to be submitted at least 2 months prior to the anniversary date of the execution of the OMP to allow time for compliance to be assessed before the anniversary date.

The annual report must include:

- Details of management actions undertaken within the reporting period.
- Results of monitoring activities including fence condition, weeds, pest animals, understory biomass and overstorey condition.
- Site photographs.
- Assessment of compliance or non-compliance with the schedule of management actions, performance targets.
- Details of any new and emerging management issues, with recommendations for corrective action and plan review.

DRAFT**7.0 Implementation****7.1 Management and monitoring schedule****Table 6 – Offset management and monitoring actions**

Action	Objective	Timing	Performance target	Approach
Management actions				
MA-00*	Establish baseline information on existing threats	Prior to finalisation of this OMP	Baseline information is obtained and incorporated into the OMP.	Site assessment by qualified ecologist and land manager.
MA-01	Control stock	Within 3 months of implementation of this plan	Offset site is appropriately fenced from neighbouring land.	Install stock exclusion fencing in accordance with DELWP standards.
MA-02	Remove all woody weed infestations	Within 6 months of implementation of this plan	Cover of woody weeds does not exceed 1% within offset area.	Eliminated woody weeds in a manner which avoids impacts to indigenous plants. Timing and method for control of woody weeds within the offset site are outlined in Table 3.
MA-03	Control herbaceous weeds	Annual	Cover of herbaceous weeds reduced to <10% within 12 months of implementation of this plan. Cover of herbaceous weeds is maintained at <10% in the understorey of GBGW in subsequent years.	Timing and method for control of herbaceous weeds are outlined in Table 4.
MA-04	Control new and emerging woody weeds	Ongoing	New outbreaks of woody weeds removed as soon as they are detected. Damage to native plants minimised.	As per Action MA-02 and MA-03.

DRAFT

Action	Objective	Timing	Performance target	Approach
MA-05	Control rabbits and hares	Annual	Significant rabbit populations are not present.	Pest animals to be controlled and the method and timing of control is outlined in Table 5.
MA-06	Control new and emerging pest animals	Ongoing	New and emerging pests are identified and controlled.	As per Action MA-02 and MA-03 (weeds) and MA-05 (pest animals).
MA-07	Control tree and shrub regeneration	Annual – Autumn (if required)	Cover of immature canopy trees and shrubs <25% and >5%.	Select individual saplings for retention to grow into mature trees. Saplings to be retained at least 10 m from existing established mature trees. Manage other unwanted regeneration as woody weeds.
MA-07	Control biomass	Ongoing (if required)	Cover of grasses and herbs maintained at <80%.	Pulse grazing, slashing or burning as outlined in Section 4.5.3.
MA-08	Re-establish understorey	Annual (if required)	Understorey >30% native species.	Direct seeding or revegetation as outlined in Section 4.5.4.
MA-09	Establish photo monitoring points	Within 3 months of implementation of this plan	Photo monitoring points established.	Minimum of one photo point per hectare. Each point marked and accurately located by GPS or similar.
Monitoring				
M-01	Monitor fence condition	Quarterly (per season)	Fences monitored and maintained in functional condition.	Survey perimeter of the offset site to ensure fences are intact. Check for evidence of domestic stock access.
M-02	Monitor native vegetation condition and weeds	Annual (in Spring)	Patches of GBGW continue to meet the definition of the threatened ecological community; continue to be dominated by Grey Box and the understorey remains at	Monitor trees and shrub regeneration and overstorey condition.

DRAFT

Action	Objective	Timing	Performance target	Approach
			>10% cover native perennial grasses (or 50% perennial native species) and non-grass weeds remain <30% of the plant cover in the ground layer. Cover of grasses and herbs (biomass) remain <80% in the ground layer.	Monitor understorey condition through photo points.
M-03	Monitor weeds	Annual (in Spring)	Cover of woody and herbaceous weeds does not exceed thresholds assigned in Action MA-02 and Action MA-03.	Monitor cover of woody and herbaceous weeds. Spring - at time of vegetation condition survey
M-04	Monitor pest animals	Annual (in Spring)	Significant pest animal (particularly rabbit) populations are not observed.	Monitor for the presence of pest animals or signs (scat, diggings, burrows, grazing pressure). Spring - at time of vegetation condition survey
Reporting				
R-01	Annual reporting	Annual	Assess progress of management against the commitments set out in this OMP	Submit to DAWE by at least 2 months prior to the anniversary date of the execution of the OMP.

*Action MA-00 will be removed from this table once detailed site assessment is completed.

DRAFT**7.2 Risk assessment and contingency measures**

Events may occur over time which have the potential to compromise the success of management of the offset site. Table 7 lists events which may occur and assigns a risk rating based on the likelihood of the event occurring and the consequence if it does occur using the following risk matrix:

		Consequence		
		Minor	Moderate	Major
Likelihood	Unlikely	Low	Low	Medium
	Possible	Low	Medium	High
	Likely	Medium	High	High

Contingency measures to address risks to management success are outlined.

DRAFT**Table 7 – Risks to offset management success and contingency measures**

Event	Objective compromised	Likelihood	Consequence	Risk rating	Trigger	Contingency measures
Uncontrolled entry of domestic stock	MA-01	Unlikely	Minor	Low	Uncontrolled domestic stock sighted in offset sites. Signs of recent stock access. Grazing and trampling damage to vegetation and/or loss of juvenile trees or shrubs observed.	Remove stock. Repair fencing.
Woody weeds present in offset area (>1% cover)	MA-02	Unlikely	Minor	Low	Woody weed cover exceeds 1%	Increase weed control works.
Herbaceous weed cover exceeds current levels (20%)	MA-03	Possible	Minor	Low	Herbaceous weed cover exceeds current levels.	Increase weed control works.
Pest animals within offset site	MA-05	Possible	Moderate	Medium	Fresh ground disturbance or scats. Active rabbit warrens observed. Active fox dens observed New and emerging pest observed in offset area. Damage to understorey vegetation or limited recruitment of trees and shrubs observed.	Increase pest animal control works.
Tree and shrub recruitment substantially above or below EVC benchmark	MA-07	Possible	Minor	Low	Exclusion of understorey vegetation due to shading.	Increase regeneration control works.
Wildfire	n/a	Possible	Moderate	Medium	Permanent or temporary impact on overstorey condition.	Monitor vegetation condition and recruitment. Supplementary planting of overstorey species if regeneration does not occur naturally.
	MA-01	Possible	Moderate	Medium	Damage or loss of fencing.	Reinstatement of fencing

DRAFT

8.0 References

AECOM (2021). Inland Rail – Beveridge to Albury: EPBC Act Offset Strategy. Prepared for the Australian Rail Track Corporation. AECOM Australia Pty Ltd, Melbourne, Victoria.

Agriculture Victoria (2021). Deferred grazing. Online information access 27 August 2021 <https://agriculture.vic.gov.au/farm-management/land-and-pasture-management/native-pasture-management/deferred-grazing>

DELWP (2017). Guidelines for the removal, destruction or lopping of native vegetation. Victorian Government Department of Environment, Land, Water and Planning Melbourne.

DELWP (2019). Management standards for native vegetation offset sites. Victorian Government Department of Environment, Land, Water and Planning, Melbourne.

DELWP (2020). Scope for the environment report under EPBC Act Bilateral (Assessment) Agreement 2014 and EE Act. ARTC's proposed Inland Rail – Beveridge to Albury. Melbourne, Victoria.

DSE (2004). Native Vegetation: Sustaining a living landscape. Vegetation Quality Assessment Manual - Version 1.3l. Department of Sustainability and Environment, Melbourne

DSEWPaC (2012a). Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia: A guide to the identification, assessment and management of a nationally threatened ecological community *Environment Protection and Biodiversity Conservation Act 1999*. Australian Government Department of Sustainability, Environment, Water, Population and Communities, Canberra.

DSEWPaC (2012b). *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy. Australian Government Department of Sustainability, Environment, Water, Population and Communities, Canberra.

Morgan, J.W. (2015). Biomass management in native grasslands. Chapter 8 in Williams, N.S.G., Marshall, A. 7 Morgan, J.W. (eds). Land of sweeping plans: managing and restoring the native grasslands of south eastern Australia. CSIRO Publishing, Melbourne.

Schultz, N., Keatley, M., Antos, M., Wong, N., Moxham, C., Farmilo, B. & Morgan, J.W. (2017). The golf ball method for rapid assessment of grassland structure. *Ecological Management & Restoration* 18(2).