MODEINA PRECINCT 2
PROJECT AREAS C1, C2 & D

CRESSY OFFSET MANAGEMENT PLAN

Dennis Family Corporation

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DOCUMENT CONTROL

Report no.	Date of finalisation	Revisions made	Author	Reviewer
7045 (55.0)	1st August 2018	n/a	Elinor Ebsworth	Mal Wright
7045 (55.1)	21st September 2018	See response to DoEE comments dated 21/09/2018	Mal Wright	Mal Wright
7045 (55.2)	27th September 2018	Additional detail and mapping provided on the following biodiversity values of the offset site: grassland condition score, Striped Legless Lizard tile survey results and Spiny Rice-flower survey results. Area of offset site changed to 29.1 hectares. Additional detail on the level of pest animal threat provided.	Mal Wright	Mal Wright

1. BACKGROUND

Dennis Family Corporation (DFC) engaged Brett Lane & Associates Pty Ltd (BL&A) to prepare an Offset Management Plan to account for the loss of Matters of National Environmental Significance (MNES) associated with Project Areas C1, C2 and D of the Modeina Precinct 2 development.

The vegetation is to be cleared to provide for residential development, approved by the Department of the Environment (DoE) following an assessment under the EPBC Act (EPBC 2011/6063). Previous assessments of the impact site undertaken by BL&A are documented in Report 7045 (39.2) (BL&A 2017).

Following the subsequent retention of MNES within an onsite conservation reserve, the development will result in the loss of:

- 7.246 hectares of *Natural Temperate Grassland of the Victorian Volcanic Plain* that also provides habitat for Striped Legless Lizard; and
- 101 Spiny Rice-flower (SRF) plants.

Impacts to MNES are detailed in Section 2.1.

This Offset Management Plan (OMP) has been prepared for a 29.1-hectare area of land at the 'Cressy Offset Site' to demonstrate how these offsets meet the EPBC Act offset requirements associated with the development of Project Areas C1, C2 and D of Modeina Precinct 2. This OMP details, amongst other content:

- A summary of the impacts to Commonwealth Matters of National Environmental Significance (MNES) at the impact site;
- Details of the offset site, including site location, extent and quality of native vegetation and presence and extent of MNES;
- Details of how the offset site meets the requirements of the EPBC Act offset policy and the proposed means of offset security;
- Management actions required at the offset site; and
- Persons responsible and timeframes for implementing the plan.

This offset plan was prepared by Elinor Ebsworth (Senior Ecologist) and Mal Wright (Senior Ecologist and Project Manager) at BL&A.

2. PART A: OFFSET SITE SUITABILITY

CLEARING SITE DETAILS	
Landowner of the site	Dennis Family Corporation
Location and address of clearing site	Westwood Drive, Burnside, Victoria
Bioregion	Victorian Volcanic Plains
Catchment Management Authority	Port Phillip and Westernport
Date approved	20th July 2015

2.1. Impacts to matters of national environmental significance (MNES)

The action will involve development of Project Areas C1, C2 and D of Modeina Precinct 2, located at Westwood Drive, Burnside, Victoria. It will have the following impacts on Matters of National Environmental Significance (MNES):

- Removal of 7.246 hectares of *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) that also provides habitat for Striped Legless Lizard (SLL).
- Removal of 101 Spiny Rice-flower (SRF) plants.

The impacts are detailed by Stage in Table 1, below.

Table 1: MNES impacts by Stage

Stage	MNES	
	NTGVVP and SLL habitat (ha)	SRF (number of plants)
C1	1.986	14
C2	1.297	19
D	3.963	68
TOTAL	**7.246**	**101**

2.2. EPBC Act offset requirements

The EPBC Act Environmental Offset Policy (DSEWPC 2012) states that suitable offsets must meet the following overarching principles:

- Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action
- Be built around direct offsets but may include other compensatory measures
- Be in proportion to the level of statutory protection that applies to the protected matter
- Be of a size and scale proportionate to the residual impacts on the protected matter
- Effectively account for and manage the risks of the offset not succeeding
- Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs
- Be efficient, effective, timely, transparent, scientifically robust and reasonable
- Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced

- Be informed by scientifically robust information and incorporate the precautionary principle in the absence of scientific certainty
- Be conducted in a consistent and transparent manner.

The suitability of the proposed offset site to meet EPBC Act offsets is discussed in the following section.

2.3. Meeting EPBC Act offset requirements

EPBC Act offset requirements will be achieved in a 29.1-hectare area of land at the Cressy Offset Site. A summary of the offsets to be provided is presented below for each MNES impacted within Modeina Precinct 2 Project Areas C1, C2 &D.

Calculations were undertaken using the Offsets Assessment Guide (DSEWPC 2012) to assist in the determination of whether the offsets proposed for the development would satisfy the Commonwealth offset requirements (Appendix 1).

Offsets will be met in the offset site as outlined in Table 2 and detailed in the following sections.

Table 2: Offset site to achieve offsets

MNES	EPBC Act Offset requirement	How the offset will be met
NTGVVP	Offset to compensate for the impacts to 7.246 hectares of NTGVVP	Protection of 29.1 hectares of NTGVVP in the Cressy Offset Site
SLL habitat	Offset to compensate for the impacts to 7.246 hectares of SLL habitat	Protection of 29.1 hectares of SLL habitat in the Cressy Offset Site
SRF	Offset to compensate for the impacts to 101 SRF	The protection of 344 Spiny Rice-flower plants in the Cressy Offset Site as outlined in an Alternative Offset Strategy

The Commonwealth Offset Policy (DSEWPC 2012) was reviewed to determine whether the proposed offsets are consistent with the Commonwealth requirements. The proposed offset site has been assessed against the overarching principles of the Commonwealth Offset Policy in Table 3.

Table 3: Meeting the Commonwealth Offset principles

Commonwealth Requirement	Cressy Offset Site
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action	The offset site contains NTGVPP and SLL habitat and Spiny Rice-flower.
Be built around direct offsets but may include other compensatory measures	The offset is a direct offset involving the security and management of existing native vegetation, threatened species habitat and threatened species.
Be in proportion to the level of statutory protection that applies to the protected matter	The level of statutory protection is in proportion to the matter being impacted.
Be of a size and scale proportionate to the residual impacts on the protected matter	The area of NTGVVP and SLL habitat proposed for offset has been determined using the Offsets Assessment Guide (DSEWPC 2012) The number of Spiny Rice-flower to be offset to compensate for impacts has been outlined in an Alternative Offset Strategy, as allowed under approval conditions.
Effectively account for and manage the risks of the offset not succeeding	Risks have been accounted for in the offset calculations (see Appendix 1).
Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs	The Cressy offset site currently has no covenants or security arrangements relating to biodiversity values. As such, the proposed offsets would be additional to current protections.
Be efficient, effective, timely, transparent, scientifically robust and reasonable	This will be achieved by securing the site through a Covenant under the *Victorian Conservation Trust Act 1972 (Vic)* and management of the site by the landowner.
Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	This is achieved by securing and managing the site, consistent with any EPBC Act and planning permit conditions.
Be informed by scientifically robust information and incorporate the precautionary principle in the absence of scientific certainty	Information of the clearing site and offset site has been compiled by experienced ecologists.
Be conducted in a consistent and transparent manner.	All details of the offset site have been provided to allow for transparency. Documentation has been consistent throughout.

2.4. Cressy Offset Site description

Landowner of offset site	Deep Lead Property Pty Ltd
Type of offset (onsite, 3rd party)	3rd Party
Location and address of offset site	6165 Hamilton Highway, Cressy
Area of offset site (ha) pertinent to this offset plan	29.1 hectares
Volume	5736
Folio	059
Parish	Cressy
Allotment(s)	Lots 1, 2, 5, 6, 7 & 8/TP 414211
Local Government Area	Colac Otway
Responsible Authority	Colac Otway Shire
Bioregion	Victorian Volcanic Plain

This offset site is located approximately 110 kilometres west of Melbourne. It is bordered by the Hamilton Highway to the north, the Geelong–Maroona railway line to the south and private land in the same ownership as the offset site to the east and west. The offset site falls within a larger property – approximately 75-hectares in area.

Other areas within the broader property have been secured as biodiversity offsets for other projects, although the proposed offset site is currently unencumbered. The broader property is surrounded by a boundary fence. The offset site supports *Heavier soils* Plains Grassland (EVC 132_61), which also provides habitat for Striped Legless Lizard and a population of Spiny Rice-flower. Native vegetation and Spiny Rice-flower plants within the offset site is shown in Figure 1. Further details of the ecological values and site description of the broader property are included in the Offset Site Report (EHP 2017).

The offset site will be managed for conservation. It has previously been grazed, although this ceased in late 2016. The offset site supports heavy soils of volcanic origin on a relatively level landscape, punctuated by lower-lying wet areas, ephemeral watercourses and one man-made dam.

The offset site lies within the Victorian Volcanic Plains bioregion and falls within the Corangamite Catchment Management Authority area. It is currently zoned Farm Zone (FZ) in the Colac Otway Planning Scheme.

2.4.1. Biodiversity values

Natural Temperate Grassland of the Victorian Volcanic Plain

The Cressy Offset site is located within Plains Grassland assessed by Ecology and Heritage Partners on the 28th February 2017 (EHP 2017) as part of an Offset Site Assessment that included a habitat hectare assessment across the entire property.

This assessment identified two quality zones – PG1 and PG2. PG1 covers the majority of the property, as well as the vast majority of the DFC offset site, with the exception of a small section in the east of the site that coincides with PG2 (Figure 1). It is considered that the area of PG2 coinciding with the offset site is insignificant in terms of the consideration of site condition as it affects the quality score.

The EHP 2017 assessment was also ground-truthed by BL&A on 29th May 2018 to confirm that the elements of *weed cover* and *inter-tussock spacing* that contribute to the 2017 habitat score had not altered since the 2017 survey. It also collected detailed information about baseline weed cover, provided in Section 3.4.2, and evidence of pest animals, described in Section 3.4.3.

All of the Plains Grassland vegetation present within the Cressy Offset Site was assessed as meeting the classification for the EPBC Act listed threatened ecological community, *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP).

A description of vegetation with the Cressy Offset Site is provided in Table 4

Table 4: Vegetation in the Cressy Offset Site (adapted from EHP 2017)

Zone	Area within zone (ha)	Habitat Score (out of 100)*	Description
Cressy Offset Site (EHP Zone PG1)	29.1	56	Diverse grassland dominated by Kangaroo Grass and Common Tussock-grass with native herbs including Lemon Beauty-heads, Wiry Buttons, Blue Devils, Blushing Bindweed, Milkmaids, Common Woodruff and Kidney-weed. Spiny Rice-flower was also recorded in this zone. Moderate cover of weeds including scattered occurrences of Toowoomba Canary-grass and Spear Thistle. Slightly higher weed cover in 0.7-hectare area at the eastern end of the site.

*** Habitat Score based on Victorian habitat hectare methodology (Parkes 2003; DSE 2004)**

Striped Legless Lizard

A targeted survey for Striped Legless Lizard was undertaken by Ecology and Heritage Partners on 3rd November 2016 (EHP 2016) within the property that includes the Cressy Offset Site, during which nine SLL were recorded within the property. SLL were recorded at seven of eleven tile grids located at regular intervals within the property; SLL records were made at 4 of 5 tile grids located within the Cressy Offset Site (Figure 2).

Given these results from a single survey that formed only a sub-sample of the broader area, the entire property is considered to provide suitable habitat for SLL (EHP 2016).

Spiny Rice-flower

Large numbers of Spiny Rice-flower have been identified within the broader property, including the Cressy Offset site.

A targeted survey undertaken over two days by BL&A on 9th and 16th July 2018. A total of 346 plants were recorded and tagged onsite by the end of the second day of surveys, with a section of the site yet to be surveyed. Given the known target of 344 plants, a third day of surveys was considered unnecessary. It is therefore expected that the site will in fact support well in excess of 344 plants.

Figure 1: Cressy Offset Site

Project: Cressy Offset Site
Client: Dennis Family Corporation
Date: 26/09/2018

Legend

- Offset Site (29.1 ha)
- EVC 132/NTGVVP (EHP 2017)
- 6165 Hamilton Hwy, Cressy

N

Metres
0 250

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Figure 2: Striped Legless Lizard survey (EHP 2016)

Project: Cressy Offset Site
Client: Dennis Family Corporation
Date: 26/09/2018

Legend

SLL grids

- SLL not recorded
- SLL recorded
- Offset Site (29.1 ha)
- 6165 Hamilton Hwy, Cressy

N

Metres
0 250

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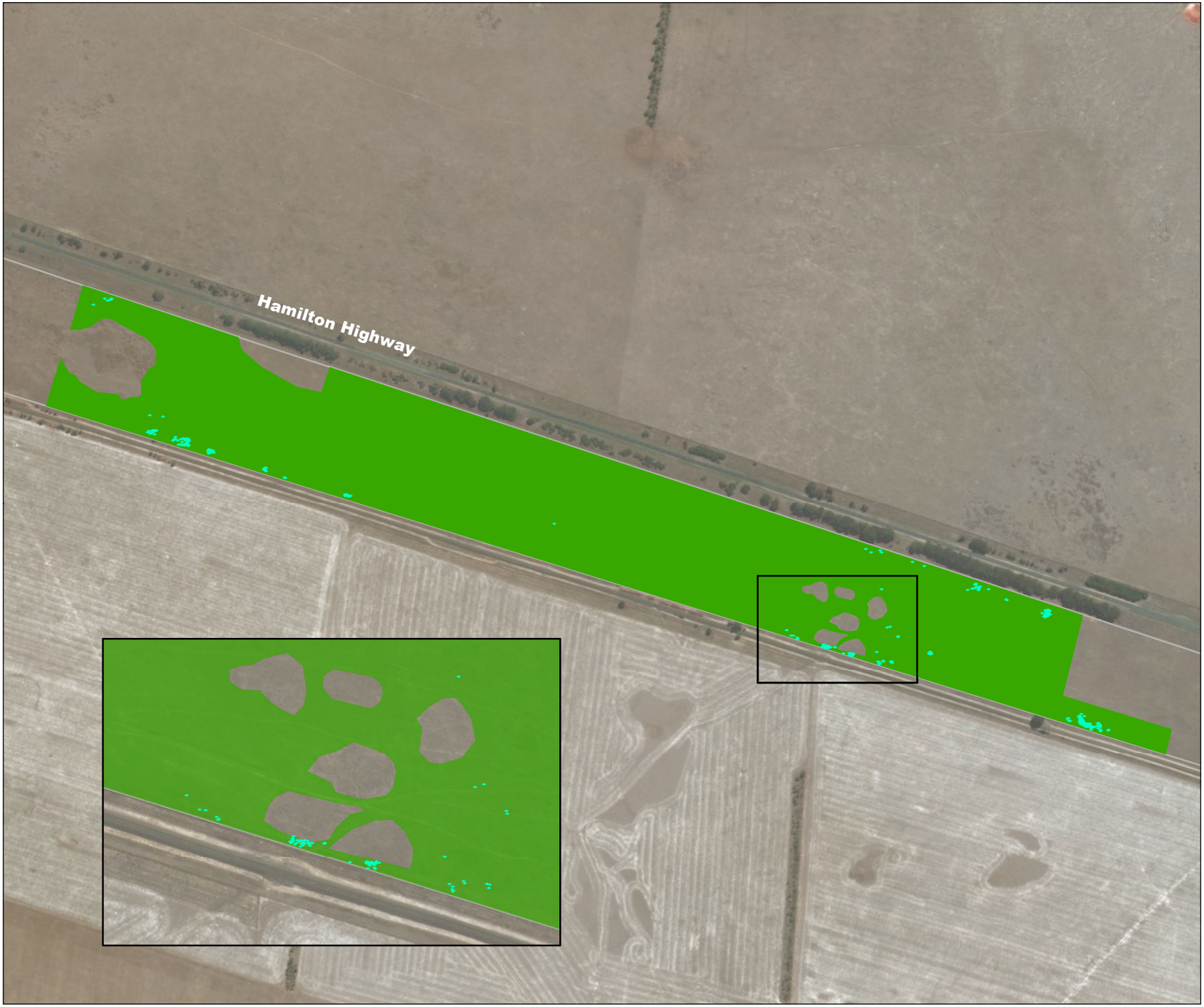

Figure 3: Spiny Rice-flower survey (BL&A 2018)

Project: Cressy Offset Site
Client: Dennis Family Corporation
Date: 26/09/2018

Legend

- Spiny Rice-flower
- Offset Site (29.1 ha)
- 6165 Hamilton Hwy, Cressy

N

Metres

0 210

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2.4.2. Management issues (threats)

High threat weeds in and adjacent to the Cressy offset site include Spear Thistle, Toowoomba Canary-grass, African Box-thorn and annual grasses (as documented in EHP 2017 and confirmed during a site inspection by BL&A in May 2018). Swamp Mallet seedlings (that have germinated from the planted trees within the road reserve of the Hamilton Highway) were also noted during the May 2018 site inspection. This non-Victorian native species can out-compete indigenous grassland plants if left un-treated.

No evidence of rabbits or foxes was documented by EHP (2017) or during the site inspection by BL&A in May 2018. Evidence of both rabbits and foxes was, however, noted during surveys by BL&A in July 2018 in the form of scattered fox scats and a small number of rabbit warrens present near the boundary with the rail reserve. The level of incursion by both species is considered to be only at a low level. These species can pose a threat to native flora and fauna through competition and predation.

The level of threat posed by weeds and pest animals, along with proposed management and monitoring measures, are discussed in more detail in Sections 3.4.2 and 3.4.3.

3. PART B: OFFSET IMPLEMENTATION – CRESSY

3.1. Strategy for offset site

The offset site is to be secured and managed for the purposes of conservation in perpetuity.

OFFSET SECURITY AND MANAGEMENT RESPONSIBILITY	Cressy Offset Site
Who is liable/responsible for meeting offset requirements?	Deep Lead Property Pty Ltd
Type of security	Covenant under the *Victorian Conservation Trust Act 1972 (Vic)*
Agreement or Planning Permit Number (ID)	To be determined
Registered on title? (Yes/No)	Yes
Offset site management responsibility	Landowner
Offset Monitoring Responsibility (i.e. Responsible Authority, DELWP)	Trust for Nature

3.2. Ongoing land-use commitments & management actions

The landowner commits to the following in perpetuity:

- Retain all native vegetation;
- Exclude stock (except as required as part of the biomass management of the site);
- Exclude the use of stock feed such as hay or grain that is sourced from outside the offset site;
- Exclude pasture improvement and fertilizer application;
- Ensuring that weed cover does not increase beyond current levels;
- Eliminate high threat woody environmental weeds (to <1% cover);
- Achieve a reduction in cover of high-threat herbaceous weeds to <5% combined cover at Year 10 of management;
- Maintain other weed cover at, or below, the levels achieved at Year 10 of management;
- Ensure that pest animals are controlled to the level attained at the completion of Year 10 of management; and
- Implement a biomass management strategy (periodic biomass reduction at agreed timing/frequency).

3.3. Baseline surveys

A baseline weed cover survey has been undertaken by an ecologist at the offset site to determine:

- The cover of woody weeds;
- The cover of high-threat weeds; and
- The combined cover of other weeds.

This baseline data, collected during surveys undertaken in 2017 and 2018 (Section 2.4.1) is provided in Table 5 and will be used as a benchmark against which management actions are measured.

3.4. Management actions to be undertaken

This section provides a description of the management actions to be undertaken within the Cressy Offset Site to meet the offset requirements of the Commonwealth, with a management schedule provided in Table 6.

3.4.1. Fencing

The perimeter of the larger property, which is to be managed as a whole for MNES, is to be fenced permanently to prevent inadvertent damage to vegetation or soil disturbance through stock or unauthorised vehicle access. A fence currently exists that addresses this requirement.

Additional fencing around the offset site itself is not required as it is proposed that ecological grazing within the broader property will be managed in accordance with the prescriptions outlined in this OMP. Temporary fencing may be used within the offset site to allow for intensive ecological grazing where negligible impacts to native vegetation associated with the placement and removal of that fencing will occur.

The integrity of the boundary fence is to be monitored during regular site visits for vegetation management and formally inspected every three months. Any necessary repairs undertaken. Repairs are to be undertaken in accordance with DSE 2012c.

3.4.2. Weed control

The baseline survey undertaken by BL&A in May 2018 identified that the total weed cover across the offset site is 25%. Weed control works are required to achieve biodiversity gains for an offset under the EPBC Act, to provide habitat improvement for NTGVVP, SLL and SRF. Targets identified below therefore require a reduction in the cover of woody, perennial and annual weeds, consistent with the common approach to weed management followed by the Department of Environment, Land, Water and Planning and Trust for Nature. Weed species recorded in the offset site are included in Table 5.

This offset plan requires the landowner to eliminate any high threat woody weeds from the offset site. A weed species is considered to be effectively eliminated when its foliage cover (excluding bare ground) is reduced to less than 1% of total foliage cover.

High-threat, non-woody weeds (perennial grasses and Spear Thistles) are to be controlled to equal to or less than 5% combined cover by the end of the 10-year time period. Other weeds are to be controlled such that their combined cover does not increase, with the aim to reduce the total cover by 50% by the end of the 10-year time period (see Table 5). Weed cover achieved at year 10 of the management plan is to be maintained in perpetuity.

Methods such as grazing, herbicide application and flame weeding are considered to be appropriate means to achieve the weed control targets. The means by which the above weed control targets are met will be ultimately determined by the land manager, with an integrated approach to weed management recommended. Weed control methods are discussed further below.

Table 5: Weed species and targets for control

Threat level	Type	Scientific name	Common name	% baseline cover	Control proposed	Timing	Target (after 10 years)	Interim target (after 4 years)	Corrective action^ & triggers
High	Woody	*Eucalyptus spathulata*	Swamp Mallet	1%	Cut-and-paint larger plants with an appropriate herbicide. Spot spray with an appropriate herbicide or flame weed seedlings.	Year-round (repeat annually as required)	<1% cover	<1% cover	Targeted high intensity weed control or try new methodologies **if interim target not met by the end of Year 4 or again by the end of Year 7**
		Lycium ferocissimum	African Box-thorn	<1%	Cut-and-paint larger plants with an appropriate herbicide. Spot spray with an appropriate herbicide or flame weed seedlings.				
	Herbaceous	*Dactylis glomerata*	Cocksfoot	2%	Spot spraying with an appropriate herbicide or flame weeding. Ecological grazing.	At least 1 control action per year (2 if required) – March to May or September to November	5% combined cover or less	1%	Increase frequency of weed control or try new methodologies **if interim target not met by the end of Year 4 or again by the end of Year 7**
		Holcus lanatus	Yorkshire Fog	1%	Spot spraying with an appropriate herbicide or flame weeding. Ecological grazing.			1%	
		Phalaris aquatica	Toowoomba Canary-grass	3%	Spot spraying with an appropriate herbicide or flame weeding. Ecological grazing then spray or flame weed regrowth.			2%	
		Phalaris arundinacea	Reed Canary-grass	1%	Spot spraying with an appropriate herbicide or flame weeding in. Ecological grazing then spray or flame weed regrowth.			1%	
		Cirsium vulgare	Spear Thistle	1%	Spot spraying with an appropriate herbicide or flame weeding.			1%	
Low	Herbaceous	*Romulea rosea*	Onion Grass	3%	Spot spraying with an appropriate herbicide or flame weeding.	As required – March to May or September to November	Combined percentage cover does not increase from baseline (aim for 50% reduction)	2% aim	Increase frequency of weed control or try new methodologies **if annual monitoring identifies an increase:** • **in combined percentage cover *or*** • **of more than 50% cover of any one species**
		Annual grasses *(Vulpia, Briza, Bromus, Aira, Lagurus ovatus)*	Fescue, Quaking-grass, Brome, Hair-grass, Hare's-tail Grass	10%	Ecological grazing by sheep. Spot spraying appropriate herbicide to prevent seeding regeneration.			7% aim	
		Broadleaf *(Hypochaeris radicata, Leontodon taraxacoides, Lactuca serriola)*	Flatweed, Hairy Hawkbit, Prickly Lettuce	3%	Spot spraying with an appropriate, broad-leaf selective herbicide.			2% aim	

^ Guidance will be sought from Trust for Nature prior to implementing corrective actions

Weed control methods

Ecological grazing

Grazing in late winter/early spring can be used to keep the biomass of annual grassy weed species to manageable levels and to prevent them from flowering and setting seed. Further details of ecological grazing prescriptions are provided in Section 3.4.4.

Herbicide

The application of appropriate herbicide is to be undertaken as required to control weed species in the offset areas. The type and timing of herbicide application should be selected for the species being targeted. Care must be taken to ensure that there are no impacts to any rare or threatened flora and fauna species when using herbicides.

Flame Weeding

A hand-held weed burner can be used as an alternative to herbicide to treat weeds before seed set (DSE 2012b). The use of flame weeding must take into consideration environmental conditions. Burning is not to be undertaken if it poses an unacceptable fire risk.

New and emerging weeds

Monitoring for new and emerging weeds will be conducted annually (Section 3.5.2) and during every weed control action (Table 5) for the term of the agreement, and any new and emerging weeds eliminated. This includes any high threat weeds and any noxious weeds listed under the CaLP Act.

3.4.3. Pest animal control

No evidence of rabbits or foxes was documented by EHP (2017) or during the site inspection by BL&A in May 2018. Evidence of both rabbits and foxes was, however, noted during surveys in July 2018 in the form of scattered fox scats and a small number of rabbit warrens present near the boundary with the rail reserve. The level of incursion by both species is considered to be only at a low level.

These species can pose a threat to native flora and fauna through competition and predation. All pest animals are to be monitored annually as outlined in Section 3.5.3 to inform the control methods used to eradicate the animals.

Pest animal control will be undertaken annually within the offset site for the life of the plan, as informed by monitoring events and outlined below.

Suitable methods for the control of pest animals include:

- Shooting (autumn and year-round);
- Baiting for rabbits/hares (autumn and year-round);
- Fumigating and hand collapsing of warrens (year-round).

Shooting (year-round) is a suitable fox control method and is suitable for rabbit control method where populations are low (DEPI 2012a). Baiting is an effective method for reducing pest rabbit populations and should be undertaken when their food source is low (February through May).

Fumigating when combined with hand collapsing of warrens is an effective control method. Warrens will be destroyed using a shovel, mattock or pick to avoid damage to native vegetation. Ripping of warrens using machinery is not permitted within the offset site (DEPI 2012a).

3.4.4. Biomass management

In 'high rainfall' grasslands, the absence of periodic biomass removal through either ecological burns or grazing increases the risk of the native grasses becoming dominant over time leading to a loss of the inter-tussock spaces that are important as habitat for a range of flora and fauna. If biomass is not removed then there can be a dramatic decline in overall vegetation quality within a 10-year period.

As such, for 'high rainfall' grasslands, avoiding a decline in site condition requires some form of active biomass management. The aim will be to maintain inter-tussock spaces at 20% to optimise recruitment of native species.

Ecological burning

Burning is the preferred means of biomass control. Herbicide should be used on weed species following a burn, to maintain inter tussock spaces and allow area for native species recruitment. The most appropriate time for burning is considered to be February–May. Ecological burning in this period has have the following advantages for MNES within the offset site:

- In late summer and early autumn, soil cracks are present to provide refugia to Striped Legless Lizard (DSE 2012e);
- A February–May burn falls outside the period of vegetative growth, flowering and seed set for Spiny Rice Flower; and
- Burning in late summer and early autumn best promotes grassland plant diversity (Williams *et al* 2015).

Ecological burns should be undertaken in a mosaic pattern, with each patch burnt at a frequency no greater than every three years, or when biomass dictates (DSE 2012e). This will provide refuge for fauna species during the burn, and allow for a three-year fire frequency, which is adequate for Spiny Rice-flower (PsRT 2013).

Burnt areas will be protected from grazing for at least 6 months following the burn to allow species regeneration and recruitment to occur.

Any ecological burns will be conducted during low wind and mild temperature weather conditions and must minimise the potential for fire to spread in an uncontrolled manner. Ecological burning may only occur outside the prescribed declared fire danger period for this region. Burning within the offset site will be undertaken only with due consideration to relevant health and safety issues and in consultation with the Country Fire Authority. This plan provides guidelines for use of burning only in an ecological sense. The land owner is responsible for compliance with all other government planning requirements and permits with regards to fire.

Ecological grazing

Grazing can be used as a method of biomass management to maintain and improve the condition of this offset site, as well as for the control of annual grassy weeds (Section 3.4.2). Sheep are the only domestic stock animal permitted to graze the offset site. The

timing of grazing will be strictly controlled to allow native species to grow and set seed over the spring to mid-summer period (DSE 2012d) and the Spiny Rice-flower's flowering period between April and August.

Pulse grazing will occur over a short duration with a high stocking rate to prevent selective grazing of native herbs and Spiny Rice-flower. Vegetation cover will be monitored during this time to ensure native grass biomass does not fall below 70%.

Stock will be held in a holding paddock for 24 hours prior to entering the offset site if they have previously been grazing areas of high weed cover. The offset site will be monitored during wet periods to prevent excessive soil disturbance in seasonally wet areas. Stock will be withdrawn if moderate to high rainfall occurs and the risk of soil pugging is identified.

3.5. Monitoring

The progress of management works will be monitored by the landowner on an ongoing basis to ensure the successful implementation of this Plan and to inform adaptive management processes. The landowner will provide a management progress report to TfN on an annual basis. Records of all management actions must be kept to provide evidence of completed works and management tasks.

Monitoring of weeds and biomass will be undertaken annually by a suitably qualified bushland contractor; vegetation condition monitoring will be undertaken by a suitably qualified ecologist periodically during the 10-year period of the Plan.

Trust for Nature have recently assessed the site and are satisfied that it meets their requirements for the establishment of a Deed of Covenant. TfN will liaise with the land owner annually regarding the development of an annual works plan.

TfN will undertake regular monitoring of the offset site to ensure the prescribed management actions are resulting in the desired outcome outlined in this Plan. TfN will visit the site a minimum of three additional times over the 10-year management period and will liaise with the land owner annually regarding the development of an annual works plan.

3.5.1. Fence condition

Surveys of the property boundary fence must be conducted quarterly and can be combined with visiting the site to conduct other monitoring or management actions. Any damage to the fence that may allow vehicles or stock entrance or egress must be repaired immediately. Any repairs should be undertaken in accordance with DSE 2012c.

3.5.2. Weed and biomass monitoring

Weeds and biomass monitoring will be conducted annually by a suitably qualified bushland contractor in spring. There will be three components to the monitoring:

- Inspection of the entire offset site for woody weeds, by walking and/or driving throughout the area such that a visual inspection would detect the presence of any woody weeds. All infestations or individual woody weeds will be mapped with a GPS, and the locations will be recorded for subsequent treatment;
- While conducting the woody weed surveys, notes will be taken regarding the cover of herbaceous weed species, and cover will be estimated to the nearest 5% (where >5% cover is observed) or the nearest 1% (where <5% cover is observed). Species and areas

suitable for targeted treatment (such as spot spraying or flame weeding), will be mapped and used to inform subsequent treatment.; and

- At least five (5) permanent photo points will be established by the person undertaking the weed and biomass monitoring at the commencement of the Plan. A photo will be taken at each photo point facing south-east; these photo points will be used to monitor the vegetation for at least the 10-year period covered by this plan.

3.5.3. Pest animal monitoring

Signs of pest animals (rabbits, hares and foxes) will be recorded during weed, biomass and vegetation condition monitoring surveys, and at all other times when visiting the offset site.

In particular, the locations of any active rabbit warrens must be mapped using GPS at the commencement of this OMP, and the locations supplied to the pest animal management contractor/landholder for treatment. Subsequent monitoring will then revisit previously mapped warrens to check for on-going use, as well as searching for new warrens throughout the offset area.

3.5.4. Site quality auditing

Grassland vegetation condition on the Victorian Volcanic Plain is closely linked to biomass and weed cover: the ability for native forbs and herbs to survive and thrive in inter-tussock spaces between native grasses; and the importance of ensuring that weed cover does not begin to outcompete both native grasses and native forbs/herbs.

Monitoring and managing pest animals is also important to ensure the level of incursion does not present a threat to achieving the gains in quality for the site.

The following will be undertaken on a regular basis by the land manager:

- Weed control will be undertaken at least once annually (Section 3.4.2) following monitoring by the land manager (Section 3.5.2);
- Biomass monitoring will be undertaken annually in spring (Section 3.5.2) and biomass management implemented if required (Section 3.4.4); and
- Pest animal management will be undertaken annually (Section 3.4.3) following monitoring at least annually in conjunction with weed monitoring and control (Section 3.5.3).

The success of this monitoring and management will be audited by a suitably qualified ecologist in late spring-early summer of Years 1, 4, 7 and 10. Assessment using appropriate sampling techniques of biomass and weed cover will determine:

- The percentage total native grass cover measured against the target cover of native grass biomass of no less than 70% following any ecological grazing (target outlined in Section 3.4.4);
- The percentage cover of inter-tussock spaces measured against the target of 20% following any biomass management actions (target outlined in Section 3.4.4); and
- The cover of each weed species, measured against the targets and corrective action triggers outlined in Table 5.

An analysis of the above parameters will be used to determine whether key targets are being met and whether corrective actions need to be triggered.

Vegetation quality will be monitored as part of this periodic auditing by a suitably qualified ecologist in late spring-early summer of Years 1, 4, 7 and 10. This will draw on the relative composition of life-forms, which is the basis of vegetation quality assessments using the *habitat hectare* method, as well as species diversity. Assessment using appropriate sampling techniques will determine:

- The cover and composition of native life-forms into the following categories:
    - Large Tufted Graminoids (tall grasses and sedges forming tussocks more than 1 metre tall);
    - Medium to Small Tufted Graminoids (grasses and sedges forming tussocks less than 1 metre tall);
    - Medium Non-tufted Graminoids (grasses and sedges not forming tussocks);
    - Large Herbs that are more than 50 centimetres in height occupying inter-tussock spaces;
    - Medium Herbs that are between 5 and 50 centimetres in height;
    - Small Herbs that are less than 5 centimetres in height; and
- A full flora species list.

The results of the Year 1 audit will be compared against the results of the Year 4, Year 7 and Year 10 audits and the comparison analysed against the benchmarks for *Heavier-soils* Plains Grassland (EVC 132_61) to measure change over time.

This data will be collated and included in a report in Years 1, 4, 7 and 10 prepared for the landholder and approval holder.

3.6. Reporting

The landowner must submit a report annually to TfN and DoEE for each year of the ten years of this Plan. Reports are to be submitted no later than three months after the anniversary date of the execution of the OMP.

The annual report will address progress against the commitments set out in this Plan and will provide enough detail in the form of written comments and supporting evidence that an assessor can easily determine the progress against the commitments for the offset site.

The annual report must include:

- Details of management actions, including on ground works, undertaken within the reporting period.
- Results of monitoring activities, including fence condition, weeds, pest animals and ground cover biomass accumulation/the cover of open ground.
- Site photographs including from five defined photo points.
- Details of compliance or non-compliance with the schedule of management actions.

3.7. Adaptive management

This Plan provides actions for a period of 10 years, during which the timing of actions and whether they occur will be subject to an adaptive management approach. By monitoring the outcomes of actions, management may be adapted to ensure the stated commitments

in the Plan are upheld. For example, new techniques for controlling high threat weeds may become available, or further information on the ecology and status of the vegetation communities may necessitate adjustment to management actions.

The western districts of Victoria are known to be highly seasonal and conditions can vary greatly from year to year. This seasonality is acknowledged in this Plan by allowing for flexibility around timing of actions at the discretion of the land manager.

Table 6: Management actions schedule – Cressy Offset Site

Year 1						
Management Action	**Timing**	**Target to be achieved**	**Responsible person**	**OMP reference**	**Completed (Yes/No)**	**Month completed**
Establish offset	Upon registration of the Covenant	Defines the start of the prescribed management period under this Plan	Landowner	–		
Demarcate offset site – establish markers to identify boundary of the offset site to assist with its management and monitoring	On commencement of the Plan	Offset site clearly demarcated onsite	Landowner in consultation with land surveyor	–		
Fencing already protects a broader parcel within which the offset site is located	Commencement of plan	Ensure fencing allows for adequate control of any stock access for biomass management	Landowner	Section 3.4.1		
Landowner to develop annual works plan in consultation with TfN	Upon registration of the covenant	Annual works plan prepared	Landowner and TfN			
Monitor weeds and implement control if required: ▪ Ecological grazing to reduce biomass of introduced species and prevent seed set ▪ Herbicide and/or flame weeding use as required	March to May or September to November As required as per optimal time for each species (herbicide and/or flame weeding)	See Section 3.4.2, Table 5	Landowner nominated contractor	Section 3.4.2 Section 3.5.2		
Map rabbit warrens using a GPS unit and implement control Monitor fox populations and implement control if required	Autumn (or at commencement)	Pest animals controlled	Landowner nominated contractor	Section 3.4.3 Section 3.5.3		
Biomass reduction through ecological burning or ecological grazing if required	February – May (burning) End of January to end of September (grazing)	Grassy biomass layer reduced Inter-tussock spaces maintained to optimise ecological function	Landowner nominated contractor	Section 3.4.4 Section 3.5.2		
Weed and biomass monitoring	September to November	Results will inform management approaches and techniques	Landowner nominated contractor	Section 3.5.2		
Site quality audit	Late spring to early summer	Results will inform management approaches and techniques.	Qualified ecologist engaged by the landowner	Section 3.5.4		
Monitoring to determine fencing integrity and timeliness of management actions	Boundary fencing formally inspected every 3 months; each management action monitored	Boundary fencing effective and management actions undertaken on time	Landowner	Section 3.5		
Report to be prepared documenting management actions undertaken and monitoring results.	No later than three months after anniversary of commencement	Report delivered to DFC, TfN and DoEE no later than three months after anniversary of commencement	Landowner	Section 3.6		

Years 2–10											
Management Action (see Year 1 for Plan reference)	Timing	Target to be achieved	Responsible person	Year								
				2	3	4	5	6	7	8	9	10
Landowner to liaise with TfN and develop annual works plan	Within three months of the anniversary of commencement	Annual works plan prepared	Landowner	X	X	X	X	X	X	X	X	X
Monitor weeds and implement weed control if required: ▪ Ecological grazing to reduce biomass of introduced species and prevent seed set ▪ Herbicide and/or flame weeding use as required	March to May or September to November As required as per optimal time for each species (herbicide or flame weeding)	See Section 3.4.2, Table 5	Landowner nominated contractor	X	X	X	X	X	X	X	X	X
Map rabbit warrens using a GPS unit and implement control Monitor fox populations and implement control if required	Monitored annually in autumn control implemented as required	Pest animals controlled	Landowner nominated contractor	X	X	X	X	X	X	X	X	X
Biomass reduction through ecological burning or ecological grazing as required	February – May (burning) End of January to end of September (grazing)	Grassy biomass layer reduced Inter-tussock spaces maintained to optimise ecological function	Landowner nominated contractor	X	X	X	X	X	X	X	X	X
Weed and biomass monitoring	September to November	Results will inform management approaches and techniques	Landowner nominated contractor	X	X	X	X	X	X	X	X	X
Site quality audit	Late spring to early summer	Results will inform management approaches and techniques	Qualified ecologist engaged by the landowner			X			X			X
Monitoring to determine fencing integrity and timeliness of management actions	Boundary fencing formally inspected every 3 months; each management action monitored	Boundary fencing effective and management actions undertaken on time	Landowner	X	X	X	X	X	X	X	X	X
Report to be prepared documenting management actions undertaken and monitoring results.	No later than three months after anniversary of commencement	Report delivered to DFC, TfN and DoEE no later than three months after anniversary of commencement	Landowner	X	X	X	X	X	X	X	X	X
Monitoring of the offset site to determine whether the prescribed management actions are resulting in the desired outcomes outlined in this Plan	Three times over the life of this Plan (nominal years shown here)	Feedback delivered to Landowner and DFC	TfN			X			X			X

4. REFERENCES

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Appendix 1: EPBC Act Offset Assessment Guide

Impact calculator						Offset Calculator																
Protected matter attributes	Description	Quantum of impact		Units	Information source	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)		% of impact offset	Minimum (90%) direct offset requirement met?
Area of community (NTGVVP)	C1 &C2	Area	3.283	Hectares	Average condition score 4.1: Report 7045 (39.0) NTGVVP area from EPBC approval	1.31	Adjusted hectares	Cressy Offset Site - habitat score 56; lack of weeds score 6/15	Risk-related time horizon (max. 20 years)	20	Start area (hectares)	13.2	Risk of loss (%) without offset	1%	Risk of loss (%) with offset	1%	0.00	95%	0.00	0.00	1.32	100.46%	Yes
		Quality	4	Scale 0-10									Future area without offset (adjusted hectares)	13.1	Future area with offset (adjusted hectares)	13.1							
		Total quantum of impact	1.31	Adjusted hectares					Time until ecological benefit	7	Start quality (scale of 0-10)	6	Future quality without offset (scale of 0-10)	5	Future quality with offset (scale of 0-10)	7	2.00	80%	1.60	1.01			
Area of community (NTGVVP)	D	Area	3.963	Hectares	Average condition score 4.1: Report 7045 (39.0) NTGVVP area from EPBC approval	1.59	Adjusted hectares	Cressy Offset Site- habitat score 56; lack of weeds score 6/15	Risk-related time horizon (max. 20 years)	20	Start area (hectares)	15.9	Risk of loss (%) without offset	1%	Risk of loss (%) with offset	1%	0.00	95%	0.00	0.00	1.59	100.25%	Yes
		Quality	4	Scale 0-10									Future area without offset (adjusted hectares)	15.7	Future area with offset (adjusted hectares)	15.7							
		Total quantum of impact	1.59	Adjusted hectares					Time until ecological benefit	7	Start quality (scale of 0-10)	6	Future quality without offset (scale of 0-10)	5	Future quality with offset (scale of 0-10)	7	2.00	80%	1.60	1.01			
Area of habitat (SLL)	C1 & C2	Area	3.283	Hectares	Average condition score 4.1: Report 7045 (39.0) NTGVVP area from EPBC approval	1.31	Adjusted hectares	Cressy Offset Site - habitat score 56; lack of weeds score 6/15	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	13.2	Risk of loss (%) without offset	1%	Risk of loss (%) with offset	1%	0.00	95%	0.00	0.00	2.06	157.15%	Yes
		Quality	4	Scale 0-10									Future area without offset (adjusted hectares)	13.1	Future area with offset (adjusted hectares)	13.1							
		Total quantum of impact	1.31	Adjusted hectares					Time until ecological benefit	7	Start quality (scale of 0-10)	6	Future quality without offset (scale of 0-10)	5	Future quality with offset (scale of 0-10)	7	2.00	80%	1.60	1.58			
Area of habitat (SLL)	D	Area	3.963	Hectares	Average condition score 4.1: Report 7045 (39.0) NTGVVP area from EPBC approval	1.59	Adjusted hectares	Cressy Offset Site - habitat score 56; lack of weeds score 6/15	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	15.9	Risk of loss (%) without offset	1%	Risk of loss (%) with offset	1%	0.00	95%	0.00	0.00	2.48	156.67%	Yes
		Quality	4	Scale 0-10									Future area without offset (adjusted hectares)	15.7	Future area with offset (adjusted hectares)	15.7							
		Total quantum of impact	1.59	Adjusted hectares					Time until ecological benefit	7	Start quality (scale of 0-10)	6	Future quality without offset (scale of 0-10)	5	Future quality with offset (scale of 0-10)	7	2.00	80%	1.60	1.58			

Appendix 2: EPBC Act Offset Calculator justification of values

Offset guide attribute	Value for NTGVVP	Value for SLL habitat	Justification
Area of habitat removed	Project Areas C1 & C2 – 3.283 ha Project Area D – 3.963 ha	Project Areas C1 & C2 – 3.283 ha Project Area D – 3.963 ha	Based on the area determined by GIS analysis undertaken by BL&A (2018)
Quality of habitat removed	4	4	*NTGVVP* A weighted average 'habitat score' of 41 (out of 100) across several 'quality zones' in the area of impact contributes 100% to the *site condition* and *site context* of the quality score, determined using the following formula: $$\text{Quality} = \frac{\text{SUM (HZ score} * \text{HZ removal area within Project Area B)}}{\text{Total removal area}}$$ 'Habitat score' has been determined for the removal site via assessments using the *Habitat Hectares* method (Parkes *et al* 2003; DSE 2004), and can be found in Report 7045 (6.13) (BL&A 2014). Using this method, the 'habitat score' is determined using a combination of *site condition* and *site context* elements. Species stocking rate is not considered for a threatened ecological community. *Striped Legless Lizard habitat* The area of Striped Legless Lizard (SLL) habitat was considered to coincide with the area of NTGVVP on the impact site. The habitat score for this ecological community takes into account elements of the habitat that are of importance to SLL, such as grass tussock cover (sources of surface shelter and warming) and bare ground between tussocks (drying of clay soils and provision of cracks for deep shelter). The habitat score of 4.1 (out of 10) is therefore attributed a 66.6% weighting to the overall quality of habitat removed. Species stocking rate is attributed a 33.3% weighting to the overall quality of habitat removed. SLL records were confined to 3 of 8 tile grids located across this habitat for the purpose of targeted surveys. This is considered to represent a species stocking rate score of 3.8 out of 10. Overall quality of SLL habitat is therefore: 4.1 X 66.6% + 3.8 X 33.3% = 3.99 (rounded to 4).
Time over which loss is averted	20 years	20 years	The offset sites will be protected with a Trust for Nature Covenant which will result in perpetual protection of the offset site for the purpose of conservation. The offset site will be actively managed for conservation outcomes for ten years, and as such it is expected that the loss can confidently be considered to be averted for 20 years.
Area of offset	29.1 hectares	29.1 hectares	This offset area has been determined based on the other parameters in the calculator.
Risk of loss (%) without offset	1%	1%	The offset site occurs in a relatively remote area of Victoria and the only foreseeable cause of complete loss is considered to be mining activity – considered a low risk in this area.
Risk of loss (%) with the offset	1%	1%	The residual risk of protecting the property in perpetuity is considered to be unchanged from the 'business as usual' scenario given that mining activity poses a risk regardless of on-title covenants.
Time until ecological benefit	7 years	7 years	It is expected that within seven years management actions such as weed control and ecological burning would have resulted in a measurable improvement to quality.

Offset guide attribute	Value for NTGVVP	Value for SLL habitat	Justification
Start quality of offset site	6	6	*NTGVVP* A 'habitat score' 56 (out of 100) (EHP 2017) in the offset site contributes 100% to the *site condition* and *site context* of the quality score. Habitat scores for the Cressy offset site were assessed using the habitat hectares method (Parkes *et al* 2003; DSE 2004) (see further explanation of 'habitat score' above). Species stocking rate is not considered for a threatened ecological community. *Striped Legless Lizard habitat* The area of Striped Legless Lizard (SLL) habitat is considered to coincide with the entire area of NTGVVP (full coverage) within the offset site. The habitat score for this ecological community takes into account elements of the habitat that are of importance to SLL, such as grass tussock cover (sources of surface shelter and warming) and bare ground between tussocks (drying of clay soils and provision of cracks for deep shelter). The habitat score of 5.6 (out of 10) is therefore attributed a 66.6% weighting to the overall quality of habitat removed. Species stocking rate is attributed a 33.3% weighting to the overall quality of habitat removed. SLL records were confined to 4 of 5 tile grids located across the offset site for the purpose of targeted surveys (EHP 2016). This is considered to represent a species stocking rate score of 8 out of 10. Overall quality of SLL habitat is therefore: 5.6 X 66.6% + 8 X 33.3% = 6.39 (rounded to 6).
Future quality without offset	5	5	A one-point decrease in the quality of the offset site could be expected without implementation of the offset through changes in vegetation and habitat quality including weed invasion, domination by a small number of species, removal of species diversity through inappropriate grazing and biomass accumulation.
Future quality with offset	7	7	A one-point increase in the quality of the offset site could be expected with implementation of the offset through changes in vegetation and habitat quality including weed control, increase in species diversity through removal of grazing and biomass management through ecological burning.
Confidence in results of offset covenant	95 %	95%	A Trust for Nature Covenant will be entered into for the offset site. This type of security has been demonstrated to adequately secure offset sites. As this type of security is permanent (lasting forever) and secure (that is, they are difficult to change or alter), there is 95% confidence that the offset site will be protected in perpetuity.
Confidence in results for the improvement in vegetation quality	80 %	80%	There is a strong body of evidence that grassland communities across south-east Australia benefit from management of the kind proposed for the Cressy offset site (including Williams *et al* 2015) – considered to correspond to a 90% confidence in such an outcome in grasslands; however, an 80% confidence in the results for improvement in vegetation quality is used here to allow for inherent ecological variation that may affect the success of management actions.