Furlong Road Development (EPBC 2018/8257) Offset Management Plan: Shelford – Mt Mercer Road, Shelford

Draft report

Prepared for Fronditha Care

6 August 2019

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Document information

Report to:	Fronditha Care
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Biosis matter no.:	28594
File name:	28594.Furlong.NTG.OMP.20190806
tation:	Biosis 2018. Aged Care Facility Extension at Furlong Road, St Albans (EPBC 2018/8257). Preliminary Documentation: Additional Information. Report for De Nova Group. Authors: Dredge, T., Stoot, L & Tate, J., Biosis Pty Ltd, Melbourne. Project no. 28594

Document Information

Version	Internal reviewer	Date issued
Draft Version 01	SGM	06/06/2019
Draft Version 02	TD	06/08/2019

Acknowledgements

Biosis acknowledges the contribution of the following people and organisations in undertaking this study:

- Fronditha Care: Jim Scantsonihas and George Lekakis
- De Nova Group: Ben Tzirkas and Lisa Tzirkas
- Department of Environment, Land, Water and Planning for access to the Victorian Biodiversity Atlas
- Department of Environment and Energy: Julie Groce

The following Biosis staff were involved in this project:

- Julian Turner and Lachlan Milne for mapping

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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 to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed

Tim Dredge
Consultant Botanist
Biosis Pty Ltd

Summary

Biosis Pty Ltd (Biosis) was commissioned by De Nova Group Pty Ltd (De Nova Group) on behalf of Fronditha Care to prepare an Offset Management Plan (OMP) for a section of a pastoral property at Shelford – Mt Mercer Road, Shelford in Victoria. The section assessed (covering 6 hectares) was part of Lot 4 of LP4563 within the area of Shelford (the offset area). The property is currently privately owned by Thurlgona Pty Ltd and Thurlgona 2 Pty Ltd.

The 2.7 ha offset area meets the quantity and quality requirements for an offset of Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) as prescribed by Department of the Environment and Energy (DoEE) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and in association with referral 2018/8257.

Specifically this plan addresses the requirements of Attachment A for the EPBC referral, as well as anticipated approval conditions under the EPBC Act for the development of 181 Furlong Road, St Albans, Victoria as outlined under the referral. Under the conditions of the attachment A, Condition 4 is relevant to the offsets provided at the offset site. These conditions read as follows:

Condition 4: Offsets.

The department considers the proposed action may result in residual significant impacts on listed matters.

Please provide details of a proposed offset package to compensate for residual significant impacts on relevant matters, including the following:

- *a) A description of the offset sites(s) including location, size, condition and environmental values present (including maps, shapefile and relevant survey data consistent with the Department's survey guidelines for MNES);*
- *b) How the proposed offset meets each of the principles of the Environment Protection and Biodiversity Conservation Act 19999 Environmental Offsets Policy (2012); and*
- *c) Details on how the offset will be secured, managed and monitored, including:*
    - *a. Management actions, responsibility, timing and performance criteria; and*
    - *b. Specific environmental outcomes to be achieved from management measures.*

The offset package can comprise a combination of direct offsets and other compensatory measures, as long as it meets the requirements of the Department's Offsets Policy and aligns with conservation priorities for the species.

Offsets must directly contribute to the ongoing viability of the species and ecological communities and deliver an overall conservation outcome that improves or maintains the viability of the protected matter in the region, as compared to what is likely to have occurred under the status quo, i.e., if neither the action nor the offset had taken place.

The offset site is located within a larger area of NTGVVP, and management prescriptions within this plan are consistent with the plan for the broader property where other offset sites are current. The offset area has been the subject of targeted surveys for NTGVVP and has undergone a vegetation quality assessment as per the habitat hectare method (DSE 2004) to confirm the minimum quality requirements of the offset site.

The proposed 2.7 hectare offset provides about 4.7 times the impact to NTGVVP associated with the development of 181 - 187 Furlong Road, St Albans.

This OMP requires that some non-biodiversity oriented land use rights are relinquished and that management actions have the primary objective aimed at the conservation and ecological improvement of defined areas of NTGVVP.

The management actions outlined in this plan consider key management issues identified for this EPBC Act listed community.

The offset area will be secured in-perpetuity by a covenant as to part Section 69 *Conservation Forests and Lands Act 1987* managed by DELWP. Gains in vegetation quality through on-ground actions are expected over the duration of the 10 year offset management plan, and through the permanent requirements for ongoing land-use commitments to manage the offset site for biodiversity conservation.

This plan specifies a range of management actions for the offset area, including weed management and protection of the habitat values of the offset site from degradation by stock and unauthorised access. The plan documents an adaptive management framework, in which management actions are modified based on the results of monitoring and auditing activities in order to keep management focussed on the outcome of protecting and enhancing ecological values associated with NTGVVP. The risk assessment also includes triggers for plan review, following environmental events such as significant wildfire and weed invasion that has the potential to significantly alter the character and condition of the offset site.

1. Introduction

1.1 Project Background

Biosis was commissioned by De Nova Group on behalf of Fronditha Care to prepare an Offset Management Plan (OMP) for an offset site required for losses associated with the development of 181 - 187 Furlong Road, St Albans, Victoria as outlined under referral 2018/8257 (the referral; Figure 1).

An ecological assessment of the Furlong Road study area, including a habitat hectare assessment, was documented by Biosis in 2018. While modelled condition scores for habitat at Furlong Road were used for the purposes of state offsets, habitat hectare data was gathered to quantify the vegetation condition score for input into the federal offset calculator. The results of the habitat hectare assessment are provided in this document. Biosis (2018) identifies the extent of native vegetation, including areas of Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP). Biosis (2018) was used, in conjunction with the *Environment Protection and Biodiversity Conservation Act 19999 Environmental Offsets Policy (2012)*, to identify the extent of NTGVVP habitat to be protected outside the project area.

A Planning Permit application has been approved by the City of Brimbank for the proposed development (Permit no. P622/2011). Clearing associated with the development of the subdivision was also assessed by the Department of Environment, Land, Water and Planning (DELWP) as part of the development approvals process. The development is also being assessed by the Department of the Environment and Energy (DoEE) under the EPBC Act through referral 2018/8257.

The plans approved by Brimbank Council will result in clearing of 0.255 hectares of native vegetation of which 0.22 ha is equivalent to NTGVVP.

Offsets for the proposed development are prescribed by both state (DELWP) and federal (DoEE) regulators. Offsets prescribed from the EPBC Act and the Victorian Guidelines cannot be generated concurrently and will therefore be sourced separately. Offsets proposed under the EPBC Act involve securing an offset supporting 2.7 ha of NTGVVP. Securing the offset excludes the use of the offset site for any purpose other than the conservation of the Matters of National Environmental Significance (MNES) present.

The EPBC Act offset for NTGVVP is a 2.7 hectare section of Lot 4 of LP4563 at Shelford – Mt Mercer Road, Shelford (Figure 1). Biosis (2018) along with this OMP provide the basic ecological information to support this OMP and a remnant patch of NTGVVP (Figure 2).

Management of the EPBC Act offset will involve protection and active ecological management of a 2.7 hectare remnant of the Ecological Vegetation Class (EVC) Plains Grassland (EVC 132) which also corresponds to the EPBC Act listed community NTGVVP.

The overall development of 181 – 187 Furlong Road, Victoria, will be conducted in a manner such that some of the existing natural habitat will be lost in a single event, while the remainder is assumed to be lost through being isolated and functionally degraded. The project is expected to begin in mid-2019 and, depending on economic conditions, be completed within one year.

Both 181 – 187 Furlong Road and the offset site are within the Victorian Volcanic Plain (VVP) Bioregion.

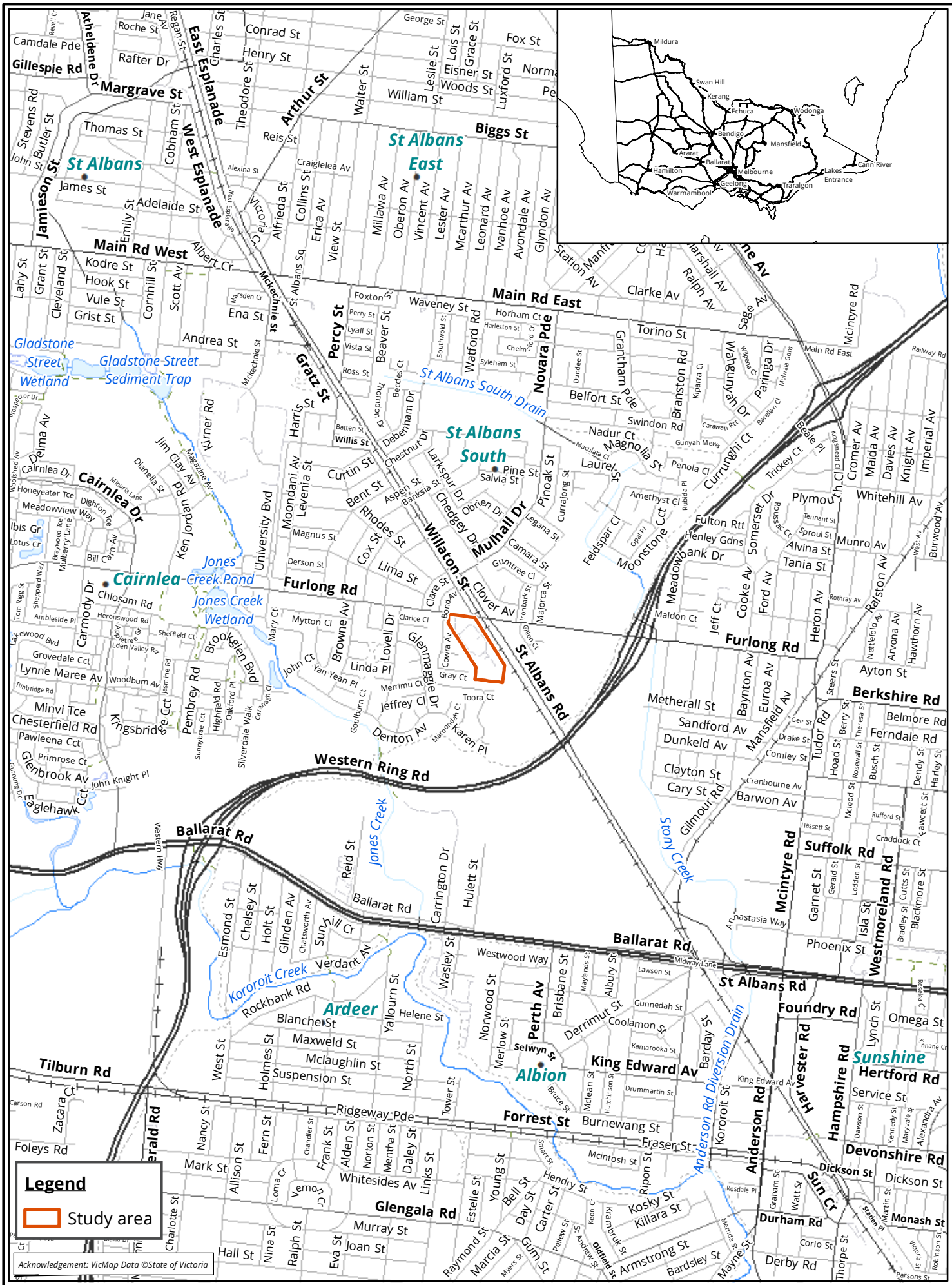
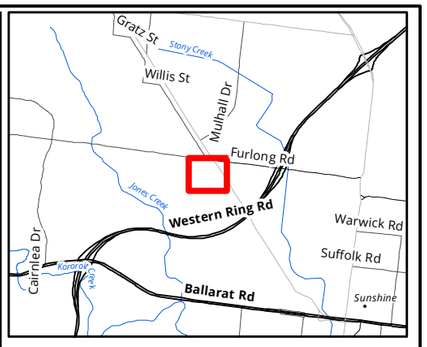


Figure 1: Location of proposed development

Biosis Pty Ltd
Albury, Ballarat, Melbourne,
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 26838,
Date: 01 May 2018,
Checked by: SCC, Drawn by: SSK, Last edited by: skumar
Location:P:\26800s\26838\Mapping\26838_F1_Locality



Legend

- Study area
- Impact area
- Natural Temperate Grassland of the Victorian Volcanic Plain

Figure 2 Area of Natural Temperate Grassland

0 10 20 30 40 50

Metres

Scale: 1:1,300 @ A3

Coordinate System: GDA 1994 MGA Zone 55

N

Biosis Pty Ltd
Albury, Ballarat, Melbourne, Newcastle, Sydney, Wangaratta & Wollongong

Matter: 28594,
Date: 13 February 2019,
Checked by: LS, Drawn by: DK, Last edited by: jturner
Location:P:\28500s\28594\Mapping\28594_F2_NTGVVP.mxd

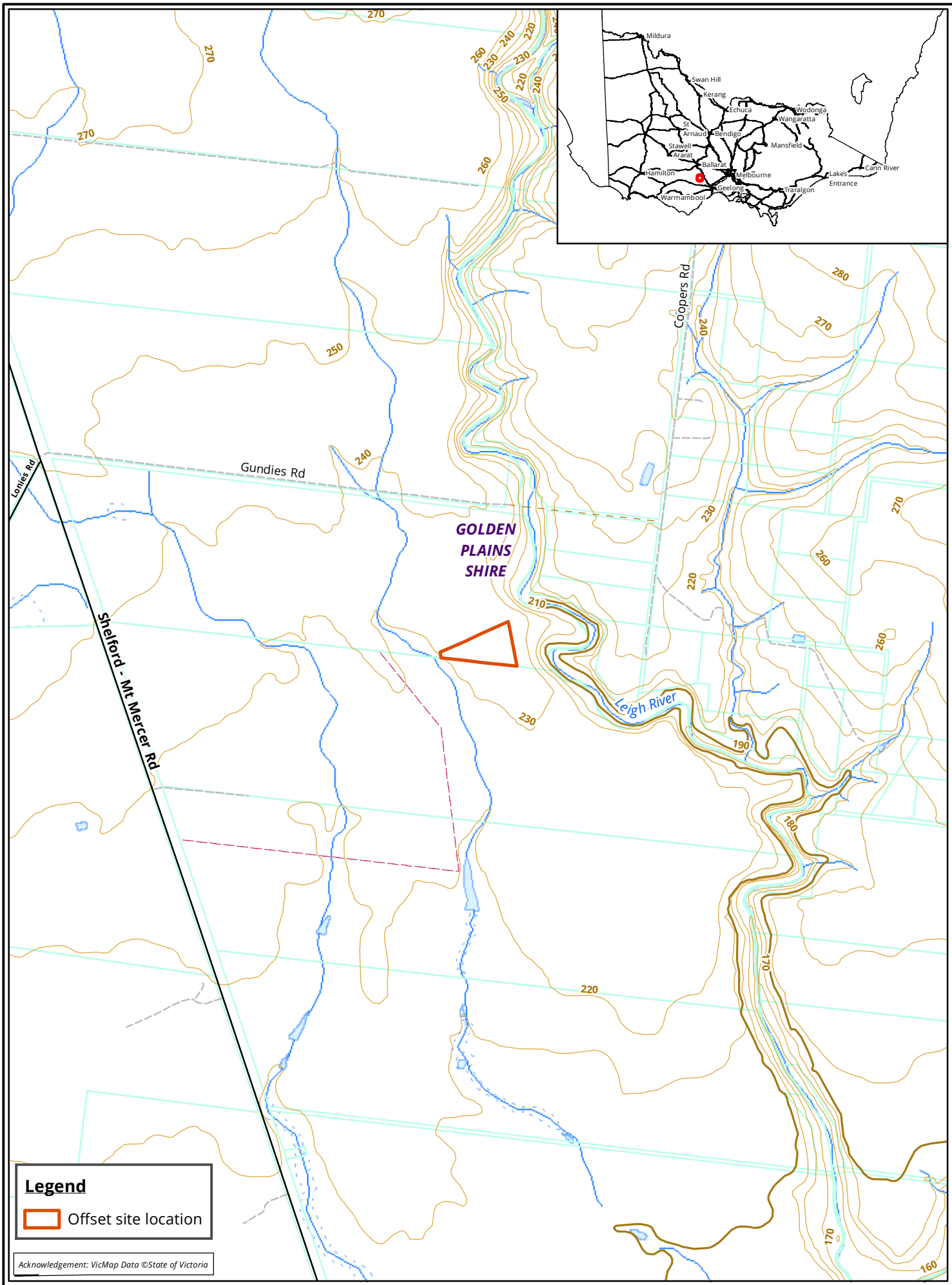


Figure 3 Location of the Offset Site

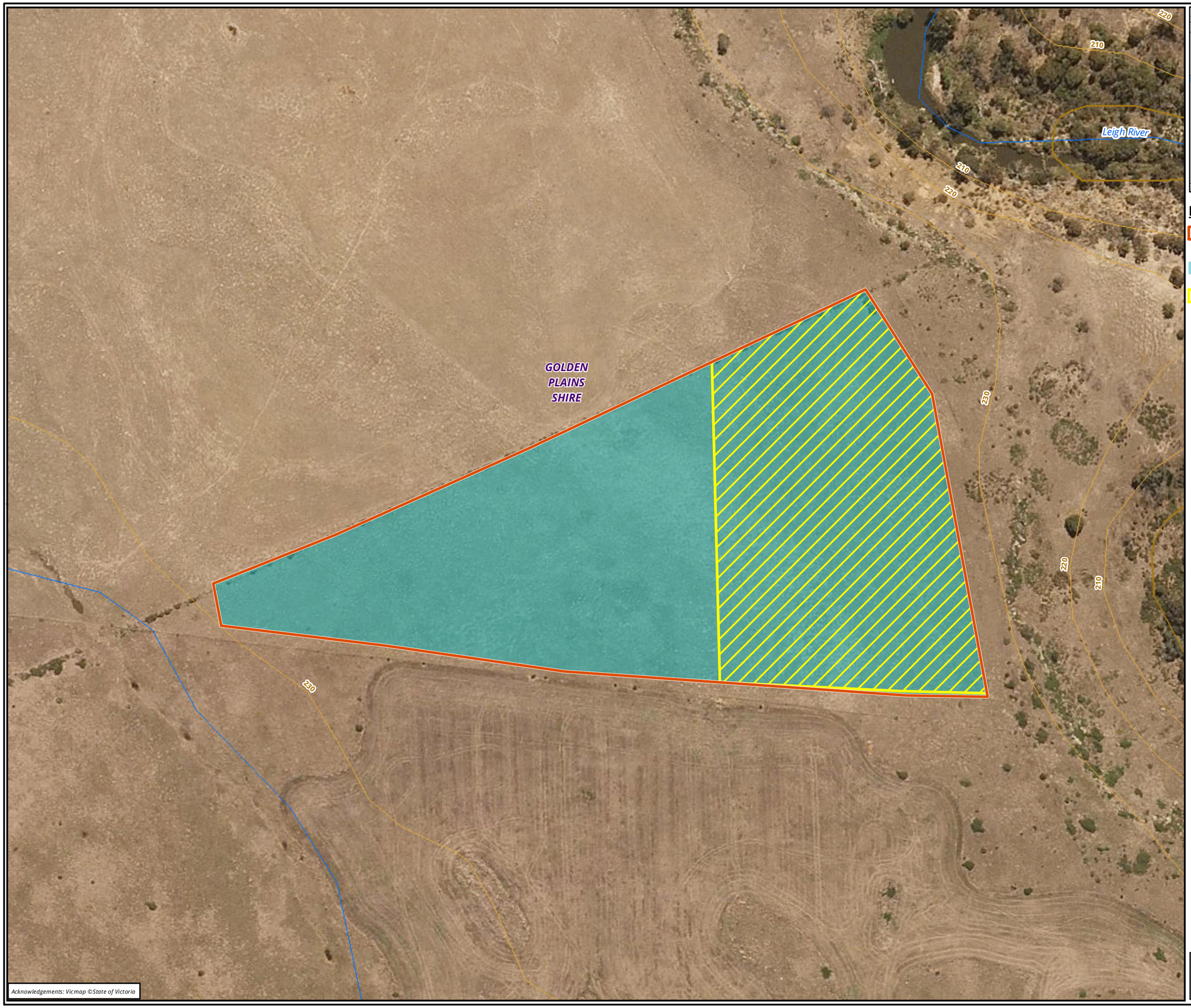
0 250 500 750 1,000 Metres

N

Scale 1:25,000 @ A4, GDA 1994 MGA Zone 55

Biosis Pty Ltd
Albury, Ballarat, Melbourne,
Newcastle, Sydney, Wangaratta & Wollongong

Matter: 28594,
Date: 19 February 2019,
Checked by: TD, Drawn by: DK, Last edited by: dkazemi
Location:P:\28500s\28594\Mapping\28594_F1_Offset_Site_Location



Legend

- Study area
- Natural Temperate Grassland of the Victorian Volcanic Plain
- Proposed offset site

Figure 4 Details of offset site location

0 25 50 75 100

Metres
Scale: 1:2,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

N

Biosis Pty Ltd
Albury, Ballarat, Melbourne, Newcastle, Sydney, Wangaratta & Wollongong

Matter: 28594,
Date: 20 February 2019,
Checked by: LS, Drawn by: DK, Last edited by: jturner
Location:\\bio-data-01\matters$\28500s\28594\Mapping\28594_F2_OffsetLocation.mxd

1.2 Objectives

The objectives of this plan are to:

- Identify 2.7 hectare within the offset property that provides the direct EPBC Act offset, and:
  - Protect 2.7 hectare of NTGVVP in a manner consistent with the EPBC Act Environmental Offsets Policy
  - Identify legal security arrangements for the in perpetuity protection of the offset site
  - Undertake management actions to protect and improve the quality of native vegetation (NTGVVP) within the offset site
  - Provide a timetable of management actions, outcomes and progress reviews
  - Detail appropriate monitoring and evaluation of management actions and completion criteria
  - Attain and maintain the target condition criteria for the life of the EPBC Approval.

1.3 Report structure

The structure and content of the OMP is consistent with the requirements of the 'Standard Offset Plan' template provided by DELWP and is organised in three parts:

- **Introduction** - This section summarises the background information relevant to the Project, including the purpose and scope of the work and the assessment methodology.
- **Part A: Offset Suitability** - This section assesses the suitability of the proposed offset site, and includes details regarding approved clearing, gain and site improvement calculations. Part A should be read in conjunction with Part B, but due to its technical nature, the information it contains is not intended to be placed on title (e.g. covenant).
- **Part B: Offset Implementation** - This section describes how the offset is to be implemented. Part B includes details regarding landowner commitments, management activities, monitoring and reporting. This section is intended for those responsible for implementing the plan, including future landowners. Information in this section is intended to be placed on title.

The plan also incorporates the requirements of guidelines for the preparation of an offset management plan under the EPBC Act Environmental Offsets Policy (Commonwealth of Australia 2014).

2. Part A: Offset Suitability

This section provides details of the clearing site, assesses the suitability of the proposed offset site, and includes details regarding approved clearing, gain and site improvement calculations. This section should be read in conjunction with Part B, but due to its technical nature, the information it contains is not intended to be placed on title (e.g. Covenant under the *Victorian Conservation Trust Act 1972*). The location of the clearing site and the proposed offset site are provided in Figures 1 and 2 respectively.

2.1 Clearing Site Details

Landowner of clearing site	Fronditha Care
Location and address of clearing site	181 – 187 Furlong Road, St Albans
Local Government Area	City of Brimbank
Catchment Management Authority	Port Phillip and Western Port
Responsible Authority	Department of Environment, Land, Water and Planning
Permit applicant	Fronditha Care
Planning Permit Number (ID)	P622/2011
Date Approved	8/11/2018

2.2 Vegetation Approved for Removal

Vegetation removal associated with the development of 181 – 187 Furlong Road (Figure 1) has been approved under Brimbank Planning Permit P622/2011. Vegetation to be removed is described in this document and the condition of this vegetation is summarised in Table 1. A total of 0.255 ha of native vegetation identified as *Heavier soils* Plains Grassland (EVC 132-61) has been approved for clearing of which 0.22 hectare is classified as NTGVVP (Figure 2).

2.3 Offset Prescription and suitability

Vegetation losses and offset requirements were calculated using the spreadsheet provided under the EPBC Act Environmental Offsets Policy (DSEWPaC 2012). Prescribed offsets for impacts to NTGVVP are presented in Appendix 1.

Offsets prescribed under the EPBC Act Environmental Offsets Policy (DSEWPaC2012) amount to the protection and management of 2.7 hectare of NTGVVP. This plan outlines the location of the prescribed NTGVVP offset, the condition of the native vegetation to be protected, the management actions required to be implemented and the condition targets for that vegetation at the end of the ten year management period.

Detail of the habitat quality used for NTGVVP in the EPBC Act offset calculator is provided in Table 2.

Table 1 Habitat scores for areas of NTGVVP at Furlong Road and the Shelford offset site

Site			Furlong Road	Shelford
Habitat Zone ID			1A	1A
EVC: Name / Number			Plains Grassland 132-61	Plains Grassland 132-61
		Max Score	**Total: 100**	**Total: 100**
Site Condition	Large Old Trees	10	Not Applicable	Not Applicable
	Canopy Cover	5	Not Applicable	Not Applicable
	Lack of Weeds	15	7	6
	Understorey	25	10	10
	Recruitment	10	3	6
	Organic Matter	5	5	3
	Logs	5	Not Applicable	Not Applicable
	Total Site Score		25	25
	Standardised Score (x1.36)		34	34
Landscape Value	Patch Size	10	1	8
	Neighbourhood	10	0	4
	Distance to Core	5	3	4
	Total Landscape Score		4	16
HABITAT SCORE		100	40	50
Habitat points = #/100		1	0.40	0.50
Habitat Zone area (ha)			0.56	2.7
Habitat Hectares (Hha)			0.1904	1.325
HZ (ha) Development Zone			0.22	Not Applicable
Development Zone (Hha)			0.0748	Not Applicable

Notes to table: The actual development zone is significantly smaller than the final determined impact area due to assumed impacts from segmentation of NTGVVP resulting in the remaining habitat as functionless over time.

2.4 Description of the Offset Site

The nominated offset area is located at Shelford – Mt Mercer Road, Shelford and is bounded to the west by Shelford – Mt Mercer Road, to the north by Gurdies Road, to the east by the Leigh River and the south by neighbouring agricultural land. The property is currently zoned Farming Zone and is not covered by an Environmental Significance Overlay relating to biodiversity. The land is owned and managed by Thurlgona Pty Ltd and Thurlgona 2 Pty Ltd also hold broader areas of farmland in this area. The site has historically been used for domestic stock grazing but is currently managed for conservation values on a voluntary basis.

The offset area assessed is part of a broader parcel of land (186 ha). This parcel includes substantial areas dominated by NTGVVP (synonymous with Plains Grassland (EVC 132)) in relatively uniform condition. Other portions of this parcel of land have been secured as offsets for other development projects. The broader paddock includes internal and boundary fencing to control stock movements between the adjacent properties.

The proposed offset area (the area subject to this OMP) is in the south-eastern corner of this parcel (Figure 3). The offset supports one habitat zone which will be managed to provide all of the NTGVVP offsets required for the development of 181 -187 Furlong Road.

The broader land parcel includes substantial areas dominated by NTGVVP (identified as Plains Grassland (EVC 132)) in relatively uniform condition (Table 1). Other parts of this parcel of land have been or are in the process of being secured as offsets for other development projects, although this offset area is not a

designated offset area at this point in time. The broader paddock includes internal and boundary fencing to control stock movements between the balance of the property and other adjacent properties.

The offset area (the area subject to this OMP) is at the south-eastern end of this broader land parcel (Figure 4). The offset area supports habitat which will be managed to provide all NTGVVP offsets required for development of land at Furlong Road.

The grassland contained a diversity of native species, including Common Tussock-grass *Poa labillardierei*, Spear-grass *Austrostipa* spp., Smooth Wallaby-grass *Rytidosperma* laeve, Kangaroo-grass *Themeda triandra*, Lemon Beauty-heads *Calocephalus citreus*, Blue Devil *Eryngium ovinum*, Feather Heads *Ptilotus microcephalus,* Scurf-pea *Cullen spp.,* and Kidney-weed *Dichondra repens*.

A moderate cover of weeds was present, predominantly comprising low threat grasses such as, Spear Thistle *Cirsium vulgare,* Ribwort *Plantago lanceolata,* Wild Oat *Avena fatua,* and Flatweed *Hypochoeris radicata*. Scattered occurrences of the high threat weed Serrated Tussock *Nassella trichotoma* was present, in addition to the noxious weeds Spear Sweet Briar *Rosa rubiginosa* and Spear Thistle *Cirsium vulgare.*

A detailed assessment of the abundance and location of weed infestations will be conducted as part of the baseline monitoring exercise required as part of this OMP (Section 3.10). This baseline monitoring exercise will also provide further information on species and specific management issues and targets.

More indigenous and weed species are likely to be present as seasonal conditions and survey intensity typically prevent the detection of all species present within a defined area.

Table 2 identifies the features of the offset calculator, of which justifications are provided within Section 4.1.1 of the Preliminary Documentation (Biosis 2019).

2.5 Offset calculator

This section provides a summary of the offset calculator that is expanded on and justified within the Preliminary Documentation.

2.6 Recovery Plans, Threat Abatement Plans and Conservation Advices

There is a published conservation advice for NTGVVP (http://www.environment.gov.au/). Sections of the conservation advice relevant to this OMP are outlined below.

2.6.2 NTGVVP Conservation advice

This OMP is also consistent with the priority recovery and threat abatement actions outlined within the approved (29 May 2008) conservation advice for this community. This includes protecting remnants of the listed ecological community through the development of conservation agreements and covenants, active management of weeds and the development of appropriate fire and grazing regimes for biodiversity conservation.

The proposed covenant will exclude fertilizer application, monitor weed control works and raise local awareness of the community in a manner consistent with the objectives of the approved conservation advice.

2.6.3 Other Threat Abatement Plans

Other threat abatement plans considered in the preparation of this plan include plans relating to the control of rabbits (DoEE 2016), the European Red Fox (DEWHA 2008) and feral cats (DoE 2015).

The control of pest animals is an integral part of this OMP and provides a local contribution to the abatement of these threats.

Table 2 Offset assessment guide calculations

Parameter	Value	Notes
Impact to NTGVVP (critically endangered community)		
Area of impact	0.56	Total area (hectares) of NTGVVP cleared
Quality	5	Scale of 0 – 10. Habitat hectare score has been used as a surrogate for vegetation quality.
Total quantum of impact	0.22	0.56 x 0.4
Offset calculations – offset site		
Offset area	2.7	Hectares of NTGVVP
Time until ecological benefit	10	Years
Time over which loss is averted	20	Years
Start quality	5	Scale of 0 – 10. Score based on the habitat hectare assessment for Plains Grassland that qualifies as NTGVVP.
Future quality without offset	4	Potential for decline in quality through weed invasion and uncontrolled grazing, which is currently an existing permitted use.
Future quality with offset	6	Improvement in condition of vegetation/habitat based on improvements prescribed.
Risk of loss (%) without offset	10%	Low risk of loss without deliberate or accidental actions.
Risk of loss (%) with offset	1%	Lower risk of loss with covenant and landowner awareness and vigilance.
Confidence in results	90%	
% of impact offset	100%	Exceeds minimum of 90% direct offset requirements for NTGVVP.

3. Part B: Offset Implementation

This section presents the actions required to implement the OMP. The OMP details methods for the management and conservation of native vegetation (NTGVVP) at the offset site. These actions are required over the initial ten year management period and for the life of the EPBC Approval and from thereon in perpetuity.

The OMP aims to achieve vegetation improvement gains through on-ground actions and therefore is required to be achievable, straightforward and practical. All of the management actions specified must be measurable against the commitments made in the calculation of improvement over time to achieve the target conservation gains for the protected matter under the EPBC Act. Note however, that the extent of the offset site (2.7 ha) has been calculated on the basis of maintaining the initial condition of the offset site and targeting improvements will therefore provide additional benefits to the NTGVVP being managed as well as providing management benefits through reduced input requirements (i.e. less weedy environments provide lower reinfestation opportunities and therefore less management inputs to control smaller infestations).

The OMP will be implemented either before, or at the same point in time as, the impact arising from the action. This timing is distinct from the time it will take an offset to yield a conservation gain for the protected matter, which will be a point in the future (designated as at the end of 10 years in the EPBC Act offset calculator).

All works would be conducted by a suitably qualified and experienced contractor and/or the landholder. Prescribed management actions are, where relevant, in accordance with the Victorian BushBroker standards for management (DSE 2012a, DSE 2012b and DSE2012c).

3.1 Referrals conditions

This OMP has been formulated in response to Condition 4 of the EPBC referral Attachment A – Request for Further Information (Table 3). The details within this OMP are consistent with requirements for management of NTGVVP within the offset site under reasonable approval conditions for development of 181 Furlong Road.

Details within this plan may change as a result of final EPBC approvals for the project, and will be in conjunction with alterations as recommended by DELWP.

3.2 Offset Site Details

Landowner of offset site	Thurlgona Pty Ltd Pty Ltd and Thurlgona 2 Pty Ltd
Location and address of offset site	Shelford – Mt Mercer Road, Shelford
Area of offset site (ha)	2.7
Parish	Shelford
Allotment	Lot 4 of LP4563
Local Government Area	Golden Plains
Responsible Authority	DELWP
Quality (VQA)	5/10
Bioregion	Victorian Volcanic Plain

3.3 Strategy for Offset Site

The offset site is to be secured and managed for the purposes of conservation in perpetuity. The current land owners have secured formal offset agreements to protect the native grassland and the nominated offset site has not been allocated for the provision of any other offsets, either under the EPBC offsetting policy or for provision of offsets under Victorian policy, including the Biodiversity Assessment Guidelines or the Net Gain Framework.

Table 3 EPBC 2018/8257 Request for Further Information

Condition	Condition details	OMP response	OMP section
4a	Description of the offset site(s) including location, size, condition and environmental values present.	Within the VVP 2.7 hectares At least 0.4 condition score Presence of NTGVVP.	Figure 4, Section 2.4.
4b	How the proposed offset meets each of the principles of the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (2012).	Section 69.	Section 3.4 2.3.
4c	Details on how the offset will be secured, managed and monitored, including: • management actions, responsibility, timing and performance criteria • specific environmental outcomes to be achieved from management measures.	Prepared by Biosis for submission to the Minister for approval.	Declaration of accuracy and Summary.

All easements noted on the current title have been excluded from the net offset area. No future easements can be applied to the offset area as these are likely to conflict with the objectives of this OMP.

3.4 Offset Security and Management Responsibility

Fronditha Care has located a suitable offset site and negotiated an agreement with the owner(s) of the property. The proposed offset area is located along Shelford – Mt Mercer Road, Shelford. Thurlgona Pty Ltd and Thurlgona 2 Pty Ltd (or other future owner), will be responsible for ongoing management of the offset site for the life of the EPBC Approval.

The offset site will be secured and managed for the purposes of conservation in perpetuity via covenant as to Section 69 *Conservation Forests and Lands Act 1987* managed by DELWP. The management strategy for the offset site consists of implementing this OMP incorporating the management of ground cover biomass using the timed grazing of domestic stock, weed and pest animal control and regular monitoring. Management and improvement of the condition of the NTGVVP. Details of security and management responsibility are shown in Table 4.

3.5 Ongoing Land-use Commitments

The entire offset site will be managed for an improvement in quality over 10 years. After this period of management, the land will be required to be managed in a manner which at a minimum requires the site to be maintained in at least the condition specified by Table 2, in perpetuity.

The deed will specifically state the in-perpetuity land-use commitments across the site are to:

- Retain and manage all native vegetation as directed by this offset management plan;

- Exclude domestic stock except as permitted by this plan;
- Exclude the use of stock food such as hay or grain that is sourced from outside the offset area;
- Maintain the absence of any woody weeds and ensure that the cover of other high threat weeds does not increase beyond levels achieved at Year 10 of management (targeted to reduce from 30% to less than 1%);
- Ensure that pest animals are controlled to the level attained at the completion of Year 10 of management.
- Exclude pasture improvement and fertilizer application;
- Control the accumulation of ground cover biomass through either the controlled grazing of sheep or the controlled application of fire; and
- Maintain a progressive annual works plan which caters to current conditions and prescribes ongoing management with maintenance of the native grassland community as its primary objective.

Table 4 Security and Management Responsibility and Reporting Requirements

Responsibility	
Who is liable/responsible for meeting offset requirements?	Frondítha Care
Type of security	Covenant as to part Section 69 *Conservation Forests and Lands Act 1987*
Date of commencement for the covenant	To be completed in 2019 before works commence at Furlong Road
Date 10-year offset management to commence	To be completed
Date 10-year offset management expires	To be completed
Date covenant registered on-title	To be completed in 2019
Offset site management responsibility	Thurlgona Pty Ltd and Thurlgona 2 Pty Ltd
Offset Monitoring Responsibility	Thurlgona Pty Ltd and Thurlgona 2 Pty Ltd
Auditing	Frondítha Care
Reporting responsibility (to DELWP)	Thurlgona Pty Ltd and Thurlgona 2 Pty Ltd
Reporting responsibility (to DoEE)	Frondítha Care
Plan review	Frondítha Care

Implementation of this management plan is the overall responsibility of the land owner (Thurlgona Pty Ltd and Thurlgona 2 Pty Ltd). However, direct management responsibility may be delegated to a designated site manager and/or managing ecologist. The land owner is responsible for engaging a qualified ecologist to conduct monitoring (Section 3.10) with reports submitted to DELWP and DoEE. Management actions by the land owner will be overseen by the DELWP as part of the legal protection over the site. Monitoring, auditing and review of the plan will be undertaken by suitably qualified persons (as defined in the approval conditions (to be provided).

The DELWP is responsible for:

- Undertaking site inspections at least 4 times over the 10 year management period and provide input into the annual works program.
- Review of ecological monitoring reports including an assessment of targets achieved.

Implementation of the management plan will be monitored by DELWP. DELWP will verify that the actions have been carried out appropriately.

Implementation of the plan will begin upon registration of the covenant or the approval of the project, whichever comes first.

3.6 Environmental outcomes to be achieved

The key environmental outcomes to be achieved through protection and management of the offset area are:

- Legal protection of 2.7 hectares of NTGVVP in perpetuity;
- Physical protection of the habitat area from manageable threats including uncontrolled stock grazing, weed infestations and degradation by pest animals.
- Improvement in the condition of NTGVVP, as measured by the Habitat hectare assessment protocols (DSE 2004).

3.6.1 Future condition classes

The offset calculations used to define the size of the offset area (Appendix 1), specify the maintenance and increase in average habitat condition throughout the life of the EPBC approval at an assessed score of 5/10. The condition of NTGVVP will be assessed using the habitat hectare assessment protocols (DSE 2004).

Habitat assessments will be undertaken in marked quadrats distributed through the offset site as described in Section 3.10.2. A key target will be a decline in the average abundance of perennial grasses such as Serrated Tussock.

Maintenance of the open tussock structure across the site, the exclusion of woody weeds and a decline in the average cover of perennial grassy weeds and forbs to less than 1% after 10 years of management (in comparison to baseline monitoring data) will be taken as a successful attainment of the nominated future condition class.

Habitat condition assessments relating to the diversity and cover of different lifeforms in the grassland (current score is 10/25), the presence of suitable habitat structure to provide opportunities for species recruitment (current score is 5/10), the cover of weed species present (current score is 6/15) and the abundance of organic litter (current score is 3/5), all provide opportunities to improve the condition of the NTGVVP present within the offset site. Proposed management actions are expected to provide improvements in all of these assessed criteria where possible. However, maintenance of these values will satisfy the EPBC Act offset requirements.

3.6.2 Performance and completion criteria

Key performance and completion criteria are:

- Establishment of legal protection via a covenant.
- Improvement in average site condition as described in Section 3.6.1 (although management will target improvements).
- Successful management of threats, including the control of stock grazing, weeds and pests as specified in Section 3.9.
- Completion of scheduled management actions (Section 3.9 and Table 7).

- Completion of scheduled monitoring activities (Section 3.10 and Table 10).
- Completion of scheduled reports and audits (Section 3.11, 3.12 and Table 11).

3.7 Limitations and uncertainty

This management plan has been formulated using information from recently conducted site inspections of the broader property by EHP (2017). While the vegetation is described as broadly uniform the results of a prescribed baseline monitoring exercise (Section 3.10) will define the specific targets for weed control and biomass management.

The OMP will be subject to external review and quality assurance by DELWP as part of the process to register the site covenant. Relevant federal and state government policies, procedures and databases have also been consulted where appropriate.

The offset calculations have been performed using conservative estimates of site improvement, and the area to be reserved provides an offset in excess (100%) of the offset area required to balance the impacts (refer to Section 2.3 and Appendix 1 for details of the calculations). While the proposed management actions will at very least maintain the quality of the NTGVVP habitat present, there is scope for the condition of the NTGVVP to achieve a score of 6/10. However, to provide a conservative target the condition value of 5/10 is retained after ten years of management.

3.8 Ongoing Management Commitments

The main threats to this native grassland are outlined in the approved conservation advice for this community and include the existing permitted uses associated with normal farming practices such as inappropriate grazing regimes, pasture improvement and fertiliser application. Other threats include the expansion of the existing high threat weed populations, weed invasion in general and the accumulation of ground cover biomass. Currently the ground cover biomass is managed through grazing by domestic stock (mainly sheep but there are no current restrictions on what domestic stock may be grazed on site) and this is proposed to continue as a strictly controlled management practice. In addition, ecological burning guidelines have been developed to be implemented at the discretion of the landowner but within the parameters outlined within this OMP. These management actions are based on the guidelines provided in the conservation advice and current best practice for the management of this community and its constituent species (i.e. Morgan 2015). This includes the legal protection of remnants, active weed control works and appropriate biomass control.

The prescribed management actions outlined below are intended to achieve a conservation outcome which improves and maintains the viability of the offset site. This will be achieved through active ecological management (maintenance and improvement) and permanent protection of the offset site. Table 7 details these prescribed actions and outlines the relevant timing for implementation. These actions will be applied to the entire offset area identified in Figure 4.

From the commencement of this OMP, the landowner agrees to undertake the following management commitments in perpetuity:

- Maintaining the existing fencing within the broader land parcel, and limiting access to the existing access gates unless otherwise authorised by the DELWP as appropriate.
- Controlling weeds to improve the quality of the NTGVVP present as outlined in this OMP (noted as a priority in the conservation advice for NTGVVP);
- Monitoring for any new and emerging weeds and eliminate to < 1% cover;
- Ensuring that overall weed cover does not increase beyond the levels attained at the end of the first ten years of managements as outlined in this OMP;

- Managing organic litter (must not exceed the EVC benchmark cover of 10%);
- Biomass control through high intensity pulse grazing of domestic stock (sheep only) with grazing excluded from 31st August to 31st January (unless otherwise approved by DELWP in writing because of unusual seasonal conditions);
- Controlling pest animals, particularly rabbits, hares, foxes and cats;
- Exclude the use of stock feed such as hay or other material which could support weed seeds that is sourced from outside the offset area;
- Exclude pasture improvement, any type of cultivation and cropping; and
- Exclude fertilizer application.

3.9 Management actions and land use commitments

This section presents the actions required to implement the management strategy for the offset site to satisfy the requirements of Attachment A, and reasonably anticipated future requirements of the EPBC Act approval condition(s); to be amended upon receipt of approval conditions if required. The offset site is to be secured and managed for conservation purposes in perpetuity. Management actions described below are to be implemented for a period of 10 years. The OMP will be revised after the end of the initial ten year period to ensure it remains appropriate for the condition of the vegetation and habitat at that time. The revised OMP will continue to apply to the land and the landowner will continue to manage the offset site after the completion of year 10 as specified under the covenant. Formal reporting to DoEE will be required until the end of the EPBC Act approval period (not yet supplied) but the offset will be managed for conservation in perpetuity.

The broad objective of site management will be to produce a decrease in the abundance of perennial weeds with a commensurate increase in the abundance of perennial native species, particularly grasses which are known food plants for GSM.

Offsets will be achieved through:

- Weed control:
  - Ensuring that weed cover does not increase beyond current levels.
  - Ensuring that the cover of introduced perennial grasses decreases from 30% (the baseline assessed cover) to less than 1%.
  - Maintaining the absence of all woody weeds (<<1% cover).
  - Monitoring for any new and emerging weeds and eliminate to <<1% cover.
- Managing biomass accumulation to prescribed standards (i.e. target an inter-tussock space of 30%).
- Controlling rabbits, hares, cats and foxes.
- Monitoring and controlling new and emerging pest animals.
- Excluding stock except as otherwise prescribed by this plan.

The management actions listed below outline the prescribed actions for achieving the required gains through active management (maintenance and improvement) and permanent protection of the offset site. Table 7 details these prescribed actions and outlines the relevant timing for implementation. These actions will be applied to the entire offset area as identified in Figure 4.

Prior to works being undertaken each year an annual works program (based on Table 7) will be developed by a suitably qualified person. The person undertaking the works will prepare a detailed works program in consultation with DELWP. The works program for the coming year will also address issues that may not

have been anticipated in formulating this original management plan. The OMP will be updated as required with any revised versions of the OMP to be submitted to the DoEE for approval.

3.9.1 Fencing, information and access control

Permanent fencing able to exclude domestic stock already exists around the boundary of the broader parcel and other subsets thereof. Additional fencing around the offset area (Figure 4) is not required as it is proposed that grazing within the broader paddock will be managed in accordance with the prescriptions outlined within this OMP. Temporary fencing may be used within the offset area where negligible impacts to native vegetation associated with the placement and removal of that fencing can occur.

Additional permanent fencing is also not recommended for the following reasons:

- to avoid the need for establishing stock water access points which will displace native vegetation;
- to avoid funnelling of traffic through access gates and associated disturbance to soil; and
- to discourage trampling of native vegetation by stock along fence boundaries. Instead, sheep will be allowed to graze the offset area as part of the broader existing paddock structure, with limitations described in the following text.

Posts marking the boundary of the offset site will be set up to clearly identify the area for monitoring and management purposes. Posts will be located in accordance with advice from a qualified ecologist to ensure impacts to native vegetation are avoided.

Where grazing and fire are both used for biomass control, temporary stock fencing will be established and maintained around the boundary of any burnt area within the offset site for at least 6 months post-burn to prevent stock access and damage to regenerating vegetation from grazing. This is because burning and grazing combined are known to be detrimental to NTGVVP.

The offset area remains private property and access or disturbance to the offset site by unauthorised persons is prohibited. The existing access gate and security (locked gates) arrangement is adequate to service the access management requirements of this offset area.

If existing land-use rights are to be fully exercised in the remainder of the broader parcel, fencing to control stock access to the offset site will be required. Fencing should meet the minimum standard set by DELWP's fencing standards in BushBroker Information Sheet 12 - Standards for Management – Fencing, to establish a sturdy stock proof fence. If rabbit populations impacting the site cannot be controlled to an adequate level (based on advice from DELWP) then fencing protecting the offset site will need to be upgraded to a rabbit proof standard.

No additional signs identifying the property as an offset site are proposed. Explicit signage may inadvertently attract undesirable impacts. However signs identifying the property as a protected area of native vegetation will be considered by the owner.

Monitoring of access and threats will be conducted on an ongoing basis with fencing repaired or upgraded as required to control threats which can be mitigated through fencing.

Where fencing exists or is required to control threats, ensure all fencing around the perimeter of the property is maintained in good condition according to the standards detailed in BushBroker Information Sheet 12 – Standards for Management – Fencing (DSE 2012c), for the term of the OMP.

3.9.2 Weed control

Weed control works are required to achieve biodiversity gains for an offset under the EPBC Act and DoEE requires a habitat improvement for NTGVVP. Targets identified below therefore require a reduction in the cover of woody, perennial and annual weeds. As part of this process the land owner will develop an annual

works plan designed to schedule an adequate level of activity to achieve the prescribed goal outlined in this report.

The total weed cover (annuals and perennials) is about 30% (to be more accurately defined by baseline monitoring as required under Section 3.10). The annual weeds are generally not considered a significant threat in this environment, will be managed using grazing in an attempt to reduce their prominence. Direct active management using targeted grazing is expected to have an impact on the abundance of these species. However it is possible in relatively wet years that grazing may not be able to have a large enough impact on ground cover biomass and in this situation the application of ecological burning will be evaluated. Application of fire prior to the seed set for weedy annual grasses is known to have a significant negative impact on these weeds. The timed application of fire is therefore strongly encouraged by this OMP.

An overall target for weed reduction (both annual and perennial) is set from the current estimated level of 30% to 10%. At an absolute minimum, management must prevent annual weeds from increasing their current cover and all perennial species must decrease in extent by over 90% of their baseline monitoring condition.

All high threat weeds are to be controlled to minimise or reduce their occurrence and ensure no further spread of weeds. The total cover of perennial grassy and broad-leaf weeds on site will have a reduction target from the current level of 30% to no more than 1%. This includes specific performance targets for high threat species identified in Table 5. Perennial grassy weeds will be reduced to less than 1% total cover and broadleaf weeds will be reduced to no more than 1% of the cover by the end of Year 10.

The emphasis for weed control is the prevention of weed seed production with the goal being the reduction in the total weed cover with specific targets for high threat species on site. Weed control works will be timed appropriately in accordance with Tables 5, 6, & 7.

Weed levels will be monitored and management methods adapted over time in response to changing conditions. New and emerging high threat weeds will be monitored and controlled (to less than 1% cover) if found. Any other significant environmental weeds identified during the ongoing site monitoring will also be controlled. A significant weed is one which has an ecology known or suspected to be a threat in grassland ecosystems.

If other high threat weeds, such as Serrated Tussock *Nassella trichotoma*, are found to occur in surrounding areas owned by the offset land owner, it would be prudent and cost effective to eliminate such species from nearby areas to reduce any potential invasion into the offset area. The offset owner will contact the land owner of any public land (i.e. council managed road reserves adjacent to the offset site) where high threat weeds occur within the vicinity of the offset area, with the aim to have these weeds controlled.

The cover of woody weeds within the offset site will be maintained at zero to negligible in perpetuity.

Table 5 Some high threat weeds for priority control

Scientific Name	Common Name	% baseline cover	Control Proposed	Target Outcome^
Nassella trichotoma	Serrated Tussock	TBA	Spot spraying appropriate herbicide	<1% cover
Cirsium vulgare	Spear Thistle	TBA	Spot Spraying appropriate herbicide	<1% cover
Rosa rubiginosa	Briar Rose	TBA	Spot Spraying appropriate herbicide	0%

^ Desired outcome after the first 10 years of intensive ecological management

Spot spraying with appropriate herbicide is the main method for reducing high threat weed cover. Spot spraying will be undertaken regularly (at least one day per month, particularly in spring and early summer, with a focus on killing weed plants prior to seed set. Biomass control is also considered as an effective method for controlling and reducing weed levels. Biomass control at the site will include controlled sheep grazing and, when considered appropriate, ecological burning. Spot spraying will be completed in a manner which minimises non-target damage. Spot spraying will not occur during high wind days or in close proximity to threatened flora without protective measures in place (i.e. physical shielding).

Burning is particularly effective at reducing weed cover, especially for species that are difficult to control such as perennial weedy grasses. Burning and/or grazing will allow greater access and efficiency for weed control and increased natural regeneration of indigenous plant species (Sections 3.5.4 and 3.5.5 below). Periodic burning (see Section 3.9.4) that is followed by spot spraying will be important for weed species that are difficult to control until they are replaced by native species.

Target species are likely to change over time in response to seasonal conditions, the result of pulse grazing or the conduct of any controlled burns (e.g. likely flush of broad-leaf weeds to be treated post-burn). Weed cover and species will therefore be monitored and management adapted in response to achieve desired outcomes outlined in this management plan. DELWP will be consulted and approve the control techniques for any new or emerging weeds identified within the offset area.

The offset area is not in close proximity to any named waterway although a number of seasonal wetlands occur within this parcel and its surrounds. While there maybe localised surface water flows during high rainfall events, any wetland within the site is ephemeral and no specific runoff risk is identified for the application of herbicides to this area.

Refer to BushBroker Information Sheet 8 – Standards for Management – Weeds (DSE 2012b) as appropriate.

New and emerging herbaceous weeds

Monitoring for new and emerging herbaceous weeds will be conducted throughout the year in perpetuity, and any new and emerging weeds eliminated. In addition to any high threat weeds, this must include any noxious weeds listed under the CaLP Act.

3.9.3 Pest Animals

The control of vermin including rabbits and other pest herbivores beyond the legal duty of care outlined under the *Catchment and Land Protection Act 1994* is a requirement of this OMP. Therefore pest animal control works are required within the offset site. Pest animal control works will be scheduled in the annual works plan.

Grazing by European Rabbit *Oryctolagus cuniculus* is evident and could have a significant impact within the offset site. More detailed assessment of pest species impacts will be determined during the baseline monitoring assessment.

Currently, while populations are at low levels, rabbits will be controlled by shooting. If this changes (i.e. rabbits become locally common), baiting and fencing can be considered as control options for these pests.

Control within the offset site would effectively be achieved through a reasonable level of works to eliminate any active warrens in the local area (i.e. land within the owners control and within 500 m of the offset site). Control will in part be achieved through the removal and destruction of the shelter provided by any shrubby weeds within the broader area managed by the same landowner. The landowner will therefore control all shrubby environmental weeds on their land in and within 500 m of the offset site. Control of rabbits will be undertaken in accordance with current guidelines provided by the relevant Victorian Government Department of the Environment and within the limitations specified in this plan (i.e. no ripping).

Rabbits and hares will be monitored and controlled throughout the year. If significant rabbit activity (i.e. the presence of warrens) is detected on the site during other management activities, an integrated approach in accordance with BushBroker Information Sheet 7 – Standards of Management – Rabbits (DSE 2012a) will be implemented. This involves fumigation, hand collapsing of burrows and baiting. Carcasses will be removed promptly to prevent poisoning of native predators.

Ripping of rabbit warrens within the offset site is not permitted. If any warrens develop within the offset site they will be treated by low impact measures such as fumigation or implosion.

Other problem pest animals include cats and foxes although the general lack of shelter and harbour for these species reduces the likelihood that any animals are resident in the local area. Control techniques such as poisoning are therefore likely to be ineffective. The landowner will select from the range of control techniques available and apply the most effective in the local conditions.

Any observations of pest animals within the offset site during other activities must be recorded. Pest animal will be formally monitored annually in November through the conduct of spotlight transects across the offset site. This is expected to require about 1 to 2 hours of walking across the site. This assessment of the presence and abundance of each pest species will be included in the annual report. Control works will ensure that the abundance of any pest species is maintained at negligible levels.

Active control works targeting pest animals are not expected to have any negative impact on any MNES.

3.9.4 Biomass control

Biomass management is essential to maintain indigenous flora and fauna values throughout the offset site and is a key component of the conservation advice for NTGVVP. Biomass management is also required to maintain inter-tussock spaces and prevent excessive competition to grassland forbs and to provide open display areas for GSM while also providing shelter for SLL. While there are no specific guidelines for habitat management for GSM and SLL within the relevant recovery plan for SLL or conservation advices for GSM and NTGVVP, habitat degradation for NTGVVP is a known threat for all these matters.

Where there is a sustained build up in ground cover biomass over any one year, resulting in a reduction of inter grass tussock space to an average of less than 30%, biomass will need to be actively reduced. Site productivity is a key determinant of ecosystem responses to disturbance regimes and in productive systems frequent disturbance (i.e. 1 to 5 year intervals) are commonly required to maintain diversity. This is because potentially dominant species, predominantly grasses, can rapidly re-establish between disturbances causing the sub-dominant inter-tussock species to be outcompeted (Morgan 2015).

Judgements on the cover of inter-tussock space and the build-up of groundcover biomass will be made by the landowner in consultation with the DELWP and include an assessment of relevant monitoring data. Biomass accumulation will be measured using the 'Golf Ball Method' (Morgan 2015) with measurements of high biomass accumulation requiring a management response. The independent ecological monitoring undertaken by suitably qualified ecologist will also assess the effectiveness of the biomass control techniques applied and the need for any adjustments to the management regime to provide the prescribe outcome.

Controlled grazing will be applied to reduce biomass and maintain an open tussock-grass structure for this grassland, and where appropriate, ecological burning will also be utilised at an appropriate scale.

Biomass control works will also reduce the potential for uncontrolled wildfire to impact this site.

Use of grazing for ecological management

Currently the offset site is subject to unrestricted grazing by sheep. Given the diversity of native species found within the native grasslands of this site, this method of disturbance regime (grazing by domestic

stock) is seen as a reliable and conservative action to maintain and improve the ecological values associated with the area. While grazing by domestic stock will continue to be used at this site as a method of biomass and weed reduction, it will be undertaken in a controlled manner following a grazing management plan. Biomass accumulation control using grazing at this site will therefore focus on preventing inter-tussock spaces falling below a threshold ideal cover of 30%. This target seeks to maintain optimal NTGVVP condition

In this context pulse grazing (i.e. using high numbers of sheep over short periods) in the offset area to maintain an open tussock grassland structure is seen as a precautionary management method to maintain the species richness of these native grasslands. Grazing of domestic stock will be restricted to the use of sheep. Grazing by other domestic stock including but not restricted to cattle, goats and horses is to be excluded from the offset site by this plan.

The timing of grazing will be strictly controlled to allow native species to grow and set seed over the spring to mid-summer period (DSE 2009). Stock will be excluded from the end of August to the end of January annually, in perpetuity. Table 6 provides targets to be met for ongoing management of grazing within the offset area. The landowner will keep records of the number of sheep and duration of grazing within the offset area. This data will be provided to the DELWP on an annual basis. This data and the resultant impact on biomass will provide the basis for an on-going grazing strategy to be approved by the DELWP. The grazing exclusion period may be varied by DELWP in response to seasonal conditions but any variation must be approved in writing and not have the potential to impact negatively on MNES.

Grazing will occur over a short duration and significantly exceed the standard stocking rate to prevent selective grazing and allow for periods of grazing exclusion. The maximum length of continuous grazing is 4 weeks with at least 2 weeks rest between cycles. Biomass management objectives are that inter-tussock space will be maintained to an average of 30% and the total vegetation cover will not fall below 50%. At least 3 pulse grazing cycles will occur within the grazing period, one of which will occur immediately prior to the exclusion period (weather permitting). However, flexibility is provided to the land manager as climatic conditions, and therefore site productivity, can vary dramatically in this environment and management actions will need to be able to respond to both wet and dry extremes. Table 6 is therefore provided as a guide although deviations from these restrictions will need to be approved by DELWP in consultation with an experienced ecologist.

The only exception to requirements specified for pulse grazing (Table 6) is if an ecological burn is planned during or following the pulse grazing period. In this instance a fire management plan produced by a qualified contractor will inform when grazing will be removed to allow for a build-up in biomass to establish a burn. Note that the biomass management requirements to maintain a high quality grassland can vary significantly in response to climatic conditions. A high accumulation of biomass in NTGVVP is severely detrimental to biodiversity if allowed to persist for between 5 and 7 years. Therefore no areas within the offset site will be allowed to retain a high level of biomass for more than three years (see Section 3.10.2).

Stock transfer into the offset site will be selected and timed to minimise the potential for weed seed transport via mud, attachment to their fleece or within their faeces (i.e. stock movements into the offset site will be excluded within two days of rainfall and stock new to the property will be excluded from use in pulse grazing until shorn). This will include using sheep shorn for use in pulse grazing which will otherwise be kept in paddocks with low to negligible high threat weed levels. The offset site will need to be monitored daily by the landowner during wet periods to prevent excessive soil disturbance in seasonally wet areas. Following any high rainfall events, stock will be removed immediately. If weather predictions indicate the potential for a high rainfall event then stock will be removed from the offset area prior to rain.

Table 6 Requirements and limit of grazing activities within the offset area.

Period where grazing by domestic stock is not permitted*	31st August to 31st January annually in perpetuity
Pulse grazing cycles required*	3 (Dependent on biomass levels and the cover of inter-tussock spaces as defined below)
Grazing required prior to exclusion period	15th August to 30st August (unless site is too wet)
Minimum rest from grazing between pulse grazing	2 weeks
Maximum continuous pulse grazing	4 weeks
Biomass management thresholds	Total vegetation cover of no greater than 70% or no less than 50%
Target inter-tussock space	Minimum 30% of total site cover

* Note that the times where grazing is permitted and the number of grazing cycles applied can be varied based on advice from an ecologist in response to atypical seasonal conditions or additional ecological information which would result in a positive ecological outcome.

Use of fire for ecological management

Burning within the offset area will be undertaken only with due consideration to relevant health and safety issues, in consultation with the Country Fire Authority and in line with a fire management plan completed by a suitably qualified consultant. Any approved fire plan will also be provided to DoEE at least three weeks prior to any burning event identified within that plan. The following provides guidelines for use of burning only in an ecological sense.

While grazing by domestic stock will be the typical manner in which ground cover biomass will be regulated, the controlled application of fire is an efficient and cost-effective alternative technique for reducing biomass in grassy ecosystems such as those that occur within the offset site. Importantly, burning (c.f. grazing or slashing) allows greater access and efficiency for weed control and increased natural regeneration of indigenous plant species. While burning may enhance germination of indigenous species, it can also be expected to promote certain exotic species and as such post-burning weed-control will be vital in maintaining remnant vegetation. However stimulating the soil stored weed seed bank is seen as positive as this allows this seed bank to be exhausted through active management.

Burning is acknowledged as an important component of the natural disturbance regime in NTGVVP.

The controlled application of fire will be used for biomass reduction in all or parts of the offset site. Selected areas of grassland may be burnt to tackle particular weed issues or to assist in the lowering of soil nitrogen and phosphorous which would also assist in weed control works. However no area is to be burnt more frequently than every three years (unless approved by DELWP in consultation with a qualified ecologist). The application of a mosaic burning regime is also considered advantageous and therefore any individual burn will not necessarily burn the entire site.

The landowner will prepare maps identifying the fire history of the offset area to ensure biomass control efforts are well documented. Details of fire and grazing within the offset will also be documented in the annual reporting as outlined in Section 10.

Any ecological burns will be conducted during benign (nil to low wind and mild temperature) weather conditions and are likely to be patchy (i.e. not result in the uniform burning of all areas). Patchy burns are a desirable outcome and an array of small patches covering up to a hectare is an appropriate target.

Burnt areas will be protected from grazing for at least 6 months to allow species regeneration and recruitment to occur. A cover of vegetation above 60% would be required before grazing can be re-introduced.

3.9.5 Understorey Diversity and Recruitment

The major threats to understorey diversity in these grasslands are over-grazing by domestic stock and other introduced herbivores, competition from introduced plant species and the accumulation of biomass over a prolonged period (greater than two or three years). These areas of NTGVVP retain between 50 and 90% of the expected number of understorey life-forms for this vegetation community (see EVC benchmark for Plains Grassland EVC 132-61), and are generally not considered deficient in terms of the species diversity of the life-forms that are present. Missing or deficient elements are typically the large herbs and this is largely a function of the growth stage of the plants present. Enrichment planting is therefore not currently proposed as part of this OMP although this will be reviewed by the independent ecologist monitoring the site after five years of active ecological management.

Controlled grazing by domestic stock and the control of rabbits and hares are required to maintain understorey diversity and encourage recruitment of threatened species. The application of fire as a biomass reduction tool would also facilitate the regeneration of indigenous species, remove the dead biomass associated with weed control works and maintain inter-tussock spacing. The use of fire could be implemented at a number of scales. Within this offset site it would take the form of a managed patch burn covering up to one hectare or in smaller patches localised burning covering up to half a hectare or even tens of square metres using a hand held weed burner. Biomass control works will also reduce the potential for uncontrolled wildfire to impact this site.

Active management will seek to significantly reduce the cover of all exotic species with specific targets for high threat species given in Table 5.

3.10 Monitoring

3.10.1 Baseline Site Condition

While the condition of the broader area of grassland was documented during the offset site assessment, details of the specific matters relating to the selected offset area will be established by the collection of baseline condition data. This data will provided the baseline information for future comparisons and assessments to define the efficacy and progress of the management of the offset site.

Upon approval of the project (within three weeks of approval and prior to the commencement of any management activities) a suitably experienced botanist will systematically walk over the site and collect information on the species (native and introduced) present and maintain a complete list of all vascular species observed. Notes will be taken on the distribution and location of weed species with GPS waypoints recorded to provide detailed information on the location, extent and severity of target pest plant infestations. This information will be mapped to provide a guide to both management activities and allow a visual assessment of management progress over each year.

GPS locations will also be recorded and mapped to identify the location of threatened species.

Three permanent five by five metre vegetation monitoring quadrats will be established with a focus on locations where significant weed control works are required. These locations will be defined during the baseline site inspection prior to the commencement of other management works. Quadrats will be clearly marked and accurately located by GPS or similar within the offset site. These quadrats will be used to assess and record the percentage total vegetation cover, the percentage cover of inter-tussock spaces, the average height of vegetation and the cover of native and exotic life-forms. These areas will also include the collection

of a biomass data using the golf ball method (Morgan 2015). This data will be collated and, in conjunction with the observations made on herbaceous weeds collected in association with woody weed location data collected during the systematic site survey, used to report on the baseline current condition of the offset and used to assess progress in the management of weeds (including grasses) and biomass over the entire offset site.

All three of the permanent vegetation monitoring quadrats established by the botanist will also serve as permanent photo points. Photo points will be located to adequately characterise the current vegetation condition, and include a range of weed species. Using a selected marker point for the vegetation monitoring quadrat, a photo will be taken facing the four points of the compass (N, S, E & W). These baseline photos will be used to provide a visual document and for monitoring the vegetation response to management until 2033.

Maintenance of NTGVVP with an abundance of inter-tussock spaces with a cover of about 30% is considered optimal (this will provide a recruitment score of 10/10). While this is score is based on the maintenance of a defined average level of open space, this target intrinsically provides for other biodiversity values such as species richness, recruitment and habitat diversity. In combination with other management targets relating to weed control, maintaining this openness target contributes to the overall improvement target for the condition of NTGVVP as outlined in Table 2. The average level of open inter-tussock spaces (as determined by the three monitoring plots) will be taken as the average open space available across the offset site unless the broad observations taken during the annual vegetation monitoring indicate this result is atypical.

3.10.2 Ongoing monitoring

Monitoring of the site is an integral component of the regular site management activities. Such monitoring identifies changes early, allowing an appropriate and timely management response to matters which would otherwise undermine the objectives of the OMP. This includes observations by the landowner during normal activities within the offset site and broader property. Such observations are important for maintaining things such as the integrity of fencing (if appropriate) and site security. While these are normal land management activities they have also been formalised in this OMP (See Table 7 Action 1.2).

Regular site inspections (of about two hours at least every two months) to provide general condition observations are also a requirement of this plan (See Table 7 Action 1.7 and X.10). At a minimum the landowner must keep a diary of any works conducted within the offset site and record any observations which could influence or initiate a management response (i.e. observed seedlings of a new woody weed in the middle of the offset site today. Will spot spray these with an appropriate herbicide by the end of the week). These details provide valuable information on the management of the site and detail the commitment of the landowner to the OMP.

More general supervision/monitoring of the grassland will be undertaken by the DELWP to ensure the grasslands response to management actions produce the desired outcome outlined by this plan. DELWP should visit the site a minimum of four times over the 10 year management period (at least the spring of years 1, 3, 6 and 10) and will liaise with the land owner annually regarding the development of an annual works plan.

The progress of management works will be inspected by the land owner on a regular basis (at a minimum once every 2 months). The land owner will provide a brief management progress report to DELWP on an annual basis (or more frequently as required).

Records of all management actions must be kept to provide evidence of completed works and management tasks.

A list of plant species observed, noting which, if any, weed species have become extinct will be maintained for the offset site. While all data collection will be the responsibility of the landowner, all data collected will be provided to DELWP and become the property of DELWP.

Annual vegetation monitoring assessments conducted by suitably qualified ecologists will include a broad assessment of the entire offset site including the conduct of a habitat hectare assessment to document the general overall condition of the of the site and the ability of management works to maintain the general vegetation and habitat condition as assumed in the offset calculations provided in Appendix 1.

3.10.3 Fence condition

Inspections of all property boundary fences must be conducted quarterly, and when visiting the site to conduct other monitoring or management actions. Any damage to the fence that may allow vehicles or stock to enter outside of the parameters outlined in this OMP must be repaired immediately.

3.10.4 Weed and biomass monitoring

Weed monitoring will be conducted annually in spring (November). There will be four components to the monitoring:

- Inspection of the entire offset area for woody weeds, by walking transects at ten metre intervals throughout the area such that a visual inspection (including with binoculars) would detect the presence of any woody weeds. Complete coverage of the offset site will likely require at least two hours of survey. All infestations or individual woody weeds will be mapped with a GPS, and the locations will be supplied to the weed management contractor/landholder for treatment. Subsequent monitoring will then revisit previously mapped infestations to evaluate the success of weed control, as well as inspecting the entire offset site for new infestations.
- While conducting the woody weed surveys, notes will be taken regarding the cover of herbaceous weed species, and cover will be estimated to the nearest five percent cover. Species and areas suitable for targeted treatment (such as spot spraying), will be mapped and supplied to the weed management contractor/landholder for treatment.
- Three permanent five by five metre vegetation monitoring quadrats will be established with a focus on locations where significant weed control works are required. These locations will be defined by a site inspection prior to the collection of the baseline data. Quadrats will be clearly marked and accurately located by GPS or similar within the offset site. These quadrats will be used to assess and record the percentage total vegetation cover, the percentage cover of inter-tussock spaces, the average height of vegetation and the cover of native and exotic life-forms. These areas will also include the collection of a biomass data using the golf ball method (Morgan 2015). This data will be collated and, in conjunction with the observations made on herbaceous weeds collected in association with woody weed monitoring, used to report on progress in the management of weeds (including grasses) and biomass over the entire offset site.
- All three of the vegetation monitoring quadrats will also serve as permanent photo points established by the ecologist. Photo points will be located to adequately characterise the current vegetation condition, and include a range of weed species. Using a selected marker point for the vegetation monitoring quadrat, a photo will be taken facing the four points of the compass (N, S, E & W). These photo points will be used to monitor the vegetation for at least the 10 year period covered by this plan.

3.10.5 Pest animal monitoring

Pest animals are known to be present at low levels in this environment. Signs of pest animals (rabbits, hares and foxes) will be recorded during weed monitoring surveys, and at all other times when visiting the offset

site. In particular, the locations of any active rabbit warrens must be mapped using GPS, and the locations supplied to the pest animal management contractor/landholder for treatment. Subsequent monitoring (Section 3.10.2) will then revisit previously mapped warrens (if identified) to check for on-going use, as well as searching for new warrens throughout the offset area.

The results of this survey will be included in the annual report.

3.11 Reporting

The landowner must submit a report annually to DELWP and DoEE for each year for the first ten years. Reports are to be submitted at least two months prior to the anniversary date of the execution of the OMP to allow time for compliance to be assessed before the anniversary date. After this 10 years, annual reports will be compiled for the remainder of the life of the EPBC Approval and published online website within 3 months of every 12 month anniversary.

The Annual Report addresses progress against the commitments set out in this OMP. Annual Reports will provide enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of/progress against the commitments for the offset site.

The annual report must include:

- Details of management actions, including on ground works, undertaken within the reporting period.
- Results of monitoring activities, including fence condition, weeds, pest animals, habitat quality, vegetation quality and ground cover biomass accumulation / the cover of open ground.
- Tracking of results in comparison to performance targets and completion criteria
- Site photographs including from three defined photo points.
- Details of compliance or non-compliance with the schedule of management actions (Table 7).
- Details of compliance or non-compliance with performance targets (Section 3.6.2).
- Details of any incidents or new and emerging management issues, with recommendations for corrective action and plan review.
- Any triggers exceeded and which corrective actions were implemented.

The reporting schedule is detailed in Table 9.

3.12 Auditing

The approval holder (Fronditha Care) is responsible for auditing the implementation and effectiveness of the OMP. Audits will be conducted by an independent suitably qualified ecologist at the following stages:

- At the end of the first year of site management - this is to ensure that initial management actions are conducted to the satisfaction of the approval holder and DoEE, including implementing the legal security mechanism, ensuring the property is securely fenced, and that other initial management actions have commenced.
- At the end of the fourth year of site management – this will involve a review of four annual monitoring and management reports.
- At the end of the eighth year of site management – as per the four year audit.
- Following the completion of the 10 year management period – to be a final audit of the implementation and effectiveness of this OMP. Note that DoEE may also require the proponent to randomly conduct additional audits at any time up until the end of the approval period.

The timing of scheduled audits is detailed in Table 9. Additional audits may be triggered as a result of a plan review (Section 3.14) or following an environmental incident resulting in significant change to site conditions, as identified in the risk assessment (Table 8).

3.13 Risk assessment and adaptive management

Active ecological management is reasonably expected to provide a high probability of generating improvements in the condition of the vegetation present. Note however that the extent of this offset has conservatively been based on the assumption that management will, at a minimum, maintain the condition of the condition of vegetation and habitat. The management actions proposed in this plan are based on a combination of experience in the management of native grasslands, documents prepared by Victoria's Department of Environment, Land, Water and Planning (DELWP) (i.e. DSE 2009) and other publications (i.e. Marshall 2013, Williams et al. 2015).

The proposed strategies for the management of this site are consistent with established practices for the management of NTGVVP elsewhere including State conservation reserves and offset sites. The proposed management strategies are therefore considered best practice.

The active involvement of DELWP is also reasonably expected to provide high quality guidance and advice to the landholder in their management of the site.

The monitoring protocols documented in this plan are considered adequate to detect changes/ improvements in the condition of the NTGVVP.

The plan includes a basic strategy (pulse grazing) for ground-cover biomass control which is considered a major ecological management requirement for the site. Where this fails to deliver the prescribed outcome in any one year, ecological burning provides an option to achieve the required biomass management target (i.e. maintaining an open grassland environment dominated by native species). The application of one or both of these management actions will provide the biomass control outcome required.

It is acknowledged that the management of natural environments can be unpredictable and management activities need to be flexible to respond to changing conditions and unpredictable events. Examples of potential risks are outlined in Table 8 and discussed below.

There is some risk that biomass control is not properly managed in any one year. This has the potential to occur in response to above average rainfall years when ground cover growth is persistently high and wet conditions restrict stock access and the potential use of ecological burning. If such events occur, DELWP will ensure additional efforts are made in subsequent years to maintain the rate of improvement required.

Another major ecological management requirement is weed control, with the objective of reducing the overall presence of weeds and reducing biomass. Varying seasonal conditions will provide triggers for changes in the abundance of different species, particularly weeds. The greatest risk to achieving the required outcomes is a failure to conduct an appropriate level of work at an appropriate time or the occurrence of persistent adverse conditions restricting an appropriate management response. The regular site inspections will allow land managers to anticipate changes in seasonal conditions and respond accordingly. Persistent, well timed management actions will be able to take advantage of seasonal fluctuations to achieve the prescribed condition outcomes.

Woody weeds in particular are currently absent from the offset site and it will be relatively simple management exercise to maintain this condition. While woody weeds will probably colonise the site from near-by infestations, seedlings will be detected by monitoring exercises and controlled by the proposed on-going works. If live, woody weeds are detected in the offset area beyond Year 2 of the plan corrective actions would be required.

Similarly control works will target perennial weeds. Persistent herbicide application is an effective control measure for these species and while these species are likely to reinvade from surrounding infestations, ongoing works are planned to cope with the associated management requirements. If adequate resources are not allocated to these tasks, the cover of these species may remain static or increase. Any observations or monitoring which detect an increase in perennial weeds above the baseline assessed conditions and percentage cover will trigger a requirement for a greater management input (the required corrective action being targeted increased management actions). In that context monitoring and site observations collected by DELWP (or an independent ecologist) is essential in providing feedback on the efficacy of management.

Another significant risk associated with the management of this site is the occurrence of climatic triggers which would increase the abundance of weed species by triggering the germination of any soil stored seed reserves. In the first instance management will over allocate resources to weed control as the more comprehensive control achieved by such works the lower the ability these species have to recover / recolonise. Integrating herbicide control works with biomass control works (grazing and/or fire) increases the efficacy of both actions and the plan has been developed to encourage this. Given persistent management occurs it is considered a relatively low risk that habitat improvements will fail to eventuate.

If after the first 10 years of management, the monitoring results indicate that the completion criteria are unlikely to be achieved, DoEE will be contacted to determine future offset requirements. If the offset area fails to attain and maintain all completion criteria for the life of the EPBC Approval, then a new offset area will be provided to account for the impact and the failed offset. DoEE will be consulted with to determine the suitability of the replacement offset.

This Plan provides actions for a period of 10 years. At the end of that period it will be reviewed in light of the new condition of the offset and any new information relating to the management of NTGVVP. Note that active management may be required until the end of the EPBC approvals and the high quality of the vegetation needs to be maintained in perpetuity. The timing of actions is based on adaptive management. By monitoring the outcomes of actions, management will be adapted to ensure the stated commitments in the OMP are adhered to. Also over time, new management techniques may become available, or further information on the ecology and status of the vegetation communities onsite may necessitate adjustment to management actions. DELWP will continue to advise the landowner on any developments in grassland management and require any updates to the OMP in perpetuity.

Seasonal conditions can also vary greatly from year to year and influence offset site management actions in any one year. While the timeframes specified within this OMP will be adhered to, this seasonality is recognised in this OMP. Therefore there will be flexibility around timing of actions at the discretion of the land manager in consultation with DELWP and based on advice provided by an experienced grassland ecologist.

Section 4 includes tables of management actions (Table 7) and a risk assessment (Table 8) with associated monitoring (Table 9) and reporting (Table 10) programs.

Key risks identified in Table 8 include:

- Failure to attain and maintain performance criteria and completion criteria
- Unauthorised entry of domestic stock, vehicles or people into the offset area;
- Woody weed infestations;
- Expansion of new or existing weeds at uncontrollable levels;
- Excessive accumulation of ground cover biomass for periods exceeding three years;
- Stochastic disturbance events such as wildfire, drought or flood;
- Rabbit or other feral herbivore infestations;
- A reduction in the extent or quality of NTGVVP; and

Failure of the adaptive management approach to adequately respond to risks, as identified in monitoring reports (Section 3.11) or audits (Section 3.12), will result in a review of this plan, as discussed in Section 3.12 and Table 11.

3.14 Plan review

This plan includes an adaptive management framework, where management actions may be triggered by events occurring within the offset site, or the results of monitoring activities. In that context the plan will be examined for potential minor review on a continuous basis. A formal review of the OMP will only be necessary in the event of a major incident that makes a significant change to the character or condition of the offset area. The most likely such event is a major wildfire, as described in Table 8.

If a plan review is triggered, this will be conducted by Thurlgona Pty Ltd in consultation with the offset site owner, an independent suitably qualified ecologist and DoEE. Any future adaptive management changes will be incorporated into the OMP and an updated version of the OMP will be supplied to DoEE for approval.

The OMP review will involve changes to any part of the OMP, in order to adequately respond to the trigger and re-direct management actions towards achieving the environmental outcomes under potentially altered site conditions.

This could involve changes to:

- Specific details of offset site management methods.
- Monitoring methodology.
- Schedules of monitoring, reporting and auditing.

3.15 Emergency Contacts and procedures

Should any environmental emergency occur on-site that poses a risk to the objectives of this plan, the relevant contacts (listed below) must be notified as soon as possible, and no later than 12 hours following any event. DoEE, DELWP and the landholder must be notified; CFA and Victoria Police should be notified should assistance be required from these emergency services (e.g. control of wildfire). Emergency services must be advised of the on-site protections to avoid inadvertent damage to ecological values (e.g. creation of graded earthen fire breaks within the site, which unless absolutely necessary, must be avoided).

Emergency Contact Details

Country Fire Authority (CFA) (Bushfire emergency) - Phone 000

Victoria Police (Various issues i.e. illegal dumping or trespass) - Phone 000

Department of the Environment and Energy (DoEE): Federal authority - Phone 1800 803 772

Department of Environment, Land, Water and Planning (DELWP) – 1800 226 226

Thurlgona Pty Ltd and Thurlgona 2 Pty Ltd: Site Owners

4. Schedules of management actions, risks, monitoring and reporting

Table 7 Management plan actions and timing for offsets on the Shelford offset site.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
0	0.1	-	Establish offset area.	Upon registration of the Covenant. This action is a key requirement defining the start of the prescribed management period.	2.7	ha	Land Owner	Covenant as to part Section 69 *Conservation Forests and Lands Act 1987* covering 2.7 ha.
0	0.2	-	Ensure appropriate fencing is established. Fencing already protects a broader parcel within which the offset site is located. The offset area allocated to this specific offset management plan does not need to be fenced separately unless existing land-use rights are fully exercised in the remainder of the broader parcel.	No action required as existing fencing adequately protects the site.	-	-	Land Owner	Site isolated from activities excluded by this plan (i.e. construction works, uncontrolled grazing by domestic stock).
0	0.3	-	Establish markers to identify boundary of the offset site to assist with management and monitoring of the area.	This action is a key requirement at the start of the prescribed management period.	-	-	Land Owner in consultation with qualified ecologist	Markers established to identify the boundary of the offset site. Guidance provided by a qualified ecologist to ensure impacts to native vegetation are avoided.
0	0.4	-	Where appropriate identify a person/company to control pest plants and	Upon registration of the covenant between	-	-	Land Owner	Appropriate personnel appointed to conduct works.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
			animals. In this instance DELWP will provide appropriate supervision and advice for the land owner to conduct the pest plant and animal control works.	land owner and DELWP.				DELWP available to advise the landowner for the life of the EPBC Act approval.
0	0.5	-	Qualified ecologist to undertake baseline monitoring, establish monitoring points, photo points and refine management actions based on baseline results. Prepare annual works plan. Ensure two SLL monitoring grids are established before the end of June.	Oct-Nov monitoring	1	Report	Qualified ecologist	Prepare standard monitoring report including photos and confirm agreed performance measures outlined in Section 3.5. Documented Annual works plan.
1	1.1	0.1-0.5	Land owner to review annual works plan in consultation with the DELWP based on a site inspection.	Upon registration of the covenant.	-	-	Land Owner and DELWP	Annual works plan approved for implementation by DELWP.
1	1.2	1.1	Maintain fences and gates around broader offset area and markers around offset site in good working order. Remove any rubbish present within the offset site.	Continuous (inspection and management)	-	-	Land Owner	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded or controlled. Boundary markers remain in place and in good condition All fences and gates in good repair

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
1	1.3	1.1	Undertake pulse grazing to reduce biomass. A minimum of three pulse grazing cycles are required within the grazing period, and one of these will occur immediately before the exclusion period (unless otherwise advised by the fire management plan). The maximum grazing period at any one time is four weeks with a minimum two week rest period between grazing cycles. Vegetation cover will not be grazed below 50% and inter-tussock space will be maintained to at least 30%.	31st January – 31st August	2.7	ha	Land Owner	Maintain an open tussock grassland with at least 30% cover of inter-tussock space.
1	1.4	1.1	Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area (within 500m of offset site where possible).	Feb–Apr, Sep–Nov	-	-	Land Owner in consultation with ecological restoration contractor	No ground disturbance by pest animals within offset site. No active rabbit warrens present within offset site, minimal surface harbour for rabbits and hares present (but excluding natural harbour such as rocks). No populations of pest animals established within the offset area Document monitoring results in the annual report.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
1	1.5	1.1	Control all high threat grass / herb weeds before seed set using appropriate methods to ensure a reduction of existing weed levels. Refer to Table 4 for percentage cover of high threat weeds at inception. Eliminate any woody weeds (see Section 3.9.3). Control total cover of weeds, in particular perennial grassy weeds and broadleaf weeds. Monitor for new and emerging weeds and eliminate any found.	Monthly but mainly July–Nov as detailed in the annual works plan	2.7	ha	Land Owner in consultation with vegetation management contractor	Minimise the occurrence of weeds, with a reduction in total cover of weeds, including high threat weeds, beyond current levels. Target is a total perennial weed cover of no more than 2% with reduced cover of high threat weeds listed in Table 6, <1% perennial grassy weeds and no more than 1% broadleaf weeds by the end of 10 years. Minimum off-target damage. Control new and emerging weeds to <1% cover across offset site.
1	1.6	1.1	Develop burn plan and undertake ecological burn of the offset site to reduce plant biomass and promote recruitment of native species. Ecological burns may be undertaken over 20% of the offset area at least ten times during 10 year management period. Conduct burns in different seasons to promote regeneration of a variety of species. Any burn adjacent to another burn must be separated in time by at least 12 months.	Sep-Oct or March - May (or as specified in the burn plan)	1	ha	Qualified contractor in consultation with CFA and DELWP	Medium to low intensity burn over 20% of the 2.7 ha area. Some small areas within burn boundary left unburnt. No area to be burnt at a frequency of more than once every three years. Follow up weed control will be undertaken within the burn area in accordance with section 3.9. Burns must also be undertaken to generate a mosaic pattern of burnt and unburnt areas (See section 3.9.4.)

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
1	1.7	0.5	Conduct regular site inspections at a frequency to ensure management activities are conducted as prescribed. This will incorporate identification of any new weeds and evaluation of biomass conditions. These inspections will be conducted by the land owner. DELWP should participate in site inspections at least four times over offset period.	Site inspections (about 2 hours) at an appropriate frequency (minimum of every two months)	-	-	Land Owner and DELWP	Reporting of management activities as defined. This will include a series of notes of observations made by the land owner during site inspections.
1	1.8	0.5	Qualified ecologist to undertake vegetation monitoring (including Habitat hectare and golf ball biomass assessments), and refine management actions based on results. Identify any new weeds for priority control. Review annual works plan.	Oct-Nov monitoring Dec Reporting	1	Report	Qualified ecologist to be engaged by the Land Owner	Prepare standard monitoring report including results from photos and agreed performance measures outlined in Section 3.9. Report provided to DELWP, Thurlgona Pty Ltd & DoEE. Documented annual works plan.
1	1.9	1.7	Include information collected during site inspections conducted throughout the year in annual monitoring report. Information from site visits to be provided to ecologist undertaking monitoring	Nov	1	Report	Land Owner	Report reviewing the success of management and level of implementation of OMP provided to monitoring ecologist for inclusion in annual report.
1	1.10	1.8-1.9	Review and update Annual Works Plan in consultation with DELWP.	Dec	1	Report	Land owner in consultation with DELWP	Following year's management tailored to current site conditions.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
Recurrent Activities (years 2 -10)								
2-10	X.1	1.2	Maintain fences and gates around broader offset area and markers around offset site in good working order.	Continuous (inspection and management)	-	-	Land Owner	Potential threats (i.e. rabbits, domestic stock, unauthorised entry) excluded.
2-10	X.2	1.3	Undertake pulse grazing to reduce biomass. A minimum of three pulse grazing cycles are required within the grazing period, and one of these will occur immediately before the exclusion period (unless otherwise advised by the fire management plan). The maximum grazing length at any one time is four weeks with a minimum two week rest period between grazing cycles. Vegetation cover will not be grazed below 50% and inter-tussock space will be maintained to at least 30%.	31st January – 31st August	2.7	ha	Land Owner	Maintain an open tussock grassland with an average 30% cover of inter-tussock space.
2-10	X.3	None	Develop burn plan and undertake ecological burn of the offset site to reduce plant biomass and promote recruitment of native species. Ecological burns may be undertaken over 20% of the offset area at least ten times during 10 year management period. Conduct burns in different seasons to promote regeneration of a variety of species. Any burn adjacent to another burn must be separated in time by at least 12 months.	Sep-Oct or March - May (or as specified in the burn plan)	1	ha	Qualified contractor in consultation with CFA and DELWP	Medium to low intensity burn over 20% of the 5.0 ha area. Some small areas within burn boundary left unburnt. No area to be burnt at a frequency of more than once every three years. Follow up weed control will be undertaken within the burn area in accordance with section 3.9. Burns must also be undertaken to

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
								generate a mosaic pattern of burnt and unburnt areas (See section 3.9.4.)
2-10	X.4	1.4	Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area (within 500m of offset site where possible).	Feb–Apr, Sep–Nov	-	-	Land Owner in consultation with ecological restoration contractor	No ground disturbance by pest animals within offset site. No active rabbit warrens present within offset site, minimal surface harbour for rabbits and hares present (but excluding natural harbour such as rocks). No populations of pest animals established within the offset area. Document monitoring results in the annual report.
2-10	X.5	1.5	Control all high threat grass / herb weeds before seed set using appropriate methods to ensure a reduction of existing weed levels. Refer to Table 4 for percentage cover of high threat weeds at inception. Eliminate any woody weeds (see Section 3.5.2). Control total cover of weeds, in particular perennial grassy weeds and broadleaf weeds. Monitor for new and emerging weeds and eliminate any found.	July–Nov as detailed in the annual works plan	2.7	ha	Land Owner in consultation with vegetation management contractor	Minimise the occurrence of weeds, with a reduction in total cover of weeds, including high threat weeds, beyond current levels. Target is a total perennial weed cover of no more than 2% with reduced cover of high threat weeds listed in Table 4, <1% perennial grassy weeds and no more than 1% broadleaf weeds by the end of 10 years. Minimum off-target damage. Control new and emerging weeds to <1% cover across offset site.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
2-10	X.6	1.8	Qualified ecologist to undertake vegetation monitoring (including Habitat hectare, golf ball biomass assessments), and refine management actions based on results. Identify any new weeds for priority control. Review annual works plan.	Oct-Nov monitoring Dec Reporting	1	Report	Qualified ecologist to be engaged by the Land Owner	Prepare standard monitoring report including results from photos and agreed performance measures outlined in Section 3.9. Vegetation and SLL monitoring Report provided to DELWP, Thurlgona Pty Ltd & DoEE. Documented annual works plan.
2-10	X.7	1.9	Conduct regular site inspections at a frequency to ensure management activities are conducted as prescribed. This will incorporate identification of any new weeds and evaluation of biomass conditions. These inspections will be conducted by the land owner. DELWP should participate in site inspections at least four times over offset period.	Site inspections (about 2 hours) at an appropriate frequency (minimum of every two months)	-	-	Land Owner and DELWP	Reporting of management activities as defined. This will include a series of notes of observations made by the land owner during site inspections.
2-10	X.8	2.5	Include information collected during site inspections conducted throughout the year in annual monitoring report. Information from site visits to be provided to ecologist undertaking monitoring	Nov	1	Report	Land Owner	Report reviewing the success of management and level of implementation of OMP provided to monitoring ecologist for inclusion in annual report.
2-10	X.9	2.6	Review and update Annual Works Plan in consultation with DELWP.	Dec	1	Report	DELWP and land owner	Following years management tailored to current site conditions
Year Specific Activities								

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
10	10.10	10.8	Revise this offset management plan (OMP) in consultation with DELWP to identify management actions required to maintain the offset site in perpetuity.	Dec	1	OMP	Qualified ecologist	Updated offset management plan to aid ongoing maintenance of the offset site.
10	10.11	10.9	Identify and allocate resources for ongoing management and continue to implement active ecological management to maintain the offset site.	Dec			Land Manager in consultation with DELWP	Ongoing ecological management to maintain and improve the ecological values of the offset site in perpetuity.
Beyond Year 10								
10+			Maintain fences and gates around broader offset area in good working order.	Continuous (inspection and management)	-	-	Land Owner	Potential threats (i.e. rabbits, domestic stock, and unauthorised entry) excluded.
10+			Evaluate ground cover biomass and manage using pulse grazing and ecological burning	As prescribed by the revised OMP.	2.7	ha	Land owner	Maintain an open tussock grassland structure (30% inter-tussock spacing) using fire and pulse grazing, and ensure areas with high levels of dead weeds are subject to biomass reduction.
10+			Control pest animals (e.g. rabbits, hares, foxes and cats) within the offset and surrounding area.	Feb – Apr, Sept – Nov	-	-	Land Owner	Absence of evidence of grazing/browsing by pest animals.
10+			Control all high threat grass / herb weeds before seed set using appropriate methods to ensure existing weed levels, at the minimum, do not increase.	July - Nov	2.7	ha	Land Owner	Minimise the occurrence of weeds, with no increase in cover of weeds, including high threat weeds, beyond current levels.

Year number	Action No	Required preceding action*	Activity Description	Timing of activity – month(s)	Quantity	Units	Who is responsible for this action?	Standard to be achieved
			Eliminate all woody weeds. Control total cover of weeds, in particular perennial grassy weeds and broadleaf weeds. Monitor for new and emerging weeds and eliminate any found.					Minimum off-target damage. Control new and emerging weeds to <1% cover across offset site.
10+			Undertake monitoring and refine management actions based on results. Identify any new high threat weeds for priority control. Conduct regular site inspections at a frequency to ensure management activities are conducted as prescribed. These inspections will be conducted by the land owner.	Oct–Nov monitoring Site inspections at an appropriate frequency			Land Owner	Land Owner to undertake monitoring as required and site inspections biannually (at a minimum).

Note: X as a designated year indicates that the activity can occur in any or all years, as identified in the Year number column.

Table 8 Risk assessment and management

This risk assessment uses the risk framework from the DOEE EMP guidelines. The likelihood and consequence classification is summarised in Appendix 2.

Action (refer to Table 7)	Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity
0.2, 1.2, 1.3, X.1	Unauthorised or inappropriate entry of domestic stock to the offset area. Grazing, browsing and trampling damage to vegetation and/or soil. Damage to or loss of native herbs and grasses. Increased opportunities for weed invasion.	Unlikely	Minor	Low	Domestic stock sighted on offset site outside approved timeframe. Signs of recent stock access during exclusion periods. Damaged fencing and/or gates.	Remove stock within 2 days. Repair fencing within 1 week. Monitor vegetation for impacts and recovery. Monitoring requirements designed in response to impacts observed.	Inspection and management
0.2, 1.2, X.1	Entry of vehicles or unauthorised access to offset area. Damage to vegetation, soil compaction.	Unlikely	Minor	Low	Vehicle observed on offset site. Evidence of recent vehicle access. Evidence of dumping.	Repair fencing within 1 week. Assess adequacy of fencing and gates within 2 weeks. Any required improvements will be implemented within 1 month..	Inspection and management
1.5, 1.7, X.4	Woody weeds are present within offset area. Herbaceous weed cover exceeds current levels (30-35%). New high threat weeds resists control efforts	Possible	High	Medium	Woody weed cover exceeds 1%. Herbaceous weed cover exceeds baseline levels. Weeds appear to be degrading NTGVVP. Introduction of new high threat weed	Increase weed control efforts. Minimise off-target damage (avoid all native plants) Undertake control works for new and emerging weed as appropriate.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)

Action (refer to Table 7)	Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity
1.4, X.3	Pest animals observed within offset site. Damage to ground cover vegetation, spread of weeds.	Possible	Mod.	Medium	Fresh ground disturbance or scats of pest animals observed in the offset area. Active rabbit warrens observed within offset area. Active fox dens observed within offset area. New and emerging pest observed within offset area.	Destroy fox dens and rabbit warrens through fumigation and hand collapse. Undertake control works for new and emerging pests as appropriate. Increase pest animal control frequency and intensity until follow-up monitoring indicates a reduction in relative abundance in comparison to baseline levels or previous monitoring event (whichever is lower).	0.5, 1.4, 1.9, X.5
1.3, 1.6, 1.10, X.2,	Wildfire. May temporarily impact ground cover condition and natural regeneration. May impact upon weed recruitment patterns. May destroy fencing. May locally eliminate SLL population.	Possible	Major	Low	Wildfire observed within offset area.	Review weed control program and prepare for elevated level of control works. Inspect fence condition and repair any damage. Exclude grazing as for planned ecological burning. Monitor for SLL recolonization using existing tile grids.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)
1.3, 1.6, 1.10, X.2,	Controlled burns. May get out of control and burn more area than intended. May impact upon weed recruitment patterns. May destroy fencing.	Possible	Low	Low	Controlled burn escapes control lines within offset area.	Review weed control program and prepare for elevated level of control works. Inspect fence condition and repair any damage. Exclude grazing as for planned ecological burning.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)

Action (refer to Table 7)	Event or circumstance	Likelihood	Consequence	Risk level	Trigger	Contingency/s	Related monitoring activity
1.3, 1.5, 1.6, X.2, X.4	Two or more drought / wet years May impact upon weed abundance, condition of NTGVVP and habitat suitability for GSM.	Possible	Mod.	Medium	Significant fluctuation in ground cover biomass	Monitor vegetation condition in line with defined protocols. Exclude or increase grazing as appropriate. Consider burning if biomass levels are excessive. May require review of the OMP to adjust actions and targets.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)
1.3, 1.6, X.2	Impact of grazing associated with unpredictable weather conditions.	Possible	Mod.	Medium	Unpredicted pugging or other damage caused to NTGVVP.	Monitor vegetation condition in line with defined protocols. Exclude grazing as appropriate (i.e. based on weather warnings). Consider burning as a more prominent biomass control tool. May require review of the OMP to adjust actions and targets.	Vegetation condition assessments (0.5, 1.7, 1.8, 1.9, 1.10, X.5, X.8)

Table 9 Monitoring schedule

#	Monitoring activity	Parameter/s measured	Survey / monitoring guidelines	Where	When	Reliability
1	Fence condition	Condition of boundary fences.	Survey the perimeter of the offset site to ensure fences are intact and assess evidence of domestic stock, vehicle access or firewood harvesting. Refer to Section 3.9.1 and 3.10.3 for details.	Offset site perimeter	Quarterly	High
2	Weed monitoring	Cover of woody and herbaceous weed species present.	Vegetation survey to be conducted to identify woody and herbaceous weed species and determine cover. Woody species to be mapped using GPS. Herbaceous weed cover (percentage cover) to be estimated for defined sections of the offset site. All weed species present identified to species level. Refer to Section 3.9.2 and 3.10.4 for details.	Offset area.	Annual - Spring	High
3	Pest animal monitoring (Rabbits, Hares and Foxes, and new and emerging pest animals)	Presence of pest animals or signs e.g. scats, diggings, browsing or grazing	Signs of pest animals to be recorded during vegetation surveys. Locations of rabbit warrens to be mapped using GPS. Refer to Section 3.9.3 and 3.10.5 for details.	Offset area.	Annual – Spring During vegetation condition survey	High

Table 10 Reporting schedule

#	Type of report	Responsibility	Timing	Reporting authority	Trigger (if any)
1	Annual management actions report Tabulates management actions completed within the offset area (Section 3.11).	Offset site owner	Report to be completed by August 31 so information is available prior to spring monitoring.	DoEE DELWP	OMP
2	Annual monitoring report. Presents results of offset site monitoring activities (Section 3.11).	Offset site owner (otherwise prepared by Suitably qualified ecologist)	Annual monitoring to be completed in spring. Report to be completed by November 30 of each year.	DoEE DELWP	Completion of annual monitoring
3	Review of offset management plan (Section 3.14).	Offset site owner (otherwise prepared by Suitably qualified ecologist)	After 10 years or otherwise as required.	DoEE DELWP	Significant environmental event causing widespread impact to habitat within the offset site e.g. Wildfire.
3	Audit report (Section 3.12).	Approval holder (Thurlgona Pty Ltd)	End of years 1, 4, 8 and 10.	DoEE	OMP

References

Biosis 2016. *Copernicus Way Keilor Downs: Biodiversity Assessment*. Report for Pomeroy Pacific. Authors: Mueck S, and Gilmore, D. Biosis Pty Ltd, Melbourne. Project no. 21703.

Biosis 2019. Biodiversity assessment: 181 Furlong Road, St Albans, Victoria. Report for Fronditha Care. Authors: Dredge, T., & White, D. Biosis Pty Ltd, Melbourne. Project no. 26838.

Commonwealth of Australia 2014. *Guidelines for the preparation of an offset management plan under the EPBC Act offsets policy*. Australian Government Department of Sustainability, Environment, Water, Population and Communities, Canberra.

Department of the Environment 2015. *Threat abatement plan for predation by feral cats*. Commonwealth of Australia, Canberra, ACT.

Department of the Environment and Energy 2016. *Threat abatement plan for competition and land degradation by rabbits*. Commonwealth of Australia, Canberra, ACT.

Department of the Environment, Water, Heritage and the Arts (DEWHA) (2009). *Background paper to EPBC Act Policy Statement 3.12 – Nationally threatened species and ecological communities. Significant impact guidelines for the critically endangered golden sun moth* (Synemon plana). DEWHA, Canberra. Available on the Internet at: http://www.environment.gov.au/resource/significant-impact-guidelines-critically-endangered-golden-sun-moth-*synemon-plana*.

DEPI 2013. *Permitted clearing of native vegetation - Biodiversity assessment guidelines.* Victorian Government Department of Environment and Primary Industries, Melbourne (September 2013).

DEPI 2014. *Advisory list of rare or threatened plants in Victoria*. Department of Sustainability and Environment, Melbourne.

DEWHA 2008. *Approved Conservation Advice for the Natural Temperate Grassland of the Victorian Volcanic Plain*. Department of the Environment, Water, Heritage and the Arts, Canberra.

DEWHA 2008. *Threat abatement plan for predation by the European red fox*. Department of the Environment, Water, Heritage and the Arts, Canberra.

DoE 2013. *Approved Conservation Advice for* Synemon plana *(golden sun moth)*. Department of the Environment, Canberra.

DSE 2007. *Native Vegetation - Guide for assessment of referred planning permit applications*. Victorian Government, Department of Sustainability and Environment, East Melbourne

DSE 2012a. *BushBroker: Standards for management – Ecological grazing: Information Sheet No. 13.* DSE, East Melbourne.

DSE 2012b. *BushBroker: Standards for management – Fencing: Information Sheet No. 12.* DSE, East Melbourne.

DSE 2012c. *BushBroker: Standards for management – Weeds: Information Sheet No. 8.* DSE, East Melbourne.

DSEWPaC 2011. Environment Protection and Biodiversity Conservation Act 1999 *referral guidelines for the vulnerable striped legless lizard,* Delma impar. Department of Sustainability, Environment, Water, Population & Communities. Australian Government, Canberra.

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

EHP 2016a. *Targeted Golden Sun Moth* Synemon plana *Survey within a proposed offset site, Hamilton Highway, Cressy, Victoria*. Unpublished report for Bush Blocks.

EHP 2016b. *Targeted Striped Legless Lizard* Delma impar *Survey within a proposed offset site, Hamilton Highway, Cressy, Victoria*. Unpublished report for Bush Blocks.

EHP 2017. *Offset Site Assessment, 6165 Hamilton Highway, Cressy, Victoria*. Unpublished report for Bush Blocks prepared by Dr. A. Warnock, EHP, Ascot Vale.

Marshall, A. 2013. *Start with the grasslands: Design guidelines to support native grasslands in urban areas (Final Draft).* Victorian National Parks Association, Melbourne.

Morgan, J.2015. Biomass management in native grasslands. in Williams, N.S.G., Marshall, A. and Morgan, J.W. (eds). *Land of sweeping plains: Managing and restoring the native grasslands of south-eastern Australia.* CSIRO publishing, Clayton South, Melbourne.

Smith, W.J.S. & P. Robertson 1999. *National Recovery Plan for the Striped Legless Lizard* (Delma impar) 1999-2003. NSW National Parks and Wildlife Service & Wildlife Profiles Pty Ltd

Threatened Species Scientific Committee 2016. *Conservation Advice Delma impar striped legless lizard*. Department of the Environment and Energy, Canberra.

Williams, N.S.G., Marshall, A. and Morgan, J.W. (eds) 2015. *Land of sweeping plains: Managing and restoring the native grasslands of south-eastern Australia.* CSIRO publishing, Clayton South, Melbourne.

Appendices

Appendix 1 Flora records from the offset site

Plant species recorded within Lot 4 of LP4563, Shelford

Rare or threatened species status

Victorian status: (DEPI 2014)

P Protected under the FFG Act

Noxious weed status:

RR Regionally restricted species

RC Regionally controlled species

Status	Scientific Name	Common Name
Indigenous species		
	Acaena echinata	Sheep's Burr
	Anthosachne scabra s.l.	Common Wheat-grass
	Asperula scoparia subsp. *scoparia*	Prickly Woodruff
	Austrostipa semibarbata	Fibrous Spear-grass
	Austrostipa spp.	Spear Grass
P	*Calocephalus citreus*	Lemon Beauty-heads
	Convolvulus angustissimus	Blushing Bindweed
	Cullen spp.	Scurf Pea
	Dichondra repens	Kidney-weed
	Eryngium ovinum	Blue Devil
	Melicytus dentatus s.l.	Tree Violet
	Oxalis perennans	Grassland Wood-sorrel
	Poa sieberiana	Grey Tussock-grass
	Ptilotus macrocephalus	Feather Heads
	Rumex brownii	Slender Dock
	Rytidosperma laeve	Smooth Wallaby-grass
	Rytidosperma spp.	Wallaby Grass
	Themeda triandra	Kangaroo Grass
	Tricoryne elatior	Yellow Rush-lily
	Wahlenbergia spp.	Bluebell
Introduced species		
	Anthoxanthum odoratum	Sweet Vernal-grass
	Avena fatua	Wild Oat
RR	*Cirsium vulgare*	Spear Thistle
	Hypochaeris radicata	Flatweed
	Leontodon taraxacoides subsp. *taraxacoides*	Hairy Hawkbit
	Nassella trichotoma	Serrated Tussock
	Plantago lanceolata	Ribwort
RC	*Rosa rubiginosa*	Sweet Briar
RC	*Rubus anglocandicans*	Blackberry

Appendix 2 DoEE EMP Guidelines Risk Framework

Risk Framework

		Consequence				
		Minor	**Moderate**	**High**	**Major**	**Critical**
Likelihood	**Highly Likely**	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Likelihood

Qualitative measure of likelihood (how likely is it that this event/circumstances will occur after management actions have been put in place/are being implemented	
Highly Likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely
Rare	May occur in exceptional circumstances

Consequence

Qualitative measure of consequences (what will be the consequence / result if the issue does occur)	
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive effort
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

Appendix 3 Glossary

This appendix contains definitions of technical terms used in this OMP.
Items marked with an asterisk (*) are cited from DELWP (2007b)

Benchmark*

A standard vegetation –quality reference point, dependent on vegetation type, which is applied in Habitat hectare assessments. Represents the average characteristics of a mature and apparently long undisturbed state of the same vegetation type.

Biodiversity*

The variety of all life forms, the different plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part.

Bioregion*

Biogeographic areas that capture the patterns of ecological characteristics in the landscape or seascape, providing a natural framework for recognising and responding to biodiversity values. A landscape based approach to classifying the land surface using a range of environmental attributes such as climate, geomorphology, lithology and vegetation.

BushBroker

A program coordinated by DELWP to match parties that require native vegetation offsets with third party suppliers of native vegetation offsets.

Canopy Tree

Defined in the Habitat Hectare (DSE 2004) vegetation quality assessment method, as a mature tree that is greater than three metres in height, and is normally found in the upper layer of the relevant vegetation type.

DBH (Diameter at Breast Height)*

The diameter of the main trunk of a tree measured 1.3 m above ground level.

Ecological vegetation class (EVC)*

A native vegetation type classified on the basis of a combination of its floristic, life form, environmental and ecological characteristics.

EPBC Act

Environmental Protection and Biodiversity Conservation Act 1999

Gain

Predicted improvement in the contribution to Victoria's biodiversity achieved from an offset, calculated by combining site gain with the strategic biodiversity score or habitat importance score of the site. Gain is measured with biodiversity equivalence scores or units.

Habitat hectares*

Combined measure of condition and extent of native vegetation. This measure is obtained by multiplying the site's condition score (measured between 0 and 1) with the area of the site (in hectares).

Habitat score*

The score assigned to a habitat zone that indicates the quality of the vegetation relative to the ecological vegetation class benchmark – sum of the site condition score and landscape context score, usually expressed as a percentage or on a scale of 0 to 1.

Habitat zone*

A discrete area of native vegetation consisting of a single vegetation type (EVC) within an assumed similar quality. This is the base spatial unit for conducting a Habitat hectare assessment. Separate *Vegetation Quality Assessments* (or Habitat hectare assessments) are conducted for each habitat zone within the designated assessment area.

Improvement gain*

This is gain resulting from management commitments beyond existing obligations under legislation to improve the current vegetation quality. Achieving improvement gain is predicated on maintenance commitments being already in place. For example, control of any threats such as grazing that could otherwise damage the native vegetation must already be agreed.

Indigenous vegetation*

The type of native vegetation that would have normally been expected to occur on the site prior to European settlement.

Large Old Tree (LOT)*

A tree with a DBH equal to or greater than the large tree diameter as specified in the relevant EVC benchmark.

Offset*

Protection and management (including revegetation) of native vegetation at a site to generate a gain in the contribution that native vegetation makes to Victoria's biodiversity. An offset is used to compensate for the loss to Victoria's biodiversity from the removal of native vegetation.

Offset Management Plan (OMP)

A document which sets out the requirements for establishment, protection and management of an offset site.

Medium Shrub

A shrub life-form used in the Habitat Hectare (DSE 2004) vegetation quality assessment method. The life-form includes shrubs between 1 and 5 m high.

Revegetation*

Establishment of native vegetation to a minimum standard in formerly cleared areas, outside of a remnant patch.

Scattered tree*

An indigenous canopy tree that does not form part of a remnant patch of native vegetation (see definition of remnant patch of native vegetation).

Site

An area of land that contains contiguous patches of native vegetation or scattered trees, within the same ownership.

Site gain

Predicted improvement in the condition, or the condition and extent, of native vegetation at a site (measured in Habitat hectares) generated by the landowner committing to active management and increased security.

Recruitment*

The production of new generations of plants, either by allowing natural ecological processes to occur (regeneration etc.), by facilitating such processes such as regeneration to occur, or by actively revegetating (replanting, reseeding). See Revegetation.

Remnant vegetation*

Native vegetation that is established or has regenerated on a largely natural landform. The species present are those normally expected in that vegetation community. Largely natural landforms may have been subject to some past surface disturbance such as some clearing or cultivation (or even the activities of the nineteenth century gold rushes) but do not include man-made structures such as dam walls and quarry floors.

Supplementary planting

Establishment of overstorey and/or understorey plants within a remnant patch. Typically includes the planting or direct-seeding of understorey life forms.

Understorey*

Understorey is all vegetation other than mature canopy trees – includes immature trees, shrubs, grasses, herbs, mosses, lichens and soil crust. It does not include dead plant material that is not attached to a living plant. More information on understorey life forms is set out in the Vegetation Quality Assessment Manual (DSE 2004).

Victoria Planning Provisions

A list of planning provisions that provides a standard template for individual planning schemes.