EPBC 2021/9093 *Natural Temperate Grassland of the Victorian Volcanic Plain* and Golden Sun Moth *Synemon plana* Offset Management Plan, [redacted] Cressy, Victoria

Final Report V3

Prepared by Biodiversity Offsets Victoria Pty Ltd
on behalf of Dexus Craigieburn Pty Limited

April 2026

Document Control

Report	*Natural Temperate Grassland of the Victorian Volcanic Plain* and Golden Sun Moth *Synemon plana* Offset Management Plan, [redacted] Cressy, Victoria.		
EPBC Act Ref	EPBC 2021/9093		
Project	Craigieburn Industrial Development		
Proponent	Dexus Craigieburn Pty Limited ACN 677 761 072		
Proposed Action	The subdivide and develop land for industrial and commercial purposes at 752 Craigieburn Road East, Craigieburn, Victoria.		
Report Author	[redacted] Biodiversity Offsets Victoria Pty Ltd	**Project Number**	0659.1
Mapping	[redacted] GeoEccentric		
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Version	Final V3		
Date	30/04/2026		

Cover Photos: *Natural Temperate Grassland of the Victorian Volcanic Plain*, [redacted] Cressy, dominated by native Wallaby-grass *Rytidosperma* and Spear Grass *Austrostipa* spp. (photo taken by [redacted], 5/12/2023), Male Golden Sun Moth (photo taken by [redacted], Wildlife Experiences Pty Ltd, 24/12/2018).

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Declarations

Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both.

I am authorised to bind the approval holder, Dexus Craigieburn Pty Limited ABN 54 677 761 072, POA Dated 13 October 2025 to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed	[redacted]	[redacted]
Full name (please print)	[redacted]	[redacted]
Organisation (please print)	Dexus	
Role (please print)	Senior Legal Counsel	General Manager - Growth Markets Finance
Date	06-05-2026 | 14:37 AEST	06-05-2026 | 14:59 AEST

Docusign Envelope ID: DEE75CDD-B3B8-4186-8676-20C82FA5D578

Proponent and/or approval holder Conflict of Interest Declaration

I declare that to the best of my knowledge I do not have any actual, potential or perceived conflicts of interest that may affect the assessment of this Offset Proposal, except as set out below.

I undertake to make a further declaration detailing any actual, potential or perceived conflict of interest that may arise during the assessment period. Dexus Craigieburn Pty Limited PoA 13 October 2025

Signed	[redacted]	[redacted]
Full name (please print)	[redacted]	[redacted]
Date	06-05-2026 | 14:37 AEST	06-05-2026 | 14:59 AEST

Consultant Conflict of Interest Declaration

I declare that to the best of my knowledge I do not have any actual, potential or perceived conflicts of interest that may affect the assessment of this Offset Proposal, except as set out below.

I undertake to make a further declaration detailing any actual, potential or perceived conflict of interest that may arise during the assessment period.

I agree to comply with any mitigation steps required to address any declared conflict.

Signed	[redacted]
Full name (please print)	[redacted]
Date	

Landowner Declaration

I/we declare that to the best of my knowledge I do not have any actual, potential or perceived conflicts of interest that may affect the assessment of this Offset Proposal, except as set out below.

I/we undertake to make a further declaration detailing any actual, potential or perceived conflict of interest that may arise during the assessment period.

I/we agree to comply with any mitigation steps required to address any declared conflict.

I/we

- agree to the proposed offset being undertaken over my/our land as identified in Section 3, of this Offset Proposal;
- request the approval of this Offset Proposal under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- consent to the collection and use of the personal information in this document for the purposes of assessing this Offset Proposal made under the EPBC Act;
- solemnly and sincerely declare that the information provided is true and correct to the best of my/our knowledge and I/we make this solemn declaration conscientiously believing the same to be true; and
- understand that all information supplied on or with this application form may be disclosed publicly in accordance with the *Freedom of Information Act 1982* (FOI Act) and *Evidence Act 1995*.

I/we declare that any non-compliance with the requirements of the Offset Proposal shall constitute a breach of the terms and conditions of the legally binding mechanism entered into and I/we will take all necessary steps as may be required to accomplish my/our obligations contained in this offset proposal.

Signed [redacted]

Full name (please print) [redacted]

Date 30/4/2026

Signed

Full name (please print)

Date

Executive Summary

Dexus Craigieburn Pty Limited proposes to subdivide and develop land for industrial and commercial purposes at 752 Craigieburn Road East, Craigieburn, Victoria. The two-staged project involves residual impacts to one *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed ecological community, *Natural Temperate Grassland of the Victorian Volcanic Plains* (NTGVVP), and one EPBC Act listed fauna species, Golden Sun Moth *Synemon plana*. An offset located on private land at [redacted]Cressy, Victoria, is proposed to compensate for impacts to NTGVVP under Stages 1 and 2 of the project, and impacts to Golden Sun Moth under Stage 1 (only) of the project. The summary table below outlines the relevant impacts and proposed offset.

Summary Table. Proposed impact and offset for the Project.

Matter of Environmental Significance	Impact		Offset	
	Area	Quality	Area	Quality
Natural Temperate Grassland of the Victorian Volcanic Plains (NTGVVP)	7.615 ha (Stages 1 & 2)	3/10	49.1 ha	6/10
Golden Sun Moth *Synemon plana* habitat	8.8 ha (Stage 1 only)	5/10	50.4 ha	6/10

The offset comprises 49.1 hectares of NTGVVP, overlapping 50.4 hectares of Golden Sun Moth habitat, dominated by native perennial grasses and a variety of native herbs. 60 Golden Sun Moths have been recorded in the offset, and an additional 52 Golden Sun Moths were recorded in the remainder of the property since 2018. Previous and current ecological assessments undertaken across the property show that the quality and extent of NTGVVP and Golden Sun Moth habitat have declined in the last six years by 11-20% in quality and 21% in extent. This decline occurred under "business-as-usual" and lawful land management practices.

The offset proposes to prevent ongoing decline in NTGVVP and Golden Sun Moth habitat quality and extent by providing in-perpetuity statutory protection under a Trust for Nature Deed of Covenant for the Conservation of Land (*Victorian Conservation Trust Act 1972*), to permanently restrict allowable land uses to conservation activities only in accordance with this EPBC Act Offset Management Plan (OMP). The summary table below lists the proposed environmental offset outcomes. The OMP outlines the offset, its ecological values, proposed environmental offset outcomes, in-perpetuity security arrangement, 10-year offset management plan, offset monitoring and how the offset meets the principles of the *EPBC Act Environmental Offsets Policy* (SEWPaC 2012).

Summary Table. Proposed environmental offset outcomes.

	Environmental Outcome	Mechanism	Year to be achieved
1.	Secure and manage the offset site for conservation purposes in perpetuity	Trust for Nature Deed of Covenant for the Conservation of Land	Beginning of Year 1
2.	Achieve a gain in NTGVVP and Golden Sun Moth habitat to compensate for the impact	Avoid ongoing decline in MNES, and maintain current quality of NTGVVP and Golden Sun Moth habitat at 6/10	Year 10
3.	Implement a 10-year offset management plan	Offset Management Plan (OMP) outlined in Section 5	Years 1-10
4.	Maintain the offset in perpetuity	Trust for Nature Deed of Covenant for the Conservation of Land	Ongoing
5.	Undertake an adaptive management approach	Offset management adaptable to seasonal, climatic and site conditions	Ongoing

The following grassland conservation management actions are proposed under the 10-year offset management plan to achieve the environmental offset outcomes:

1. In perpetuity protection and conservation management of offset under a Trust for Nature Covenant;
2. Installation, upgrade and maintenance of stockproof fencing, locked gates, water and stock infrastructure, and offset boundary markers to delineate the offset area, prevent unauthorised livestock or vehicle access, and support a strategic grazing regime;
3. Installation and maintenance of signage;
4. Introduced and native biomass control for native flora recruitment and Golden Sun Moth habitat though:
    a. Strategic sheep grazing; and,
    b. Ecological burning;
5. Weed control to eliminate all woody weeds, and maintain or reduce the current cover of grassy and herbaceous weeds, through:
    a. Strategic sheep grazing;
    b. Ecological burning; and;
    c. Herbicide Application;
    d. Slashing (prior to seedset); and,
    e. Chipping or handpulling;
6. Pest animal control, including rabbits, foxes, and new or emerging pest animals;
7. Offset site, vegetation and species monitoring and reporting, including:
    a. Regular landowner site monitoring;
    b. Annual landowner offset site reporting;

c. Annual rapid spring surveys by a qualified botanist/ecologist;

d. Vegetation Quality Assessment by suitably qualified botanists/ecologists in in Years 2, 4, 6, 8 and 10; and

e. Golden Sun Moth Population Monitoring by suitably qualified zoologists/ecologists in Years 1, 2, 4, 6, 8 and 10; and

8. Adaptive management approach to ensure that all monitoring results and offset management outcomes are continually reviewed in respect to the site and seasonal conditions, adjustments to offset management are made in response to this continual review process, and alternative or new management measures and technologies are considered in consultation with Trust for Nature as required to meet the environmental offset outcomes.

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Tables

1 Introduction

Dexus Craigieburn Pty Limited proposes to subdivide and develop land for industrial and commercial purposes at 752 Craigieburn Road East, Craigieburn, Victoria (the Project; Figures 1 and 2). The two-staged project will involve the construction of roads, buildings and car parking. A referral under the EPBC Act was made in 2021 and a delegate of the Commonwealth Minister for the Environment determined the Project as a 'controlled action', to be assessed by preliminary documentation (see EPBC 2019/9093).

The Project proposes impacts to two *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed *Matters of National Environmental Significance* (MNES): the EPBC Act listed ecological community, *Natural Temperate Grassland of the Victorian Volcanic Plains* (NTGVVP), and EPBC Act listed fauna species, Golden Sun Moth *Synemon plana* (Table 1). A native grassland offset site at [redacted]Cressy, Victoria, is proposed to compensate for impacts to NTGVVP under Stages 1 and 2 of the project, and impacts to Golden Sun Moth under Stage 1 (only) of the project. (Figures 1 and 3). This Offset Management Plan (OMP) outlines the proposed offset, its ecological values, proposed environmental offset outcomes, in-perpetuity security arrangement, 10-year offset management plan, offset monitoring and how the offset meets the principles of the *EPBC Act Environmental Offsets Policy* (SEWPaC 2012).

Table 1. Proposed impact and offset for the Project.

Matter of Environmental Significance	Impact		Offset	
	Area	Quality	Area	Quality
Natural Temperate Grassland of the Victorian Volcanic Plains (NTGVVP)	7.615 ha (Stages 1 & 2)	3/10	49.1 ha	6/10
Golden Sun Moth *Synemon plana* habitat	8.8 ha (Stage 1 only)	5/10	50.4 ha	6/10

1.1 Matter of National Environmental Significance

The MNES relevant to the impact and proposed offset at [redacted]Cressy, are described below.

1.1.1 Natural Temperate Grassland of the Victorian Volcanic Plain

Natural Temperate Grassland of the Victorian Volcanic Plains (NTGVVP) is an ecological community listed as critically endangered under the EPBC Act. NTGVVP occurs on the fertile and poorly drained basalt soils in the Victorian Volcanic Plain bioregion that extends from the north and west of Melbourne to far-west Victoria (DCCEEW 2024a). It is dominated by native tussock-forming perennial grasses, including Kangaroo-grass *Themeda triandra*, Wallaby-grasses *Rytidospema* spp., Spear-grasses *Austrostipa* spp. and Tussock-grasses *Poa* spp., with native herbs, mostly from the daisy (*Asteraceae*), lily (*Anthericaceae, Asphodelaceae, Phormiaceae*), pea (*Fabaceae*) and orchid (*Orchidaceae*) families, occupying inter-tussock spaces. Native shrubs and trees are absent or sparse. NTGVVP is a dynamic and inherently variable ecological community. Its species richness and composition are subject to seasonal and climatic conditions, weather patterns, site and land management practices (TSSC 2008).

NTGVVP has been listed as critically endangered under the EPBC Act, as its original area of occupancy has reduced by more than 98% from clearance primarily for agriculture, including livestock grazing and cropping, and urbanisation. Remaining areas of NTGVVP continue to be threatened by these land uses, weed invasion, fragmentation and other pressures (TSSC 2008: CES 2018).

1.1.2 Golden Sun Moth

The Golden Sun Moth is listed as vulnerable under the EPBC Act. It is a medium-sized, diurnal moth with a wingspan up to 3.4 cm. They spend most of their lifecycle underground in a larval stage, feeding on the roots of Wallaby-grasses *Rytidospema* spp. However, the species may also inhabit degraded grasslands dominated by the exotic Chilean Needle-grass *Nassella neesiana*, a Weed of National Significance (WONS). Adults emerge during summer to breed, with males flying approximately one metre above the grass actively searching for a female. Adult moths generally survive for one to four days as they lack functional mouth parts (DAWE 2021).

The distribution of Golden Sun Moths corresponds with native temperate grassland and open grassy woodlands communities dominated by Wallaby-grasses across NSW, ACT, Victoria and South Australia (DCCEEW 2022b). The species is listed as vulnerable under the EPBC Act as its grassland habitat has been historically fragmented, leading to reduced genetic diversity amongst remaining populations and is susceptible to ongoing threats.

Other typical native grasses in Golden Sun Moth habitat may include Spear-grasses, Tussock Grasses, Weeping Grass *Microlena* spp., Wire-grasses *Aristida* spp. and Kangaroo Grass. Habitat containing a high cover (≥40%) of suitable host plants combined with well drained and north facing sites, with minimal shading, are preferred by the species. Areas of bare or sparsely covered ground between grass tussocks (inter-tussock spaces) are important in helping males locate females during the breeding period (October-January) (DAWE 2021).

2 Impact

Dexus Craigieburn Pty Limited proposes to subdivide and develop land for industrial and commercial purposes at 752 Craigieburn Road East, Craigieburn, Victoria (the Project). The project will involve the construction of roads, buildings and car parking (EHP 2024). The project involves residual impacts to two MNES, being NTGVVP and Golden Sun Moth.

2.1 Location

The development footprint relevant to EPBC 2021/9093 covers approximately 13 hectares located in the south-east portion of the land at 752 Craigieburn Road East, Craigieburn, Victoria, that is outside the Melbourne Strategic Assessment (MSA) area (EHP 2024) (Figure 2). The land is zoned Industrial 3 zone and has mostly been used for livestock grazing and commercial use. It is situated in the Melbourne Water Catchment Management Authority, Victorian Volcanic Plain bioregion and Hume Municipality. The EPBC 2021/9093 impact site is bounded by Craigieburn Road at its southern boundary, the rail corridor along its western boundary, and the remaining area of land at 752 Craigieburn Road East, Craigieburn, covered by the MSA along its north-eastern boundary.

2.2 Relevant Ecological Reports

The impact site has undergone a series of biodiversity assessments and threatened species surveys since 2019. The Preliminary Document report outlines the findings of these assessments, the targeted surveys undertaken for relevant MNES, and the assessment of significant impacts to MNES, see:

- *Final Preliminary Documentation: Proposed Industrial and Commercial Development at 752 Craigieburn Road East, Craigieburn, Victoria (EPBC 2021/9093)* (EHP 2026).

2.3 Significant Impacts to Matters of National Environmental Significance

EHP (2026) outlines the assessment of significant impacts to EPBC Act listed NTGVVP and Golden Sun Moth,and the steps taken to avoid and/or minimise impacts to MNES. The following residual impacts to MNES are proposed to be offset in accordance with *EPBC Act 1999 Environmental Offsets Policy* (SEWPaC 2012):

- 7.615 ha of NTGVVP under Stages 1 and 2 of the project;
- 8.8 ha of Golden Sun Moth habitat under Stage 1 of the project; and,
- 2.297ha of Golden Sun Moth habitat under Stage 2 of the project.

No other MNES are proposed to be impacted through the Project. This OMP outlines the proposed offset to compensate for the residual impacts to NTGVVP under stages 1 and 2 of the project, and Golden Sun Moth under Stage 1 (only) of the project.

3 Offset

A suitable offset has been identified to compensate for the proposed impacts to EPBC Act listed NTGVVP and Golden Sun Moth outlined in Section 2. Section 3 outlines the offset available and Section 4 details the offset management plan to be implemented at the offset site to achieve the proposed environmental offset outcomes. Table 2 below summarises the current offset site, and the proposed security and management arrangement to secure the offset required.

Table 2. Offset Site Security and Management

Address	[redacted]Cressy VIC 3322
Allotment	[redacted]
Victorian Bioregion	Victorian Volcanic Plain
Catchment Management Authority	Corangamite
Local Government Area	Golden Plains
Current Zoning	Farm Zone
Planning Overlays	Specific Controls Overlay – Schedule 2 (SCO2)
Current Security	None
Proposed Security	Trust for Nature Conservation Covenant
Offset Management Period	10 years
Offset Site Management Responsibility	Landowner
Offset Monitoring Responsibility	Landowner, Dexus Craigieburn Pty Limited and Trust for Nature

3.1 Location

The offset is located approximately 120 kilometres west of the impact site, on a sheep grazing property on [redacted]Cressy, Victoria ([redacted]Property No. [redacted](Figure 1). The property is approximately 160 hectares in size, and the proposed offset is 50.4 hectares (Figure 3). There is one other proposed offset (EPBC 2024/09809) on 71.5 hectares in the north of the property, which does not overlap with the proposed EPBC 2021/9093 (Dexus) offset (Figure 3). It is bordered by [redacted] along its south-western boundary, [redacted]along its eastern boundary, and farmland along its remaining western and northern boundaries. Farmland to the north and north-west of the site has been designated for the Golden Plains Wind Farm, currently in construction. The study area does not form part of the Golden Plains Wind Farm.

The property is located in the Golden Plains Shire Council, Corangamite Catchment Management Authority and Victorian Volcanic Plain bioregion. The offset site is zoned Farming Zone (FZ), which allows grazing of domestic livestock, and contains a Specific Control Overlay (SCO2) (DTP 2024). SCO2 authorises the use and development of land in accordance with the *Golden Plains Wind Farm Incorporated Document (May 2022)* and

the endorsed Golden Plains Wind Farm development plans (available here), which exclude the study area from the Golden Plains Wind Farm project development area.

3.2 Historic Land Use and Disturbance

The property has had a long history (more than 100 years) of sheep grazing, and occasional rock piles provides evidence of some historic rock removal having been practiced. The property presents no other evidence of significant ground disturbance (ie. cropping), nor recent fertiliser use or broad acre herbicide.

3.3 Previous Ecological Assessments

The offset was assessed by Biodiversity Offsets Victoria on 26 and 29 May 2017, and more recently on 5 December 2023, to identify native vegetation, habitat for MNES and threats to these ecological values, and to undertake a Vegetation Quality (Habitat Hectare) Assessment (DSE 2004; Parkes et al 2003). Targeted species surveys were also undertaken for three EPBC Act listed species, Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* (in conjunction with the offset site assessment on 26 and 29 May 2017), Golden Sun Moth *Synemon plana* (December 2018) and Striped Legless Lizard *Delma impar* (October to December 2022). The following ecological reports outline the methods, timing and findings of these assessments:

1. *Offset Site Assessment and Golden Sun Moth Survey, Golden Plains Wind Farm (*Biodiversity Offsets Victoria 2019);

   This report outlines the results of the offset site assessment and targeted Spiny Rice-flower surveys undertaken in the property on 26 and 29 May 2017, and the results of the targeted Golden Sun Moth surveys undertaken in December 2018 by qualified ecologists. The offset site assessment identified 124.883 hectares of Ecological Vegetation Class (EVC) 132 Plains Grassland of the Victorian Volcanic Plain bioregion with a vegetation quality score of 64 out of 100, and 3.5795 hectares of Plains Grassy Wetland (EVC 125) vegetation of the Victorian Volcanic Plain bioregion with a vegetation quality score of 57 out of 100 (DEECA 2024a). All Plains Grassland vegetation recorded also met the minimum thresholds to qualify for the EPBC Act listed NTGVVP (TSSC 2008), and provided suitable habitat for the EPBC Act listed Golden Sun Moth and Striped Legless Lizard (DCCEEW 2024c; TSSC 2016). Plains Grassy Wetland also met the minimum thresholds to qualify for the EPBC Act listed ecological community, *Seasonal Herbaceous Wetland (Freshwater) of the Temperate Lowland Plains* (SHWTLP) (TSSC 2012). No Spiny Rice-flower plants were recorded in the property during the targeted survey. 110 male Golden Sun Moths were recorded during the targeted Golden Sun Moth surveys in throughout the property (Figure 2).

2. *Threatened species targeted survey: Striped Legless Lizard* (SMEC 2023); and,

   This report outlines the results of the targeted Striped Legless Lizard surveys undertaken from October to December 2022. The targeted surveys recorded a large population of Striped Legless Lizard (23 individuals) in the property, and high-quality habitat for the species (Figure 3).

3. *Native Grassland Offset Site Assessment, [redacted] Cressy, Victoria* (Biodiversity Offsets Victoria 2024).

This report outlines the results of the recent offset site assessment undertaken in the property on 5 December 2023. The purpose of this assessment was to undertake an updated offset site assessment and VQA. Given the previous VQA was no longer valid under Victorian native vegetation assessment requirements (grassy ecosystems must be assessed within the last three years, DELWP 2017), the updated VQA provides an accurate assessment of the current condition and extent of native vegetation and habitat present. The updated offset site assessment identified 138.22 hectares of Plains Grassland (EVC 132) of the Victorian Volcanic Plain bioregion with a varying vegetation quality score of 51 or 57 out of 100, and 4.2393 hectares of Plains Grassy Wetland (EVC 125) vegetation of the Victorian Volcanic Plain bioregion with a vegetation quality score of 30 out of 100. The results of this VQA shows that the native vegetation in the property has declined in quality since 2017 by 11-47%, the extent of NTGVVP and Golden Sun Moth habitat declined by 21%, and the extent of SHWTLP declined by 100%. The landowner did not change their land management practices during the six-year period from 2017 to 2023, therefore the decline occurred under "business-as-usual" practices. The extent of Striped Legless Lizard habitat did not decline. Two male Golden Sun Moths were also recorded during the site assessment. The findings of this assessment specific to the proposed 52.3-hectare offset area are described further below.

3.4 Offset Description

The offset site comprises 50.4 hectares of high-quality Plains grassland vegetation, that forms part of a contiguous 138.22-hectare area of grassland habitat (Figure 3). The vegetation is dominated (50-70%) by native perennial grasses, including Wallaby-grass *Rytidosperma* spp., Spear-grass *Austrostipa* spp., Tussock-grass *Poa* spp., Kangaroo Grass *Themeda triandra*, Common Wheat-grass *Anthosachne scabra*, Common Blown-grass *Lachnagrostis filiformis* and Weeping Grass *Microleana stipoides*, with scattered Tree Violet *Melicytus dentatus* shrubs, Rushes *Juncus* spp., Common Spike-sedge *Eleocharis acuta* and a variety of native herbs, including Sheep's Burr *Acaena echinata*, Common Woodruff *Asperula conferta*, Beauty-heads *Calocephalus* spp., Bindweed *Convolvulus* spp., Kidney-weed *Dichondra repens*, Blue Devil *Eryngium ovinum*, Crane's Bill *Geranium* spp., Jersey Cudweed *Laphangium luteoalbum*, Poison Lobelia *Lobelia pratioides*, Grassland Wood-sorrel *Oxalis perennans* and Wiry Dock *Rumex dumosus* (Biodiversity Offsets Victoria 2024; Plates 1-4).

The vegetation also comprises a 30-50% cover of introduced (annual and perennial) pasture grasses and herbaceous weeds, predominantly being Canary-grass *Phalaris* spp., Yorkshire Fog *Holcus lanatus*, Brome *Bromus* spp., Barley-grass *Hordeum leporinum*, Browntop Bent *Agrostis capillaris*, Bearded Oat *Avena barbata*, Rough Dog's-tail *Cynosurus echinatus*, Hair Grass *Aira* spp., Couch *Cynodon dactylon*, Perennial Rye-grass *Lolium perenne*, Onion Grass *Romulea Rosea*, Fescue *Vulpia* spp., Cat's Ear *Hypochaeris radicata*, Dock *Rumex* spp., Sow-thistle *Sonchus* spp. and Clover *Trifolium* spp. (Appendix 1; Plate 5). Six declared noxious weeds of Victoria were recorded in or adjacent to the offset, including Winged Slender-thistle *Carduus tenuiflorus*, Spear Thistle *Cirsium vulgare*, Serrated Tussock *Nassella trichotoma*, Variegated Thistle *Silybum marianum*, Horehound *Marrumbium vulgare* and one African Box-thorn *Lycium ferocissimum* shrub (Figure 2). African Box-thorn is also a Weed of National Significance (WoNS). While Serrated Tussock, Variegated Thistle and Horehound were only recorded in two locations, Spear Thistle was recorded at a very high (5-50%) cover throughout the offset (Plate 5).

Planted trees and shrubs occur adjacent to the western boundary (along the property fenceline) and the eastern boundary of the offset (internally in the property), and include Australian native and non-native species, such as Black Sheoak *Allocasuarina littoralis*, Silver Banksia *Banksia marginata*, Eucalypts *Eucalyptus* spp. and Monterey Cypress *Cupressus macrocarpa* (Plate 6). Areas of planted vegetation are excluded from the proposed offset. However, self-recruiting Black Sheoak shrubs occur adjacent to the western offset boundary plantings within Plains Grassland vegetation in the proposed offset area (Plate 7). This species is not suitable to Plains Grassland vegetation and is therefore included as a woody-weed to this vegetation.

Two rabbit warrens occur adjacent to the proposed offset: one adjacent to a tree belt along the western offset boundary and one north-east of the offset in the centre of the property (Figure 3). Rabbits and foxes are known to occur in the surrounding area.

Plate 1 Native Blue Devil (foreground), Lemon Beauty-heads and Wallaby-grass in Offset (photo taken by [redacted], 5/12/2023)

Plate 2 Native Kangaroo Grass in Offset (photo taken by [redacted], 5/12/2023)

Plate 3 NTGVVP in Offset (photo taken by [redacted], 5/12/2023)

Plate 4 Native Blue Devil in Offset (photo taken by [redacted], 5/12/2023)

Plate 5 High cover of Spear Thistle amongst Plains Grassland vegetation in Offset (photo taken by [redacted], 5/12/2023)

Plate 6 Planted windrow of Black Sheoak shrubs adjacent to Plains Grassland vegetation, HZ 1A (photo taken by [redacted], 5/12/2023)

Plate 7 Self-recruited Black Sheoak invading Plains Grassland vegetation in Offset (photo taken by [redacted], 5/12/2023)

3.5 Vegetation and Habitat Quality Assessment

Table 3 outlines the results of the VQA undertaken in the proposed offset area on 5 December 2023 in accordance with Habitat Hectare methodology (Appendix 1; Biodiversity Offsets Victoria 2024; DSE 2004; Parkes et al 2003). The offset supports 50.4 hectares of Plains Grassland vegetation with a vegetation quality score of 57 out of 100, or 6 out of 10. This quality has declined from its previous quality of 64 out of 100 recorded in 2017 (Biodiversity Offsets Victoria 2019), showing a 7-point or 11% decline in six years. This decline was primarily due to an increased cover of introduced pasture grasses and herbaceous weeds. The landowner

reported that they did not change their practices during this period, and the site has been continually grazed with sheep. The decline in quality has occurred under “business-as-usual” practices.

All Plains Grassland vegetation in the proposed offset meets the minimum condition thresholds to qualify for the EPBC Act listed NTGVVP and provides suitable habitat for the EPBC Act listed Golden Sun Moth (Biodiversity Offsets Victoria 2024; DCCEEW 2024c; TSSC 2008; Tables 5 and 6). Plains Grassland vegetation comprises moderate inter-tussock spacing (5-20%) amongst a high cover and variety of native tussock grasses, including Wallaby and Spear grass, for the Golden Sun Moth. 110 male Golden Sun Moths were recorded during the targeted Golden Sun Moth surveys in 2018 throughout the property, and two additional moths were observed incidentally in flight during 2023 offset site assessment, with a total of 60 being recorded in immediate offset area (Biodiversity Offsets Victoria 2019 & 2024; Figure 3). Table 4 outlines the results of the Golden Sun Moth habitat quality assessment undertaken in accordance with the assessment methodology provided in Appendix 2 (Biodiversity Offsets Victoria 2024; Biosis 2020).

Table 3. Offset vegetation quality assessment results (Biodiversity Offsets Victoria 2024)

Habitat Zone			**1A**	**2A**
Area (ha)			**38.55**	**10.55**
MNES			**NTGVVP GSM SLL**	**NTGVVP GSM SLL**
EVC Name			***Heavier-soils* Plains Grassland**	***Heavier-soils* Plains Grassland**
EVC Number			**132_61**	**132_61**
Bioregion			**Victorian Volcanic Plain**	**Victorian Volcanic Plain**
		Max Score	**Score**	**Score**
Site Condition Score	Large Old Trees	10	NA	NA
	Canopy Cover	5	NA	NA
	Understorey	25	15	15
	Lack of Weeds	15	4	4
	Recruitment	10	6	6
	Organic Matter	5	5	5
	Logs	5	NA	NA
	Standardiser		1.36	1.36
	Total Site Condition Score	**75**	**40.8**	**40.8**
Landscape value	Patch Size	10	8	8
	Neighbourhood	10	4	4
	Distance to Core	5	4	4
	Total Landscape Score	**25**	**16**	**16**
Habitat points out of 100		**100**	**56.8**	**56.8**
Habitat (Quality) Score out of 10		**10**	**6**	**6**

Note: NTGVVP=*Natural Temperate Grassland of the Victorian Volcanic Plain*, GSM = Golden Sun Moth habitat, SLL = Striped Legless Lizard habitat

Table 4. Offset Golden Sun Moth habitat quality assessment results (Biodiversity Offsets Victoria 2024).

Site Number		**1 / A**	**2 / A**
Area (ha)		**39.85**	**10.55**
Golden Sun Moth Habitat Attributes	**Max Score**	**Score**	**Score**
Site condition	**3**	3	3
Site context	**3**	2	2
Species stocking rate	**4**	1	1
Habitat Quality Score out of 10	**10**	**6**	**6**

3.6 Matters of National Environmental Significance

Tables 5 and 6 below outline the condition thresholds for the EPBC Act listed NTGVVP and Golden Sun Moth (TSSC 2008; DCCEEW 2024c), and how Plains Grassland vegetation and habitat in the proposed offset meets these condition thresholds.

Table 5. Response to Condition Thresholds for EPBC Act listed *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) (TSSC 2008).

	NTGVVP Condition Thresholds	Offset
Vegetation Description	Natural Temperate Grassland of the Victorian Volcanic Plain is mostly limited to a ground layer of grasses and herbs. Large shrubs and trees are absent to sparse. The ground layer is dominated by native tussock-forming perennial grasses with a variety of herbs, mostly from the daisy (*Asteraceae*), lily (*Anthericaceae, Asphodelaceae, Phormiaceae*), pea (*Fabaceae*) and orchid (*Orchidaceae*) families, occupying the spaces among grass tussocks. The main grass species present are Kangaroo-grass *Themeda triandra*, particularly on drier sites, Wallaby-grasses *Rytidosperma* spp., Spear-grasses *Austrostipa* spp. and Tussock-grasses *Poa* spp.. Low gradient ephemeral and intermittent drainage lines may be dominated by a dense sward of the Tussock-grass *Poa labillardierei*.	The offset supports 49.1 hectares of native grassland vegetation dominated (>50% cover) by the following native grasses: Spear-grasses, Wallaby-grasses, Tussock-grass and Kangaroo Grass. Other native grasses present across the site include Common Wheat-grass and Common Blown-grass. The site also contains Rushes and native herbs, including Sheep's Burr, Common Woodruff, Beauty-heads, Blue Devil, Bindweed, Kidney-weed, Crane's-bill, Grassland Wood-sorrel, Jersey Cudweed, Poison Lobelia and Wiry Dock (Biodiversity Offsets Victoria 2024).
Ecological Vegetation Classes (EVCs)	The native vegetation within the site includes one or both of the following EVCs: Plains Grassland (EVC 132) or Creekline Tussock Grassland (EVC 654).	The site supports Plains Grassland (EVC 132) vegetation.
Bioregions	Site is in the Victorian Volcanic Plain or near to the Victorian Volcanic Plain (Central Victorian Uplands, Dundas Tablelands and Otway Plain Bioregions)	The site is within the Victorian Volcanic Plain
Size of Patch	If grassland remnant is ≤1 hectare, grassland patch needs to be at least 0.05 hectares in size with no more than 5% canopy cover of trees or shrubs. If grassland remnant is >1 hectare, grassland patch needs to be at least 0.5 hectares in size with no more than 2 trees per hectare.	The site forms part of a 138.22-hectare patch of native grassland habitat, with no canopy trees and <1% cover of native shrubs
Condition Thresholds	One or more of the following native grass genera accounts for at least 50% of the perennial ground layer cover: *Themeda*, *Rytidosperma*, *Austrostipa*, *Poa* and/or *Microleana*. OR Native wildflowers account for 50% or more of the total vegetation from September to February. OR Non-grassy weeds account for less than 30% of the total vegetation cover at any time of the year.	Perennial native grass genera, including *Themeda*, *Rytidosperma*, *Austrostipa* and *Poa*, make up for more than 50% of the vegetative cover in the offset.
Additional Characteristics	The conservation value of a patch of the ecological community is enhanced if it shows any of the following features: ▪ A high native plant species richness; ▪ Large patch size or connectivity with a large patch of remnant vegetation; ▪ Minimal weed invasion; ▪ Presence of threatened plant and/or animal species; ▪ Presence of natural exposed rock platforms and outcrops; or ▪ Presence of mosses, lichens or a soil crust on the soil surface.	The site forms part of very large patch of native grassland vegetation, with embedded and surface rock and a diversity of native plant species. This site also provides habitat for EPBC listed Golden Sun Moth and Striped Legless Lizard.

Table 6. Response to Habitat Condition Thresholds of the EPBC Act listed Golden Sun Moth *Synemon plana* (DAWE 2021; DCCEEW 2024c).

	Golden Sun Moth Habitat Condition Thresholds	Study Area
Location	Important populations known to occur in Victoria: -Victorian Midlands -Southern Volcanic Plain -South East Coastal Plain IBRA Bioregions -Port Phillip and Westernport CMA -Glenelg Hopkins CMA -North Central CMA	The site is located in the (Southern) Victorian Volcanic Plain
Vegetation Type	Native Grasslands associated with the following EPBC Act listed ecological communities in Victoria: *-Natural Temperate Grassland of the Victorian Volcanic Plain* *-Grassy Eucalypt Woodland of the Victorian Volcanic Plain* *-White Box-Yellow Box-Blakely's Red Gum Grassy Woodland* *-Grey Box (Eucalyptus macrocarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia*	The site supports 50.4 hectares of Plains Grassland vegetation that also qualifies for the EPBC Act listed *Natural Temperate Grassland of the Victorian Volcanic Plain*
Habitat Requirements	Native grassland with at least 40% cover of Wallaby Grasses *Rytidosperma* spp. and/or Spear Grasses *Austrostipa* spp. OR Introduced pastures with at least 40% cover of Chilean Needle Grass Nasella neesiana.	The site supports 50.4 hectares of native grasslands with at least 40% cover of Wallaby Grass and Spear Grass species. No Chilean Needle Grass was recorded at the site.
Size of Habitat	Site forms part of a large area (minimum area not known) of habitat, or provides connectivity to larger areas, and is subject to conservation management.	The site forms part of a large 138.22-hectare patch of native grassland vegetation, and is proposed to be subject to conservation management.
Species Presence	Appropriate targeted surveys have been undertaken (DSE 2010), which confirmed presence of an important population of Golden Sun Moth. OR Previous records of Golden Sun Moth show a high density of moths within the vicinity, and the site is large in size and has at least 40% cover of native Wallaby and/or Spear Grasses, or introduced Chilean Needle Grass.	A total of 112 Golden Sun Moths have been recorded across the contiguous (138.22-hectare) patch of native grassland vegetation during the targeted surveys in 2018 (110) and the December 2023 offset site assessment (2) (Biodiversity Offsets Victoria 2019 & 2024). 8 other Golden Sun Moths records also occur within 5km of the site (DEECA 2024b).
Security	Site to be secured under an on-title security agreement to protect the site from development and to manage it for conservation in perpetuity.	If approved for an EPBC Act offset, the site is proposed to be secured under a Trust for Nature Conservation Covenant (Offset).

3.7 Proposed Environmental Offset Outcomes

Table 7 outlines the environmental outcomes to be achieved through the proposed offset to compensate for impacts to MNES from the Project. These outcomes and how are further described below.

Table 7. Proposed environmental offset outcomes.

Environmental Outcome		Mechanism	Year to be achieved	Measure
1.	Secure and manage the offset site for conservation purposes in perpetuity	Trust for Nature Deed of Covenant for the Conservation of Land	Beginning of Year 1	▪ Deed of Covenant executed by Landowner and TfN, and subsequently registered on the land title
2.	Achieve a gain in NTGVVP and Golden Sun Moth habitat to compensate for the impact	Avoid ongoing decline in MNES, and maintain current quality of NTGVVP and Golden Sun Moth habitat at 6/10	Year 10	▪ Landowner Annual Monitoring and Reporting ▪ TfN Stewardship Program ▪ Vegetation and Habitat Quality Assessment ▪ Golden Sun Moth Population Monitoring
3.	Implement a 10-year offset management plan	Offset Management Plan (OMP) outlined in Section 4	Years 1-10	
4.	Maintain the offset in perpetuity	Trust for Nature Deed of Covenant for the Conservation of Land	Ongoing	▪ Deed of Covenant and OMP secured on land title in perpetuity ▪ Landowner monitoring and TfN Stewardship Program undertaken in perpetuity in accordance with OMP and TfN Conservation Management Plan
5.	Undertake an adaptive management approach	Offset management adaptable to seasonal, climatic and site conditions	Ongoing	

Environmental Outcome 1: Secure and manage the offset site for conservation purposes in perpetuity

The proposed offset will be permanently secured under a Trust for Nature (TfN) Deed of Covenant for the Conservation of Land. This security mechanism meets the requirements under the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (SEWPaC 2012). It is legally enforceable under the *Victorian Conservation Trust Act 1972*, will provide statutory protection to the offset, and will permanently restrict allowable land uses, including agriculture or urban development activities that would impact MNES on site, to conservation activities only in accordance with an approved EPBC Act OMP. The proposed offset management (Section 4) will also ensure the offset is protected from threats to native grassland habitat, including unauthorised vehicle access, weed invasion and uncontrolled livestock grazing. Sheep will access the offset site under a controlled grazing regime for the purposes of biomass control and weed management only, discussed further in Sections 4.1.4 and 4.1.5 below.

The Deed of Covenant will be administered by TfN. TfN will monitor the implementation of the offset and achievement of environmental outcomes under their Stewardship Program. The TfN Stewardship Program includes assessment of annual reporting requirements (Section 4.1.7.1), and stewardship visits in Years 1, 4, 7 and 10, and every five years thereafter. The offset will commence from the date the TfN Deed of Covenant is registered on the land title. TfN will develop a Conservation Management Plan (CMP) following the completion

of the 10-year offset management plan. The TfN CMP will act as a guidance document, and be consistent with the approved OMP, to assist the landowner to maintain the offset environmental outcomes in perpetuity.

Environmental Outcome 2: Achieve a gain in MNES to compensate for the impact

The proposed offset at [redacted]Cressy, comprises 49.1 hectares of NTGVVP overlapping 50.4 hectares of Golden Sun Moth habitat, across two habitat zones 1A and 2A (Figure 3). Table 8 outlines the offset areas within each habitat zone proposed to compensate for impacts to MNES from the Project.

Table 8. Proposed impact and offset for MNES.

Matter of Environmental Significance	Impact		Offset			
			HZ 1A		HZ 2A	
	Area (ha)	Quality	Area (ha)	Quality	Area (ha)	Quality
Natural Temperate Grassland of the Victorian Volcanic Plains (NTGVVP)	7.615 ha (Stages 1 & 2)	3/10	38.55	6/10	10.55	6/10
Golden Sun Moth *Synemon plana* habitat	8.8 ha (Stage 1 only)	5/10	39.85	6/10	10.55	6/10

To compensate for impacts to 7.615 hectares of NTGVVP and 8.8 hectares of Golden Sun Moth habitat, a total of 49.1 hectares of NTGVVP and 50.4 hectares of Golden Sun Moth habitat will undergo conservation management in accordance with an approved OMP to avoid ongoing decline in its current extent and quality over the 10-year offset management period, to be maintained in perpetuity. Native grassland ecosystems are declining at a significant rate in Victoria (14% loss in extent was recorded from 2005 to 2015, CES 2018), and are under ongoing threats, particularly from weed invasion, and the intensification and expansion of agricultural production and urban development.

The findings of the recent offset site assessment of the Cressy offset site showed that, in the last six years, Plains Grassland vegetation in the property declined in quality by 11-20%, representing an average quality decline of 1.8-3.4% per annum, and the extent of NTGVVP and suitable Golden Sun Moth habitat declined by 21%, representing an average extent decline of 3.5% per annum. This decline occurred under the landowner's standard land management practices, which included entitled land uses, such as livestock grazing for the purposes of agricultural production. The decline did not occur due to unlawful activities. The proposed offset will provide permanent statutory protection to 50.4 hectares of NTGVVP and suitable habitat for Golden Sun Moth, and prevent ongoing decline in their quality and extent. This will be achieved by foregoing entitled land uses relevant to the farming zone that impact MNES, including uncontrolled grazing and inappropriate biomass and weed control that has facilitated the spread of introduced pasture grasses and herbaceous weeds. The offset will commit the landowner to the conservation management of these MNES in perpetuity.

Gains in NTGVVP (49.1 hectares)

Table 9 outlines the current vegetation quality of the proposed offset, the projected decline in quality over 10 years without the offset, and the projected quality with the offset. The projected decline in vegetation quality without the offset from 6/10 to 5/10 assumes that the historic grazing practices will continue with a goal of primary production, and not conservation. This would result in the ongoing degradation of grassland vegetation under detrimental farming practices, including over-grazing of native herbs and grasses in dry periods, under-grazing (or lack of biomass control) of introduced grasses and herbaceous weeds during high-growth (wet) periods, uncontrolled vectors for the spread of pest plants and animals, soil disturbance, and fertilizer and broad-acre herbicide application. These practices have been shown to promote the spread of introduced annual grasses and herbaceous weeds (impacting 'lack of weeds' score), reduce the extent and diversity of native grassland species (impacting 'understorey' score), reduce soil crust and inter-tussock space (for 'recruitment' and habitat), and reduce the availability of native organic litter (impacting 'organic litter' score) available for decomposition (Tumble and Fraser 1932; Dorrough et al 2004 & 2008a). The decline in Plains Grassland vegetation quality by 11-20% recorded in the last six years under "business-as-usual" land management practices provides clear evidence of this decline is likely to continue without intervention.

The proposed maintenance of the grassland vegetation quality with the offset at 6/10 is of significant value to the long-term conservation of the critically endangered NTGVVP and vulnerable Golden Sun Moth, whose extent and habitat continue to decline and are under increasing threats (DEWHA 2008; DAWE 2021). This will be achieved through providing in perpetuity protection to the offset, foregoing existing land use entitlements, and undertaking targeted conservation management in accordance with the OMP.

Table 9. Current and future projected vegetation quality, with and without the proposed offset (Appendix 1)

			Current Quality		Projected Quality without Offset		Projected Quality with Offset	
Site Number			**1 / A**	**2 / A**	**1 / A**	**2 / A**	**1 / A**	**2 / A**
Area (ha)			**38.55**	**10.55**	**38.55**	**10.55**	**38.55**	**10.55**
MNES			**NTGVVP GSM SLL**		**NTGVVP GSM SLL**		**NTGVVP GSM SLL**	
EVC Name			***Heavier-soils* Plains Grassland**		***Heavier-soils* Plains Grassland**		***Heavier-soils* Plains Grassland**	
EVC Number			**132_61**		**132_61**		**132_61**	
Bioregion			**Victorian Volcanic Plain**		**Victorian Volcanic Plain**		**Victorian Volcanic Plain**	
		Max Score	**Score**	**Score**	**Score**	**Score**	**Score**	**Score**
Site Condition Score	Large Old Trees	10	NA	NA	NA	NA	NA	NA
	Canopy Cover	5	NA	NA	NA	NA	NA	NA
	Understorey	25	15	15	15	15	15	15
	Lack of Weeds	15	4	4	0	0	4	4
	Recruitment	10	6	6	3	3	6	6
	Organic Matter	5	5	5	4	4	5	5
	Logs	5	NA	NA	NA	NA	NA	NA
	Standardiser		1.36	1.36	1.36	1.36	1.36	1.36
	Total Site Condition Score	**75**	**40.8**	**40.8**	**29.92**	**29.92**	**40.8**	**40.8**
Landscape value	Patch Size	10	8	8	8	8	8	8
	Neighbourhood	10	4	4	4	4	4	4
	Distance to Core	5	4	4	4	4	4	4
	Total Landscape Score	**25**	**16**	**16**	**16**	**16**	**16**	**16**
Habitat points out of 100		**100**	**56.8**	**56.8**	**45.92**	**45.92**	**56.8**	**56.8**
Habitat (Quality) Score out of 10		**10**	**6**	**6**	**5**	**5**	**6**	**6**

Note: NTGVVP=*Natural Temperate Grassland of the Victorian Volcanic Plain*, GSM = Golden Sun Moth habitat, SLL = Striped Legless Lizard habitat

Gains in Golden Sun Moth habitat (50.4 hectares)

Table 10 outlines the assessed habitat quality of the proposed Golden Sun Moth offset in accordance with the Golden Sun Moth habitat quality assessment methodology (Biodiversity Offsets Victoria 2024; Appendix 2; Biosis 2020), the projected decline in quality over 10 years without the offset, and the projected quality with the offset. The current habitat quality for Golden Sun Moth in the offset is high at 6/10, predominantly due to the high cover of suitable host plants (native tussock grasses >40%) and moderate inter-tussock space resulting in a 'site condition' score of 3/3. The 'site context' and 'Specific stocking rate' scores are more moderate, and reflect the habitat size, connectivity and aspect, and per hectare species stocking rate respectively.

The projected decline in Golden Sun Moth habitat quality without the offset from 6/10 to 5/10 assumes that the continuation of historic grazing practices will degrade the quality of habitat in the offset (impacting 'site condition' score), through over-grazing native flora in dry and low-growth periods and under-grazing wet and high-growth periods, and will increase the risk of soil disturbance, and fertilizer and broad-acre herbicide use. These practices have been shown to increase introduced biomass, thereby limiting inter-tussock space for Golden Sun Moth breeding, and reduce the extent and diversity of native grassland

species, in particular Wallaby-grasses upon which the persistence of Golden Sun Moth populations depend (Tumble and Fraser 1932; O'Dwyer and Attiwill 1999; Dorrough et al 2004). This decline has occurred in native grassland habitat in other areas of the property in the last six years under "business-as-usual" land management practices (Biodiversity Offsets Victoria 2024).

Given the already high site condition score, there is limited scope to improve the current quality of Golden Sun Moth habitat further without committing the landowner to achieving unrealistic targets beyond their control, such as increasing long term species stocking rates which are also subject to natural breeding cycles, and climatic and seasonal conditions. The recent 2021/22 and 2022/23 Golden Sun Moth survey periods for example, saw fewer Golden Sun Moths recorded across Victoria, most likely due to the cooler and wetter conditions experienced under La Nina affect, which was beyond control of land managers.

Given the significant threats to remaining native grassland habitats in Victoria from the intensification and expansion of agricultural production and urban development (CES 2018), the protection and maintenance of remaining native grassland habitats for the Golden Sun Moth is of significant value to the persistence of the species throughout the state (DAWE 2021). Hence, the protection and maintenance of Golden Sun Moth habitat across 50.4 hectares is proposed to compensate for impacts to Golden Sun Moth habitat from the Project.

The projected quality of Golden Sun Moth habitat will be maintained at 6/10 through aiming to provide adequate inter-tussock space (20-40%) by the commencement to the Golden Sun Moth breeding season (typically October to January), and maintaining or reducing the current weed cover (30-50%). Ongoing Golden Sun Moth population and habitat monitoring will be undertaken throughout the offset management period.

Table 10. Assessed and future projected Golden Sun Moth habitat quality with and without the proposed offset (Appendix 2; Biosis 2020).

Golden Sun Moth Habitat Quality Assessment		Current Quality		Projected Quality without Offset		Projected Quality with Offset	
	Max	1 / A	2 / A	1 / A	2 / A	1 / A	2 / A
Site condition	3	3	3	2	2	3	3
Site context	3	2	2	2	2	2	2
Species stocking rate	4	1	1	1	1	1	1
Habitat Quality out of 10	10	6	6	5	5	6	6
Golden Sun Moth Offset Area (ha)		39.85	10.55	39.85	10.55	39.85	10.55

Environmental Outcome 3: Implement the 10-year offset management plan

A 10-year offset management plan (OMP) is outlined in Section 4. The OMP has been prepared in consultation with the land manager and Trust for Nature, and drawn from peer-reviewed literature and expertise in grassland habitat management. The management activities, performance targets and schedule

of works for the 10-year management period are outlined below. The implementation of this OMP is essential to achieve the proposed environmental offset outcomes for NTGVVP and Golden Sun Moth habitat.

Environmental Outcome 4: Maintain the offset in perpetuity

The TfN Deed of Covenant will secure the offset on-title in perpetuity, and require the current and all future landowners to implement the approved OMP and TfN CMP, and maintain the offset in perpetuity under the *Victorian Conservation Trust Act 1972*. This includes the in perpetuity maintenance of the environmental gains achieved in MNES at the end of the 10-year offset management period. The approved OMP will be secured on the land title in perpetuity with the Deed of Covenant. TfN will develop the CMP following the completion of the 10-year offset management period to assist the landowner to maintain the offset environmental outcomes in perpetuity in accordance with the offset in perpetuity performance and completion criteria (see Section 4.4).

Environmental Outcome 5: Undertake an adaptive management approach

Native grasslands are dynamic and inherently variable ecosystems, where vegetation and habitat composition can change yearly and seasonally in response to rainfall, temperature, fire, grazing pressure and management (Langford 2005). The composition and cover of native flora naturally fluctuates seasonally with their growth cycles, and without native canopy protection, grassland vegetation and habitats are particularly vulnerable to short- and medium-term weed invasions and climatic extremes. Managers of native grassland habitats must be highly responsive to seasonal variability, changes in site conditions and the emergence of new threats, and have sufficient flexibility to adapt their management appropriately.

An adaptive management approach involves continual monitoring, review and re-evaluation of management strategies to achieve the management objectives. Undertaking an adaptive management approach is essential to the success of this offset, as it will ensure that the land manager has adequate flexibility to adjust their management approach according to the outcomes of implemented management activities and/or unforeseen threats that may arise, and to respond to seasonal variations, in particular fluctuations in annual grassy and herbaceous weeds.

An adaptive management approach may involve adjustments in the timing and methods of the management activities outlined in Section 4.1 below. It may also involve the introduction of alternative management activities that are not outlined below, but which also align with the proposed environmental outcomes of the offset. To ensure accountability under an adaptive management approach, any changes to the management actions outlined below, or the introduction of new activities and approaches beyond the scope of the proposed offset management actions in Section 4.1 should be undertaken in consultation with TfN. This may include new conservation management techniques and/or sophisticated technologies not available today, such as the use of artificial intelligence in drone technology to target problem weed species. A variation to the OMP should not be required under an adaptive management approach, unless a

variation to the proposed environmental offset outcomes is required. Any proposed variation to the OMP will be subject to DCCEEW approval.

Under an adaptive management approach, strict management actions and schedules are not possible as they will limit the flexibility of the land manager to adjust management approaches and timing in response to changing site, seasonal or climatic conditions. Accordingly, restrictive language, such as “must” are not used under the proposed grassland management actions. All targets should be assessed with consideration of the timing of the assessment and normal seasonal variability, and where appropriate, unseasonal conditions and/or recent management. For example, summer rainfall typically results in the rapid germination of herbaceous weeds, particularly Flatweed (Section 4.1.5.3) and thistles, and grassland vegetation assessments undertaken in winter or following grazing events are less likely to detect the diversity and cover of native flora present.

Regular site monitoring and good record keeping (see Section 4.1.7) will ensure that in the event that performance targets are not met within a particular period, evidence of the climatic and site conditions, and management and remedial actions undertaken will assist to determine ongoing compliance with the approved OMP. Flexibility in the timing of vegetation assessments will also avoid a reliance on average seasonal conditions prevailing in order to meet performance targets, and allow land managers to effectively respond to unseasonal events without impacting fixed assessment schedules.

4 Offset Management Plan (implementation)

4.1 Management Actions

4.1.1 Security Agreement

The offset management plan will commence on the date of registration of the TfN Deed of Covenant on title. The Deed of Covenant will provide statutory protection to the offset and permanently restrict allowable land uses to conservation purposes only in accordance with the approved OMP and TfN CMP (post-Year 10). It will exclude land uses for agricultural production, development, recreation and any other activities that may remove or disturb native vegetation and habitat, soil and rocks.

4.1.2 Fencing, Water and Access

The property is fenced and partially stockproof along all boundaries. Unmaintained internal fencing divides the offset into three separate paddocks, however this fencing is not currently stockproof and needs repair, replacement and/or relocation to align with the northern offset boundary (Figure 3). Sections of the offset boundary fencing also require upgrading or repair, and barbwire will be removed and replaced with plain wire to avoid injury to wildlife.

All property and offset boundary fencing will be reviewed and upgraded as required. Property boundary fencing will border the offset site along its south-western and eastern boundaries (Figure 3). Internal property fencing will border part of the offset site along its northern and north-eastern boundary. The remaining (unfenced) offset boundary will be marked on-site by a licenced Surveyor with permanent posts.

New internal fencing will be erected within the offset area to provide three to four paddocks to support a rotational grazing regime (Section 4.2.4.1). A centralised stock water source (bore) and associated water infrastructure (ie. piping, troughs) will be installed in conjunction with fencing to adequately service all grazing paddocks.

Fencing installation and upgrades, stock water infrastructure and the installation of offset boundary markers, will be undertaken as soon as practical within a suitable season (summer to autumn) within 18 months from the commencement of the OMP. This timeframe ensures adequate flexibility for the landowner to avoid impacts to native flora and soils from vehicles (ie. when wet) and accounts for current labour shortages (ie. fencing contractors currently booked up 6 months ahead).

All fencing will be stockproof and will assist in undertaking a controlled strategic grazing regime in the offset site (section 4.1.4.1). Gates will be installed to allow vehicle access for offset management and monitoring purposes. The offset site will not be accessed by heavy vehicles during wet periods (eg. winter) to avoid adverse impacts to native vegetation and soil structure. Sheep yards will also be installed adjacent to [redacted] to avoid access by livestock trucks onto the property. The property is accessible by three gates from [redacted] and two gates from Ledwells Road, although vehicles access via Ledwells Road is limited (4WD only). These gates will remain locked to avoid unauthorised access to the property and offset site.

4.1.3 Signage

Within three months from the commencement of the OMP, signage will be erected along the offset and property boundary fences, and at all vehicle access gates to alert neighbouring properties and land managers to the presence of the offset site and prohibited activities. A minimum of four signs will be erected along the property boundary fence and one for each offset site access gate.

4.1.4 Biomass Control

Biomass control is an important management activity to promote floristic diversity in native grassland vegetation and provide suitable habitat for the Golden Sun Moth. Biomass control aims to provide adequate inter-tussock space for the germination and recruitment of native flora, and for Golden Sun Moth habitat and breeding from October to January, and will target introduced flora species through timing and regular monitoring (discussed below).

The current cover of bare ground varies from 5-20% in the offset. Biomass control will aim to provide 20-40% bare ground or inter-tussock space by mid-late spring each year, where achievable in respect to seasonal conditions, for the recruitment of native herbs and grasses, and to coincide with the beginning of the Golden Sun Moth breeding season (October to January). Biomass control may be undertaken through strategic grazing with sheep and ecological burning.

4.2.4.1. *Strategic Grazing*

Strategic livestock grazing has been recognised as an essential management tool for the conservation of productive grassland ecosystems (Lunt et al 2007; Dorrough et al 2008b). However, a controlled approach must be undertaken to target introduced grasses and herbaceous weeds, promote the recruitment and extent of native species, and provide adequate inter-tussock space for the Golden Sun Moth. Through sheep grazing trials undertaken in NTGVVP, Zimmer et al (2010) found that a grazing and rest regime, with a rest in either spring or summer, resulted in a higher cover and diversity of native herbs than a set-stocking or grazing exclusion regime. A rest over both spring and summer however resulted in a slightly reduced cover and diversity of native herbs, most likely due to competition with introduced annual grasses and herbaceous weeds.

Zimmer et al (2010) cautions that the cover and extent of native and non-native species from each grazing trial was site-dependent, and that management decisions need to take into account the existing species composition and seasonal conditions. The offset site comprises a moderate to high cover of introduced grasses and herbaceous weeds (30-50%). High intensity grazing in late-winter and early spring is a suggested regime for grasslands with a high cover of annual grassy weeds, to avoid competition with native species recruiting in spring and summer (Dorrough et al 2008a). However, spring and summer periods with a higher than average rainfall may also require longer periods of grazing.

The offset site will form part of a rotational grazing regime across the entire property. Internal fencing will be installed or upgraded (Section 4.1.2) to divide the offset into three to four paddocks to support rotational grazing. A centralised stock water source (bore) and associated water infrastructure (ie. piping, troughs) will be installed to service all grazing paddocks. The number of sheep, timing and grazing period for the offset will

depend largely on seasonal conditions, and will involve close monitoring by the land manager to determine the appropriate pressure, timing and frequency. Under a strategic grazing regime for this offset (unless a variation is made in consultation with TfN) the land manager will:

- Implement a grazing and rest regime using sheep;
- Allow native grasses sufficient rest and recovery time after each grazing period (ie. until all native grass species have at least three tillers);
- Reduce the grazing pressure from mid to late spring to (eg. <6 DSE/ha) where possible to minimise impacts to native forb species and allow for their natural recruitment;
- Maintain a minimal stocking rate over summer (0-6 DSE/ha depending on seasonal conditions) to support the natural recruitment of native grass species;
- Where possible, aim for a 3-month exclusion period in either spring or summer if seasonal and vegetative conditions allow (eg. if annual introduced grasses and herbaceous weeds are not out-competing native flora); and,
- Reduce or remove grazing from the offset site entirely at any other time as required (eg. during dry, low growth periods, or extreme wet conditions when site may be at risk of excess pugging), to avoid impacts to the native grassland, and Golden Sun Moth habitat.

To assist landowner decisions on the most appropriate grazing regime relevant to the vegetation quality, species composition and seasonal conditions each year, a rapid spring survey will be undertaken by a qualified botanist/ecologist in each management year (Section 4.1.7.2). The survey will identify the flora species present and the composition of these species at the time of assessment, including the extent of native versus non-native, and introduced grasses and herbaceous weeds. This survey will assist management decisions on biomass and weed control over spring and summer.

4.2.4.2. *Ecological Burning*

Ecological burning can assist in reducing both native and non-native biomass and, where targeted, the cover of introduced grasses, particularly if undertaken in conjunction with strategic grazing and other weed control (Lunt & Morgan 2002). The timing and intensity of ecological burning should be adjusted according to the flora species being targeted, their growth and flowering periods, and to assist the effectiveness of other weed control.

For example, Yorkshire Fog *Holcus lanatus* is an introduced perennial grass in the offset that tolerates wet conditions. If conditions allow, it can be controlled through burning at the beginning of its flowering period (August to December) in winter. Introduced annual grasses generally flower from mid-late spring, accordingly burning can be undertaken in late winter or early spring to control introduced annual grasses prior to their high-growth and seed set period. Where required, dense swards of native Kangaroo Grass *Themeda triandra* can be thinned through either burning in spring to create space for native herb recruitment, or autumn (prior to their dormancy) to reduce their overall density. Ecological burning can also be undertaken to increase the effectiveness of herbicide spraying of introduced perennial grasses. Toowoomba Canary-grass *Phalaris aquatica* can be more effectively sprayed after a burn has removed its large perennial tussock, as a smaller regenerating tussock requires less chemical herbicide to kill.

Follow-up weed control post-burning is essential to target introduced grasses and herbaceous weeds prior to their re-establishment. Post-burn seeding with indigenous grassland flora of local provenance (ie. from site or local area) is recommended, particularly where areas of introduced annual grasses have been targeted, to facilitate the re-establishment of native flora and their competition with introduced species.

While burning is an effective management tool in native grasslands, the outcomes of burning can vary and should be used on a 'trial' basis, followed up by regular monitoring and review. For this offset, ecological burning will involve:

- Burning outside the Golden Sun Moth flying and fire danger period (generally April to early November, seasonal dependent);
- Burning within the fire danger period can only be undertaken following approval by TfN and with a permit to burn from the Golden Plains Shire Council;
- Pre- and post-burn monitoring, including photos and observations on biomass, weed and native vegetation covers, and summarised in annual reports (see Section 4.1.7.1);
- Burning in a non-targeted mosaic pattern to a maximum of 50% of the offset site in one year, or burning one or multiple targeted areas (to a maximum of 50% of the offset site in one year) with a high cover of introduced grasses;
- A minimum of two burns to be undertaken prior to Year 9 of the 10-year offset management period, to allow for adequate review of results in Years 9 and 10;
- The reintroduction of grazing should be delayed post burn to allow sufficient recovery of native perennial grass (eg. native grasses have a minimum of three tillers); and,
- All burning must be undertaken in accordance the Golden Plains Shire and CFA planning requirements.

4.1.5 Weed Control

The offset site contains two woody weed species, and a moderate to high cover of introduced grasses and herbaceous weeds (30-50%). Table 11 below lists all the weeds observed on site, their threat status (based on their invasiveness and status under the *Catchment and Land Protection Act 1994*), and the method and timing for their control. All woody weeds must be eliminated (<1% cover) by the end of Year 2 of the 10-year offset management period. The total weed cover will be maintained or reduced over the 10-year offset management period to remove the increasing threat of introduced flora to the MNES and facilitate the recruitment of native flora species. The cover of high threat weeds will be targeted to minimise their competition with native vegetation.

Weed control methods include strategic grazing (Section 4.1.4.1), ecological burning (Section 4.1.4.2), herbicide application (Section 4.1.5.1), slashing (ie. prior to seedset) chipping (ie. with hoe) or handpulling. Monitoring for new and emerging weeds will be conducted throughout the year, and any new high threat weeds eliminated. High threat weeds include all woody weeds, declared noxious weeds of Victoria, Weeds of National Significance, and new introduced perennial grasses that out-compete native flora.

4.1.5.1 *Herbicide Application*

The application of herbicides is an effective and efficient control method for a range of woody, herbaceous and grass weeds. Herbicide application methods will vary depending on the weed species being targeted, their location, growth and flowering periods, and density. Off-target impacts to native flora and fauna, and waterways, must be avoided through the correct use, timing and careful application of herbicides. All herbicide application must be undertaken by suitably qualified personnel, using best-practice methods, and in accordance with the manufacturer's specifications and occupational health and safety policies.

4.1.5.2 *Onion Grass*

Onion Grass *Romulea rosea* is a common weed found throughout Victoria. It occurs in the offset site at a low cover (approximately 1%). Control options for Onion Grass are however limited in native grasslands, as there are no selective herbicides that will target Onion Grass without also harming adjacent native species. Corms may be dug out, but this practice will cause significant ground disturbance for native flora and fauna. If concentrated infestations occur, that do not contain any native flora, herbicide may be applied. If infestations contain native flora, herbicide cannot be applied.

4.1.5.3 *Flatweed*

'Flatweed' or 'Cat's Ear' *Hypochaeris radicata* is a widespread weed in south-eastern Australia, found in both disturbed and undisturbed sites. The Royal Botanic Gardens of Victoria (RBGV) (2024) describe Flatweed as "Probably the most ubiquitous weed in Victoria, occurring even in near-pristine native vegetation". The species is a perennial herb up to 80cm tall, with a long tap-root, a rosette of lanceolate leaves and bright yellow flowers. It produces large quantities of wind-dispersed seed, which can germinate all year-round in response to favourable (generally wet) conditions. It is not considered a high threat weed of native grasslands, but rather it is opportunistic. Their cover fluctuates in response to seasonal and site conditions, and they are not known to out-compete native vegetation. Recommended control techniques for Flatweed include a combination of spot-spraying, mechanical removal and rotational grazing (HerbiGuide 2022). However, given its widespread distribution and invasiveness, any control of flatweed is unlikely to be effective long term, hence eradication is not considered possible, nor essential to the health of the grassland habitat.

Maintaining or reducing the current weed cover is considered achievable over the 10-year offset management period, with the exception of Flatweed as a potential variable to this target, particularly under favourable (wet) conditions. Any assessment of Flatweed cover should review the species overall trend under average seasonal conditions where possible. Site monitoring and management decisions should factor in the difficulties in effective control of Flatweed, whether the offset is subject to unusually wet conditions, which would favour the species temporarily and cause fluctuations in its cover to occur, and whether a fluctuation in Flatweed is potentially impacting the health of the grassland or not.

Table 11. Weeds recorded in the Offset Site, control method and timing.

Weed Group/ Common Name	Species Scientific Name	Threat Status	Method	Timing
Woody weeds	*Lycium ferocissimum, Allocasuarina littoralis*	High	Herbicide application, cut and paste stumps and/or physical removal	All year
Annual grasses	*Aira spp., Avena* spp., *Bromus* spp., *Hordeum spp., Lolium* spp., *Vulpia spp.*	Moderate	Strategic grazing, ecological burning and slashing prior to seedset	Autumn to spring
Perennial grasses	*Agrostis capillaris, Holcus lanatus, Anthoxanthum odoratum, Cynodon dactylon, Cynosurus echinatus*	Moderate	Strategic grazing, ecological burning, slashing and herbicide application prior to seedset and/or post-burning.	All year
Serrated Tussock	*Nassella trichotoma*	High	Herbicide application prior to seedset, chip or handpull	All year
Toowoomba Canary-grass	*Phalaris aquatica*	High	Strategic grazing, ecological burning, slashing and herbicide application.	All year
Flatweeds	*Erodium botrys, Helminthotheca echioides, Hypochaeris spp, Plantago spp., Rumex spp., Sonchus spp.*	Low	Strategic grazing, if required herbicide application prior to flowering	All year
Capeweed	*Arctotheca calendula*	Moderate	Herbicide application prior to flowering, or chip if practical (eg. present in low numbers).	spring
Thistles	*Carduus tenuiflorus, Cirsium vulgare, Silybum marianum*	High	Herbicide application prior to flowering, or chip if practical (eg. present in low numbers). .	All year
Herbaceous weeds	*Acetosella vulgaris, Malva parviflora, Solanum nigrum, Trifolium spp.*	Low	Strategic grazing, if required, herbicide application prior to flowering to control concentrated areas only, or chip if practical (eg. present in low numbers). .	spring
Onion Grass	*Romulea* spp.	Moderate	If concentrated areas occur that do not comprise any native vegetation, herbicide may be applied.	winter to spring
Horehound	*Marrumbium vulgare*	Low	Herbicide application prior to flowering, or chip if practical (eg. present in low numbers). .	summer to autumn

4.1.6 Pest Control

The *Catchment and Land Protection Act 1994* lists rabbits and foxes as established pest animals and requires that all landowners take reasonable steps to prevent the spread of, and as far as possible, eradicate established pest animals on their land. Rabbits and foxes are a threat to native fauna through competition and predation respectively. Rabbits also impact native grassland vegetation from over-browsing and erosion.

Rabbits and foxes are known to occur in the offset at low numbers (*pers. comm.* Landowner). Two rabbit warrens were recorded adjacent (west boundary) and approximately 125 metres to the east of the offset (Figure 3). Rabbits and foxes will be monitored and controlled as required in the offset site throughout the year in accordance with Table 12 below. Annual shooting is the preferred control method. Other methods that may be implemented include fumigation, hand collapsing of burrows/dens and baiting if required. Any carcasses must be removed to prevent poisoning of native predators. Rubbish and artificial piles of logs and rocks may be used as harbour by pest animals, and should be removed or dispersed as appropriate. Indigenous plants, fallen logs or rocks will not be removed from the site.

Monitoring for new and emerging pest animals will also be undertaken throughout the year, and control undertaken as required. Over-browsing of grassland flora by native macropods is a potential threat to

grassland conservation, particularly during prolonged periods of drought. Mobs of native Eastern Grey Kangaroos *Macropus giganteus* are known to occur on site, however the site does not currently show evidence of over-browsing by kangaroos. New and emerging pest animal monitoring will include monitoring of over-browsing by native macropods. If impacts from their over-browsing are detected, population control maybe undertaken through obtaining an *Authority Control Wildlife Permit*, and/or under Victoria's existing *Kangaroo Harvesting Program*, which would allow the landowner to engage professional harvesters to undertake control and remove carcasses for commercial use (DEECA 2025).

Table 12. Pest animals control method and timing.

Common name	Method	Timing
Rabbits & Foxes	Fumigation and hand collapse of rabbit burrows and fox dens, if required	Ongoing
Rabbits & Foxes	Baiting (optional method)	September to January if required
Rabbits & Foxes	When baiting, collect and dispose of carcasses to prevent poisoning of native predators.	September to January if required
Rabbits & Foxes	Shooting	All year
Rabbits & Foxes	Remove or disperse surface harbour	Ongoing
Rabbits & foxes	Monitor and control	Ongoing
New & Emerging pest animals	Monitor and control	Ongoing
Kangaroos	Monitor populations and impacts from over-browsing. Control population with appropriate permits, license and/or control programs if required	Ongoing

4.1.7 Monitoring and Reporting

Within three months from the commencement of the OMP, at least three photopoints will be established (eg. one per paddock) by the Landowner and clearly marked throughout the offset site. Photos will be undertaken at these points, and any other points of interest, annually.

Landowner offset monitoring will be undertaken by the landowner for the duration of the 10-year offset management plan and in perpetuity, although formal reporting will be undertaken for the duration of the 10-year offset management period only. Site monitoring will include observations of flora and fauna, pest animal activity, and native and non-native vegetation cover, and the outcomes of management activities.

Third party monitoring requirements, including the Rapid Spring Survey, Vegetation Quality Assessments, and Golden Sun Moth population monitoring, will be the responsibility of the approval holder, Dexus Craigieburn Pty Limited.

All monitoring reports will be provided to TfN and DCCEEW for review. TfN will undertake stewardship visits at offset commencement and every three years thereafter to review management outcomes and progress toward offset targets.

4.1.7.1 Annual Reporting

The landowner will submit annual reports to TfN and the approval holder over the 10-year offset management period, two months prior to the end of each management year. The annual report will outline the offset progress against the management activities and performance targets set out in the OMP, including non-compliance, remedial actions and adaptive management undertaken as required, and site observations. Annual Reports will include photos and provide enough detail in the form of written comments and supporting

evidence that an assessor can easily determine the completion of, or progress against, the performance targets for each management activity. An annual reporting template is provided in Appendix 4. Trust for Nature will also provide their preferred annual reporting proforma to the Landowner, similar to this template, at the commencement of the offset. The approval holder, Dexus Craigieburn Pty Limited, will provide each annual report to DCCEEW in accordance with their EPBC Act approval.

4.1.7.2 Rapid Spring Survey

A rapid spring survey will be undertaken by a qualified botanist/ecologist in each management year to assist landowner decisions on biomass and weed control over spring and prior to the reduction in grazing pressures from mid-spring. The survey will identify flora species present, including high threat and emergent weeds, and assess the composition of these species, including the extent of native vs non-native and perennial vs annual grasses and herbs. Dexus Craigieburn Pty Limited is responsible for funding all third-party monitoring requirements, including the rapid spring surveys. Rapid spring survey advice will be provided directly to the Landowner following each survey, and will be included in the Landowner's annual report submitted to TfN and the approval holder.

4.1.7.3 Vegetation Quality Assessment

To monitor the quality of NTGVVP and habitat for Striped Legless Lizard and Golden Sun Moth in the offset site, vegetation quality assessments will be undertaken by suitably qualified botanists/ecologists in Years 2, 4, 6, 8 and 10. These assessments should include:

- A record of flora species present;
- Review vegetative covers of native and non-native vegetation, including native grasses and herbs, woody and herbaceous weeds, and high threat herbaceous weeds;
- Undertake a Vegetation Quality (Habitat Hectare) Assessment (Appendix 1);
- Reassessment of the vegetation and habitat against the condition thresholds for NTGVVP and Golden Sun Moth habitat (Tables 4 and 5); and,
- Vegetation quality assessment reports to be prepared after each assessment in Years 2, 4, 6, 8 and 10.

Dexus Craigieburn Pty Limited is responsible for funding and coordinating all third-party monitoring requirements, including Vegetation Quality Assessments. Vegetation Quality Assessment reports will be submitted to TfN, Dexus Craigieburn Pty Limited and DCCEEW upon completion. The timing of report submissions will be subject to the appropriate survey periods and consultant timeframes.

4.1.7.4 Golden Sun Moth Monitoring

Golden Sun Moth population monitoring will be undertaken according to the methodology detailed in *The Significant Impact Guidelines for the Critically Endangered Golden Sun Moth* (*Synemon plana*) (DEWHA 2009), for the purposes of monitoring offset delivery and outcomes. Golden Sun Moth populations are known to vary on spatial and temporal scales depending upon habitat quality. Monitoring is necessary to determine if the distribution and population of Golden Sun Moths persists in the offset site and ensure that the management activities and habitat are suitable for a viable Golden Sun Moth population in the future.

Golden Sun Moth population monitoring will be undertaken by suitably qualified zoologists/ecologists in Year 1 to gather baseline monitoring data, and subsequently undertaken in Years 2, 4, 6, 8 and 10 to monitor the population. Monitoring will involve the following:

- Monitoring will occur during the Golden Sun Moth flight season (late October to early January) over a minimum of two and up to four suitable days in each monitoring year, at approximately weekly intervals. Once presence is established, surveys will focus on determining the relative distribution of the species on the site;
- Monitoring will be undertaken on warm to hot days (above 20 degrees Celsius by 1000 hrs) during the warmest part the day (1000 to 1400 hrs) with clear or mostly cloudless sky and still or relatively still wind conditions during the survey period, and at least two days since rain;
- Monitoring at the offset site will not commence until moths have been seen flying at a nearby reference site, and will be undertaken between 10am and 3pm; unless male moths are still flying after 3pm – surveys can continue until no more males are seen actively flying;
- Monitoring will be conducted using approximately 50-metre wide, parallel transects with two ecologists walking or driving (where appropriate) at <10km/hr the length of the survey site along transects using a hand-held GPS unit, recording every GSM encountered; and,
- Monitoring reports to be prepared after each monitoring program in Years 1, 2, 4, 6, 8 and 10.

Dexus Craigieburn Pty Limited is responsible for funding and coordinating all third-party monitoring requirements, including Golden Sun Moth monitoring. Golden Sun Moth monitoring reports will be submitted to TfN, Dexus Craigieburn Pty Limited and DCCEEW upon completion. The timing of report submissions will be subject to the appropriate survey periods and consultant timeframes.

4.2 10-Year Performance and Completion Criteria

The time until the ecological benefit is projected to be 10 years. Native grasslands are dynamic ecosystems that can respond rapidly to changes in management approaches, in particular grazing pressure, effective burning, pest animal control and weed control. This time period is considered adequate to effectively maintain the quality and extent of NTGVVP and Golden Sun Moth habitat. Table 13 below outlines the 10-year performance targets and in which year each target will be achieved. The risk of each target not being achieved has been determined in accordance with the Risk Assessment Framework detailed in Appendix 3. The likelihood and consequence scores relevant to the Risk Assessment Framework are provided in Table 13.

Table 13. 10-year Performance and Completion Criteria

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria		Completion Criteria	Year to be Achieved	Risk of Completion Criteria not being achieved (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
								Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
1, 3, 4	**Security Agreement**	Landowner, Dexus Craigieburn Pty Limited, TfN, Land Use Victoria	1.1	Site secured through TfN Deed of Covenant to permanently restrict allowable land uses and activities to the conservation of MNES	TfN Deed of Covenant is executed and registered on the land title.	Commencement of Year 1	Very Low (2/1)	TfN Deed of Covenant not executed by all relevant parties and/or not submitted to Land Use Victoria for registration.	Landowner, Dexus Craigieburn Pty Limited, TfN currently progressing TfN Deed of Covenant execution and registration.	Offset does not proceed prior to registration of Deed of Covenant on-title.. Urgency communicated to all stakeholders.	Very Low (2/1), unlikely and insignificant consequence to offset
1, 2, 3	**Fencing, Water and Access**	Landowner	2.1	New offset perimeter fencing and markers installed (northern, and north-eastern boundaries) and maintained	Offset boundary is marked and stockproof	As soon as practical within 18 months of commence of OMP (subject to site conditions)	Low (2/2)	New offset perimeter fencing not installed and/or maintained	Regular site monitoring (ie. 3-monthly)	Install, upgrade and/or repair all offset fencing, markers, stock water infrastructure and gates as required to prevent access from unauthorised vehicles and neighbouring livestock, and continue to support a rotational grazing regime	Very Low (1/2), remedial action reduces likelihood of occurrence
			2.2	Existing perimeter fencing upgraded as required and maintained				Existing perimeter fencing not upgraded as required and/or maintained			
			2.3	Internal fences upgraded and maintained	Offset site supports rotational grazing regime		Low (2/2)	Internal fences not installed and/or maintained			Very Low (1/2), remedial action reduces likelihood of occurrence

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria		Completion Criteria	Year to be Achieved	Risk of Completion Criteria not being achieved (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
								Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
			2.4	Stock water infrastructure installed and maintained				Stock water infrastructure not installed and/or maintained			
			2.5	Property access gates remain locked	Vehicle access is restricted	Commencement of Year 1, ongoing	Low (2/2)	Property access gates are unlocked			Very Low (1/2), remedial action reduces likelihood of occurrence
1, 2, 3	**Signage**	Landowner	3.1	Minimum of four signs erected and maintained along boundary fences and at each vehicle access gates	Public alerted to the presence of offset site and prohibited activities	Within 3 months of the commencement of Year 1	Very Low (2/1)	At least four signs are not visible along boundary fence or access gates.	Regular site monitoring (ie. 3-monthly)	Erect, upgrade, replace and/or maintain signs to alert public as required	Very Low (1/1), rare and insignificant consequence
1, 2, 3, 5	**Biomass Control**	Landowner	4.1	Strategic sheep grazing undertaken annually in accordance with Section 4.1.4.1	Aim to provide 20-40% bare ground for native recruitment and Golden Sun Moth habitat by mid-late Spring (subject to seasonal conditions). Cover of introduced grasses and herbaceous weeds must not exceed 50%	Annually	Low (2/2)	<20% or >40% bare ground during spring each year >50% cover of introduced grasses and herbaceous weeds	Regular site monitoring (ie. 3-monthly) Annual rapid spring survey	Adjust strategic grazing, burning and/or weed control regime to provide suitable inter-tussock space and limit introduced flora cover to <50% (see Sections 4.1.4 and 4.1.5 for methods and timing). Consult with TfN if alternative methods or timing are required.	Very Low (1/2), remedial action reduces likelihood of occurrence
			4.2	Minimum of two ecological burns prior to Year 9 in accordance with Section 4.1.4.2		Year 8		First ecological burn not undertaken by end Years 5-7. Second ecological burn	Annual monitoring and reporting, and review of future management actions		

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria		Completion Criteria	Year to be Achieved	Risk of Completion Criteria not being achieved (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
								Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
								not undertaken by end Year 8			
1, 2, 3, 5	**Weed Control**	Landowner	5.1	Weed control undertaken annually in accordance with Table 10	All woody weeds eliminated (<1%)	Year 2	Low (2/2)	Woody weeds present in offset	Regular site monitoring (ie. 3-monthly) Annual rapid spring survey Vegetation Quality Assessment in Years 2, 4, 6, 8 and 10	Supplementary control of woody weeds, and introduced grasses and herbaceous weeds in accordance with Table 10. Consult with TfN if alternative methods or timing are required.	Very Low (1/2), remedial action reduces likelihood of occurrence
					Cover of introduced grasses and herbaceous weeds must not exceed 50%	Year 10	Low (2/2)	>50% cover of introduced grasses and herbaceous weeds			
			5.2	Monitoring to be conducted throughout the year, new high threat weeds eliminated (<1%)	All new high threat weeds controlled and eliminated (<1%)	Annually	Low (2/2)	New high threat weed(s) recorded		Monitor and control all new high threat weeds.	
1, 2, 3, 5	**Pest Control**	Landowner	6.1	Rabbit and fox control undertaken annually in accordance with Table 11	Rabbit and fox populations controlled or reduced	Years 1-10	Low (2/2)	Observed rabbit and fox population increasing	Regular site monitoring (ie. 3-monthly) Annual pest control monitoring Warrens/dens re-monitored two weeks after fumigation/collapse, then monthly for four months. If no further activity, regular site monitoring (ie. 3-	Monitor and control pest animals (see Section 4.1.6 for control methods and timing)	Very Low (1/2), remedial action reduces likelihood of occurrence
			6.2	New warren, dens and harbour are collapsed, fumigation and removed as required	No active rabbit warrens and fox dens in the offset	Year 10	Moderate (3/3)	Rabbit warrens and/or fox dens detected in the offset			Low (1/3), remedial action reduces likelihood of occurrence to rare, but remediation may take >1 year if

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria		Completion Criteria	Year to be Achieved	Risk of Completion Criteria not being achieved (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
								Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
									monthly) to continue.		warren/des reactivated
			6.3	New and emergent pests controlled annually on identification of threat	No new and emergent pest animals	Years 1-10	Low (2/2)	New and emergent pest animals detected			Very Low (1/2), remedial action reduces likelihood of occurrence
1, 2, 3, 5	Monitoring and Reporting	Landowner	7.1	Install and maintain photopoints	Minimum three photopoints installed and maintained	Commencement of Year 1 to Year 10	Very Low (2/1)	Less than three photopoints installed and/or maintained	Regular site monitoring (ie. 3-monthly)	Install, upgrade and/or repair at least three photopoints as required.	Very Low (1/1), rare and insignificant consequence
		Landowner	7.2	Regular site monitoring undertaken. Observations, management and photos recorded	Offset management undertaken in accordance with approved OMP	Every 3 months	Low (2/2)	Regular site monitoring not undertaken	Regular site monitoring (ie. 3-monthly)	Undertake site monitoring at least every 3 months, and keep a record or observations, management actions and photos.	Very Low (1/2), remedial action reduces likelihood of occurrence
		Landowner, Dexus Craigieburn Pty Limited, TfN, DCCEEW	7.3	Prepare and Submit Annual Reports	Annual report prepared and submitted to Trust for Nature, Dexus Craigieburn Pty Limited and DCCEEW	End Years 1-10	Very Low (1/2)	Annual reports not submitted to TfN and DCCEEW	End Years 1-10	Prepare and submit annual monitoring reports Trust for Nature and DCCEEW	Very Low (1/1), rare and insignificant consequence
		Qualified botanist/ ecologist, Dexus Craigieburn Pty Limited (to fund),	7.4	Rapid spring survey undertaken annually for biomass and weed control support.	20-40% bare ground by late spring/ early summer for native recruitment and Golden Sun Moth habitat where possible.	spring each year	Low (2/2)	<20% or >40% bare ground during spring each year	Regular site monitoring (ie. 3-monthly) Annual rapid spring survey	Coordinate rapid spring survey with suitably qualified personnel each spring, and adjust biomass and weed control according to site and	Very Low (1/2), regular monitoring and remediation response reduces likelihood of occurrence

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria		Completion Criteria	Year to be Achieved	Risk of Completion Criteria not being achieved (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
								Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
		Landowner (to coordinate)			Cover of introduced grasses and herbaceous weeds must not exceed 50%	Year 10	Low (2/2)	>50% cover of introduced grasses and herbaceous weeds	Vegetation Quality Assessment in Years 2, 4, 6, 8 and 10	seasonal conditions. See Sections 4.1.4 and 4.1.5 for methods and timing. Consult with TfN if alternative methods or timing are required.	Very Low (1/2), regular monitoring and remediation response reduces likelihood of occurrence
					All woody weeds eliminated (<1%)	Year 2	Low (2/2)	Woody weeds present in offset			
					All new high threat weeds controlled and eliminated (<1%)	Years 1-10	Low (2/2)	New high threat weed(s) recorded			
		Qualified botanist/ ecologist, Dexus Craigieburn Pty Limited (to fund), Landowner (to coordinate)	7.5	Vegetation Quality Assessment (VQA) undertaken	VQA report prepared and submitted to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW	Years 2, 4, 6, 8 and 10	Low (2/2)	VQA report not submitted to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW	End of Years 2, 4, 6, 8 and 10	Coordinate VQA with suitably qualified personnel, and submit VQA report to all stakeholders.	Very Low (1/2), remedial action reduces likelihood of occurrence
					Total extent and quality of NTGVVP and habitat for Golden Sun Moth maintained	Years 2, 4, 6, 8 and 10	Moderate (3/3)	Extent of NTGVVP (49.1ha) and habitat for Golden Sun Moth (50.4ha) declines Quality of NTGVVP and habitat for Golden Sun Moth declines to <6/10	Regular site monitoring (ie. 3-monthly) Annual rapid spring survey Vegetation Quality Assessment in Years 2, 4, 6, 8 and 10 Golden Sun Moth population monitoring Years 1, 2, 4, 6, 8 and 10	Adaptive management response to be undertaken within 4 weeks on identification of triggers via detection monitoring (includes future planning for .seasonal-dependent management) Review monitoring reports, past management and outcomes, and adjust management as	Low (1/3), remedial action reduces likelihood of occurrence to rare, though consequence remains moderate (ie. remediation <5 years)

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria		Completion Criteria	Year to be Achieved	Risk of Completion Criteria not being achieved (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
								Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
										required (eg. intensity, frequency, timing, application), to meet ongoing performance and completion criteria. Consult with TfN if alternative management actions are required that are not addressed in the OMP. Consult with all stakeholders if management approach is not meeting performance and completion criteria. Review OMP, offset targets and timeframes, and offset assessment guide with DCCEEW if required.	
		Qualified zoologist/ ecologist, Dexus Craigieburn Pty Limited (to fund), Landowner (to coordinate)	7.6	Golden Sun Moth population monitoring undertaken	Golden Sun Moth monitoring reports prepared and submitted to Landowner, Dexus Craigieburn Pty Limited, Trust for Nature and DCCEEW	Years 1, 2, 4, 6, 8 and 10	Low (2/2)	Golden Sun Moth monitoring reports not submitted to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW	End Years 1, 2, 4, 6, 8 and 10	Coordinate Golden Sun Moth monitoring with suitably qualified personnel and submit report to all stakeholders.	Very Low (1/2), remedial action reduces likelihood of occurrence

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria		Completion Criteria	Year to be Achieved	Risk of Completion Criteria not being achieved (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
								Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
					Golden Sun Moth distribution and population maintained or improved	Years 2, 4, 6, 8 and 10	Low (2/3)	Golden Sun Moth distribution and population decline evident over multiple monitoring events under favourable survey and species conditions	Regular site monitoring (ie. 3-monthly) Annual rapid spring survey Vegetation Quality Assessment in Years 2, ,4, 6, 8 and 10 Golden Sun Moth population monitoring Years 1, 2, 4, 6, 8 and 10	Adaptive management response to be undertaken within 4 weeks on identification of triggers via detection monitoring (includes future planning for .seasonal-dependent management) Review monitoring reports, past management and outcomes, and adjust management as required (eg. intensity, frequency, timing, application) to meet ongoing performance and completion criteria. Consult with TfN if alternative management actions are required that are not addressed in the OMP. Consult with all stakeholders if management approach is not meeting performance and completion criteria. Review OMP, offset targets and	Low (1/3), regular detection monitoring reduces likelihood of occurrence, though consequence remains moderate (ie. remediation <5 years)
					Quality of Golden Sun Moth habitat maintained	Years 1, 2, 5, 8 and 10	Low (2/2)	Quality of Golden Sun Moth habitat declines to < 6/10			Very Low (1/2), remedial action reduces likelihood of occurrence

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria		Completion Criteria	Year to be Achieved	Risk of Completion Criteria not being achieved (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
								Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
										timeframes, and offset assessment guide with DCCEEW if required.	

4.3 10-Year Offset Schedule of Works

Table 14 below summarises the management actions, responsible personnel and timing of each action to be implemented over the 10-year management period.

Table 14. 10-Year Management Actions, Responsibility and timing

Year	Action No.	Management Action	Description	Responsible Authority/ personnel		Timing of action	Performance Target (Table 13)
				Implementation	Payment		
1	1.1	**Security Agreement**	Offset TfN Deed of Covenant executed and registered on the land title	Landowner, Dexus Craigieburn Pty Limited, TfN	Dexus Craigieburn Pty Limited	Commencement of OMP	1.1
1	1.2	**Monitoring and Reporting**	Install a minimum of 3 x photopoints.	Landowner	Landowner	Commencement of OMP	7.1
1	1.3	**Fencing, Water and Access**	Install new stockproof fence and offset boundary markers along the northern and north-eastern offset boundary where required.	Landowner, Surveyor, qualified personnel	Dexus Craigieburn Pty Limited	Within 18 months of commence of OMP	2.1
1	1.4	**Fencing, Water and Access**	Upgrade all existing perimeter fencing as required.	Landowner, qualified personnel	Dexus Craigieburn Pty Limited	Within 18 months of commence of OMP	2.2
1	1.5	**Fencing, Water and Access**	Install or upgrade internal fencing to support rotational grazing regime	Landowner, qualified personnel	Dexus Craigieburn Pty Limited	Within 18 months of commence of OMP	2.3
1	1.6	**Fencing, Water and Access**	Install and maintain stock water infrastructure to service all grazing paddocks	Landowner, qualified personnel	Dexus Craigieburn Pty Limited	Within 18 months of commence of OMP	2.4
1	1.7	**Fencing, Water and Access**	Property access gates to remain locked at all times	Landowner	Landowner	Commencement of OMP, ongoing	2.5
1	1.8	**Signage**	Erect a minimum 4 x signs along the property fence and at each vehicle access gates to alert neighbouring properties and land managers to the presence of the offset site and prohibited activities.	Landowner, qualified personnel	Landowner	Within 3 months of commence of OMP	3.1
1	1.9	**Biomass Control**	Undertake biomass control through strategic grazing with sheep (see Section 4.1.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
1	1.10	**Biomass Control**	Undertake biomass control through ecological burning as appropriate, monitor and review outcomes (see Section 4.1.4.2)	Landowner, qualified personnel	Landowner	Site conditions and weather dependent	4.2
1	1.11	**Weed Control**	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1
1	1.12	**Weed Control**	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2

Year	Action No.	Management Action	Description	Responsible Authority/ personnel		Timing of action	Performance Target (Table 13)
				Implementation	Payment		
1	1.13	Pest Control	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3
1	1.15	Monitoring and Reporting	Monitor offset site and outcomes of management actions, including photos and a record of management actions and observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2
1	1.16	Monitoring and Reporting	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
1	1.17	Monitoring and Reporting	Conduct Golden Sun Moth baseline population monitoring, and submit monitoring report to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW.	Qualified zoologist/ecologist	Dexus Craigieburn Pty Limited	October to January	7.6
1	1.18	Monitoring and Reporting	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 1	7.3
2	2.1	Fencing, Water and Access	Maintain/repair all offset perimeter and internal fencing, and water infrastructure as required.	Landowner, qualified personnel	Landowner	All year	2.1, 2.2, 2.3, 2.4
2	2.2	Fencing, Water and Access	Property access gates to remain locked at all times	Landowner	Landowner	All year	2.5
2	2.3	Signage	Maintain signage along the property boundary and at access gates	Landowner, qualified personnel	Landowner	All year	3.1
2	2.4	Biomass Control	Undertake biomass control through strategic grazing with sheep (see Section 4.1.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
2	2.5	Biomass Control	Undertake biomass control through ecological burning as appropriate, monitor and review outcomes (see Section 4.1.4.2)	Landowner, qualified personnel	Landowner	Site conditions and weather dependent	4.2
2	2.6	Weed Control	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1
2	2.7	Weed Control	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2
2	2.8	Pest Control	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing)	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3
2	2.9	Monitoring and Reporting	Monitor offset site and outcomes of management actions, including photos and a record of management actions and observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2

Year	Action No.	Management Action	Description	Responsible Authority/ personnel		Timing of action	Performance Target (Table 13)
				Implementation	Payment		
2	2.10	**Monitoring and Reporting**	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
2	2.11	**Monitoring and Reporting**	Conduct Vegetation Quality Assessment (see Section 4.1.7.3), and submit report to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW.	Qualified botanist/ecologist	Dexus Craigieburn Pty Limited	Year 2	7.5
2	2.12	**Monitoring and Reporting**	Conduct Golden Sun Moth monitoring, and submit monitoring report to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW.	Qualified zoologist/ecologist	Dexus Craigieburn Pty Limited	October to January	7.6
2	2.13	**Monitoring and Reporting**	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 2	7.3
3	3.1	**Fencing, Water and Access**	Maintain/repair all offset perimeter and internal fencing, and water infrastructure as required.	Landowner, qualified personnel	Landowner	All year	2.1, 2.2, 2.3, 2.4
3	3.2	**Fencing, Water and Access**	Property access gates to remain locked at all times	Landowner	Landowner	All year	2.5
3	3.3	**Signage**	Maintain signage along the property boundary and at access gates	Landowner, qualified personnel	Landowner	All year	3.1
3	3.4	**Biomass Control**	Undertake biomass control through strategic grazing with sheep (see Section 4.1.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
3	3.5	**Biomass Control**	Undertake biomass control through ecological burning as appropriate, monitor and review outcomes (see Section 4.1.4.2)	Landowner, qualified personnel	Landowner	Site conditions and weather dependent	4.2
3	3.6	**Weed Control**	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1
3	3.7	**Weed Control**	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2
3	3.8	**Pest Control**	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing)	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3
3	3.9	**Monitoring and Reporting**	Monitor offset site and outcomes of management actions, including photos and a record of management actions and observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2
3	3.10	**Monitoring and Reporting**	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
3	3.11	**Monitoring and Reporting**	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 3	7.3

Year	Action No.	Management Action	Description	Responsible Authority/ personnel		Timing of action	Performance Target (Table 13)
				Implementation	Payment		
4	4.1	**Fencing, Water and Access**	Maintain/repair all offset perimeter and internal fencing, and water infrastructure as required.	Landowner, qualified personnel	Landowner	All year	2.1, 2.2, 2.3, 2.4
4	4.2	**Fencing, Water and Access**	Property access gates to remain locked at all times	Landowner	Landowner	All year	2.5
4	4.3	**Signage**	Maintain signage along the property boundary and at access gates	Landowner, qualified personnel	Landowner	All year	3.1
4	4.4	**Biomass Control**	Undertake biomass control through strategic grazing with sheep (see Section 4.1.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
4	4.5	**Biomass Control**	Undertake biomass control through ecological burning as appropriate, monitor and review outcomes (see Section 4.1.4.2)	Landowner, qualified personnel	Landowner	Site conditions and weather dependent	4.2
4	4.6	**Weed Control**	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1
4	4.7	**Weed Control**	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2
4	4.8	**Pest Control**	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing)	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3
4	4.9	**Monitoring and Reporting**	Monitor offset site and outcomes of management actions, including photos and a record of management actions and observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2
4	4.10	**Monitoring and Reporting**	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
4	4.11	**Monitoring and Reporting**	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 4	7.3
5	5.1	**Fencing, Water and Access**	Maintain/repair all offset perimeter and internal fencing, and water infrastructure as required.	Landowner, qualified personnel	Landowner	All year	2.1, 2.2, 2.3, 2.4
5	5.2	**Fencing, Water and Access**	Property access gates to remain locked at all times	Landowner	Landowner	All year	2.5
5	5.3	**Signage**	Maintain signage along the property boundary and at access gates	Landowner, qualified personnel	Landowner	All year	3.1

Year	Action No.	Management Action	Description	Responsible Authority/ personnel		Timing of action	Performance Target (Table 13)
				Implementation	Payment		
5	5.4	Biomass Control	Undertake biomass control through strategic grazing with sheep (see Section 4.1.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
5	5.5	Biomass Control	Undertake biomass control through ecological burning as appropriate, monitor and review outcomes (see Section 4.1.4.2)	Landowner, qualified personnel	Landowner	Site conditions and weather dependent	4.2
5	5.6	Weed Control	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1
5	5.7	Weed Control	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2
5	5.8	Pest Control	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing)	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3
5	5.9	Monitoring and Reporting	Monitor offset site and outcomes of management actions, including photos and record of observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2
5	5.10	Monitoring and Reporting	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
5	5.11	Monitoring and Reporting	Conduct Vegetation Quality Assessment (see Section 4.1.7.3), and submit report to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW.	Qualified botanist/ecologist	Dexus Craigieburn Pty Limited	Year 5	7.5
5	5.12	Monitoring and Reporting	Conduct Golden Sun Moth monitoring, and submit monitoring report to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW.	Qualified zoologist/ecologist	Dexus Craigieburn Pty Limited	October to January	7.6
5	5.13	Monitoring and Reporting	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 5	7.3
6	6.1	Fencing, Water and Access	Maintain/repair all offset perimeter and internal fencing, and water infrastructure as required.	Landowner, qualified personnel	Landowner	All year	2.1, 2.2, 2.3, 2.4
6	6.2	Fencing, Water and Access	Property access gates to remain locked at all times	Landowner	Landowner	All year	2.5
6	6.3	Signage	Maintain signage along the property boundary and at access gates	Landowner, qualified personnel	Landowner	All year	3.1
6	6.4	Biomass Control	Undertake biomass control through strategic grazing with sheep (see Section 4.1.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
6	6.5	Biomass Control	Undertake biomass control through ecological burning as appropriate, monitor and review outcomes (see Section 4.1.4.2)	Landowner, qualified personnel	Landowner	Site conditions and weather dependent	4.2
6	6.6	Weed Control	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1

Year	Action No.	Management Action	Description	Responsible Authority/ personnel		Timing of action	Performance Target (Table 13)
				Implementation	Payment		
6	6.7	**Weed Control**	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2
6	6.8	**Pest Control**	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing)	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3
6	6.9	**Monitoring and Reporting**	Monitor offset site and outcomes of management actions, including photos and record of observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2
6	6.11	**Monitoring and Reporting**	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
6	6.12	**Monitoring and Reporting**	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 6	7.3
7	7.1	**Fencing, Water and Access**	Maintain/repair all offset perimeter and internal fencing, and water infrastructure as required.	Landowner, qualified personnel	Landowner	All year	2.1, 2.2, 2.3, 2.4
7	7.2	**Fencing, Water and Access**	Property access gates to remain locked at all times	Landowner	Landowner	All year	2.5
7	7.3	**Signage**	Maintain signage along the property boundary and at access gates	Landowner, qualified personnel	Landowner	All year	3.1
7	7.4	**Biomass Control**	Undertake biomass control through strategic grazing with sheep (see Section 4.1.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
7	7.5	**Biomass Control**	Undertake biomass control through ecological burning as appropriate, monitor and review outcomes (see Section 4.1.4.2)	Landowner, qualified personnel	Landowner	Site conditions and weather dependent	4.2
7	7.6	**Weed Control**	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1
7	7.7	**Weed Control**	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2
7	7.8	**Pest Control**	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing)	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3
7	7.9	**Monitoring and Reporting**	Monitor offset site and outcomes of management actions, including photos and record of observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2
7	7.10	**Monitoring and Reporting**	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
7	7.11	**Monitoring and Reporting**	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 7	7.3

Year	Action No.	Management Action	Description	Responsible Authority/ personnel		Timing of action	Performance Target (Table 13)
				Implementation	Payment		
8	8.1	Fencing, Water and Access	Maintain/repair all offset perimeter and internal fencing, and water infrastructure as required.	Landowner, qualified personnel	Landowner	All year	2.1, 2.2, 2.3, 2.4
8	8.2	Fencing, Water and Access	Property access gates to remain locked at all times	Landowner	Landowner	All year	2.5
8	8.3	Signage	Maintain signage along the property boundary and at access gates	Landowner, qualified personnel	Landowner	All year	3.1
8	8.4	Biomass Control	Undertake biomass control through strategic grazing with sheep (see Section 4.1.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
8	8.5	Biomass Control	Undertake biomass control through ecological burning as appropriate, monitor and review outcomes (see Section 4.1.4.2)	Landowner, qualified personnel	Landowner	Site conditions and weather dependent	4.2
8	8.6	Weed Control	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1
8	8.7	Weed Control	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2
8	8.8	Pest Control	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing)	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3
8	8.9	Monitoring and Reporting	Monitor offset site and outcomes of management actions, including photos and record of observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2
8	8.10	Monitoring and Reporting	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
8	8.11	Monitoring and Reporting	Conduct Vegetation Quality Assessment (see Section 4.1.7.3), and submit report to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW.	Qualified botanist/ecologist	Dexus Craigieburn Pty Limited	Year 8	7.5
8	8.12	Monitoring and Reporting	Conduct Golden Sun Moth monitoring, and submit monitoring report to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW.	Qualified zoologist/ecologist	Dexus Craigieburn Pty Limited	October to January	7.6
8	8.13	Monitoring and Reporting	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 8	7.3
9	9.1	Fencing, Water and Access	Maintain/repair all offset perimeter and internal fencing, and water infrastructure as required.	Landowner, qualified personnel	Landowner	All year	2.1, 2.2, 2.3, 2.4
9	9.2	Fencing, Water and Access	Property access gates to remain locked at all times	Landowner	Landowner	All year	2.5
9	9.3	Signage	Maintain signage along the property boundary and at access gates	Landowner, qualified personnel	Landowner	All year	3.1

Year	Action No.	Management Action	Description	Responsible Authority/ personnel		Timing of action	Performance Target (Table 13)
				Implementation	Payment		
9	9.4	Biomass Control	Undertake biomass control through strategic grazing with sheep (see Section 4.2.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
9	9.5	Biomass Control	Monitor and review outcomes of ecological burning in Years 1-8 (see Section 4.2.4.2)	Landowner, qualified personnel	Landowner	All year	4.2, 7.2
9	9.6	Weed Control	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1
9	9.7	Weed Control	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2
9	9.8	Pest Control	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing)	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3
9	9.9	Monitoring and Reporting	Monitor offset site and outcomes of management actions, including photos and record of observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2
9	9.10	Monitoring and Reporting	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
9	9.11	Monitoring and Reporting	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 9	7.3
10	10.1	Fencing, Water and Access	Maintain/repair all offset perimeter and internal fencing, and water infrastructure as required.	Landowner, qualified personnel	Landowner	All year	2.1, 2.2, 2.3, 2.4
10	10.2	Fencing, Water and Access	Property access gates to remain locked at all times	Landowner	Landowner	All year	2.5
10	10.3	Signage	Maintain signage along the property boundary and at access gates	Landowner, qualified personnel	Landowner	All year	3.1
10	10.4	Biomass Control	Undertake biomass control through strategic grazing with sheep (see Section 4.1.4.1)	Landowner, qualified personnel	Landowner	All year	4.1
10	10.5	Biomass Control	Monitor and review outcomes of ecological burning in Years 1-8 (see Section 4.1.4.2)	Landowner, qualified personnel	Landowner	All year	4.2, 7.2
10	10.6	Weed Control	Undertake appropriate weed control (see Table 11 for control methods and timing).	Landowner, qualified personnel	Landowner	All year	5.1
10	10.7	Weed Control	Monitor for and eliminate new high threat weeds	Landowner	Landowner	All year	5.2
10	10.8	Pest Control	Monitor for pest animals, undertaken control measures as required (see Table 12 for control methods and timing)	Landowner, qualified personnel	Landowner	All year	6.1, 6.2, 6.3

Year	Action No.	Management Action	Description	Responsible Authority/ personnel		Timing of action	Performance Target (Table 13)
				Implementation	Payment		
10	**10.9**	**Monitoring and Reporting**	Monitor offset site and outcomes of management actions, including photos and record of observations. Review future management actions to ensure performance targets are met.	Landowner	Landowner	Every 3 months	7.2
10	**10.10**	**Monitoring and Reporting**	Undertake rapid spring survey (in liaison with Landowner) and provide biomass and weeds control support to Landowner	Qualified botanist/ecologist, Landowner	Dexus Craigieburn Pty Limited	September-November	7.4
10	**10.11**	**Monitoring and Reporting**	Conduct Vegetation Quality Assessment (see Section 4.1.7.3), and submit report to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW.	Qualified botanist/ecologist	Dexus Craigieburn Pty Limited	Year 10	7.5
10	**10.12**	**Monitoring and Reporting**	Conduct Golden Sun Moth monitoring, and submit monitoring report to Landowner, Dexus Craigieburn Pty Limited, TfN and DCCEEW.	Qualified zoologist/ecologist	Dexus Craigieburn Pty Limited	October to January	7.6
10	**10.13**	**Monitoring and Reporting**	Prepare and submit annual report to Dexus Craigieburn Pty Limited, TfN and DCCEEW	Landowner, Dexus Craigieburn Pty Limited	Landowner	End of Year 10	7.3

4.4 In Perpetuity Performance and Completion Criteria

The OMP outlines management actions and targets to be implemented at the offset site to deliver the environmental offset outcomes over the 10-year management period (Tables 7, 12 and 13). At the completion of the 10-year management period, the landowner is required to continue to undertake management to maintain the quality and extent of NTGVVP and Golden Sun Moth habitat, at the offset site in perpetuity. Table 15 below outlines the in perpetuity performance and completion criteria for the offset. The risk of each target not being achieved has been determined in accordance with the Risk Assessment Framework detailed in Appendix 3. The likelihood and consequence scores relevant to the Risk Assessment Framework are provided in Table 15.

Table 15. In-perpetuity Performance and Completion Criteria

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria	Completion Criteria	Risk of Completion Criteria not being met (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
						Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
1, 4	**Security Agreement**	Landowner, Trust for Nature	Site secured through appropriate administrative protection to permanently restrict allowable land uses and activities to the conservation of MNES	Trust for Nature Deed of Covenant (Offset) remains registered on-title	Very Low (1/1)	TfN Deed of Covenant removed from title	Dexus Craigieburn Pty Limited, TfN and Landowner as executing parties to the Deed.	Trust for Nature Deed of Covenant (Offset) to remain on-title or re-registered if removed	Very Low (1/1), rare and insignificant consequence to offset
1, 2, 4	**Fencing, Water and Access**	Landowner	Offset perimeter fencing and markers maintained	Offset boundary is marked and stockproof	Low (2/2)	Property fencing not maintained and not stockproof	Regular site monitoring (ie. 3-monthly)	Upgrade, replace and/or maintain all offset fencing, markers, stock water infrastructure and gates as required to prevent access from unauthorised vehicles and neighbouring livestock, and continue to support a rotational grazing regime	Very Low (1/2), remedial action reduces likelihood of occurrence
			Internal fencing maintained	Offset site supports rotational grazing regime	Low (2/2)	Internal fencing not maintained and not stockproof			
			Stock water infrastructure maintained			Stock water infrastructure not maintained			
			Property access gates remain locked	Vehicle access is restricted	Low (2/2)	Property access gates unlocked			

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria	Completion Criteria	Risk of Completion Criteria not being met (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
						Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
1, 2, 4	**Signage**	Landowner	Minimum of four signs maintained along offset boundary fence and at each vehicle access gates	Public alerted to the presence of offset site and prohibited activities	Very Low (2/1)	At least four signs are not visible along boundary fence or access gates.	Regular site monitoring (ie. 3-monthly)	Upgrade, replace and/or maintain signs to alert public as required	Very Low (1/1), rare and insignificant consequence
1, 2, 4, 5	**Biomass Control**	Landowner	Strategic sheep grazing undertaken in accordance with Section 4.1.4.1 Ecological burning undertaken as required in accordance with Section 4.1.4.2	Aim to provide 20-40% bare ground for native recruitment and Golden Sun Moth habitat by mid-late Spring (subject to seasonal conditions). Cover of introduced grasses and herbaceous weeds must not exceed 50%	Low (2/2)	<20% or >40% bare ground during spring each year >50% cover of introduced grasses and herbaceous weeds	Regular site monitoring (ie. 3-monthly)	Adjust strategic grazing, burning and/or weed control regime to achieve the inter-tussock space and limit introduced flora cover to <50% (see Sections 4.1.4 and 4.1.5 for methods and timing)	Very Low (1/2), remedial action reduces likelihood of occurrence
1, 2, 4, 5	**Weed Control**	Landowner	Weed control undertaken annually in accordance with Table 10	All woody weeds eliminated (<1%)	Low (2/2)	Woody weeds present in offset	Regular site monitoring (ie. 3-monthly)	Supplementary control of introduced grasses and herbaceous weeds	Very Low (1/2), remedial action reduces likelihood of occurrence
				Cover of introduced grasses and herbaceous weeds must not exceed 50%		>50% cover of introduced grasses and herbaceous weeds			
			Monitoring to be conducted throughout the year, new high threat weeds eliminated (<1%)	All new high threat weeds controlled and eliminated (<1%)	Low (2/2)	New high threat weed(s) recorded		Monitor and control all new high threat weeds	
1, 2, 4, 5	**Pest Control**	Landowner	Rabbit and fox control undertaken annually in accordance with Table 11	Rabbit and fox populations controlled or reduced	Low (2/2)	Observed rabbit and fox population increasing	Regular site monitoring (ie. 3-monthly) Warrens/dens re-monitored two weeks after	Monitor and control pest animals (see Section 4.1.6 for control methods and timing)	Very Low (1/2), remedial action reduces likelihood of occurrence

Environmental Offset Outcome (Table 7)	Management Action	Responsibility	Performance Criteria	Completion Criteria	Risk of Completion Criteria not being met (likelihood/ consequence)	Remedial action if Performance or Completion Criteria not achieved			
						Trigger Event/ Value	Detection Monitoring	Remedial Action	Recalculated risk post remedial action (likelihood/ consequence)
			New warren, dens and harbour are collapsed, fumigation and removed as required	No active rabbit warrens and fox dens	Moderate (3/3)	Rabbit warrens and/or fox dens detected	fumigation/collapse, then monthly for four months. If no further activity, regular site monitoring (ie. 3-monthly) to continue.		Low (1/3), remedial action reduces likelihood of occurrence to rare, but remediation may take >1 year
			New and emergent pests controlled annually on identification of threat	No new and emergent pest animals	Low (2/2)	New and emergent pest animals detected			Very Low (1/2), remedial action reduces likelihood of occurrence
1, 2, 4, 5	**Monitoring and Reporting**	Landowner, Trust for Nature	Landowner site monitoring undertaken through each year in accordance with the OMP and TfN CMP. TfN site monitoring and CMP review undertaken every 5 years in accordance with their Stewardship Program	Offset management undertaken in accordance with the OMP and TfN CMP.	Low (2/2)	Regular site monitoring not undertaken	Regular site monitoring (ie. 3-monthly)	Adjust management according to site and seasonal conditions to meet ongoing performance and completion criteria.	Very Low (1/2), remedial action reduces likelihood of occurrence
				Total extent and quality of NTGVVP and habitat for Golden Sun Moth maintained	Moderate (3/3)	Extent and/or quality of NTGVVP and habitat for Golden Sun Moth declines	Regular site monitoring (ie. 3-monthly)		Low (1/3), remedial action reduces likelihood of occurrence to rare, though consequence remains moderate (ie. remediation <5 years)

5 EPBC Act Environmental Offsets Policy

5.1 Meeting the Principles of the EPBC Act Environmental Offsets Policy

Table 16 below outlines how the proposed offsets meet the principles of the *EPBC Act Environmental Offsets Policy* (SEWPaC 2012).

Table 16. Meeting the principles of the *EPBC Act Environmental Offsets Policy*

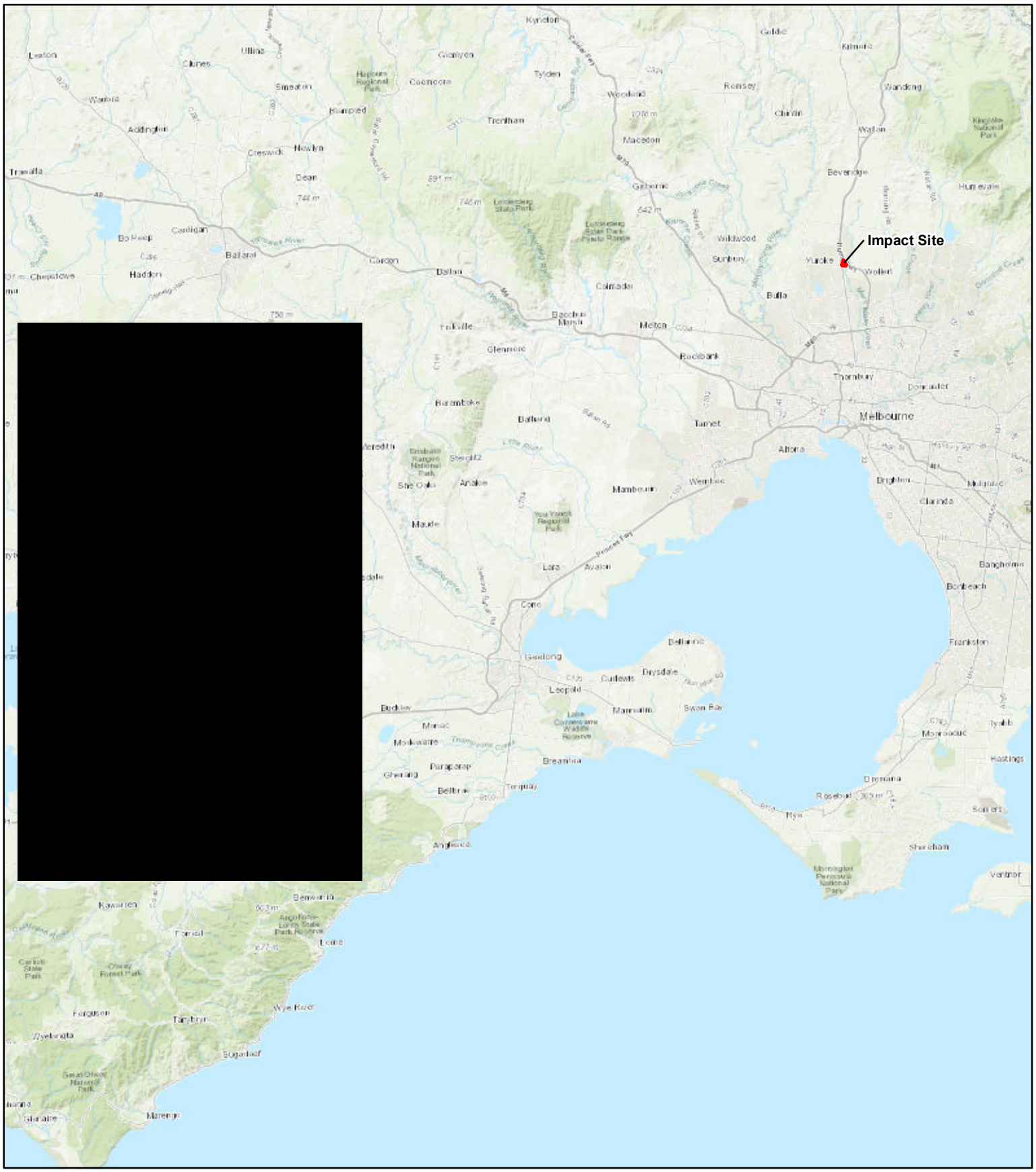
Principle	Proposed Offset
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action.	The offset will maintain and improve the overall viability of NTGVVP, and habitat for the Golden Sun Moth, as it will deliver a gain in the protection and improvement of a higher quality vegetation community and habitat area than that impacted on.
Be built around direct offsets but may include other compensatory measures.	The offset proposal includes at least 100% of direct offsets, that includes in perpetuity protection and management of NTGVVP, and habitat for Golden Sun Moth.
Be in proportion to the level of statutory protection that applies to the protected matter.	The security, extent and management of the offset is in proportion to the protected matter being impacted in accordance with the EPBC Act offset assessment guide. The security and management of MNES at the offset under Trust for Nature Deed of Covenant (Offset) will ensure they are permanently protected.
Be of a size and scale proportionate to the residual impacts on the protected matter.	The area of NTGVVP proposed for offset is more than six times the size of the area being impacted. The area of habitat for the Golden Sun Moth proposed for offset is 5.7 times the size of the area being impacted.
Effectively account for and manage the risks of the offset not succeeding.	The offset will be secured under a Trust for Nature Deed of Covenant (Offset), administered and stewarded by Trust for Nature. The security agreement will be legally binding, and will include the requirement to implement the approved OMP. The offset management has been prepared to deliver improved outcomes for all MNES and to mitigate against risks of the offset not succeeding (Tables 13 and 15).
Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs.	Planning regulations and local laws relevant to the offset allow agricultural activities to continue for the purposes of production, and do not support the permanent protection and improvement of MNES. The security agreements and OMP will provide in perpetuity protection to NTGVVP, and habitat for the Golden Sun Moth present, in addition to existing laws and regulations, and ensure that these MNES will be managed for the purposes of conservation in-perpetuity.
Be efficient, effective, timely, transparent, scientifically robust and reasonable.	The impact and offset have undergone rigorous ecological assessment for MNES (Sections 2.2 and 3.3), and the offset proposes valuable in perpetuity protection for all MNES present, and environmental outcomes for NTGVVP and Golden Sun Moth habitat through a 10-year management plan that draws on literature and research on effective native grassland conservation management and threat abatement.

Principle	Proposed Offset
Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	The offset will be delivered in accordance with the approved OMP to be registered on-title via a Trust for Nature Deed of Covenant (Offset). This security agreement is legally enforceable, and will be administered and stewarded by Trust for Nature respectively. Trust for Nature will review all monitoring reports and undertake regular stewardship visits. All monitoring reports will also be provided to DCCEEW.

Figures

FIGURE 1 - LOCATION OF OFFSET SITE

EPBC 2021/9093, [redacted]



Legend

- EPBC Act 2021/9093 Proposed Offset (NTGVVP) (GSM)
- Impact Site

N

0 5 10 20 30 40 Kilometres

Coordinate System: GDA2020 MGA Zone 55
Map Scale when printed @ A4 1:800,000

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
VicMap Data: The state of Victoria does not warrant the accuracy or correctness of information in this publication and any person using or relying upon such informationdoes so on the basis that the State of Victoria shall bear no responsibilty or liability whatsoever for any errors, faults, defects or omissions in the information.
Prepared by GeoEccentric on behalf of Biodiversity Offsets Victoria 29/04/2025

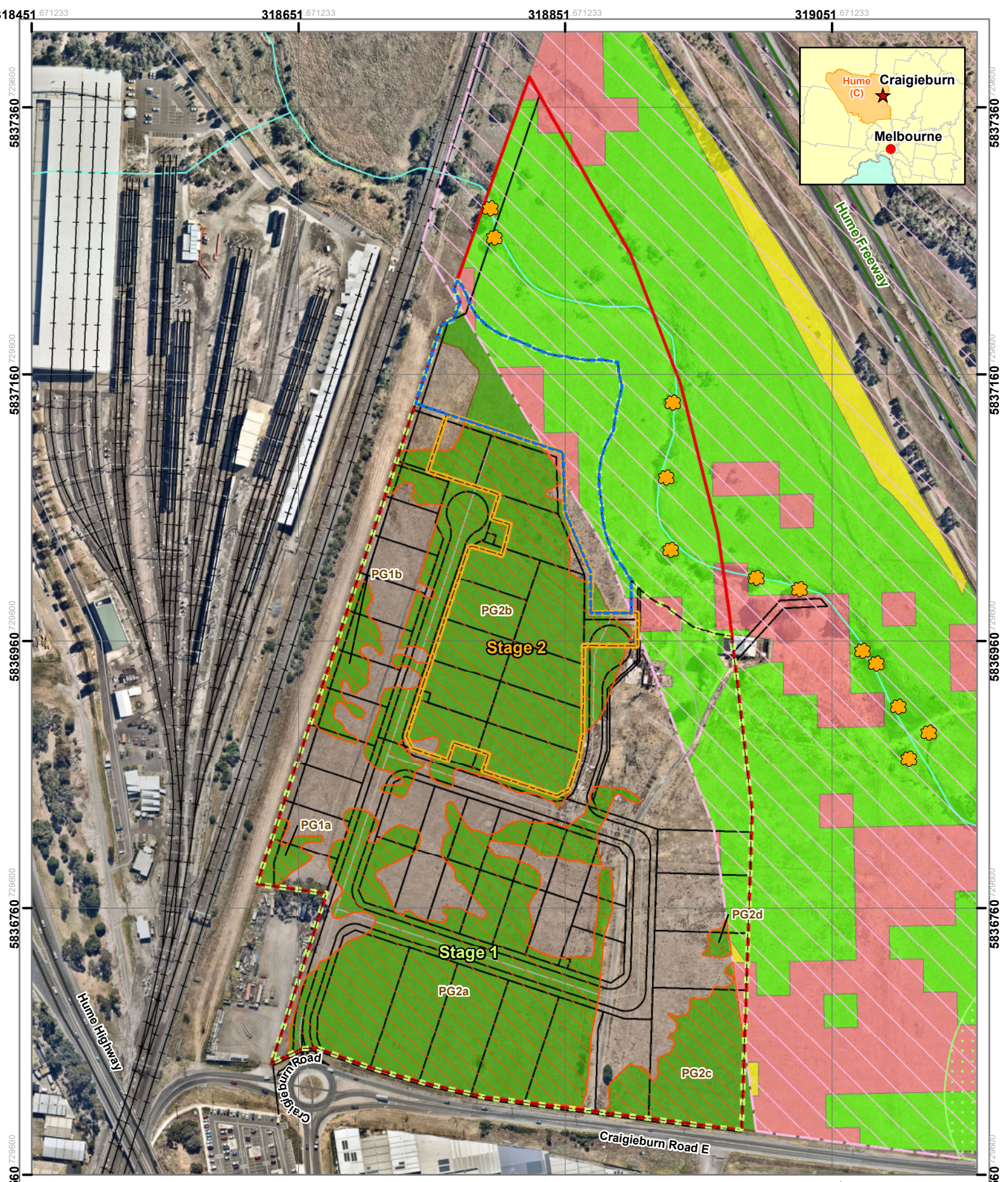


Figure 2

Ecological features

Ecological Assessment for 752 Craigieburn Road E, Craigieburn

Legend

- Study Area
- Conservation Area 34
- MSA BCS Extent
- Stage 1 boundary
- Stage 2 boundary
- Development plan
- Nature reserve

Native Vegetation

- Plains Grassland (EVC 132)
- Impacted vegetation

Environmental Mitigation Data:

- Scattered tree location

Habitat

- Golden Sun Moth habitat area
- Growling Grass Frog habitat area
- Native vegetation area and Matted Flax-lily habitat area

0 25 50
Metres

Map Scale: 1:3,600 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

Base data source: Victoria State Government. Disclaimer: the State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

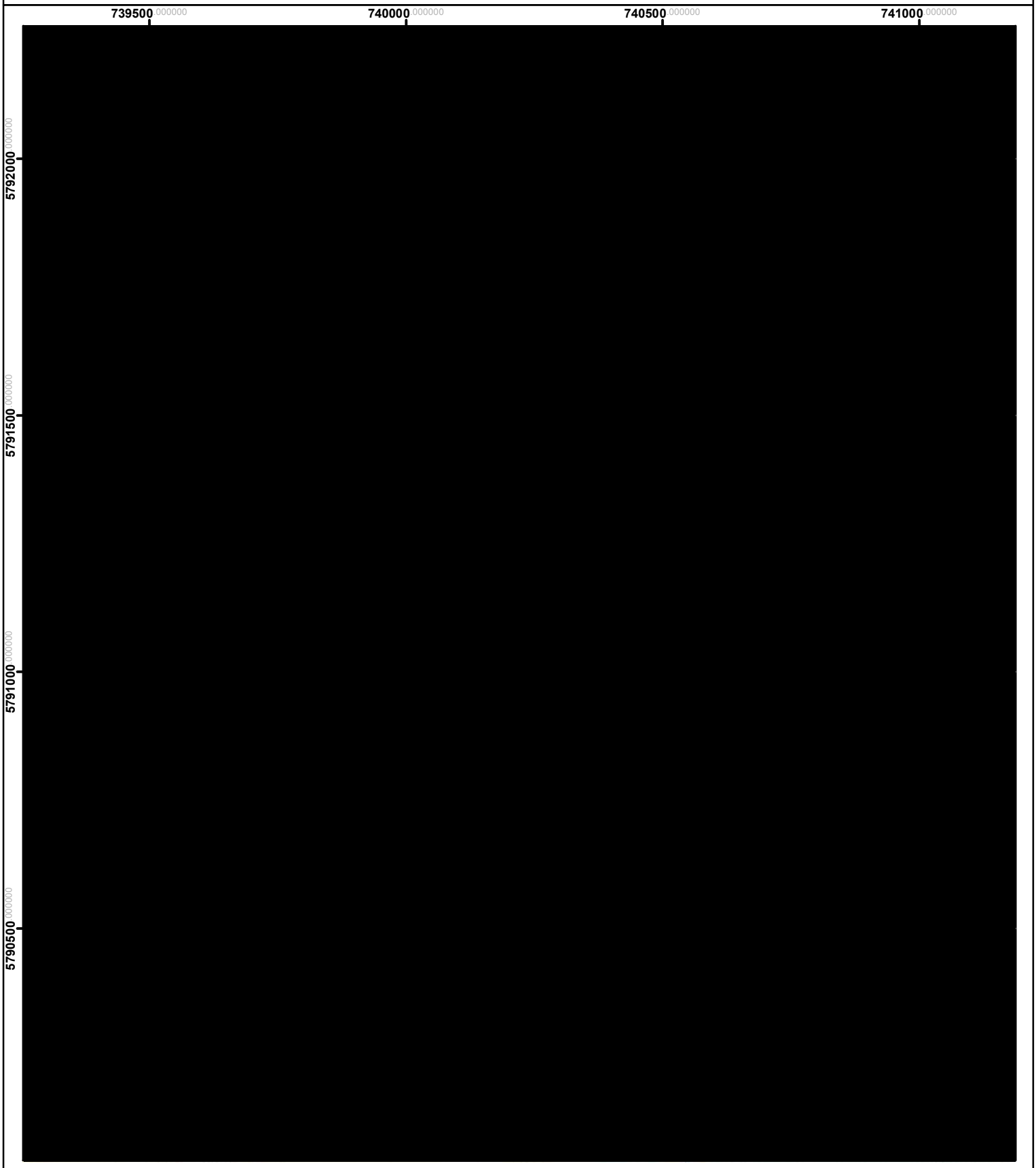
18224_Fig02_EcoFeat 5/05/2026 dmpv

ecology & heritage partners

Aerial source: Nearmap 2024

FIGURE 3 - OFFSET SITE ECOLOGICAL FEATURES

EPBC 2021/9093, [redacted]



Legend

- EPBC Act 2021/9093 Proposed Offset (NTGVVP)(GSM)
- EPBC 2024/09809 Proposed Offset (NTGVVP)(SLL)
- Property Boundary
- Easement
- EVC 125 Plains Grassy Wetland
- EVC 132 Plains Grassland
- Natural Temperate Grassland of the Victorian Volcanic Plain
- Existing Fencing (approximate)
- Striped Legless Lizards Recorded (2023)
- Golden Sun Moths Recorded (2019)
- Golden Sun Moth Recorded (2023)
- High Threat weeds
- Warrens
- Old fencing wire/machinery

N

0 50 100 200 300 400 Metres

Coordinate System: GDA2020 MGA Zone 54
Map Scale when printed @ A4 1:10,000

Service Layer Credits:
VicMap Data: The state of Victoria does not warrant the accuracy or correctness of information in this publication and any person using or relying upon such informationdoes so on the basis that the State of Victoria shall bear no responsibilty or liability whatsoever for any errors, faults, defects or omissions in the information.
Prepared by GeoEccentric on behalf of Biodiversity Offsets Victoria 6/02/2026

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Appendices

Appendix 1. *Treeless* Vegetation Quality Assessment Methodology (DSE 2004)

Treeless Vegetation Quality Field Assessment Sheet

Version 1.4 - July 2009

Department of Sustainability and Environment

Site Name/No. ..... Location ..... Date .....

Assessor(s) ..... Map Name/No. ..... AMG / MGA .....

Tenure ..... EVC ..... Bioregion .....

---------- 'Site Condition Score' ----------

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		

Present

For life forms with benchmark cover of < 10%, considered 'present' if
- any specimens are observed.

For life forms with benchmark cover of ≥ 10%, considered 'present' if
- the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present')

For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either:
- < 50% of the benchmark species diversity; or
- no reproductively-mature specimens are observed.

For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either:
- < 50% of benchmark cover; or
- < 50% of benchmark species diversity; or
- ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey *Score*

Category & Description		
All strata and Life forms effectively absent		0
Up to 50% of life forms present		5
≥ 50% to 90% of Life forms present	• of those present, ≥ 50% substantially modified	10
	• of those present, < 50% substantially modified	15
≥ 90% of Life forms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

Lack of Weeds *Score*

Category & Description	*'high threat' weeds**		
	None	*≤ 50%*	*> 50%*
> 50% cover of weeds	4	2	0
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** if total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Recruitment *Score*

Percentage cover of recruitment area#	High native herb diversity*	Low native herb diversity*
0 to 5% cover	0	0
> 5% to 20% cover	6	3
> 20% to 40% cover	10	6
> 40% to 60% cover	6	3
> 60% to 90% cover	3	1
> 90% cover	0	0

\# cumulative % cover of bare ground, bryophytes/lichens and soil crust

* high native herb diversity defined as ≥ 50% of benchmark diversity within 'herb' life forms

Organic Litter *Score*

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	3	2
≥ 50% or ≤ 150% of benchmark cover	5	4

Treeless Vegetation Quality Field Assessment Sheet

Version 1.4 - July 2009

Department of Sustainability and Environment

Logs (where applicable+) *Score*

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	3	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

\+ Applicable to some shrublands and scrubs (refer to EVC benchmark as a guide). Where applicable assess in accordance with the habitat hectares method for logs in treed EVCs. Note that most shrublands and scrubs do not contain a large tree component and hence a large log assessment is not required (refer to EVC benchmark as a guide). Such EVCs should be scored as if 'large logs present'.

* present if large log length is ≥ 25% of EVC benchmark log length.

\# absent if large log length is < 25% of EVC benchmark log length.

'Landscape Context Score'

Patch Size *Score*

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
≥ 20 ha, but not 'significantly disturbed'*	10

* 'significantly disturbed' defined as per RFA 'Old Growth' analyses eg. roading, coupes, grazing etc. – effectively most patches within fragmented landscapes.

Neighbourhood *Score*

Radius from site	% Native vegetation*	Weighting	
100 m		0.03	
1 km		0.04	
5 km		0.03	
	subtract 2 if the neighbourhood is 'significantly disturbed'		
		Add Values and 'round-off'	

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Distance to Core Area *Score*

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Final Habitat Score

Component	'Site Condition Score'							'Landscape Context Score'			Total
	Understorey	Lack of Weeds	Recruitment	Organic Litter	Logs (*if applicable*)	Standardiser	Subtotal	Patch Size	Neighbourhood	Distance to Core Area	100
Score											

Victoria The Place To Be

Appendix 2. Golden Sun Moth Habitat Quality Assessment Method (Biosis 2020)

The weighting of these three attributes for *Golden Sun Moth Habitat* was defined as follows:

- Site condition – out of 3 - comprising an assessment of the condition of the threatened species habitat within the project in relation to the ecological requirements of the threatened species. Based on vegetation structure, native plant cover, species richness and presence of habitat resources.
  - 3/3= dominated by high quality native vegetation including >40% cover of known food source, appropriate inter-tussock space
  - 2/3= dominated by moderate quality native vegetation including between 20-40 % cover of known food source with limited inter tussock space
  - 1/3= dominated by poor quality native vegetation including <20% cover of known food source
  - 0/3= dominated by introduced vegetation with no known food source present
- Site context – out of 3 - comprising an assessment of the relative importance of the patches of the threatened species habitat in terms of its position in the landscape based on patch size, connectivity and proximity to threats. A patch is considered to be an area of suitable habitat (not constrained to the alignment corridor) separated from other areas of suitable habitat by >200 m of unsuitable habitat or barriers to flight
  - 3/3= habitat patch size is > 10 ha, shaped appropriately to reduce edge effects, slightly sloped and north-facing, minimal shading
  - 2/3= habitat patch size is > 10 ha, shaped appropriately to reduce edge effects
  - 1/3= habitat patch size is > 0.25 ha but < 10 ha
  - 0/3= habitat patch size is < 0.25 ha
- Species stocking rate – out of 4 – comprising an assessment of the density of the species across the area of suitable habitat. Density is calculated as an average across the area of suitable habitat, the average is weighted to consider survey areas.
  - 4/4 = >50 males per ha
  - 3/4= >20-50 males per ha
  - 2/4= >5-20 males per ha
  - 1/4= 0-5 males per ha
  - 0/4 = no moths present

Appendix 3. Risk Assessment Framework

RISK LEVEL		Likelihood				
		1	2	3	4	5
Consequence	1	Very Low	Very Low	Very Low	Low	Low
	2	Very Low	Low	Low	Low	Moderate
	3	Low	Low	Moderate	Moderate	High
	4	Low	Moderate	High	High	Very High
	5	Moderate	Moderate	High	Very High	Very High

Category Descriptions		
Likelihood		
1	***Rare***	Would only occur under exceptional circumstances (eg. 1 in 100-year event).
2	***Unlikely***	Could occur but considered unlikely (eg. 1 in 10-50-year event).
3	***Possible***	May occur under non-average circumstances during the offset management period (eg. 1 in 10-year event).
4	***Likely***	Will occur under average circumstances (eg. annually).
5	***Almost Certain***	Expected to occur under most circumstances (eg. multiple times per year).
Consequence		
1	***Insignificant***	No impacts on MNES or achievement of OMP objectives. Inconvenience for management only.
2	***Minor***	Some short-term impacts on MNES and/or achievement of OMP objectives. Remediation <1 year.
3	***Moderate***	Medium-term impacts on MNES and/or achievement of OMP objectives. Remediation 1-5 years.
4	***Major***	Long-term impacts on MNES and/or achievement of OMP objectives. Remediation >5 years.
5	***Catastrophic***	Irreversible impacts to MNES. OMP objectives cannot be achieved. Remediation not possible

Appendix 4. Annual Report Template

Table A4. Annual Report Template

Landowner name completing report				**Trust for Nature Site ID**	
Offset site address	[redacted] Cressy VIC 3322			**Offset Management Plan No. (if applicable)**	
Responsible Authority	Commonwealth Department of Climate Change, Energy, the Environment and Water			**Annual Report No.**	
Matters of National Environmental Significance	*Natural Temperate Grassland of the Victorian Volcanic Plain* and Golden Sun Moth *Synemon plana*				
Management Action	**Performance Target**	**Management Activities Implemented**	**Timing**	**Performance Target Met? (Y/N)**	**Description of Actions and observed outcomes (Include or attach evidence of actions completed / comments / observed outcomes)**
Eg. Biomass Control	Maintain 20-40% bare ground	Strategic sheep grazing	All Year	Y	
Signed			**Date**		