



**Lindum Vale Residential Development (EPBC 2015/7516)**

# Compliance Report

**26 October 2021 to 26 October 2022**

FINAL REPORT

Prepared for Satterley Property Group Pty Ltd

27 April 2023

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

- Satterley Property Group: Jeremy Hughes

Biosis staff involved in this project were:

- Mitch Deaves (quality assurance)

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# 1. Introduction

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## 1.1. Description of activities

Biosis Pty Ltd (Biosis) was commissioned by Satterley Property Group Pty Ltd (SPG) to prepare an annual compliance report for Lindum Vale residential development, Mickleham, Victoria (EPBC 2015/7516).

EPBC 2015/7516 approval was granted to SPG (ACN: 009 054 979) on 25 October 2020 with a variation to the conditions granted on 20 April 2021. The approval is to *construct a residential development of approximately 1,500 housing allotments at 1960 and 2040 Mickleham Road, Mickleham, Victoria [see EPBC Act 2015/7516]*.

Condition 12 of the approval requires the approval holder to prepare a compliance report for each 12 month period following the date of commencement of the action. This report officially covers the period 26 October 2021 to 26 October 2022. However, information from 26 October 2022 to 2 May 2023 has also been included to maintain most up to date records.

Current activities undertaken during the period covered by this report include:

- Commencement of the action for Stages 1 & 2.
- Carrying out of management actions relating to the implementation of Offset Management Plans (OMPs) for the four offset sites including:
  - Baseline monitoring
  - Weed & pest management
  - Fencing
  - Reporting
- Responding to written requests from the Department, providing compliance records, and notifications.

## 1.2. New environmental risk

No new environmental risks have become apparent during this reporting period. Should new environmental risks be identified, a risk analysis and reporting will be undertaken and the relevant management plans reviewed (if required).

### 1.3. Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. 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	<u>Jeremy Hughes</u>
Full name	<u>Jeremy Hughes</u>
Position	<u>Development Manager</u>
Organisation	<u>Satterley Property Group Pty Ltd</u>
Date	<u>27 / 04 / 2023</u>

## 2. Compliance table

This section addresses the requirement in the *Annual Compliance Report Guidelines* (DoE, 2014) for a compliance table. Table 1 is a compliance table includes the full wording of all conditions under EPBC 2015/7516 approval, the condition reference number, a designation regarding compliance or non-compliance, a summary of evidence and comments, and references to other parts of this compliance report which relate to the approval condition.

**Table 1 EPBC approval compliance table**

Condition number/ reference	Condition	Is the project compliant with this condition?	Evidence/ comments
1	<p><i>In the project area, the approval holder must not clear more than:</i></p> <ul style="list-style-type: none"> <li>• 0.226 hectares of GEWVVP</li> <li>• 97.11 hectares of Golden Sun Moth habitat</li> </ul>	Compliant	No more than 0.226 hectares of GEWVVP and 97.11 hectares of Golden Sun Moth habitat have been cleared.
2	<i>To compensate for the loss of up to 31.13 ha of Golden Sun Moth habitat, the approval holder must secure the Stage 1 GSM offset areas prior to the commencement of the action within Stage 1.</i>	Compliant	See Section 3.1, Appendix A and Appendix B
3	<i>To compensate for the loss of up to 65.975 ha of Golden Sun Moth habitat, the approval holder must secure the Stage 2 GSM offset areas prior to the commencement of the action within Stage 2.</i>	Compliant	See Section 3.2 and Appendix C
4	<p><i>To protect and enhance GEWVVP in the project area, the approval holder must:</i></p> <ol style="list-style-type: none"> <li><i>demonstrate that it has control of the GEWVVP offset area and is managing the area in accordance with its offset values prior to the commencement of the action;</i></li> <li><i>commence the process to secure the GEWVVP offset area prior to commencement of the action; and</i></li> </ol>	Compliant	See Section 3.3 and Appendix G

Condition number/ reference	Condition	Is the project compliant with this condition?	Evidence/ comments
	<i>c. secure the GEWVP offset area within 24 months of commencement of the action, or as otherwise agreed by the Minister in writing.</i>		
<b>5</b>	<i>Within 10 business days of each offset area being secured, the approval holder must provide the Department with: a. written evidence demonstrating that the offset area has been secured; and b. shapefiles and the offset attributes for the offset area</i>	Non-compliant	See Section 3.4 and Appendix D
<b>6</b>	<i>Once each offset area has been secured, the approval holder must implement the Offset Management Plan for that offset area, for the duration of the approval.</i>	Partially non-compliant	See Section 3.5
<b>7</b>	<i>The approval holder must notify the Department in writing of the date of commencement of the action in each Stage within 10 business days after the date of commencement of the action in that Stage.</i>	Non-compliant	See Section 3.6 and Appendix E
<b>8</b>	<i>If all offset areas are not secured within 5 years from the date of this approval, then the approval holder must not commence the action in whichever of Stage 1 or Stage 2 has not already been commenced without written agreement of the Minister. The Minister may review the suitability of the offset areas in making this decision.</i>	Not applicable	All offsets were secured in 2021/2022.
<b>9</b>	<i>The approval holder must maintain accurate and complete compliance records</i>	Compliant	This compliance report provides evidence of the accurate and complete compliance records to date.
<b>10</b>	<i>If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request.</i>	Compliant	See Section 3.7

Condition number/ reference	Condition	Is the project compliant with this condition?	Evidence/ comments
11	<i>The approval holder must keep the Offset Management Plans published on the website until the end date of this approval.</i>	Compliant	See Section 0 and Appendix F
12	<p><i>The approval holder must prepare a compliance report for each 12 month period following the date of commencement of the action, or otherwise in accordance with an annual date that has been agreed to in writing by the Minister. The approval holder must:</i></p> <ul style="list-style-type: none"> <li><i>a. publish each compliance report on the website within 60 business days following the relevant 12 month period;</i></li> <li><i>b. notify the Department by email that a compliance report has been published on the website and provide the weblink for the compliance report within five business days of the date of publication;</i></li> <li><i>c. keep all compliance reports publicly available on the website until this approval expires;</i></li> <li><i>d. exclude or redact sensitive ecological data from compliance reports published on the website; and</i></li> <li><i>e. where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within 5 business days of publication.</i></li> </ul>	Non-compliant	This compliance report is being prepared to bring SPG into compliance with this condition.
13	<p><i>The approval holder must notify the Department in writing of any: incident; non-compliance with the conditions; or non-compliance with the commitments made in the Offset Management Plans. The notifications must be given as soon as practicable, and no later than two business days after becoming aware of the incident or non-compliance. The notification must specify:</i></p> <ul style="list-style-type: none"> <li><i>a. any condition which is or may be in breach;</i></li> </ul>	Not applicable	

Condition number/ reference	Condition	Is the project compliant with this condition?	Evidence/ comments
	<p><i>b. a short description of the incident and/or non-compliance; and</i></p> <p><i>c. the location (including co-ordinates), date, and time of the incident and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.</i></p>		
14	<p><i>The approval holder must provide to the Department the details of any incident or non-compliance with the conditions or commitments made in the Offset Management Plans as soon as practicable and no later than 10 business days after becoming aware of the incident or non-compliance, specifying:</i></p> <p><i>a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;</i></p> <p><i>b. the potential impacts of the incident or non-compliance; and</i></p> <p><i>c. the method and timing of any remedial action that will be undertaken by the approval holder.</i></p>	Not applicable	
15	<p><i>The approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted as requested in writing by the Minister.</i></p>	Not applicable	No audit request has been received.
16	<p><i>For each independent audit, the approval holder must:</i></p> <p><i>a. provide the name and qualifications of the proposed independent auditor and the draft audit criteria to the Department;</i></p> <p><i>b. only commence the independent audit once the independent auditor and audit criteria have been approved in writing by the Department; and</i></p> <p><i>c. submit the audit report to the Department within the timeframe specified in the approved audit criteria.</i></p>	Not applicable	No audit request has been received.

Condition number/ reference	Condition	Is the project compliant with this condition?	Evidence/ comments
17	<p><i>The approval holder must publish the audit report on the website within 10 business days of receiving the Department's approval of the audit report and keep the audit report published on the website until the end date of this approval.</i></p>	Not applicable	No audit request has been received.
18	<p><i>Within 30 days after whichever is the earlier of</i></p> <ul style="list-style-type: none"> <li><i>• the completion of the action, or</i></li> <li><i>• 60 business days before the end date of the period for which this approval has effect,</i></li> </ul> <p><i>the approval holder must notify the Department in writing and provide completion data.</i></p>	Not applicable	The action has not been completed and the approval has effect until 30 June 2040.
19	<p><i>If the completion of the action is unlikely to occur before the end date of the period for which the approval has effect, the approval holder must submit to the Department, before the end date of the period for which the approval has effect, a request, in accordance with the requirements of section 145C of the EPBC Act, to extend the period of effect of the approval.</i></p>	Not applicable.	The approval has effect until 30 June 2040, so this condition is currently not relevant.

## 3. Approval conditions

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### 3.1. Condition 2

*To compensate for the loss of up to 31.13 ha of Golden Sun Moth habitat, the approval holder must secure the Stage 1 GSM offset areas prior to the commencement of the action within Stage 1.*

The Stage 1 offset areas are located at:

- 1960 Mickleham Road, Mickleham VIC 3064 (Stage 1) – secured 2 May 2022
- 235 Muncktons Lane, Glenaroua VIC 3764 (Stage 1) – secured 20, 32 & 27 May 2021

The Stage 1 GSM offset areas were secured prior to the commencement of the action within Stage 1, which occurred on 26 October 2021. The timing of securing the Mickleham offset area is after the commencement date of Stage 1 works. However, the agreement was finalised before the commencement date of Stage 1 action and the delay is due to registering the covenant with the titles office. See Appendix A for proof of securing offsets, Appendix B for the Native Vegetation Credit Register allocated credit extract for 1960 Mickleham Road, Mickleham dated 6 & 8 September 2021, and Appendix D for notification of securing offsets.

### 3.2. Condition 3

*To compensate for the loss of up to 65.975 ha of Golden Sun Moth habitat, the approval holder must secure the Stage 2 GSM offset areas prior to the commencement of the action within Stage 2.*

The Stage 2 offset areas are located at:

- 5066 Western Highway, Beaufort VIC 3373 (Stage 2) – secured 4 & 9 March 2022
- Sievers Lane, Glenhope VIC 3444 (Stage 2) – secured 4 & 9 March 2022

The Stage 2 GSM offset areas were secured prior to the commencement of the action within Stage 2, which occurred on 14 March 2022. See Appendix C for proof of securing offsets and Appendix D for notification of securing offsets.

### 3.3. Condition 4

*To protect and enhance GEWVVP in the project area, the approval holder must:*

- a. demonstrate that it has control of the GEWVVP offset area and is managing the area in accordance with its offset values prior to the commencement of the action;*
- b. commence the process to secure the GEWVVP offset area prior to commencement of the action; and*
- c. secure the GEWVVP offset area within 24 months of commencement of the action, or as otherwise agreed by the Minister in writing.*

The Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP) is located in the GEWVVP offset area at 1960 Mickleham Road, Mickleham VIC 3064. The agreement to secure the GEWVVP offset area was finalised before the commencement date of Stage 1 action (Appendix B) and the delayed registration date is due to registering the covenant with the titles office. Implementation of the Offset Management Plan (OMP)

(Biosis 2020a) began in July 2021 in the form of construction of temporary fencing to protect the offset area during construction activities (Appendix G).

### 3.4. Condition 5

*Within 10 business days of each offset area being secured, the approval holder must provide the Department with:*

- a. written evidence demonstrating that the offset area has been secured; and*
- b. shapefiles and the offset attributes for the offset area*

The offset sites relating to this approval were secured on the following dates:

- 1960 Mickleham Road, Mickleham VIC 3064 (Stage 1) – 2 May 2022
- 235 Muncktons Lane, Glenaroua VIC 3764 (Stage 1) – 20, 32 & 27 May 2021
- 5066 Western Highway, Beaufort VIC 3373 (Stage 2) – 4 & 9 March 2022
- Sievers Lane, Glenhope VIC 3444 (Stage 2) – 4 & 9 March 2022

SPG secured the offset sites within the required timeframes. However, notification to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) was overlooked due to a transition in managers at SPG overseeing the implementation of the EPBC approval conditions during this period. This is considered a minor non-compliance.

Notification in writing of the date of securing of the offsets including shapefiles and offset attributes were provided to DCCEEW on 8 March 2023 (Appendix D). Although notification has been provided it was not provided within 10 business days of each offset area being secured. The condition as worded can now never be complied with.

### 3.5. Condition 6

*Once each offset area has been secured, the approval holder must implement the Offset Management Plan for that offset area, for the duration of the approval.*

#### 3.5.1. 1960 Mickleham Road, Mickleham Offset Management Plan

Implementation of the OMP (Biosis 2020a) began in July 2021. The following has been completed as part of the implementation of the OMP:

- Construction of temporary fencing in July 2021 to protect the offset area during construction activities (Appendix G).
- Seed collection of *Acacia paradoxa* in November 2021
- Spraying of artichoke thistle and woody weeds in October 2022 (Appendix I).
- Preparation of a Baseline Vegetation Monitoring Report (Biosis 2022) for Grassy Eucalypt Woodland and Golden Sun Moth habitat Offset Site (Appendix H). This was submitted to the Department on 17 April 2023 (Appendix N).
- Slashing of perimeter boundary in park preparation for fire break February 2023.

Access to the offset site was not possible for large portion of 2022 due to the construction of infrastructure surrounding the site.

The Year 1 annual report has not yet been prepared for the period of 15 February 2022 to 15 February 2023 for 1960 Mickleham Road offset site. This is due to a transition in managers overseeing the EPBC approval conditions at SPG which resulted in the compliance report being overlooked. SPG is therefore partially non-compliant with implementing the OMP (Biosis 2020a). The following corrective measures are currently being undertaken:

- Engaging Biosis to prepare Year 1 annual report for 1960 Mickleham Road offset site. Once prepared this annual report will be submitted to Trust for Nature (TfN) and DCCEEW.
- Engaging Biosis to preparing an annual works plan for 2023.
- Engaging Biosis and weed contractors to continue implementation of OMP management actions for 2023.

SPG will engage Biosis on a yearly contract basis to manage the implementation of the OMPs and ensure compliance is maintained in the future.

### **3.5.2. 235 Muncktons Lane, Glenaroua Offset Management Plan**

Implementation of the OMP (Biosis 2020b) began in March 2022 when the conservation covenant was executed and registered on title and the agreed funds released to the landholder for management costs. The Year 1 annual report from the landholder to address progress against the commitments set out in the OMP (Biosis 2020b) was completed on 5 April 2022 (see Appendix I) and the Year 2 annual report was completed on 28 March 2023 (see Appendix K).

These reports were submitted to the Department on 17 April 2023. (see Appendix N).

SPG is compliant with implementing the OMP for the Glenaroua offset site.

### **3.5.3. 5066 Western Highway, Beaufort Offset Management Plan**

Implementation of the OMP (Biosis 2020c) began in March 2022 when the conservation covenant was executed and registered on title and the agreed funds released to the landholder for management costs. An annual report from the landholder to address progress against the commitments set out in the OMP was completed on 6 March 2023 (see Appendix L).

This report was submitted to the Department on 17 April 2023 (see Appendix N).

SPG is compliant with implementing the OMP for the Beaufort offset site.

### **3.5.4. Sievers Lane, Glenhope Offset Management Plan**

Implementation of the OMP (Biosis 2020d) began in March 2022 when the conservation covenant was executed and registered on title and the agreed funds released to the landholder for management costs. An annual report from the landholder to address progress against the commitments set out in the OMP was completed on 15 February 2023 (see Appendix M).

This report was submitted to the Department on 17 April 2023 (see Appendix N).

SPG is compliant with implementing the OMP for the Glenhope offset site.

### 3.6. Condition 7

*The approval holder must notify the Department in writing of the date of commencement of the action in each Stage within 10 business days after the date of commencement of the action in that Stage.*

The action for each of the stages commenced on the following dates:

- Stage 1 – 26 October 2021; and
- Stage 2 – 14 March 2022

Stage 1 works commenced during a period of transition in managers at SPG overseeing the implementation of the EPBC approval conditions. Notification to the Department of the commencement of the action was overlooked during this transition period.

Notification in writing of the date of commencement of the action for both stages was provided to DCCEEW in writing on 8 March 2023 (Appendix E). Although notification has been provided it was not provided within 10 business days of the date of commencement. The condition as worded can now never be complied with.

### 3.7. Condition 10

*If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request.*

The following written requests in Table 2 have been made by DCCEEW with responses provided in the timeframe specified in the requests.

**Table 2 Responses to written DCCEEW requests**

Request	Response
<b>Show cause letter dated 7 February 2023 requesting a response by email to <a href="mailto:epbcmonitoring@dcceew.gov.au">epbcmonitoring@dcceew.gov.au</a> within 10 business days</b>	Email response provided on 17 February 2023 by Jeremy Hughes
<b>Request for further information dated 21 February 2023 requesting a response no later than COB 8 March 2023</b>	Email notification responses provided on 8 March 2023 (Appendix D, Appendix E)
<b>Warning letter dated 21 March 2023 requesting:</b> <ul style="list-style-type: none"> <li>– <b>A response in relation to Condition 11 no later than 20 business days from the date of the letter;</b></li> <li>– <b>Preparation of a compliance report for the 12-month period 26 October 2021 – 26 October 2022;</b></li> <li>– <b>Publication of the compliance report on SPG's website no later than 30 business days from the date of the letter; and</b></li> <li>– <b>Notification to the department via email to <a href="mailto:epbcmonitoring@dcceew.gov.au">epbcmonitoring@dcceew.gov.au</a> that the compliance report has been published, within 5 business days of the date of publication.</b></li> </ul>	Responses to the warning letter: <ul style="list-style-type: none"> <li>– DCCEEW was notified by email of the publication of the specified documents on 29 March 2023 (Appendix F)</li> <li>– This compliance report has been prepared in response to the warning letter request. It will be published on SPG's website and DCCEEW will be notified within the specified timeframes.</li> </ul>

### 3.8. Condition 11

*The approval holder must keep the Offset Management Plans published on the website until the end date of this approval.*

The following OMPs are published on a standalone page on SPG's website

<https://satterley.com.au/botanical/buying-building/lindum-vale-precinct-structure-plan/>

- EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Grassy Eucalypt Woodland and Golden Sun Moth habitat: 1960 Mickleham Road, Mickleham, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 9 April 2020.
- EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: Sievers Lane, Glenhope, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 02 prepared 26 May 2020.
- EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: 235 Muncktons Lane, Glenaroua, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 12 May 2020.
- EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: 5066 Western Highway, Beaufort, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 16 October 2020.

The above OMPs were previously published on Biosis' website. However, SPG received communication from DCCEEW requesting these be published under publicly available single domain name attributed to SPG. DCCEEW was notified on 29 March/ 5 April 2023 of the publication of these OMPs as per DCCEEW's request (Appendix F).

## REFERENCES

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Biosis 2020a. EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Grassy Eucalypt Woodland and Golden Sun Moth habitat: 1960 Mickleham Road, Mickleham, Victoria, Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 9 April 2020.

Biosis 2020b. EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: 235 Muncktons Lane, Glenaroua, Victoria., Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 12 May 2020.

Biosis 2020c. EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: 5066 Western Highway, Beaufort, Victoria., Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 16 October 2020.

Biosis 2020d. EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: Sievers Lane, Glenhope, Victoria, Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 02 prepared 26 May 2020.

Biosis 2022. Grassy Eucalypt Woodland and Golden Sun Moth habitat Offset Site, 1960 Mickleham Road, Mickleham (EPBC 2015/7516): Baseline Vegetation Monitoring Report, Report prepared for Satterley Group Pty Ltd. Author: Bodycomb. S, Biosis Pty Ltd, Port Melbourne, VIC. Project no. 34282.

## APPENDICES

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## Appendix A. Proof of securing Stage 1 offsets

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## Appendix B. 1960 Mickleham Rd, Mickleham Native Vegetation Credit Register credit extract

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## Appendix C. Proof of securing Stage 2 offsets

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## Appendix D. Notification – Condition 5

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## Appendix E. Notification - Condition 7

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## Appendix F. Notification - Condition 11

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## Appendix G. Mickleham Offset Site conservation area fencing

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## Appendix H. Mickleham Offset Site Baseline Monitoring Report

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## Appendix I. Mickleham Offset Site weed management

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## Appendix J. Glenaroua Offset Site Year 1 reporting

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## Appendix K. Glenaroua Offset Site Year 2 reporting

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## Appendix L. Beaufort Offset Site Year 1 reporting

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## Appendix M. Glenhope Offset Site Year 1 reporting

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## Appendix N. Provision of offset site reports to DCCEEW

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Register Search Statement - Volume 11229 Folio 152

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LAND DESCRIPTION

Crown Allotment 16C Section E Parish of Glenaroua.  
PARENT TITLE Volume 07731 Folio 060  
Created by instrument AH527223J 30/09/2010

REGISTERED PROPRIETOR

Estate Fee Simple  
Sole Proprietor  
IMPLEXA PROPERTY PTY LTD of 2149 BURKE AND WILLS TRACK BAYNTON VIC 3444  
AN922209W 10/06/2017

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AQ757628S 22/02/2018  
AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD

COVENANT as to part Section 3A Victorian Conservation Trust Act 1972  
AU355230F 19/05/2021

For details of any other encumbrances see the plan or imaged folio set out under DIAGRAM LOCATION below.

AGREEMENT as to part Section 72(1) Conservation Forest and Lands Act 1987  
AQ275181V 21/09/2017

DIAGRAM LOCATION

SEE TP307153B FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NUMBER	COVENANT	STATUS	DATE
AU355230F	COVENANT	Registered	27/05/2021

-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

Street Address: 235 MUNCKTONS LANE GLENAROUA VIC 3764

ADMINISTRATIVE NOTICES

NIL

eCT Control 16165A ANZ RETAIL AND SMALL BUSINESS  
Effective from 22/02/2018

DOCUMENT END

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Register Search Statement - Volume 11229 Folio 154

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REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 11229 FOLIO 154

Security no : 124090895788J  
Produced 01/07/2021 12:32 PM

LAND DESCRIPTION

Crown Allotment 68H Parish of Glenaroua.  
PARENT TITLE Volume 07731 Folio 060  
Created by instrument AH527223J 30/09/2010

REGISTERED PROPRIETOR

Estate Fee Simple  
Sole Proprietor  
IMPLEXA PROPERTY PTY LTD of 2149 BURKE AND WILLS TRACK BAYNTON VIC 3444  
AN922209W 10/06/2017

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AQ757628S 22/02/2018  
AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD

COVENANT as to part Section 3A Victorian Conservation Trust Act 1972  
AU355013P 19/05/2021

For details of any other encumbrances see the plan or imaged folio set out under DIAGRAM LOCATION below.

AGREEMENT as to part Section 72(1) Conservation Forest and Lands Act 1987  
AQ275181V 21/09/2017

DIAGRAM LOCATION

SEE TP307153B FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NUMBER	COVENANT	STATUS	DATE
AU355013P	COVENANT	Registered	21/05/2021

-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

Street Address: 235 MUNCKTONS LANE GLENAROUA VIC 3764

ADMINISTRATIVE NOTICES

NIL

eCT Control 16165A ANZ RETAIL AND SMALL BUSINESS  
Effective from 22/02/2018

DOCUMENT END

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REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 11229 FOLIO 155

Security no : 124090894946Y  
Produced 01/07/2021 12:17 PM

LAND DESCRIPTION

Crown Allotment 68K, Crown Allotment C4 Section C, Crown Allotment C5 Section C, Crown Allotment C18 Section C, Crown Allotment 6 Section E, Crown Allotment 14 Section E, Crown Allotment 3A Section F and Crown Allotment 3B Section F Parish of Glenaroua.  
PARENT TITLE Volume 07731 Folio 060  
Created by instrument AH527223J 30/09/2010

REGISTERED PROPRIETOR

Estate Fee Simple  
Sole Proprietor  
IMPLEXA PROPERTY PTY LTD of 2149 BURKE AND WILLS TRACK BAYNTON VIC 3444  
AN922209W 10/06/2017

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AQ757628S 22/02/2018  
AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD

COVENANT as to part Section 3A Victorian Conservation Trust Act 1972  
AS149965W 09/05/2019

COVENANT as to part Section 3A Victorian Conservation Trust Act 1972  
AU355344P 19/05/2021

For details of any other encumbrances see the plan or imaged folio set out under DIAGRAM LOCATION below.

AGREEMENT as to part Section 72(1) Conservation Forest and Lands Act 1987  
AQ275181V 21/09/2017

DIAGRAM LOCATION

SEE TP307153B FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NUMBER	STATUS	DATE
AU355344P	COVENANT Registered	20/05/2021

-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

ADMINISTRATIVE NOTICES

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NIL

eCT Control 16165A ANZ RETAIL AND SMALL BUSINESS  
Effective from 22/02/2018

DOCUMENT END

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Register Search Statement - Volume 11252 Folio 162

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The Victorian Government acknowledges the Traditional Owners of Victoria and pays respects to their ongoing connection to their Country, History and Culture. The Victorian Government extends this respect to their Elders, past, present and emerging.

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 11252 FOLIO 162

Security no : 124097312997G  
Produced 04/05/2022 02:46 PM

LAND DESCRIPTION

Lot 1 on Title Plan 947278H.  
PARENT TITLE Volume 11129 Folio 424  
Created by Application No. 126903B 23/12/2010

REGISTERED PROPRIETOR

Estate Fee Simple  
Sole Proprietor  
SATTERLEY MICKLEHAM PTY LTD of LEVEL 3 27-31 TROODE STREET WEST PERTH WA  
6005  
AS780822X 05/12/2019

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AS780823V 05/12/2019  
COMMONWEALTH BANK OF AUSTRALIA

COVENANT as to part Section 3A Victorian Conservation Trust Act 1972  
AV576689K 29/04/2022

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

NOTICE Section 201UB Planning and Environment Act 1987  
AS375295E 23/07/2019

AGREEMENT Section 173 Planning and Environment Act 1987  
AV245644G 19/01/2022

DIAGRAM LOCATION

SEE TP947278H FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NUMBER		STATUS	DATE
AV245644G (E)	AGREEMENT	Registered	22/01/2022
AV576689K	COVENANT	Registered	02/05/2022

-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

Street Address: 1960 MICKLEHAM ROAD MICKLEHAM VIC 3064

ADMINISTRATIVE NOTICES

-----  
NIL

eCT Control 19208S HWL EBSWORTH LAWYERS  
Effective from 18/12/2019

DOCUMENT END

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AV576689K

## VICTORIA

# APPLICATION FOR NOTIFICATION OF COVENANT

Lodged by:

Name: Mills Oakley

Phone: (03) 9605 0010

Address: Level 6, 530 Collins Street, Melbourne

Reference: EYRM/9208973

Customer Code: 21078Q

**TRUST FOR NATURE (VICTORIA)** of Level 5, 379 Collins Street, Melbourne established pursuant to the Victorian Conservation Trust Act 1972 **HEREBY APPLIES** pursuant to Section 3A (10) of the Act for entry of a Memorandum of the Covenant contained in the attached Instrument dated **1 April 2022** which Instrument creates a Covenant pursuant to Section 3A of the said Act over the land marked hatched on the Plan being part of the land contained in Certificate of Title Volume 11252 Folio 162.

1. The Certifier has taken reasonable steps to verify the identity of the applicant.
2. The Certifier holds a properly completed Client Authorisation for the Conveyancing Transaction including this Registry Instrument or Document.
3. The Certifier has retained the evidence supporting this Registry Instrument or Document.
4. The Certifier has taken reasonable steps to ensure that this Registry Instrument or Document is correct and compliant with relevant legislation and any Prescribed Requirement.



EXECUTED ON BEHALF OF:

Trust for Nature (Victoria)

Signer Name:

Thomas William Lawrence Dugdale

Signer Organisation:

Mills Oakley

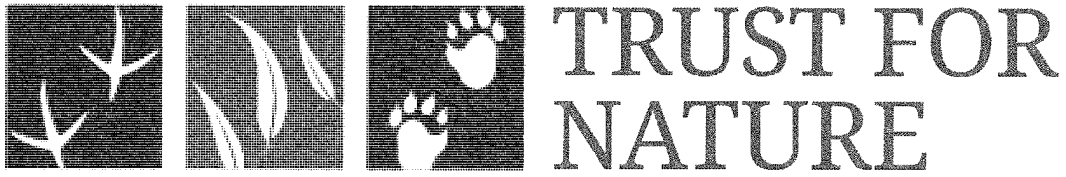
Signer Role:

Australian Legal Practitioner

Execution Date:

5 April 2022

AV576689K



## Deed of Covenant

### for the Conservation of Land

Satterley Mickleham Pty Ltd [ACN 612 101 550]

Trust for Nature (Victoria)

Property Address:

1960 Mickleham Road, Mickleham VIC 3064

---

**Note:** This Deed of Covenant includes land management obligations to protect and improve native vegetation for the purpose of generating Commonwealth Biodiversity Credits.

**Note:** Owners are obliged under this Covenant to promptly notify the Trust of any change in ownership or another encumbrance relating to the Land or any lease or other interest in Land which the Owners grant to any other person.

[www.trustfornature.org.au](http://www.trustfornature.org.au)

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## Parties

**Satterley Mickleham Pty Ltd** [ACN 612 101 550] (**Owner**) of Level 3, 27-31 Troode Street, West Perth WA 6005

**Trust for Nature (Victoria)** [ABN 60 292 993 543] (**Trust**) of 5/379 Collins St, Melbourne VIC 3000

## Recitals

- A The Owner is the registered proprietor of the land described in Schedule 1 and desires to enter into a covenant with the Trust under section 3A of the Act and which runs with the Land empowering the Trust to enforce the covenant against the Owner.
- B The Trust and the Owner have agreed to enter into this Covenant, being satisfied that the Land possesses the appropriate characteristics and acknowledging that the Parties' aims and purposes are the conservation of the Land in accordance with the Covenant Objectives.
- C Covenant Objectives are the conservation of the Land for public scientific and public educational purposes including, as relevant to the Land its:
- (a) native plants and wildlife;
  - (b) natural interest or beauty;
  - (c) ecological significance;
  - (d) historical interest;
- D The Trust and the Owner recognise that the intent of this Covenant is to contribute to the National Reserve System, under the Protected Area criteria established by the International Union for Conservation of Nature (IUCN 2008).

## 1. Definitions

In this Covenant the following definitions apply:

**Act** means the *Victorian Conservation Trust Act 1972 (Vic)*.

**Conservation Tier** means that part of the land designated as Conservation Tier within Schedule 1 for the purpose of conserving areas which are ecologically significant or areas of importance to the conservation of wildlife or native plants and to be protected and managed for the purposes of generating Commonwealth Biodiversity Credits.

**Covenant** means this document or any schedule or annexure to it.

**Commonwealth Biodiversity Credit** means the credits created on the Land designated as Conservation Tier 2 through an offset package approved by the Commonwealth government in accordance with the Environmental Protection and Biodiversity Conservation Act 1999 (Cth).

**Covenant Management Plan** means the plan mutually agreed to and signed by the Owner and the Trust for the management of the Land, as amended from time to time and which forms part of this Covenant once signed.

**Covenant Objectives** means the aims and purposes of this Covenant as outlined in Recital C.

**Dwelling** means any habitable structure, including but not limited to a house, permanent caravan, dependent persons' unit or holiday accommodation.

**Exploration** means exploration for minerals and includes:

- i. conducting geological, geophysical and geochemical surveys; and
- ii. drilling; and
- iii. taking samples for the purposes of chemical or other analysis; and
- iv. extracting minerals from the Land, other than for the purpose of producing them commercially; and
- v. in relation to an exploration licence, anything else (except mining) that is specified in the licence.

**Land** means the land shown hatched on the plan attached at Schedule 1 being part of the land more particularly described in Certificate of Title Volume 11252 Folio 162.

**Letter of Approval** means a letter signed by the Trust providing approval for the Owner to undertake specific activities on the Land otherwise prohibited under this Covenant.

**Licence** means an exploration licence, mining licence, a prospecting licence or a retention licence as set out in the *Minerals Resources (Sustainable Development) Act 1990*.

**Mining** means extracting minerals from the Land for the purpose of producing them commercially and includes processing and treating ore.

**Minister** means the Minister of the Crown administering the Act.

**Mortgagee** means the person or persons registered or entitled from time to time to be registered by the Registrar of Titles as Mortgagee of the Land or any part of it.

**Offset Management Plan** means a plan (in Schedule 2 of this Covenant) that outlines management obligations to improve the extent and quality of biodiversity on the Land for the purpose of generating Commonwealth Biodiversity Credits.

**Owner** means the person or persons registered or entitled from time to time to be registered by the Registrar of Titles as proprietor or proprietors of an estate in fee simple of the Land or any part of it, including any Mortgagee-in-possession and all future registered proprietors of the Land.

**Parties** means the parties to this Covenant.

**Permitted Defendable Space and Fire Protection Works** means vegetation permitted to be removed under the applicable planning scheme (as amended from time to time), whether under a planning permit or exemption in the planning scheme, for bushfire protection purposes including for the creation of defendable space from an existing or new building or other fire protection works.

**Subdivision** means the subdivision as defined with the *Subdivision Act 1988* (Vic) (or its successor) or any consolidation of land or boundary realignment.

**Trust** means Trust for Nature (Victoria) as established under section 2 of the Act.

## 2. Interpretation

In the interpretation of this Covenant, the following provisions apply unless the context otherwise requires:

- 2.1. Headings are inserted for convenience only and do not affect the interpretation of this Covenant.
- 2.2. A reference in this Covenant to any law, legislation or legislative provision includes any statutory modification, amendment or re-enactment, and any subordinate legislation or regulations issued under that legislation or legislative provision.
- 2.3. A reference in this Covenant to any document or agreement is to that document or agreement as amended, novated, supplemented or replaced.
- 2.4. A reference to a clause, part, schedule or attachment is a reference to a clause, part, schedule or attachment of or to this Covenant.
- 2.5. An expression importing a natural person includes any company, trust, partnership, joint venture, association, body corporate or governmental agency.
- 2.6. Where a word or phrase is given a defined meaning, another part of speech or other grammatical form in respect of that word or phrase has a corresponding meaning.
- 2.7. A word which indicates the singular also indicates the plural, a word which indicates the plural also indicates the singular, and a reference to any gender also indicates the other genders.
- 2.8. A reference to the word 'include' or 'including' is to be interpreted without limitation.
- 2.9. Any schedules and attachments form part of this Covenant.

### **3. Deed of Covenant**

- 3.1. The Trust and the Owner agree without limiting or restricting their respective powers to enter into this Covenant and, insofar as it can be so treated, this Covenant is made pursuant to section 3A of the Act.

### **4. Registration**

- 4.1. The Owner consents to the Trust making application to the Registrar of Titles to make a recording of this Covenant in the Register on the Certificate of Title of the Land in accordance with section 3A(10) of the Act and do all things necessary to enable the Trust to do so including signing any further agreement, acknowledgement or document or procuring the consent to this Covenant of any Mortgagee or caveator to enable the recording to be made in the Register under that section.

### **5. Effect of Agreement**

- 5.1. This Covenant shall be deemed to come into force and effect from the date of execution of this Covenant and the benefit and burden of this Covenant shall be annexed to the Land.
- 5.2. The obligations of the Owner under this Covenant will take effect as separate and severable covenants which shall be annexed to and run at law and equity with the Land to bind the Owner and each successor, assignee or transferee of the Owner, the registered proprietor, the mortgagee in possession and the beneficial owner for the time being of the Land.

### **6. Owner Covenants**

The Owner covenants at all times to observe and perform the following obligations and duties in relation to the Land:

#### ***General***

- 6.1. To use and manage the Land in a manner, which in the reasonable opinion of the Trust, is consistent with the Covenant Objectives.
- 6.2. Not to do any act or thing upon the Land, which in the reasonable opinion of the Trust, is prejudicial to its conservation or the Covenant Objectives.

***Development and works***

6.3. In particular, on and with respect to the Land, the Owner must not permit, cause or allow to occur unless approved subject to clause 10;

6.3.1. the Subdivision of the Land;

6.3.2. the construction or placement of any structure or Dwelling on the Land save for non-habitable structures the location, type and size of which must be approved in writing by the Trust prior to construction and remain subject to the approval of the responsible authority.

In the event of the destruction or removal of a structure approved under this clause, any replacement structure may be constructed on the same site as the original without approval from the Trust, provided it is located on the same site, will be used for the same purpose and is designed to have a similar footprint and size as the original.

6.3.3. the erection of any transmission lines or other services or works (unless required by law);

6.3.4. the construction of any dams;

6.3.5. erect or display any notice, hoarding or advertising matter save for identification signs and interpretive signs.

***Use and management***

6.4. In particular, on and with respect to the Conservation Tier, the Owner must not permit, cause or allow to occur, unless otherwise approved by the Trust in accordance with clause 10:

6.4.1. the removal or destruction of any local indigenous trees, plants or grasses, dead or alive, or the planting of any flora other than local indigenous flora;

6.4.2. any act or omission which may adversely affect any local indigenous flora or any indigenous fauna or their related habitats;

6.4.3. (unless required by law) any deterioration in the natural state or in the flow, supply, quantity or quality of any body of water;

6.4.4. livestock to enter;

6.4.5. the introduction of any non-indigenous fauna, or any cat, dog or other domestic animals;

6.4.6. the removal, introduction or disturbance of any soil, rocks, or other minerals;

6.4.7. the operation of any trade, industry or business;

- 6.4.8. the recreational use of trail bikes or any vehicles;
- 6.4.9. the accumulation of rubbish or storage of any materials other than materials being used or intended to be used by the Owner on the Land;
- 6.4.10. the removal of any timber including fallen timber;
- 6.4.11. the establishment or spread of pest animals and pest plants which shall be controlled and, as far as possible, eliminated in accordance with section 20 of the *Catchment and Land Protection Act 1994* (Vic) (or its successor);
- 6.4.12. the establishment or spread of high threat pest animals and plants identified by the Trust or in the Offset Management Plan in Schedule 2, which shall be controlled and, as far as possible, eliminated;
- 6.4.13. the application of fertilizer; and
- 6.4.14. any other activities not consistent with the Covenant Objectives.

***Mining and Exploration***

- 6.5. In relation to any minerals exploration or extraction activity or production of gas, petroleum or other substance proposed on or with respect to the Land, the Owner must:
  - 6.5.1. not to apply for a Licence;
  - 6.5.2. not permit any Mining or Exploration or production of gas, petroleum or other substance proposed on or with respect to the Land, unless required by law;
  - 6.5.3. notify the Trust of any proposed Mining or Exploration or production of gas, petroleum or other substance proposed on or with respect to; and
  - 6.5.4. not consent to any Mining or Exploration or production of gas, petroleum or other substance proposed on or with respect to unless approved by the Trust in writing.

**7. Further Covenants**

- 7.1. The Owner further covenants and agrees:
  - 7.1.1. to make reasonable efforts to remove pests and weeds from the Land and to prevent their future invasion;
  - 7.1.2. to make reasonable efforts, if necessary, to erect fences which allow free movement of indigenous fauna between adjacent grazing areas and the Land, and to maintain fences and gates in good stock proof order and condition; and

- 7.1.3. to permit officers, agents or nominees of the Trust acting on behalf of the Trust provided prior notice of at least seven days has been given, to enter the Land in order to monitor and assess its condition, assess compliance with this deed or to prepare the Covenant Management Plan pursuant to clause 9.

***Lease or Licence***

- 7.2. The Owner further covenants and agrees upon resolving to lease or licence the Land or any portion of the Land to:
  - 7.2.1. include within the lease or licence provided to any potential lessee or licensee of the Land a copy of this Covenant; and
  - 7.2.2. in writing, procure the agreement of the tenant or licensee to perform and observe the duties and obligations as assumed by the Owner pursuant to this Covenant; and
  - 7.2.3. promptly notify the Trust in writing of any lease or licence entered into for the Land or any portion of the Land.

***Sale***

- 7.3. The Owner further covenants and agrees upon entering into any contract to sell the Land or any portion of the Land to:
  - 7.3.1. include within the contract provided to any potential purchaser of the Land a copy of this Covenant; and
  - 7.3.2. promptly notify the Trust in writing that the Owner has entered into a contract to sell the Land or any portion of the Land.

***Other Interest***

- 7.4. The Owner further covenants and agrees before granting or entering into any other contract or disposing of or creating any other interest in the Land or any portion of the Land to:
  - 7.4.1. include within the contract or provide to the person being granted an interest in the Land or any portion of the Land, a copy of this Covenant; and
  - 7.4.2. in writing, procure the agreement of the person being granted an interest in the Land to perform and observe the duties and obligations as assumed by the Owner pursuant to this Covenant; and
  - 7.4.3. promptly notify the Trust in writing that the Owner has granted an interest in the Land or any portion of the Land.

***Mortgagee consent***

- 7.5. Without limiting clause 4 (i), the Owner further covenants and agrees that the Owner must obtain Mortgagee consent to the registration of this Covenant on the Certificate of Title to the Land and procure that the Mortgagee signs such documents and does such things as is otherwise necessary to give effect to that consent. The Owner indemnifies the Trust for any costs, loss, damage or expense arising from or in connection with any failure by the Owner to comply with this clause 7.5.

**8. Offset Management Plan**

- 8.1. The Owner must manage Conservation Tier in accordance with the Commonwealth Offset Management Plan contained in Schedule 2 and the compliance and payment conditions listed in Schedule 3 and Schedule 4.
- 8.2. The Offset Management Plan for the Conservation Tier will expire 10 years from the date of recording of this Deed of Covenant on title, or such later date when the management obligations in the Offset Management Plan have been completed to the Trust's reasonable satisfaction.
- 8.3. The Owner must comply with reasonable requests from the Trust, to the reasonable satisfaction of the Trust, on the performance of management obligations outlined in the Offset Management Plan.
- 8.4. The Owner must prepare an annual written report demonstrating completion of management actions for the preceding year.
- 8.5. If there is any inconsistency between the terms of this Covenant and the provisions of the Offset Management Plan (including any amendment to such Plan) then the provisions of the Offset Management Plan shall prevail.
- 8.6. Upon expiry of the Offset Management Plan, the Conservation Tier will remain subject to the provisions of this Covenant including any obligation to manage the Land in accordance with a Covenant Management Plan.

**9. Covenant Management Plan**

- 9.1. As soon as practicable upon the expiry of the Offset Management Plan, the Covenant Management Plan must be prepared by the Trust and the Owner to the satisfaction of the Trust.
- 9.2. Upon expiry of the Offset Management Plan the Owner must manage Conservation Tier in accordance with the Covenant Management Plan.
- 9.3. The Covenant Management Plan may be varied or amended by mutual consent in writing of both Parties, unless otherwise agreed.

- 9.4. The Parties agree that if there is any inconsistency between the terms of this Covenant and the provisions of the Covenant Management Plan, then the terms of this Covenant shall prevail.
- 9.5. The Parties agree that once mutually agreed to and signed by both Parties, the Covenant Management Plan forms a part of this Covenant and is enforceable as if it were part of the Covenant.
- 9.6. If the Parties are unable to agree on the content and actions of the Covenant Management Plan then the dispute resolution process set out in clause 13 must be followed.
- 9.7. The Owner must do all things necessary to give effect to the terms of this Covenant and the Covenant Management Plan.

## **10. Letter of Approval**

- 10.1. The Parties agree that the Trust may provide prior written consent for the Owner to undertake any action not permitted under clause 6 on the following basis:
  - 10.1.1. the Owner must obtain the consent of the Trust prior to undertaking any actions or works;
  - 10.1.2. the consent must be in the form of a Letter of Approval issued by the Trust;
  - 10.1.3. the Trust may place conditions on the grant of consent which must be provided to the Owner in writing; and
  - 10.1.4. the consent will not be unreasonably withheld, provided that the Trust is satisfied that the proposal will not prejudice the Covenant Objectives.

## **11. Acknowledgements by the Trust**

- 11.1. The Trust acknowledges that compliance with clause 6 and the restrictions set out in this Covenant may be treated as waived to the extent necessary for:
  - 11.1.1. responsible fire protection (including any Permitted Defendable Space and Fire Protection Works), weed and pest control;
  - 11.1.2. acts outside the control of the Owner, including but not limited to:
    - (i) war;
    - (ii) riot;
    - (iii) insurrection;

- (iv) vandalism; and
  - (v) natural disaster.
- 11.1.3. reasonable maintenance of fences, culverts, dams, bridges, watercourses, buildings, tracks, paths, roads and other services;
- 11.1.4. any act required under any law, rule or regulation of any government or governmental agency, executive or administrative order or act of general or particular application; and
- 11.1.5. the proper management of the Land as a protected environment for indigenous flora and fauna.

## **12. Default by the Owner**

- 12.1. Where the Trust believes the Owner has breached or failed to comply with any term of this Covenant relating to the Land, the Trust may issue a notice in writing to the Owner (“Notice”) that:
- 12.1.1. states the notice is a notice under this section;
  - 12.1.2. specifies the nature of the breach;
  - 12.1.3. requests rectification by a nominated date; and
  - 12.1.4. specifies the actions required to remedy the non-compliance with the terms of this Covenant.
- 12.2. If after 30 days from the date of the Notice the Trust believes that there has been an inadequate response by the Owner to the Notice:
- 12.2.1. the Trust or its agents may enter the Land to undertake the necessary conservation work;
  - 12.2.2. the Owner must, immediately upon receipt of costs from the Trust, reimburse the Trust for the costs incurred; and
  - 12.2.3. the costs in clause 12.2.2 shall be capable of being recovered by the Trust in any court or competent jurisdiction as a civil debt recovered summarily.
- 12.3. Where either of the Parties dispute the Notice, the dispute resolution provisions in clause 13 apply.

## **13. Dispute resolution**

### ***Meeting to attempt to resolve disputes***

- 13.1. If a dispute arises under this Covenant or concerning its subject matter, either Party may at any time give written notice to the other requesting that a meeting take place to seek to resolve the dispute. The nominated senior representatives of both Parties must meet within ten days of the notice and try to resolve the dispute in good faith.

Either Party may not unreasonably withdraw from attendance at the meeting.

### ***Performance of obligations***

- 13.2. Despite the existence of a dispute, each Party must continue to perform its obligations under this Covenant.

### ***Mediation***

- 13.3. If the Parties fail to resolve the dispute within 30 days of the meeting under sub-clause 13.1, a mediator must be appointed by the Parties. If the Parties cannot agree on a mediator, the matter will be referred to a mediator chosen by the chairman of the Victorian Chapter of the Institute of Arbitrators and Mediators, Australia, or his or her nominee, for mediation.
- 13.4. Despite the provisions of clause 12 and clause 13, where the Trust determines that the circumstances require immediate action to prevent damage to the conservation of the Land in accordance with the Covenant Objectives, it may pursue any other remedies available to it at law and in equity.
- 13.5. The costs of the mediator and any associated costs, must be met equally between the Parties.

## **14. Miscellaneous**

### ***Entire agreement***

- 14.1. This Covenant contains everything the Parties have agreed in relation to the subject matter it deals with. No Party can rely on an earlier written document or anything said or done by or on behalf of another Party before this Covenant was executed.

### ***Governing law and jurisdiction***

- 14.2. This Covenant is governed by the law of Victoria. The Parties submit to the non-exclusive jurisdiction of its courts and courts of appeal from them. The Parties will not object to the exercise of jurisdiction by those courts on any basis.

***Severability***

- 14.3. Each provision of this Covenant is individually severable. If any provision is or becomes illegal, unenforceable or invalid in any jurisdiction it is to be treated as being severed from this Covenant in the relevant jurisdiction, but the rest of this Covenant will not be affected. The legality, validity and enforceability of the provision in any other jurisdiction will not be affected.

***Variations***

- 14.4. Any variations to this Covenant must be done in accordance with the provisions of the Act.

***Waivers***

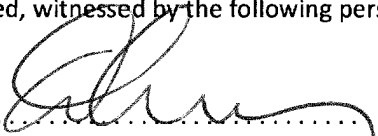
- 14.5. A waiver of any right, power or remedy under this Covenant must be in writing signed by the Party granting it. A waiver only affects the particular obligation or breach for which it is given. It is not an implied waiver of any other obligation or breach or an implied waiver of that obligation or breach on any other occasion.
- 14.6. The fact that a Party fails to do, or delays in doing, something the party is entitled to do under this Covenant does not amount to a waiver.

**Execution and date**

Executed as a deed.


Date: 1 April 2022

Executed by Satterley Mickleham Pty Ltd [ACN 612 101 550] by being signed by its authorised person(s) in accordance with section 127 of the Corporations Act 2001 (Cth); if the seal is affixed, witnessed by the following persons:

  
.....  
Signature of director/authorised officer

**David Allan Creasy**

.....  
Name of director/authorised officer (print)

  
.....  
Signature of director/company secretary/authorised officer

**Rossmore James Carmichael**

.....  
Name of director/company secretary/authorised officer (print)

The common seal of **Trust for Nature (Victoria)**  
was hereunto affixed by the authority of the  
Trustees in the presence of:



*[Handwritten Signature]*  
.....  
Signature of Chief Executive Officer/Trustee

*[Handwritten Signature]*  
.....  
Signature of Trustee

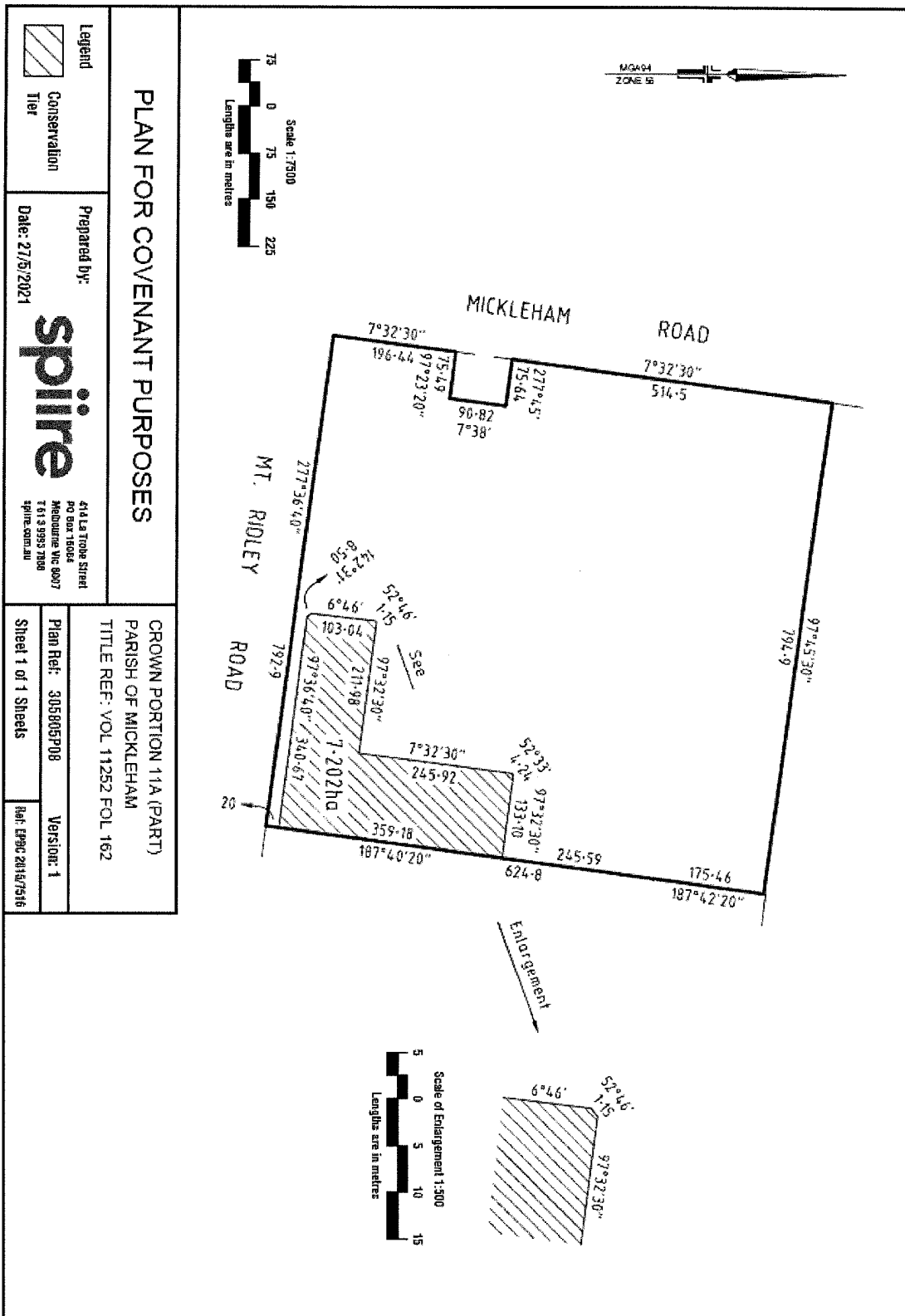
*Victoria Morley*  
.....  
Name of Chief Executive Officer/Trustee (print)

*Charles Meredith*  
.....  
Name of Trustee (print)

It is hereby certified that the approval of the Minister under sub-section 3A(8) of the Act has been  
obtained to this covenant (ref. schedule TNV...*307-1695*)

*[Handwritten Signature]* x  
.....  
Chief Executive Officer  
Trust for Nature (Victoria)

SCHEDULE 1: LAND



**SCHEDULE 2: COMMONWEALTH OFFSET MANAGEMENT PLAN**

AV576689K



EPBC Act referral 2015/7516

Lindum Vale Residential Development, 1960 and 2040  
Mickleham Road, Mickleham, Victoria: Offset Management  
Plan for Grassy Eucalypt Woodland and Golden Sun Moth  
habitat

Prepared for Satterley Property Group Pty Ltd

8 June 2021



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- Andrew Jones: Satterley Property Group

Biosis staff involved in this project were:

- Sonika Kumar and Sally Mitchell (mapping)

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## Declaration of accuracy

---

**Lindum Vale Residential Development Project, Mickleham Road, Mickleham,  
Victoria  
EPBC 2015/7516)**

### 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

\_\_\_\_\_  
Full name (please print)

\_\_\_\_\_  
Organisation (please print)

\_\_\_\_\_



## Summary

---

Biosis Pty Ltd was commissioned by Satterley Property Group (SPG) to prepare an Offset Management Plan (OMP) for the Woodland Conservation Reserve at Lindum Vale Residential Development Project (LVRD), Mickleham Road, Victoria. The LVRD was declared a controlled action under the EPBC Act and will be assessed via preliminary documentation.

The purpose of this OMP is to describe how SPG will compensate for residual impacts on 97.05 hectares Golden Sun Moth *Synemon plana* habitat and 0.226 hectares of Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP) by providing Environmental Offsets under in accordance with the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the EPBC Act Environmental Offsets Policy. In summary, these conditions will be met in part by securing for conservation and improving the condition of the existing remnant of GEWVVP and highest quality GSM habitat within an on-site Woodland Conservation Reserve covering 7.201 hectares. This would satisfy the offset requirement for GEWVVP, with the balance of GSM offsets, totalling about 301 hectares, to be secured within third party offset areas at 235 Muncktons Lane, Glenaroua (121.0 hectares), Sievers Lane, Glenhope (37.9 hectares) and 5066 Western Highway, Beaufort (137.2 hectares).

The specific objectives for the Offset area result from the inputs into and the outputs from the Offsets Assessment Guide. The specific objectives form the basis of the management commitments that the Landholder has agreed to when reviewing earlier versions of this OMP. The management commitments will be implemented on the ground using defined management actions that are practical and feasible within an urban conservation reserve. Each of the individual management actions will have a management target based on maintenance or improvement of the current condition of the Offset area.

The specific objectives of the Offset area will be assessed using the following key performance indicators:

- Permanent legal protection of 7.201 hectares of GSM habitat and 2.59 hectares of GEWVVP via a Trust for Nature (TfN) covenant.
- Permanent exclusion of all agricultural practices and any recreation activities other than passive recreation.
- Completion of the 10-year program of intensive management, including monitoring and reporting.
- Improving the Quality of GEWVVP and GSM habitat from 5 (out of 10) to 6 (out of 10).
- Annual works plan in place for on-going management actions from Year 11 onwards.

The broad approach of the management actions is to produce a decrease in the abundance of perennial weeds and maintain open grassy groundcover conditions that are suitable for the recruitment (seed production, germination and growth) of native plant species. While decreasing weed cover is an improvement in itself, it is anticipated that this will be accompanied by a commensurate increase in the abundance of native grasses and herbs. The increased abundance of native grasses will also improve food availability for GSM.

A risk assessment has been undertaken to address potential threats to the success of the Offset area. Surveillance of the Offset area is an integral component of risk management for the Offset area and includes both routine inspections by the Landholder and ecological monitoring by a qualified ecologist. These activities allow for early identification of changes, appropriate and timely management responses, and adaptive management to changing conditions. Regular reporting to regulatory bodies will track the improvement of the Offset area over time.



Schedules for management actions, monitoring and reporting are provided at the end of this document. The table on the following page summarises the OMP specific objectives, key performance indicators (KPIs) and management actions to be implemented according to the details in this OMP.

### Summary Table: Specific objectives, KPIs and management actions

Specific objective	Offsets Assessment Guide	KPI / Measurable target	Management actions		
			On commencement	Year 1 to Year 10	Year 11 onwards
Offset area protection (security)	Provide 7.201 ha Offset area	On title protection via TfN covenant	Register TfN covenant on title		
Offset area protection (threat abatement)	Risk of loss reduced from 10% to 1%	No loss of GEWVWP or GSM habitat or preventable weed introductions over 20 year time horizon of OMP No unauthorised access or unapproved works within offset area	Exclude all agricultural practices	Routine inspections and maintenance of: Fencing Signage and access	Routine inspections and maintenance of: Fencing, Information and access
Offset area improvement	Quality score for GSM habitat and GEWVWP improved from 5/10 to 6/10.	Average Habitat hectare Site score improves by at least 10 points for GSM habitat and GEWVWP GSM stocking rate is maintained or improved	Conversion from agricultural management to active ecological management: Signage & markers weed control: Install monitoring plots	Intensive program of management actions for: Weeds Pest animals Biomass & organic litter Routine inspections by Landholder and TfN. Ecological monitoring of GSM and GEWVWP	
Offset area maintenance	Quality scores achieved at the end of Year 10 maintained from Year 11 onwards	Habitat Hectares score and GSM stocking rate achieved at the end of Year 10 maintained			Maintenance of Year-10 condition with annual works plan for: Weeds Pest animals Biomass & organic litter Routine inspections by Landholder and TfN



## Structure of this document

---

The structure and content of the Offset Management Plan (OMP) is organised as follows: Sections 1 and 2 are aimed at technical professionals at DAWE, SPG, and ecologists undertaking monitoring of the Offset area; meanwhile, Sections 3, 4 and 5 are also aimed at the Landholder who will implement the OMP as well as technical professionals. Appendix 1 contains the detailed schedule of management actions, including monitoring and reporting, to enable implementation of the OMP.

1. Introduction: summarises the background information leading up to the requirement for this OMP, including the purpose and scope of the OMP and who is responsible for its implementation.
2. Offset area description: provides information about the property on which the offset is located and describes the Offset area itself. This section also defines the specific objectives as they arise from the Offset Assessment Guide, rather than detailed management targets.
3. Specific management actions: details the management actions to achieve the specific objectives of the OMP including weed, pest and biomass control targets.
4. Monitoring actions: describes how the progress of the Offset area will be tracked over the 10 year timeframe to achieve the specific objectives.
5. Risk assessment and adaptive management: details how management of the Offset area will adapt to changes conditions, the results of monitoring and any unforeseen events or Incidents.
6. Appendices: provides schedule for management actions and background information.

For common terms, a list of terms and their definitions is provided on the following page. A glossary of technical terms used throughout this OMP is provided in Appendix 5.



## Definition of terms

---

The following terms are taken from previous EPBC Act approval documents:

**Credit Trading Agreement** means a legal agreement between the approval holder, Trust for Nature (TfN) and the owner of the Offset area to outline the arrangements for the Offset area in accordance with the Offset Management Plan.

**Conservation covenant** means a binding agreement registered on the title of the property that provides enduring protection of the environmental values of the property.

**Environmental services** means services including: (i) entering into and registering a conservation covenant over the Offset area; and, (ii) managing the Offset area in accordance with the OMP.

**EPBC Act Environmental Offsets Policy** means the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy, October 2013 or any document published by the Australian Government which supersedes this document.

**Golden Sun Moth** or **GSM** means the EPBC Act listed threatened species *Synemon plana*.

**Golden Sun Moth habitat** or **GSM habitat** means the habitat for the Golden Sun Moth as defined in the species approved conservation advice.

**Grassy Eucalypt Woodland of the Victorian Volcanic Plain or GEVVVP** means the EPBC Act listed ecological community: the Grassy Eucalypt Woodland of the Victorian Volcanic Plain ecological community.

**Incident** means any event which has the potential to, or does, impact on protected matter(s).

**Independent audit(s)**: means an audit conducted by an independent and suitably qualified person as detailed in the Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines (2015).

**Monitoring data** means the data required to be recorded under the conditions of this approval.

**Offset area** means the area of land to be secured and managed for Golden Sun Moth habitat.

**Offset Management Plan or OMP** means the document outlining the management and protection of the Offset area, or any subsequent version approved by the Minister under section 143A of the EPBC Act.

**Preliminary Documentation** means the document titled Lindum Vale Residential Development, Mickleham Road Mickleham, Victoria: Preliminary Documentation (EPBC 2015/7516).

**Protected matter(s)** means a matter protected under a controlling provision in Part 3 of the EPBC Act for which this approval has effect.

**Suitably qualified person** means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

**Trust for Nature (TfN)** means the Victorian based not-for-profit organisation working to protect native plants and wildlife in cooperation with private landowners (ABN: 60 292 993 543).

The following terms are defined below for use in this OMP:

**Key performance indicator** or **KPI** means a measureable change that provides evidence that the Offset area has achieved/is progressing towards achieving the specific objectives.

**Management commitment(s)** means the overall changes to land management practices that will be undertaken by the Landholder within the Offset area.



**Management action(s)** means the works that will be undertaken within the Offset area to improve and maintain GSM habitat within the Offset area.

**Management target** means a measureable change that provides evidence that the management action has achieved/is progressing towards achieving the improvement in GSM habitat.

**Quality** means the score out of 10 used in the Offset Assessment Guide to define the conservation values present within an area of listed threatened species habitat or ecological community.

**Specific objectives** means the requirements for the performance of the Offset area as defined by the Offsets Assessment Guide.

The following list of the entities are referred to in this document:

**Satterley Property Group (SPG)** is the proponent applying for approval and is the current landowner.

Department of Agriculture, Water and Environment (DAWE) means the Commonwealth Government department responsible for the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The name of the department may undergo changes throughout the life of this document but it is assumed the department responsible for the EPBC Act will remain the regulator of the approval.

**Trust for Nature (TfN)** means the statutory body enacted under the Victorian Conservation Trusts Act 1972 and is responsible to covenants enacted as a result of that Act. Regardless of any future name changes, this document assumes that a successor organisation would take responsibility for and be bound by the covenants should TfN be dissolved.

**Landholder** means the current (Satterley Property Group) or future owner of the Offset area or their legal representative or their delegate, where the delegate is the person responsible for land management within the Offset area (e.g. managing ecologist).

## 1. Introduction

### 1.1 Background information / description of the action

The Satterley Property Group (SPG) is undertaking the Lindum Vale Residential Development (LVRD), Mickleham Road, Mickleham, Victoria (Figure 1). The LVRD was declared a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and is being assessed via Preliminary Documentation (EPBC Act referral number 2015/7516). An ecological assessment of the development site and an environmental impact assessment of the LVRD is provided in the Preliminary Documentation by which EPBC Act referral 2015/7516 is assessed. The controlling provisions on the action are summarised as significant impacts on Listed Threatened Species and Communities protected under Section 18 and Section 18A of the EPBC Act.

The impacts on Listed Threatened Species and Communities were described in detail in the Preliminary Documentation and are summarised here. The Preliminary Documentation identified that there would be a significant impact on two Matters of National Environmental Significance (MNES):

- 97.05 hectares of Habitat for Golden Sun Moth *Synemon plana* (GSM).
- 0.226 hectares of Grassy Eucalypt Woodland of the Victorian Volcanic Plain community

The impact area considered to be GSM habitat and GEWVP is outlined in Figure 2. The details of the development site are provided Table 1.

**Table 1 Development Site Details**

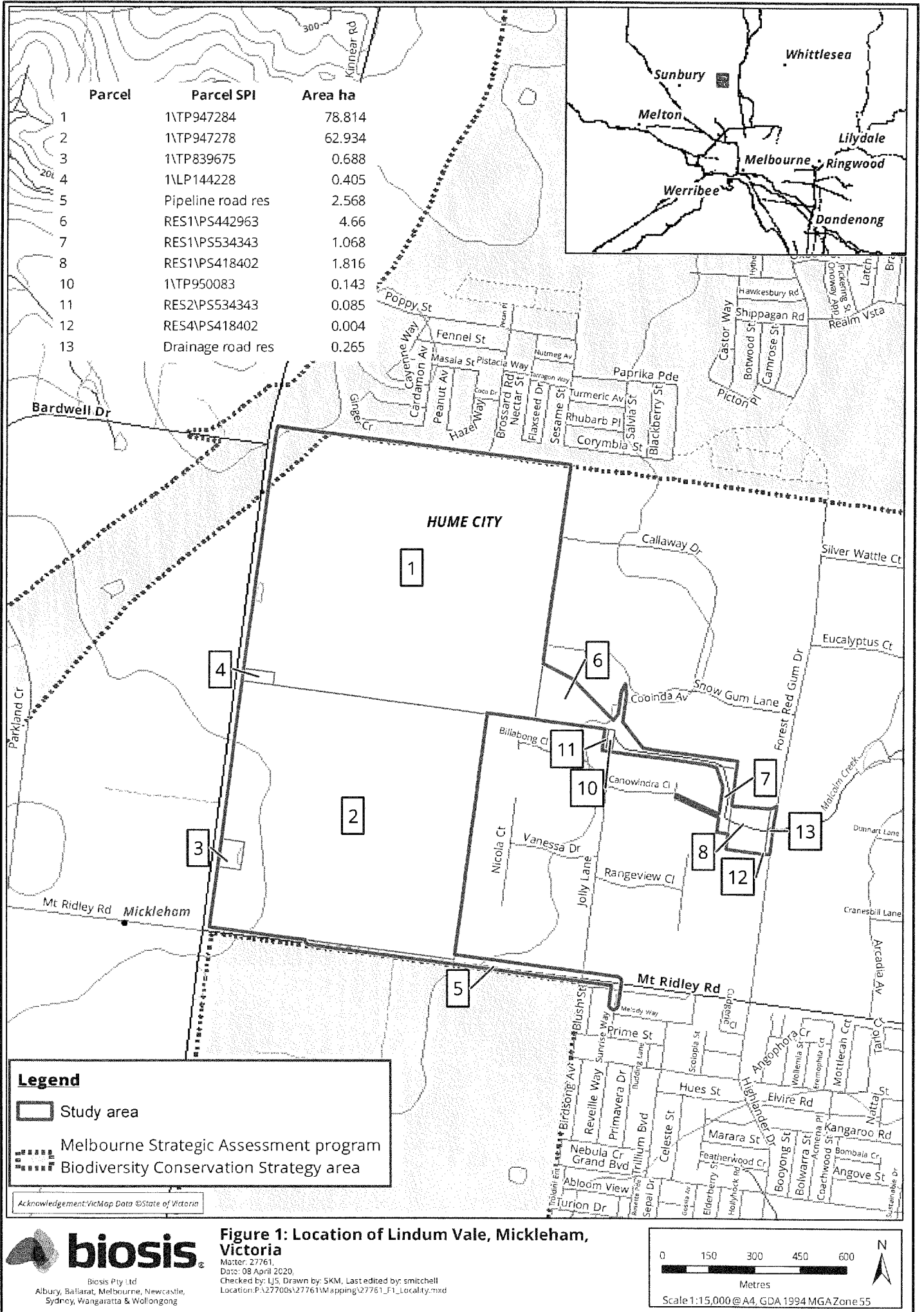
Information	Details
<b>Applicant</b>	Satterley Property Group Pty Ltd
<b>Location and address of clearing site</b>	Mainly within 1960 and 2040 Mickleham Road, Mickleham
<b>Local Government Area</b>	Hume City Council
<b>Catchment Management Authority</b>	Port Phillip and Westernport
<b>Responsible Authority</b>	Department of Environment, Land, Water and Planning
<b>EPBC Reference No.</b>	2015/7516

### 1.2 Purpose

The purpose of this OMP is to describe how the provision of Environmental Offsets under EPBC Act referral 2015/7516 will be met in part by an Offset area established at the conservation area located at 1960 Mickleham Road, Mickleham 3733 (VPA 2018). The specific objectives of this OMP are as follows:

- Offset area protection (security): In-perpetuity, legal protection of the conservation values of the Offset area.
- Offset area protection (threat abatement): in-perpetuity management commitments for removing the threats posed by agricultural production and current land use rights.
- Offset area improvement: An intensive 10-year program of management actions to be implemented from the commencement of the OMP to improve GSM habitat Quality.
- Offset area maintenance: In-perpetuity management actions that will ensure that the improvement achieved in the first 10 years of the OMP is maintained over time.

The management actions are described in the sections that follow and are supported by schedules at the end of this document (Appendix 1).



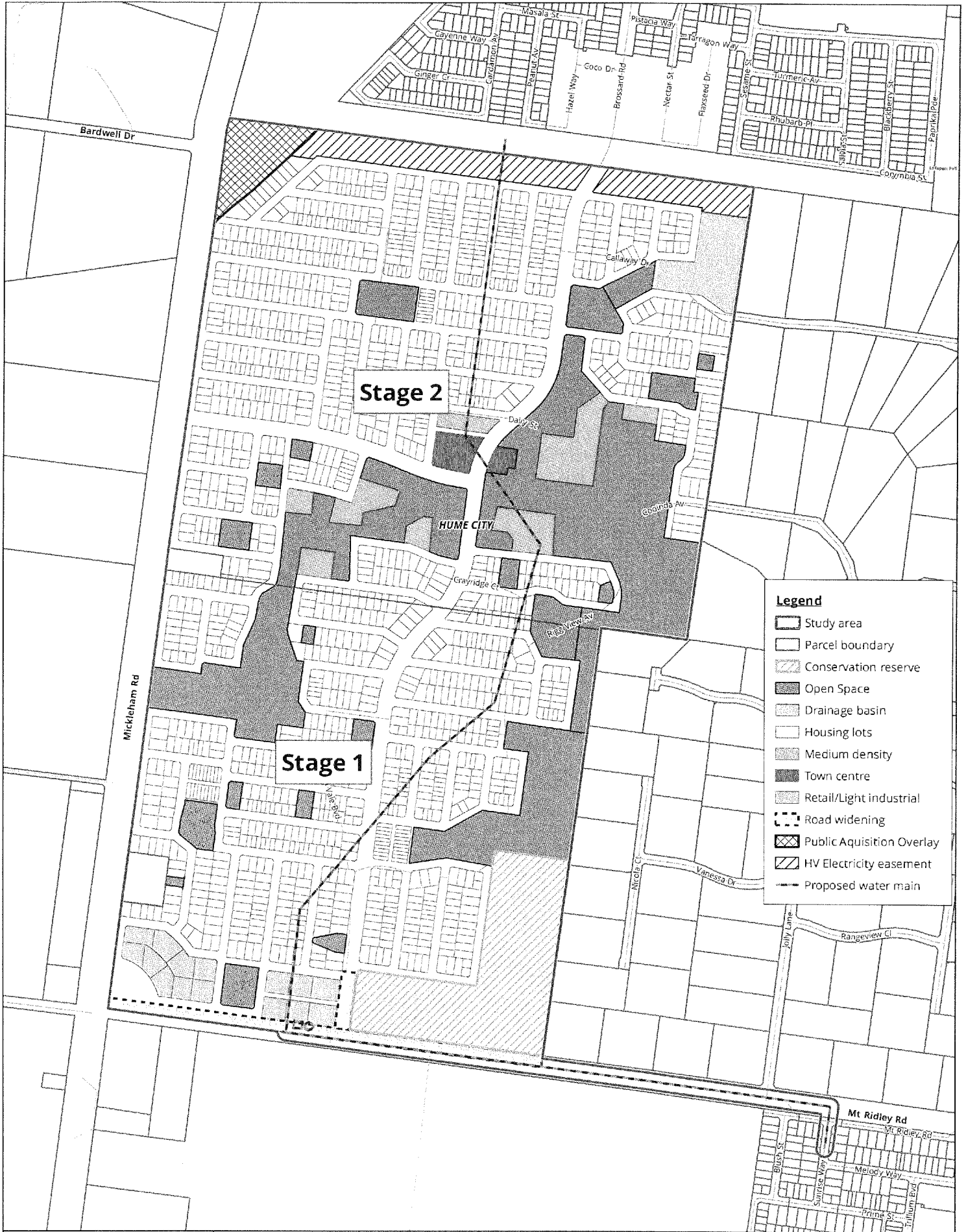


Figure 2 Layout plan of residential subdivision for 1960 and 2040 Mickleham Road





### 1.3 Objectives

This OMP has the following objectives:

- Provide supporting documentation for the establishment of a conservation covenant for the Offset area;
- Describe the Offset area including location, size, condition, environmental values present and surrounding land uses and provide maps of the Offset area.
- Document the presence and baseline quality of GEWVWP and GSM habitat within the Offset area.
- Define specific objectives to demonstrate GEWVWP and GSM habitat quality improvement.
- Describe specific management actions, and timeframes for implementation, to be carried out to meet specific objectives.
- Define key performance indicators to demonstrate the improvement to the quality of GEWVWP and GSM habitat.
- Detail the nature, timing and frequency of monitoring to determine the success of management actions against key performance indicators.
- Provide information on indicative corrective actions that will be implemented in the event monitoring activities indicate key performance indicators are not or are unlikely to be achieved.
- Explain the roles and responsibilities for implementing the management actions.

All management actions are consistent with conservation advice for GEWVWP and GSM, and threat abatement plans relevant to both protected matters. These documents are referenced throughout where necessary.

### 1.4 Roles and responsibilities

This section is important because it provides the details of which entities (see Definition of terms section above for the full list of entities listed in this document) are responsible for the various components of this OMP. An OMP must include the roles and responsibilities for implementing the management actions. However, this section expands on this requirement to include the execution of the conditions themselves. Note that the Credit Trading Agreement (CTA) and Trust for Nature (TfN) covenant have further contractual obligations defined as part of their terms and conditions and should be referred to as necessary.

Table 2 provides a list of the responsibilities allocated to each entity and further description is provided below. The legal liabilities associated with these responsibilities are not directly controlled by this document but are conferred through an approval under the EPBC Act for EPBC Act referral 2015/7516, the CTA and the TfN covenant.

**Satterley Property Group (SPG):** An approval for EPBC Act referral 2015/7516 will be granted to the approval holder, who is SPG. As the approval holder, SPG, will be ultimately responsible for execution of the approval conditions for their project, the LVRD. Unless otherwise agreed in a legally binding document, SPG retains ultimate responsibility for ensuring the approval conditions are met to the satisfaction of DAWE including providing compensation for loss of GEWVWP and GSM habitat via implementation of the OMP, ecological monitoring, reporting to DAWE, and ensuring adequate oversight (e.g. auditing). SPG will engaged an experienced ecologist / land manager to deliver Environmental Services on their behalf, including implementation of the management actions in this OMP.

**Trust for Nature (TfN):** The responsible authority for the conservation covenant under the Victorian Conservation Trust Act 1972 (VCT Act) is Trust for Nature (TfN). TfN has authority under the VCT Act to enforce restrictions contained in the covenant but also provides advice on land management to the Landholder (both during the 10 year management period and from Year 11 onwards). TfN will bear no responsibility for the execution of approval conditions for EPBC Act referral 2015/7516.



**Table 2 Offset area responsibilities**

<b>Responsibility</b>	<b>Responsible entity</b>	<b>Obligation arising from</b>	<b>Person who will undertake the work</b>
<b>Executing approval Conditions for EPBC 2015/7516 when provided (i.e. providing offsets)</b>	SPG	Statutory approval conditions for LVRD	SPG or their representative Ecological consultant
<b>Implementation of OMP (i.e. conservation and maintenance works in Offset area)</b>	Landholder	TfN covenant on Offset area	Landholder or their contractor
<b>Routine inspections of Offset area</b>	Landholder	TfN covenant on Offset area	Landholder or their contractor
<b>Keeping records of conservation and maintenance works, and results of routine inspections in Offset area</b>	Landholder	TfN covenant on Offset area	Landholder or their contractor
<b>Ecological monitoring of Offset area</b>	SPG	Statutory approval condition for LVRD	Experienced ecologist engaged by the SPG/Landholder with the costs invoiced to SPG
<b>Auditing of compliance with approval conditions for EPBC 2015/7516</b>	SPG	Statutory approval condition for LVRD	An independent and suitably qualified person as detailed in the EPBC Act Independent Audit and Audit Report Guidelines (2015).
<b>Records and reports of works and routine inspections for TfN</b>	Landholder	TfN covenant on Offset area	Landholder or their contractor
<b>Ecological monitoring reports</b>	Landholder	TfN covenant on Offset area	Experienced grassland ecologist to provide report to Landholder
<b>Annual compliance reporting to DAWE</b>	SPG	Statutory approval condition for LVRD	Landholder or their contractor to provide annual report to SPG as per management action. SPG to provide annual compliance report to DAWE (N.B. will include details of both the development site and Offset area).
<b>Reporting non-compliance to DAWE</b>	SPG	Statutory approval condition for LVRD	Landholder to inform TfN, SPG and DAWE in the event of an incident. Incident means any event which has the potential to, or does, impact on protected matter(s) occurring in the Offset area. Minor seasonal issues like fluctuations in weed cover can be discussed with TfN in the course of routine works planning but does not meet the description of an Incident.
<b>Review of OMP (in accordance with the adaptive management provisions of OMP)</b>	Landholder	TfN covenant on Offset area	
<b>Providing advice on and monitoring compliance with TfN covenant</b>	TfN	TfN covenant on Offset area	Staff members of TfN

**Notes to table:** SPG: Satterley Property Group. Landholder: refers to the Landholder or their delegate (e.g. managing ecologist).



**Landholder:** The TfN covenant binds the current (and future) Landholder to the standard restrictions in the TfN covenant and to the requirements described in this OMP. As agreed with SPG and TfN, the Landholder will be responsible for carrying out the works and associated reporting to manage the Offset area. The Landholder will also facilitate access to the Offset area for ecological monitoring and auditing, as required. The Landholder can engage suitably qualified contractors to carry out the works on the Landholder's behalf. The Landholder can deputise responsibility for carrying out the works to a designated site manager and/or managing ecologist, however, the Landholder remains responsible for ensuring the works are undertaken (Table 2).

**Funding arrangements:** Financial liabilities have been agreed between SPG, TfN and the Landholder, who are parties to the TfN agreement. In general terms, TfN will retain sufficient funding to ensure that the Offset area can be managed according to the 10-year management period described in this OMP. A portion of the funds held in trust are released each year to the Landholder, with the exact arrangements stipulated in the TfN agreement. The CTA has further arrangements pertaining to financing the management and monitoring of the Offset area, however, the details of the financial arrangements associated with the Offset area are beyond the scope of this OMP.

## 1.5 Other offset requirements

The clearing of native vegetation associated with the LVRD was also assessed by the Department of Environment, Land, Water and Planning (DELWP) as part of planning scheme amendment C205 and will also require a planning permit issued by the City of Hume. Any permit issued by the City of Hume will require environmental offsets prescribed under the Victorian Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017). Where possible, the environmental offsets provided to fulfil any approval conditions for EPBC 2015/7516 will contribute to the offset requirements under the relevant planning permit. However, additional environmental offsets may be required to meet all the requirements of any planning permit and these would not be relevant to this OMP and are not mentioned further.

## 1.6 OMP commencement

The implementation of this OMP will begin on execution of the CTA and release of the agreed funds to the Landholder. The funds due to the Landholder are for the purchase of the offsets and for the costs associated with the establishment tasks for the Offset area (Section 3.5). TfN will retain sufficient funds in trust to provide for the 10-year management of the Offset area as well as a contingency for unexpected events or costs.

The registration of the covenant will be completed as soon as possible thereafter noting that administrative requirements may mean that the registration of the covenant with the titles office (currently called Land Use Victoria) takes a further 12 months to be completed and signed-off by the Commonwealth Minister for the Environment. The management actions outlined in the OMP commence when the conservation covenant has been executed and registered on-title.

## 1.7 Financial disclaimer

Please note that any information provided in this OMP regarding financial arrangements is for information purposes only. This OMP is not designed to govern any financial arrangements regarding purchase, management or monitoring of the Offset area. The financial arrangements are governed by TfN agreement and the CTA.



## 2. Offset site description

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This section provides a description of the Offset area including location, size, condition, environmental values present and surrounding land uses. This section also describes the current ecological condition of GEWWVP and the GSM habitat using baseline data and other supporting evidence that documents the presence and baseline condition of these MNES.

### 2.1 Environmental offsets requirements

The Offsets Assessment Guides for the approved impacts were confirmed as meeting the EPBC Act Environmental Offsets Policy. The resulting offset requirements amounted to the external provision of 293.8 hectares of GSM habitat and the onsite protection of a 7.201 hectare conservation reserve representing 7.201 hectares of GSM habitat and 2.59 hectares of GEWWVP.

As no single site is large enough to provide the entire 301 hectare offset requirement, SPG will secure third party offsets at four locations to provide this total area. This OMP covers 2.4% of total GSM requirements (7.201 hectares) for confirmed GSM habitat and over 100% of the GEWWVP offset. The remainder of the offsets that cannot be provided under this OMP will be provided by three other locations, each of which will be the subject of a separate OMP.

### 2.2 Description of the Offset area

#### 2.2.1 Location and surrounding land uses

This first party Offset area is located at 1960 Mickleham Road, Mickleham 3373 (Figure 3). The Offset area is defined as the conservation reserve identified within the Native Vegetation Precinct Plan prepared for the development site (VPA 2018b and Figure 3). It is located within the Victorian Volcanic Plains Bioregion and supports a range of uses including cattle and sheep grazing on native pasture. The conservation area does not include other Victorian biodiversity offset sites. The details of the land titles on which the Offset area is located are provided in Table 3.

The Offset area is located in the south eastern corner of the property (Figure 4). The property is otherwise surrounded by agricultural land and land otherwise zoned for residential development and for rural residential use. Land around the offset site is progressively being developed for residential purposes as part of its inclusion within an expanded Melbourne Urban Growth Boundary.

The Offset Area has a blocky shape to minimise the edge-to-interior ratio of the Offset area. Because the Offset area is relatively close to other reserves (i.e. the Mount Ridley Woodland Reserve) and open space (VPA 2018a) the landscape values of the Offset area also add to its conservation value.

#### 2.2.2 Size

The Offset area provides a total of 7.201 hectares of GSM habitat and 2.59 hectares of GEWWVP (Figure 4).

#### 2.2.3 General description of environmental values present

The Offset area has no known history of cultivation, intensive fertilizer application or significant pasture improvement. The offset area is grazed with sheep and cattle, which manages biomass to a level suitable for GSM breeding.

The Offset area supports an open cover of eucalypts but overall canopy cover is less than 10%.



**Legend**

- Study area
- Parcel boundary

**Significant trees**

- Tree in patch
- Scattered Tree

**Plains Grassy Woodland EVC**

- HZ1
- HZ2
- HZ3
- HZ4
- HZ5
- HZ6

Figure 3 The extent of native vegetation within 1960 and 2040 Mickleham Road



Albury, Ballarat, Bendigo, Melbourne, Newcastle, Sydney, Warragul & Wodonga

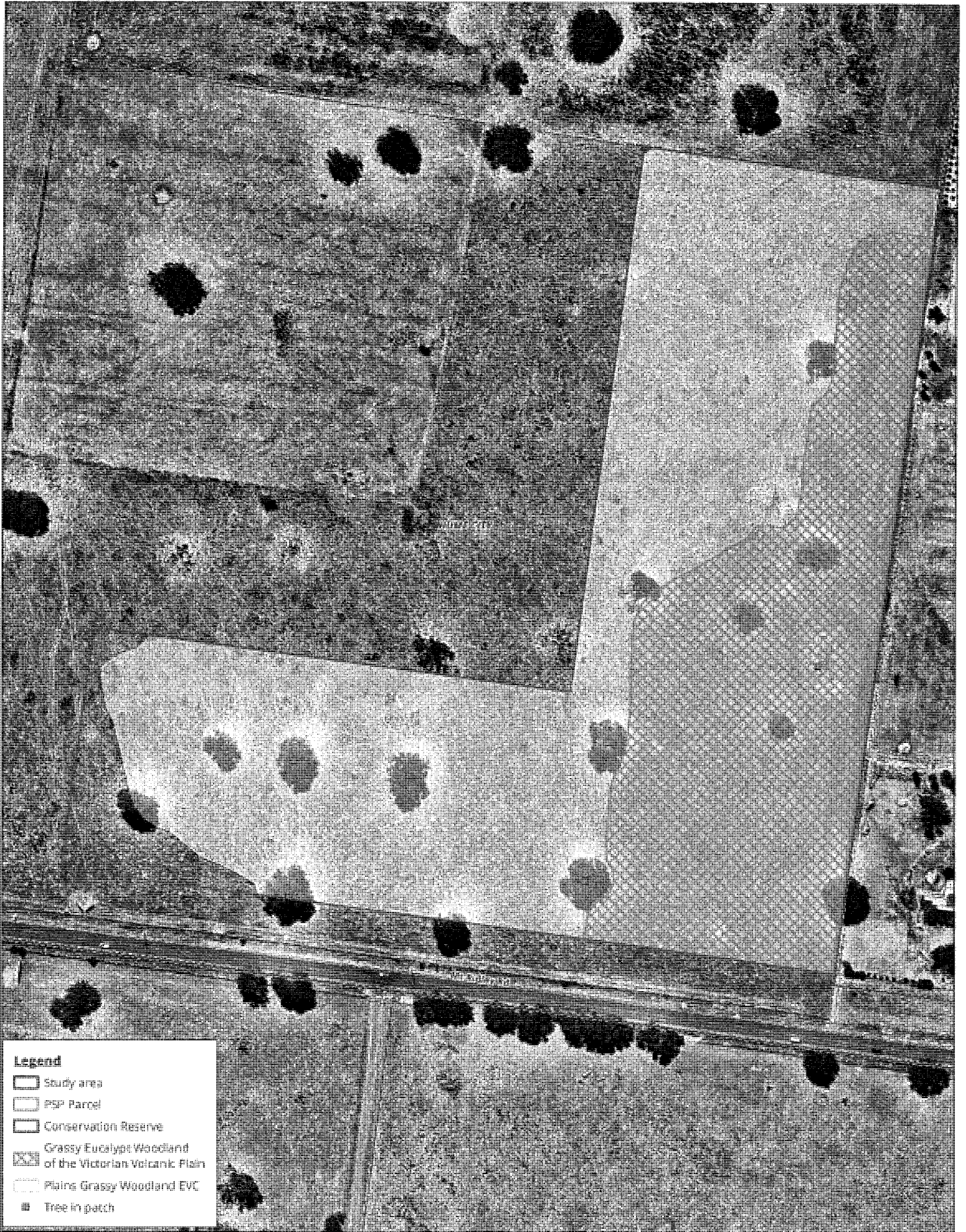
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Map Date: 2016  
Data Source: LIDAR  
Map Scale: 1:5,000  
Map Projection: GDA94  
Map Datum: GDA94



Scale: 1:5,000 @ A3  
Coordinate System: GDA94  
MGA Zone 56





**Legend**

- Study area
- PSP Parcel
- Conservation Reserve
- Grassy Eucalypt Woodland of the Victorian Volcanic Plain
- Plains Grassy Woodland EVC
- Tree in patch

Figure 4 The extent of native vegetation within the Conservation Reserve



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Coordinate System: GDA 1984 MGA Zone 56



**Table 3 Offset site details**

Offset Site Details	
<b>Landowner of offset site</b>	Satterley Property Group Pty Ltd
<b>Type of offset</b>	1 <sup>st</sup> party
<b>Location and address of offset site</b>	1960 Mickleham Road, Mickleham
<b>Area of offset site</b>	7.201 ha
<b>Parish</b>	Mickleham
<b>Allotment</b>	Lots 7, 8, 12 and RES1(parts thereof)
<b>Parcel identifier (SPI)</b>	RES1\PS700494
<b>Local Government Area</b>	City of Hume
<b>Security mechanism</b>	Trust for Nature covenant registered on title
<b>Bioregion</b>	Victorian Volcanic Plain

There are no formal easements within the net Offset area and areas designated as a future road reserve have been excluded. No future utilities or road easements can be applied to the Offset area as these would conflict with the objectives of this OMP.

The offset site (conservation reserve) supports an open canopy of River Red-gum *Eucalyptus camaldulensis*. Typically there would be an open shrub layer of various wattles but shrubs are largely absent from the reserve due to long-term cattle grazing although Tree Violet *Melicytus dentatus* survives in small numbers. The ground layer supports grasses such as Common Wheat-grass *Anthosachne scabra*, Slender Wallaby-grass *Rytidosperma racemosum*, Brown-back Wallaby grass *Rytidosperma duttonianum* and Common Tussock-grass *Poa labillardierei*. In more degraded areas, herbs usually found within this EVC are poorly represented because of grazing pressure. The relatively intact areas identified as GEWWVP support a range of herbs including Grassland Wood-sorrel *Oxalis perennans*, Slender Dock *Rumex brownii*, Kidney-weed *Dichondra repens*, Blue Devil *Eryngium ovinum* and Slender Speedwell *Veronica gracilis*.

Common weeds include Brown-top Bent *Agrostis capillaris*, Chilean Needle-grass *Nassella neesiana* and Spear Thistle *Cirsium vulgare* and introduced annual grasses.

Woody weeds within the Offset area include relatively small infestations of African Box-thorn *Lycium ferocissimum* and Sweet Briar *Rosa rubiginosa*. Other high threat weeds within this offset area include Toowoomba Canary-grass, Brown-top Bent, Needle-grasses, Soursob *Oxalis pes-caprae* and Paspalum *Paspalum dilatatum*.

The relative abundance of Wallaby-grasses, Spear-grasses and Needle-grass provides good quality habitat for GSM.

Targeted surveys for GSM were undertaken by Biosis during the 2008/09 and 2014/15 summer survey seasons (Biosis 2009, 2015). The GSM surveys were undertaken using the field methods stipulated in the Commonwealth EPBC Act Policy Statement 3.12 (DEWHA 2009) for the entire Offset area.

GSM were distributed throughout the offset area (Figure 5).

The Offset area is not known to support one other state listed threatened flora species, Austral Crane's-bill *Geranium solanderi* var. *solanderi* (Biosis 2016).





## 2.3 Current condition

The vegetation condition of the Offset area was estimated using the Habitat Hectares method (Parkes et al. 2003). The suitability and quality of GSM habitat was assessed against the descriptions provided in (DEWHA 2009). The condition assessments were used in conjunction with consultation with DAWE to calculate the Quality score used to calculate the required offsets.

### 2.3.1 Vegetation current condition

The vegetation within the Offset area was assessed using the Habitat Hectares method, as assessed against the Plains Grassy Woodland (EVC 175) benchmark. Table 4 records the scores for the area of GEWVP and other areas of Plains Grassy Woodland within the conservation reserve. Appendix 4 provides the explanation of the GSM Quality scoring method.

**Table 4 Habitat Hectares results, 1960 Mickleham Road, Mickleham**

Site ID			Mickleham		
EVC #: Name			55 Plains Grassy Woodland	55 Plains Grassy Woodland	
GEWVP (yes or no)			Yes	No	
Max Score			Score		Total
Site Condition	Large Old Trees	10	3	4	
	Canopy Cover	5	3	3	
	Lack of Weeds	15	4	4	
	Understorey	25	15	5	
	Recruitment	10	5	5	
	Organic Matter	5	3	3	
	Logs	5	2	2	
<b>Total Site Score</b>			35	26	
Landscape Value	Patch Size	10	6	6	
	Neighbourhood	10	1	1	
	Distance to Core	5	3	3	
	<b>Total Landscape Score</b>			10	10
<b>HABITAT SCORE</b>		100	45	36	
<b>Habitat points = #/100</b>		1	0.45	0.36	
<b>Habitat Zone area (ha)</b>			2.590	4.311	6.901
<b>Habitat Hectares (Hha)</b>			1.166	1.552	2.718

### 2.3.2 GSM habitat current condition

GSM habitat was assessed against the habitat characteristics provided in DEWHA (2009) (Table 5).

Table 6 provides the Quality scoring for the Mickleham GSM offset. Appendix 4 provides the explanation of the GSM habitat Quality scoring method. The Quality score utilises the Site condition components of the Habitat hectares method only since site context is already accounted for in the first parameter.



**Table 5 GSM habitat condition results, Mickleham**

Habitat characteristic	Assessment
<b>Size of patch</b>	Patch size of the Conservation Reserve will be less than 10 hectares
<b>Cover of food plants</b>	Cover of food plants appeared scattered throughout at time of 2018 assessment, although exact amount of cover difficult to measure, it is estimated to provide an average cover of at least 20%
<b>Distance to nearest source population</b>	Final configuration will mean the site is greater than 200 metres from another confirmed population/existing GSM population
<b>Amount of shading</b>	Minor
<b>Aspect</b>	Relatively flat
<b>Amount of bare ground</b>	Cover of bare ground less than ideal (less than 20%)
<b>Presence of rocky areas</b>	Surface rocks still present, site generally has shallow basalt derived soils
<b>Soil characteristics</b>	Cracking clay, basalt derived shallow soils
<b>Land use history</b>	Long history of sheep and cattle grazing, current grazing pressure low to moderate

**Table 6 Mickleham GSM habitat Quality score**

Parameter	Score	Justification
<b>Site context</b>	1/3	The Offset area is smaller than 10 hectares. The offset area is of a blocky configuration which is appropriate for reducing edge effects. The offset relatively flat with some shading.
<b>Site condition</b>	2/3	The Offset area supports moderate quality native vegetation over most of the site. As a mostly treeless version of a woodland community, the VQA site condition score for the Offset area is calculated in two main parts as 45/75 & 36/75 (Table 4). Both annual and perennial weeds were present throughout noting however that the offset area and the property as a whole supports a substantial cover of Chilean Needle Grass <i>Nassella neesiana</i> such that more than 20% of the ground cover supports known food plants for GSM. Therefore the Offset area cannot qualify for a score of 3/3 and just fails the criteria for 2/3.
<b>Species stocking rate</b>	2/4	Biosis (2015) recorded 7.1 GSM per hectare for vegetation associated with the offset site.
<b>Quality score</b>	5/10	A score out 5 (out of 10) indicates that the offset area is of already favourable to the species. There are opportunities to improve Quality by decreasing weed cover and allowing Wallaby- grass and Spear-grass cover to increase and provide overall habitat improvements through appropriate ecological management.



## 2.4 Suitability of Offset area to provide a conservation gain

Under Section 7.6 of the EPBC Act Environmental Offsets Policy (DSEWPaC 2012), environmental offsets must deliver a conservation gain for the impacted protected matter, and that conservation gain must be new, or additional to what is already required by a duty of care or to any environmental planning laws at any level of government. The following sections confirm that the proposed Offset area meets this requirement having no existing environmental offsets, on-title protections or other proposed conservation protections outside what will be provided for as part of this development process. In addition, the Offset area has current permitted land uses under the Hume Planning Scheme that are also recognised threats to GSM habitat as described below. Under these conditions, it was assessed that the risk of loss of GSM habitat from the Offset area was 10%.

### 2.4.1 Permitted land uses

The property was, prior to the VPA precinct planning process, zoned as Farming Zone (FZ) under the Hume Planning Scheme. However, 1960 and 2040 Mickleham Road have now been rezoned to be included within the UGB as land subject to residential development. The original zoning, prior to this development application, allowed the site to be subject to normal farming activities such as grazing of domestic stock and the application of fertilizer.

Within Victoria, removal of native vegetation is controlled under Clause 52.17 of the Victoria Planning Provisions. Some removal of native vegetation is currently permitted (exempt from a planning permit requirement – See Clause 52.17-7) to the minimum extent possible, for activities including:

- Removal of dead vegetation.
- Removal of vegetation for construction of a boundary fence.
- Mowing of understorey grass vegetation to a height of 100 mm above ground level.
- Grazing by domestic stock.
- Timber harvesting of 'reasonable amounts' for personal use, including firewood and construction of fences or buildings.
- Pruning of up to 1/3 of the foliage of individual plants.
- Treatment of pest animal burrows or weed infestations.
- Stone exploration or extraction.
- Fire protection, including periodic fuel reduction burning or construction of firebreaks and fire-fighting access tracks.

The property is also subject to an Environmental Significance Overlay, which imposes additional conditions on permit application requirements to clear native vegetation.

### 2.4.2 Existing offset arrangements

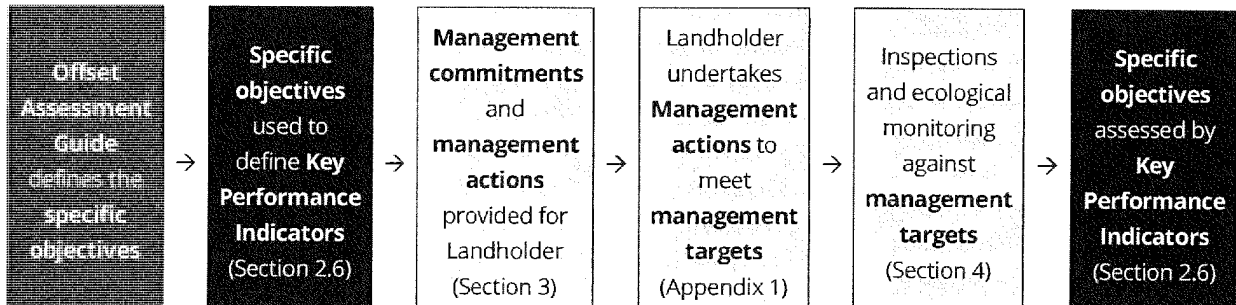
A title search has been completed and the Offset area is not affected by any conservation related encumbrances. The Offset area therefore has not been allocated for the provision of any other offsets, either under the EPBC Act Environmental Offsets Policy or for provision of offsets under any current or past Victorian policy.

## 2.5 Specific objectives

This section presents the specific objectives to demonstrate GEWVP and GSM habitat quality improvement over the period of the OMP's implementation. The specific objectives arise from the Offsets Assessment Guide and are used to determine the overall improvements required to be achieved at the end of 10 years. The specific objectives are broader scale objectives than the management commitments and management actions that are specified in Section 3.

Figure 6 below shows how the specific objectives relate to the management commitments, management actions, and management targets.

**Figure 6 Specific objectives and their relationship to the management commitments**



## 2.6 Specific objectives and key performance indicators

Table 7 below describes the specific objectives for the Offset area that result from the inputs into and the outputs from the Offsets Assessment Guide (a.k.a offsets calculator). Achieving the specific objectives will therefore ensure that an environmental offset that meets the requirements of the conditions of approval and the EPBC Act Environmental Offsets Policy will be provided. The Offset area as a whole will be assessed against key performance indicators that will determine if the specific objectives have been met (Table 7). The key performance indicators use technical terminology and so are broken down into management targets in for the Landholder to implement on the ground in Section 3.

## 2.7 Measuring improvement in Quality

The following sections explain how improvements in quality are to be measured given the limitations of the Habitat hectares and Quality scoring systems.

### 2.7.1 Vegetation condition

Quality improvement will be measured using the Habitat Hectares method at each of the permanent monitoring plots and as an average quality for the whole area. The GSM Quality scoring method was used to obtain the quality score of the Offset area in the Offsets Assessment Guide while the habitat hectare score (DSE 2004) was used for GEWVVP. These will be replicated to determine the final Quality score for each MNES.

Since the Habitat Hectares method uses categories (which are converted to numeric scores) there is a limited number of ways in which the increase in Quality can be attained within the Habitat Hectares scoring system:

- The Landscape score is not influenced by on-site management actions and so is not expected to change during the 10-year management period.
- Large Trees is scored out of 10 but is a function of time (decades to centuries) and so cannot be influenced by the management actions. However, changes to the grazing regime should provide benefit to the remaining large old trees by reducing grazing pressure and ensuring their protection from agricultural development. Management actions should therefore maintain the existing scores.
- Canopy cover is scored out of 10 against a benchmark of 15% cover. Since GSM require open grassland, the aim of management will be to continue biomass management in a manner which prevents shrub and eucalypt encroachment and shading out of GSM habitat. The target is therefore to maintain a canopy cover at about the current level with natural recruitment potentially increasing this in a controlled manner to reach the maximum of 15% over the 10 year management period.



**Table 7 Offset area management specific objectives and Key performance indicators**

Offset Assessment Guide	Specific objective	Key performance indicators (measurable through ecological monitoring)
<p><b>Start area: 7.201 ha GSM habitat and 2.586 ha of GEWVVP</b></p> <p><b>Risk of loss : 90%* confidence that the risk of loss decreases from 10%* to 1%* risk of loss</b></p> <p><b>Time over which loss is averted: 20 years**</b></p>	<p>Offset area protection (security): Provide permanent protection for the conservation values of the Offset area with a conservation covenant.</p> <p>Offset area protection (threat abatement): permanently exclude agricultural production except as directed by this OMP.</p> <p>Risk management: minimise the risk of the offset area failing to meet specific objectives. Procedures in place to manage and mitigate against incidents or emergencies.</p>	<ul style="list-style-type: none"> <li>• TfN agreement registered on relevant land titles</li> </ul>
<p><b>Gain:</b></p> <p><b>GSM: 90%* confidence GEWVVP habitat score can be improved from 5* to 6* (out of 10) with GSM habitat Quality at least maintained at the current level of 6.</b></p> <p><b>Time to ecological benefit: 10* years</b></p>	<p>Offset area improvement: Landholder commits to implementing the intensive 10-year program of management actions, routine inspections and facilitating annual ecological monitoring in accordance with the OMP.</p> <p>Risk management: minimise the risk of the offset area failing to meet specific objectives. Procedures in place to manage and mitigate against incidents or emergencies.</p>	<ul style="list-style-type: none"> <li>• No loss of GSM habitat or preventable weed introductions over 20 year time horizon</li> <li>• No unauthorised access or unapproved works within offset area</li> </ul>
<p><b>Time over which loss is averted^: 20 years**</b></p>	<p>Offset area maintenance: Landholder commits to implementing the management commitments to maintain the improvement achieved in the first 10 years.</p>	<ul style="list-style-type: none"> <li>• Management actions adapted to seasonal conditions and/or new or emerging threats based on routine inspections and monitoring results.</li> <li>• Large tree score (out of 10):                             <ul style="list-style-type: none"> <li>– maintained at current levels</li> </ul> </li> <li>• Tree canopy cover score (out of 5):                             <ul style="list-style-type: none"> <li>– maintained at 3</li> </ul> </li> <li>• Lack of Weeds score (out of 15):                             <ul style="list-style-type: none"> <li>– increases from 4 to 9</li> </ul> </li> <li>• Understorey score (out of 25):                             <ul style="list-style-type: none"> <li>– increases to 20</li> </ul> </li> <li>• Recruitment score (out of 10):                             <ul style="list-style-type: none"> <li>– maintained at 3</li> </ul> </li> <li>• Organic litter score (out of 5):                             <ul style="list-style-type: none"> <li>– increases from 3 to 5</li> </ul> </li> <li>• No active rabbit warrens or fox dens, minimal evidence of pest animal impacts</li> <li>• Tussock cover always sufficient to provide GSM habitat</li> <li>• New weeds eliminated, emerging weed problems controlled to &lt;1% cover, new pest animals eliminated</li> <li>• Ecological monitoring undertaken in accordance with OMP</li> <li>• Reporting undertaken in accordance with OMP</li> <li>• Emergency management undertaken in accordance with OMP</li> </ul>

\*input used in approved Offset Assessment Guide \*\*Maximum value permitted to be used in Offset Assessment Guide

^No directly relevant input or output. 20 year time horizon assumed to be the most logical time period for maintenance to be applied.



- Recruitment is scored out of 10 and is based on the adequate recruitment of woody species. While the offset area supports a low number of woody species when compared to the EVC benchmark, revegetation works will improve this score. The removal of grazing and re-introduction of fire will control eucalypt regeneration and some of the more grazing sensitive species are expected to recruit naturally. This has potential to increase the score to one of the higher possible values, 6 or 10 (out of 10). The controlled recruitment of woody species is an aspect of site condition that is relevant to the improvement of GEWVWP and so will a focus of management activities. However, management actions need to control the amount of shade to maintain adequate habitat suitability for GSM. Note that if a mass germination event occurs (i.e. of eucalypts), monitoring should track the progress of any mass seedling establishment to ensure large areas of native tussock grass cover isn't shaded out in the long term.
- Organic matter is scored out of 5 and is weighted by whether organic matter is non-native or of native plant origin. Organic matter scoring is therefore a result of biomass build up and weed cover. The current score of 3 (out of 5) can only be improved to a score of (5 out of 5) under the habitat hectares method. It is expected that this can be achieved using management actions for biomass control and weed control.
- Lack of Weeds is scored at 4 out of 15 with possible improvements for the offset area being 7, 9, 11 or 13 (out of 15). The scores 11, 13 or 15 (out of 15) requires there to be <5% weed cover, which is not a practical target for this area due to the high starting weed cover and because the highly modified landscape supports a relatively high cover of weeds. The improvement target is therefore set at 7 (out of 15). This minimum target requires average cover of weeds to be reduced from the current level of 25% - 50% cover with the target to be <25%, with more than 50% of the weeds being high threat. Sub-groups of weeds will have lower targets within the overall target e.g. all woody weeds to be <1%.
- The Understorey is scored out of 25 and is a function of species diversity but also growth stage. The Understorey score is being suppressed by cattle grazing and weeds, and this is expected to improve once grazing pressure is controlled, revegetation works are performed and herbs can mature to their full height providing a greater variety of lifeforms. The target improvement is from 15 to 20 (out of 25) within the existing area of GEWVWP and from 5 to 15 in the balance of the offset site.
- The Logs score (out of 5) is a function of tree cover but is also reduced by activities that remove woody debris such as tidying up of paddocks or wildfire. The cover of logs is not a habitat requirement for GSM so will not be the target of management actions. However, since coarse woody debris provides habitat for a range of native fauna species and is not known to be detrimental to GSM populations, general conservation principals should be applied to management of the Offset area so that logs are retained within the Offset area. Logs can be placed within the offset site sourced from tree clearing elsewhere within Lindum Vale but the extent of this activity needs to avoid physical soil disturbance within the offset area.

The Habitat Hectares scores that can be expected to be achieved at the end of the 10-Year management period are shown in Table 8 below.

### 2.7.2 GSM habitat

Quality improvement will be measured using the results for site score described above and the results of targeted surveys for GSM.

The scoring methods used to obtain the Quality score of the Offset area in the Offsets Assessment Guide is shown in Appendix 4 and should be replicated to determine the final Quality score. There is a limited number of options for recording an improvement in GSM habitat Quality under the 10 point system:

- Site context is not influenced by on-site management actions and so is not expected to change of the 10-year management period (Table 8).



- The expected improvement in GSM habitat quality (i.e. from 6 to 7 out of 10) will be provided by an increase in vegetation condition by 1 point (see above).
- The management actions have the potential to produce increased cover of GSM food plants and improve the tussock structure, with suitable inter-tussock spaces. Note however, that GSM populations fluctuate naturally in response to seasonal conditions outside the Landholder's control and since GSM are already in high numbers, it is unknown if an already large population will respond to the proposed management actions with further population increases.

**Table 8 Vegetation condition target improvement Habitat hectares scores (bold scores show improvement, italicised scores are maintenance)**

Time			Baseline	Post ten years management
EVC Name - #			Plains Grassy Woodland (EVC 55)	Plains Grassy Woodland (EVC 55)
	Max Score		Score	Score
Site Condition	Large Old Trees	10	3/4	3/4
	Canopy Cover	5	3	3 (canopy cover will increase but not to the extent where it significantly shades GSM habitat)
	Lack of Weeds	15	4	<b>7</b>
	Understorey	25	15/5	<b>20/15</b>
	Recruitment	10	5	<b>6</b>
	Organic Matter	5	3	<b>5</b>
	Logs	5	2	2 (No increase target set)
<b>Site Score</b>			<b>35/26</b>	<b>46/41</b>
Landscape Value	Patch Size	10	8	8
	Neighbourhood	10	3	3
	Distance to Core	5	4	4
	<b>Landscape Score</b>			<b>15</b>
<b>HABITAT SCORE</b>		100	45	61/56
<b>Habitat points = #/100</b>		1	0.45	0.6
<b>GSM Site quality score</b>		3	2	3

## 2.8 Limitations and uncertainty

It is impossible to eliminate all uncertainty from natural systems. However, this OMP has been formulated using the best available information at the time. The information used includes the results of site inspections, and the experience of the authors in grassland /grassy woodland management and research. Relevant federal and state government policies, procedures and databases have also been consulted where appropriate. The OMP has been subject to external review and quality assurance by TfN and the Landholder as part of the process to register the TfN covenant.

More than one option is available for the required one point quality score increase for GSM (i.e. an increase in GSM population size, or an increase in habitat quality based on three site condition components) (Table 9) and GEWVP (improvements in Lack of Weeds score, Understorey Score and Recruitment Score), and management is expected to provide at least one of these outcomes.

### Management action results

The Offset area (7.201 hectares) already supports a large GSM population and 2.59 ha of GEWVP, which provides certainty that conservation values are already present within the Offset area on which management actions can improve. The OMP includes a reasonable expectation that weed control combined with an ecological burning regime will reduce weed cover and impede weed seed production, which in turn, will provide increased recruitment, growth and seed production opportunities for the native grasses and herbs



still in place, as well as the recruitment of woody species which will assist in habitat stabilisation and an increased site condition score. There is therefore a reasonable expectation that the management actions will result in an increase in the abundance and cover of native flora species. Since the dominant native grasses present are also GSM food plants, this management strategy along with management of biomass accumulation is expected to improve GSM habitat condition.

**Table 9 Mickleham GSM habitat Quality score improvement target**

Parameter	Baseline Score	Target Score	Justification
<b>Site context</b>	1/3	1/3	(N/A management actions are not expected to influence the site context)
<b>Site condition</b>	2/3	3/3	It is expected that the cover of weeds will decrease and the ground-layer flora will be able to mature and reach a more natural growth form. The current site condition score of 30 is just below the threshold for obtaining a score of 2/3. Options to increase the habitat site condition score are available from improvements to the Lack of weeds, Understorey and Organic litter scores.
<b>Species stocking rate</b>	2/4	2/4 (3/4)	It is expected that the GSM population will remain stable and may increase over the 10 year management period. The current stocking rate is within 5 – 20 moths per hectare category. To achieve the 21 – 50 moths per hectare category, 2982 moths need to be recorded from four surveys, equivalent to a greater than 250% increase in records. There is no way to know if such a large increase is possible in 10 years so Quality score will principally be increased by improving site condition.
<b>Quality score</b>	5/10	6/10 (7/10)	It is expected that the Quality will increase from 5/10 to 6/10 over the 10 years.

Recruitment and growth of native species occurs in response to seasonal conditions so there is a possibility that the recruitment and growth of native species will be slower than expected or may be inhibited altogether in the case of prolonged drought conditions. Such a situation would influence the condition score of the GSM habitat but would be outside the control of the Landholder. Contingencies for these events are dealt with under the adaptive management section of this OMP.

The results of the management actions themselves are also influenced by external factors that cannot be controlled including; annual variation in weather conditions, human-induced climate change, and fluctuations in pest animals and weeds. Contingencies for these events are dealt with under the adaptive management section of this OMP. Especially with unprecedented events expected under human-induced climate change, allowance must be made for the influence of external factors with regard to the assessing the outcomes achieved where in all other respects the OMP has been adhered to satisfactorily.

**Vegetation condition**

It is acknowledged that the condition of the grassy ground cover varies with micro-topography (gilgais, rocky rises etc.) and it is not expected that ground cover condition will be uniform across all monitoring plots but all plots should show improvement from the Year 1 surveys. If average Quality of the Offset area has improved by 5 points after 10 years, the key performance indicators will be considered to be met.

**GSM population**

Native flora and fauna are adapted to variable seasonal conditions and many display boom and bust cycles of reproduction. As such, it may not be possible to differentiate between a bust cycle and a decrease in GSM numbers due to management actions in any one particular year. The overall trend in GSM numbers should be referred to when assessing the success of the Offset area after 10 years.



### 3. Management commitments and actions

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This section presents the specific management commitments, management actions, and timeframes for implementation, to be carried out to meet specific objectives to improve the Quality of the GEWVVP and GSM habitat within the Offset area. The detailed schedule of management commitments, management actions and management targets is provided in Appendix 1.

The OMP aims to achieve gains in the Quality score of GEWVVP and GSM habitat through on-ground actions undertaken by the Landholder and with a high degree of certainty of success. As a result, the management actions are designed to be straightforward, practicable and achievable within the existing land management context.

The specific management actions of the OMP have two distinct stages for improvement and then maintenance of GEWVVP and GSM habitat Quality as follows:

- An intensive, 10-year program of management actions to be implemented from the commencement of the OMP. The management actions are directed at achieving an improvement in the ecological condition of the Offset area equivalent to an average 5 point increase in the habitat score as a measure of vegetation and habitat Quality.
- A set of in-perpetuity land management commitments that will ensure that the improvement achieved in the first 10 years of the OMP is maintained over time.

These stages are described in the sections that follow and are supported by schedules of actions at the end of this document.

The prescribed management actions are in accordance with the *DELWP Output Delivery Standards for the Delivery of Environmental Activities* (DELWP 2015).

#### 3.1 Management commitments

The management commitments are the over-arching land use commitments made by the Landholder with regard to the in-perpetuity management of the Offset area. The management commitments contribute to fulfilling the specific objectives for the Offset area and apply as long as the conservation covenant is registered on-title. The management commitments also direct what on-ground actions will be undertaken during the 10 Year intensive management and in-perpetuity management periods.

The following commitments have been reviewed and agreed to by the current Landholder. These commitments will be placed on title by the attachment of the OMP to the TfN covenant. Most commitments will apply immediately from the start of the OMP management period and continue in-perpetuity. In addition to the commitments applicable immediately, the grassland condition achieved as a result of the 10 year period of management, will be required to be maintained, in perpetuity.

The in-perpetuity management commitments of the OMP are as follows:

##### 1. Retain all native vegetation:

- 1.1. *Permanently exclude all activities that would result in direct mechanical removal of native vegetation (excavation, geological exploration, ploughing of fire breaks, cultivation etc.). Direct-driving of posts to mark out the Offset area, monitoring plots or install low-impact fencing is permitted to the minimum extent necessary.*



- 1.2. *Permanently exclude all activities that would knowingly introduce new weeds, weed seeds or other non-indigenous vegetation into the Offset area. It is acknowledged that not all weed invasions are within the control of the landholder.*
- 1.3. *Permanently exclude all grazing by domestic stock.*
- 1.4. *Exclude all broad-acre herbicide application use for purposes not related to weed control for conservation as specified in this OMP (e.g. maintaining fence lines or other easements, creating fire breaks).*
- 1.5. *Exclude installation of any infrastructure or associated easements (e.g. drainage, sewer, power or communication easements are not allowed).*
- 2.1. *Permanently exclude all fertilizer application.*
- 2.2. *Permanently exclude domestic stock of any kind.*
- 3.1. *Secure Offset area for conservation via TfN conservation covenant registered on-title.*
- 3.2. *Years 1 to 10: implement works according to the OMP to achieve a minimum 5 point gain in Quality for native vegetation condition. The annual works plan must address:*
  - Fencing, signage & access
  - Adaptive management
  - Woody weeds
  - Herbaceous weeds
  - Pest animals
  - New or emerging threats
  - Revegetation
  - Ecological burning
  - Inspections, monitoring and reporting
  - Emergency management
- 3.3. *Years 11+: Maintain an annual works plan for the ongoing maintenance of the condition (Habitat Hectares score) of the GEWVVP and GSM habitat that was achieved at the end of Year 10. The annual works plan must incorporate methods to ensure that management actions continue to adapt to current conditions for weeds, pest animals, and biomass control as well as:*
  - Maintain fencing and signage.
  - Continued protection of large trees, herb diversity and native tussock grass structure.
  - Woody weeds maintained at <1% cover with no adult plants present
  - Cover of herbaceous weeds does not increase beyond levels achieved at Year 10
  - Pest animals do not increase beyond levels achieved at Year 10
  - Biomass is maintained to achieve >20 to 40% cover of bare ground
  - Continued management of woody vegetation to maintain open GSM habitat.
- 3.4. *Revise OMP in response to either ineffective management actions, or improvements identified through on-ground evidence/external research and development, or in response to an incident or emergency.*

The implementation of these commitments provides the reasonable expectation that the Offset area will meet the specific objectives of habitat Quality improvement over the period of the OMP's implementation.



### 3.2 Offset area management strategy

The key threats to the Offset area derive from the existing permitted uses associated with normal farming practices and the uncertainty created by a change in Landholder. The existing use rights are detailed in Section 2.4.1 and the associated threats are summarised as: inappropriate grazing regimes, pasture improvement, weed invasion and fertiliser application.

Other threats to the Offset area derive from natural processes that must be managed with on-going works. In particular, expansion of the cover of existing high threat weeds, invasion of new high threat weeds, an explosion in pest animal numbers and the excessive accumulation of dead plant material through the overgrowth of ground-layer plants (referred to generically throughout as 'biomass').

The broad objective of the management actions is to produce a decrease in the abundance of perennial weeds, maintain an open grassy groundcover structure, revegetate areas not identified as native vegetation or poorer quality native vegetation with appropriate species and maintain conditions that are suitable for the recruitment (seed production, germination and growth) of native plant species. While decreasing weed cover is an improvement in itself, it is anticipated that this will be accompanied by a commensurate increase in the abundance of native grasses and herbs, including native grasses that are known food plants for GSM. Other parts of the broader subdivision that are not within the Offset area are to be managed in a manner sympathetic to the broad objectives of this OMP.

Currently weeds and biomass are managed through grazing by cattle for much of the year. Grazing will be excluded to provide improved conservation management of the ecological values of the Offset area. Ecological burning will be introduced as the main management technique for biomass control as needed, however more intensive follow up weed control will be essential.

The management actions each have a target to be achieved by the end of the 10-year management period. The management actions and their targets apply to the entire Offset area. However, it is acknowledged that topographic variation (e.g. gilgais and rocky areas) over the extent of the Offset area will produce variation in condition of the Offset area. This variation will be captured in the placement of the permanent monitoring plots and each target will be measured as an average across the whole Offset area. The results of the individual management actions will together provide the improvement in Quality required under the management commitments.

### 3.3 Offset area protection (security)

At the commencement of this OMP, the Offset area will be secured in-perpetuity via a conservation covenant registered on-title under Section 3A *Victorian Conservation Trust Act 1972*. The statutory body that regulates the *Victorian Conservation Trust Act 1972* is TfN and the covenant is known as a Trust for Nature covenant.

A TfN covenant has standard provisions, which bind the owner to managing the land for conservation purposes. In addition, this OMP will be registered on-title as an attachment to the covenant. As a result, the OMP will be binding on the current and any future owners of the Offset area. Details of the security arrangement are shown in Table 10 below.

### 3.4 Offset area protection (threat abatement)

The following actions will be undertaken by the landholder or their contractor to establish the Offset area as a conservation area (Appendix 1). The actions are once-off tasks that are required to set up the Offset area. These tasks are considered separately from the yearly management works that will be required after the Offset area is established.



**Table 10 On-title conservation covenant arrangements**

Details of security mechanism	Date or other details
<b>Type of security:</b>	Covenant under part Section 3A Victorian Conservation Trust Act 1972
<b>Trust for Nature covenant registered on-title:</b>	DD / MM / 2020
<b>Commencement date for on-title protection:</b>	Upon the on-title registration of the covenant
<b>Commencement date for OMP management actions to improve offset Quality:</b>	Upon the on-title registration of the covenant
<b>Expiry date for OMP management actions to improve offset Quality:</b>	10 years after the on-title registration of the covenant
<b>Expiry date for maintenance of offset Quality at end of 10 management period</b>	Nil - see in-perpetuity commitments in Section 3.1
<b>Review of OMP in response to event or changing conditions</b>	As required

### 3.4.1 Boundary fencing

The Offset area is currently not fenced to exclude the surrounding subdivision works. Fencing should meet the minimum standard set by DELWP detailed in *Output Delivery Standards for the Delivery of Environmental Activities* (DELWP 2015).

Where fencing is installed on the boundary of the Offset area, the following requirements for the installation of fencing must be followed to ensure minimal disturbance to the Offset area:

- Fencing will use plain wire or electric wire only. Barbed wire is not permitted as it is a hazard to wildlife.
- All fence posts (strainer posts and stays) are to be direct-driven into the ground. Excavation for concrete footings is not allowed within Offset areas.
- Any gates are to be adequate to allow the access of expected management vehicles.
- No fencing will be installed within the Offset area.

Temporary fencing (1.8 metre tall mesh fencing panels supported on moveable concrete pads) is appropriate protection from construction works, prior to the installation of approved landscape fencing (i.e. bollards with wire rope).

### 3.4.2 Signage and access control

The Offset area remains private property and access or disturbance to the Offset area by unauthorised persons is prohibited. Fencing, access gates and security arrangements must be adequate while the management is being undertaken by the Landholder and his regular staff and contractors. Signage should clearly identify the offset site as a construction NO GO zone. Signs should therefore be placed at regular intervals on temporary fencing during the subdivisions construction period. The signs will alert workers to the protected status of the offset area and that works are strictly limited to the management actions described in this OMP. At a minimum, the signs will identify the offset site as a “No Go Zone”.

No external signage identifying the property as an offset site is proposed in this OMP but could be considered by the Landholder at their discretion. Conservation-related signage has potential to inadvertently attract undesirable impacts.

Monitoring of access will be conducted on an ongoing basis with fencing repaired or upgraded as required.

The northern and western perimeter of the site will be bordered with a road and associated walking/cycling shared path. This will be on the outside of the reserve boundary fencing which will be designed to exclude



vehicles. No other formal access would be provided. The supervision and public nature of the reserve frontage would therefore discourage illegal dumping. Any illegal dumping into the reserve would be made difficult by the landscaping and design of the fencing and interface between the road, shared path and reserve fencing. Signs would identify the reserve as a conservation reserve and exclude access by dogs. While domestic cats would likely utilise the site to some extent this is almost impossible to prevent, even in the lands current configuration.

### 3.5 Offset area improvement (Year 1 to Year 10)

This section provides the specific management actions and timeframes for implementation, to be carried out to meet specific objectives to improve the Quality of the GSM habitat within the Offset area. The detailed schedule of management commitments, management actions and management targets is provided in Appendix 1.

### 3.6 Annual works plan

The annual works plan is the key process for implementing the principle of adaptive management used to minimise the risk of the Offset area being unsuccessful. Adaptive management is discussed in greater detail in section 3.7.2 and section 5. Prior to works towards the management actions being undertaken each year, the annual works plan (based on the schedule in Appendix 1) will be reviewed and updated in consultation with TfN. The updates will be based on the results of the management actions implemented the previous year and any new research or advice that may arise. To enable adaptive management, the review should identify which management actions in the previous year were successful in contributing to achieving the management target but also which actions were ineffective. The annual works plan will need to be updated based on what actions were effective and where relevant, to address any ineffective management actions.

If the management actions were ineffective, it will be necessary to determine the reason why they were ineffective. The most common reasons why a management action was ineffective include the following:

- Incorrect implementation (e.g. herbicides applied at the incorrect rate).
- Insufficient time has passed to determine effectiveness (The management action was not expected to work yet).
- There were seasonal conditions that rendered the management action ineffective (e.g. drought year).
- Management action produced an unexpected result (e.g. emergence of a new weed after ecological burning).

It may also be determined that the management action is generally not the most effective method for achieving the management target and would be better achieved using a different method. Where the management action is deemed to be generally not effective, the Landholder should discuss alternatives with TfN.

The annual works plan will also address any new or emerging issues, even if not anticipated in this OMP or not listed in the schedule in Appendix 1.

The Landholder should be consulted and sign-off on the annual works plan if it is prepared by their manager or other delegate.

### 3.7 Strategy for biomass / organic litter control

Biomass management is essential to maintain indigenous flora and fauna values throughout the Offset area. The term biomass relates to the amount of plant material (dead or alive) covering the ground. Once the biomass has died, it forms a layer of dried organic litter on the soil surface of the grassy ground cover. The



amount of biomass in one year therefore determines the amount of organic litter build up that carries over to the next year. Management of biomass and litter are therefore interrelated.

In the absence of a process to reduce biomass or the resultant litter, the dry conditions experienced in Australia mean that the organic litter builds up over time and threatens the condition of the grassy groundcover. Factors that influence the amount of biomass and organic matter include: seasonal conditions, presence/absence of fire, amount of grazing by herbivores, and the plant species present, with weeds generally growing faster and producing more biomass than native plant species. Biomass management is therefore required regardless of whether weed control is also required. However, controlling highly productive weeds can also assist in biomass management.

In native grassy woodlands, biomass management is required to ensure that grasses do not dominate all the space in the ground cover so that inter-tussock spaces are maintained. Where there are insufficient inter-tussock spaces, native grasses will shade out native herbs and prevent them from photosynthesising, flowering and setting seed. Sufficient inter-tussock spaces are also required by GSM, which favours an open groundcover for breeding. Biomass management is also a method of weed control as discussed in Section 3.8.

### 3.8 Use of fire for ecological management

The controlled application of fire is an efficient and cost-effective alternative technique for reducing biomass in grasslands/ grassy woodlands and can be effective at reducing weed cover, especially for species that are difficult to control. Periodic burning that is followed by spot spraying can be an important strategy for difficult to control weed species such as perennial grassy weeds or widespread annuals. 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 native species, it can also promote weed species to germinate, however, stimulating the soil stored weed seed bank and then applying follow-up weed control is seen as positive as this allows this seed bank to be exhausted over time.

However, burning also has risks involved that must be managed carefully to avoid creating further problems. The reduction in biomass, increased open space, increased soil nutrients that can follow an ecological burn means that weeds often germinate in high numbers shortly after a burn. Because weeds generally grow faster than native species, if weeds are not controlled immediately after a burn, then there is a risk that weed cover will increase as a result of the burn. The timing of any burning also needs to consider the habitat requirements of GSM and therefore burning is prohibited from the beginning of the GSM flight season (typically about November) until the end of January.

#### 3.8.1 Ecological burning for biomass control

Ecological burning will be used to manage biomass and organic litter. The general ecological burning requirements described in the section below apply to all burns undertaken.

The management target for biomass/organic litter will contribute to maintaining the vigour of the grassy ground cover and allowing adequate space for recruitment of native flora. Biomass management will also improve the openness of the sward to encourage a greater amount of GSM breeding activity and therefore increase the GSM population. The management targets are as follows:

- ✦ Inter-tussocks spaces maintained within the range of 20 to 40%.
- ✦ Organic litter at 10 to 30% cover. Where there is a sustained build up in biomass over any one year, resulting in a reduction of inter-tussock space to an average of less than 20%, biomass will need to be actively reduced.



### 3.8.2 General ecological burning requirements

The following section provides guidelines for use of burning for the purposed of ecological management of biomass and weed control. Fuel hazard reduction burning is excluded from the Offset area. It should be noted that in some wet years burning may not be possible prior to seed set due to a combination conditions and restrictions.

A fire management plan is to be completed in consultation with TfN and/or the advising ecologist as part of the annual works plan. Any approved fire plan will be provided to TfN at least three weeks prior to any burning event identified within that plan.

Ecological burns will be conducted during benign (low wind and mild temperature) weather conditions. Burning within the Offset area will be undertaken only with due consideration to relevant health and safety issues. Ecological burning should only occur outside the prescribed declared fire danger period for the region and therefore is unlikely to require a permit. However, the Council and Country Fire Authority should be consulted if there is any doubt about the permit requirements to undertake planned burning. The

Landholder is responsible for ensuring the requirements of this OMP are carried out only if compliant with all other government planning requirements and permits. Planned burns will minimise the potential for fire to spread in an uncontrolled manner.

All parts of the Offset area are suitable for burning, however, the extent of the burn needs to be determined based on what is feasible for follow up weed control (as could be determined by a trial burn) as well as the extent of biomass accumulation. For weed control, selected areas of grassy ground cover 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. For biomass control, selected areas of grassy ground cover will be those where biomass is approaching the upper limit allowed under this OMP (70 to 80% cover).

No area is to be burnt more frequently than every two years. After each burn, the Landholder will prepare maps identifying the fire history of the Offset area to ensure the time since an area was last burnt can be documented. If wildfire should happen to occur in the Offset area, this will also need to be recorded in the fire history.

At no time should the entire Offset area be burnt in a single season and burning should never be done in a manner which could endanger the large old trees present. Large trees should be protected from burning because they are likely to be severely damaged or killed if they ignite and fire is carried to the crowns via hollow trunks.

The application of a mosaic burning regime is the preferred burn pattern. Nevertheless, any burns must be planned to meet the requirement to maintain adequate habitat characteristics for GSM within the Offset area. Planned burns therefore will be restricted to no more than 50% of the Offset area within any 12 month period. Patchy burns are a desirable outcome and an array of small burnt and unburnt patches covering up to a hectare is an appropriate scale on which to gauge the success of the burn.

The extent, intensity and timing of burns must take into account the presence of threatened species, in particular GSM. Fire may kill individuals of GSMs during the warmer months of the year when they are active above the soil surface. Timing of burns should only be undertaken outside the GSM flight season (generally November to January) unless fires are conducted at a small and limited scale. Late spring burns can be implemented if less than 20% of the Offset area is impacted.

Burnt areas may need to be protected from grazing by kangaroos for at least 6 months to allow species regeneration and recruitment to occur. If required temporary fencing should be erected around burn areas if grazing by kangaroos is considered problematic.



### 3.9 Weed control

The management targets for weed control are shown in Table 11 below and further information is provided in the sections that follow.

The weed control strategy is a multi-pronged approach that takes advantage of the ecological conditions of the Offset area. The weed control strategy focuses on ensuring that the ecological conditions stay favourable to native plant species while limiting the growth and reproduction of weed species as well as directly treating weed infestations. This strategy provides the native species with opportunities to recolonise the areas that were previously occupied by weeds once the weeds have been killed. The weed control strategy is comparable to that used for well-managed grassy woodland reserves making the weed control strategy practical and feasible within the conservation reserve context of the Offset area.

**Table 11 Management targets for weed control**

Scientific Name	Common Name	Average cover 2019	Proposed control measures	Management Target for cover 2020
<b>Woody weeds</b>				
<i>Lycium ferocissimum</i>	African Box-thorn	2%	Cut and paint, hand pull, spray with approved herbicide	Eliminated
<i>Rosa rubiginosa</i>	Sweet Briar	1%	Cut and paint, hand pull, spray with approved herbicide	Eliminated
<b>Short-lived perennial grasses</b>				
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	<1%	Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	<1% (prevent any expansion of existing infestations but preferably eliminate)
<b>Annual grasses</b>				
<i>Vulpia</i> spp., <i>Briza</i> spp., <i>Bromus</i> spp., <i>Aira</i> spp., <i>Hordeum</i> spp.	Fescue, Quaking-grass, Brome, Air-grass, Barley-grass	20%	Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass and destroy standing seed. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	<10%
<b>High threat herbaceous weeds</b>				
<b>Perennial tussock grasses:</b> <i>Phalaris aquatica</i> , <i>Paspalum dilatatum</i> , <i>Holcus lanatus</i> , <i>Nassella</i> species	Toowoomba Canary-grass, Paspalum, Yorkshire Fog and Needle-grasses	10 - 30%	Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass and facilitate herbicide spraying. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	<5%
<b>Broad-leaved weeds:</b> primarily <i>Cirsium vulgare</i> , <i>Hypochaeris radicata</i> , <i>Leontodon saxatilis</i> and <i>Acetosella vulgaris</i>	Primarily Spear Thistle, Flatweed, Hairy Hawkbit and Sheep Sorrel	5%	Spot Spraying appropriate herbicide (prevent flowering). Ecological burning to germinate seed. Areas with a high cover of Sheep Sorrel and little or no cover of other broad-leaf natives could be broad area sprayed with a broad-leaf specific herbicide.	1%
<b>Perennial mat-forming grasses:</b> <i>Agrostis capillaris</i>	Brown-top Bent	10%	Controlled burning. Spot spraying using appropriate herbicide (early spring).	<5%
<b>Total</b>		<b>50 - 70%</b>		<b>&lt;20%</b>

\*\*It is expected that seedlings may re-establish from time to time due to the re-introduction of seeds by birds and other animals or re-sprouting of trunks after previous year's treatment. Inspections at Year 10 should not detect any established adult plants



The weed control strategy aims to achieve the following outcomes:

- Maximise recruitment opportunities for native plants species by providing decreased competition from weeds for space, light, nutrients and water.
- Minimise recruitment and reduce recruitment conditions that favour weeds by:
  - Maintaining sufficient (60% to 80%) ground cover. Insufficient ground cover, resulting in excess bare ground, from over-grazing, post-fire or drought provides increased opportunities for weed seeds to germinate and grow.
  - Minimising nutrient enrichment.
  - Directly killing weeds prior to seed set with herbicide or physical removal. Other chemical free methods of weed control such as steam weeding or flame weeding can also be used.
  - Limiting the yearly growth of weeds to minimise the total space they occupy in the Offset area and to prevent excessive build-up of organic litter (i.e. dead grass) that can smother the growth of seedlings and other plants.
  - Limiting the yearly growth of weeds at the correct time to also prevent seed set.
  - The use of fire to encourage germination of soil stored weed seed and exhaust the soil weed seed bank.

Note that while this OMP lists management targets for particular weed species, the target species are likely to change over time. The abundance of weeds will change in response to seasonal conditions, in response to grazing or in response to controlled burns (e.g. post-burn flush of broad-leaf weeds) and new weeds may emerge as a result of wind or animal-mediated seed dispersal or germination of soil-stored seed. The management actions for weed control must be adapted to meet the changing conditions. Weed cover and weed species will need to be monitored by both the Landholder and in yearly ecological monitoring with management adapted in response to the monitoring results. The document DELWP Output Delivery Standards for the Delivery of Environmental Activities (DELWP 2015) provides information about acceptable weed control activities for conservation activities. However, for any new or emerging weeds or weeds requiring new management methods, TfN will be consulted for site-specific advice and approve the control techniques.

### 3.9.1 Woody weeds

Woody weeds were recorded within the Offset area but all species were recorded as isolated or small groups (<20) plants only. The total cover of woody weeds was less than 5% of the Offset area. Woody weeds are considered easier to control than herbaceous weeds due to their larger size, slower growth/recruitment, and their occurrence as small numbers of plants. The elimination of all established adult woody weeds is therefore considered practical within the 10 year management period.

Woody weeds are generally spread by animals, including birds that have ingested the fruit / seeds, which makes the permanent elimination of all woody weeds unlikely. However, after the adults have been eliminated, weed control will focus on detection and treatment of new seedlings or any re-sprouting stumps that may occur following weed control. Woody weeds that are detected either incidentally during site management or as part of monitoring activities, should be recorded with GPS and controlled / eliminated as soon as possible and before flowering and seed set. Using this approach, the cover of woody weeds is to be maintained at negligible levels in-perpetuity.

### 3.9.2 Annual weeds

Annual weeds were recorded throughout the Offset area. Annual grasses are present throughout the Offset area including Fescue *Vulpia* spp., Quaking Grass *Briza* spp., Bromes *Bromus* spp., Hair Grass *Aira* spp. and



Barley Grasses *Hordeum* spp.. Annual pasture species such as Cape Weed *Arctotheca calendula* and Clover *Trifolium* spp. are present throughout.

Annual weeds are not considered a key threat to the conservation values of the Offset area. However, uncontrolled growth of annual weeds can reduce the vegetation condition and Habitat Hectares score by decreasing the Lack of Weeds score, and Organic Litter score. Given this is the case, management will be directed at minimising the annual weed cover, at worst maintaining it at the existing level and minimising its growth and reproduction. Management using targeted ecological burning is expected to have an impact on the abundance of these species. However, seasonal conditions such as a wet winter followed by a late warm spring may produce growth rates in excess of what can be controlled.

If ecological burning has not been able to constrain the spread of annual weeds, direct weed control methods should be applied as discussed below. If chemical weed control is proposed for annual weeds, its use should be evaluated against the risk of damage to non-target (native) plant species prior to application.

### 3.9.3 High threat herbaceous weeds (perennial tussock grasses, perennial broad-leaved weeds)

High threat herbaceous weeds are those that have potential to displace native species of the same type. For example, perennial grassy weeds like Toowoomba Canary-grass and *Paspalum* have potential to replace native perennial tussocks grasses like Kangaroo Grass *Themeda triandra*. The overall management objective is to ensure that all high threat herbaceous weeds are controlled to ensure that there is no increase in their cover where they currently occur, no further spread of these weeds into new areas of the Offset area, and to actively reduce their cover and abundance. The management targets for high threat weeds are set for weed species grouped according to growth form and status (Table 11).

As discussed above, ecological burning and herbicide application will be the principal control methods for these species. Weed control will be a regular activity and undertaken generally in accordance with the schedule in Appendix 1.

### 3.9.4 Use of herbicide

Spot-spraying involves applying herbicide using a small nozzle so that only the target plant is treated. All spot spraying must be completed in a manner that minimises non-target damage by following all manufacturer's directions regarding rainfall and wind speed on the day of application. There will be no spot spraying in close proximity to threatened flora without protective measures in place (i.e. physical shielding). Spot spraying will be undertaken regularly, particularly in spring and early summer, with a focus on killing weed plants prior to seed set.

There are also a number of chemical-free weed control methods that could be trialled including steam weeding and flame weeding. The Landholder does not have experience with these methods so it is not a requirement that they be used. If, in consultation with TfN, a trial of chemical-free weed control is considered worthwhile, this can be done within the requirements for adaptive management within this OMP since a move away from chemical usage would be considered to be of general benefit to the local environment.

Given the long history of herbicide use in the surrounding cropping areas, there is no specific runoff risk identified for the application of herbicides to the Offset area if used in accordance with the manufacturer's directions.

### 3.9.5 New and emerging weed problems

A key management action will be to ensure procedures are in place that can detect any new weed species or emerging weed problems in time to take preventative action. The management actions are described in Appendix 1. The requirements comprise routine inspections by the Landholder (or a manager appointed by the owner), visits from TfN (on-going) and annual ecological monitoring (first 10 years of OMP). Any new or



emerging weed problems are to be recorded with GPS or clearly marked in the field and treated as soon as possible. Records are to be kept of any new or emerging weeds identified, the treatment applied and follow-up inspections of the treated weeds. Where possible, new and emerging high threat weeds (noxious weeds or known environmental weeds) will be eradicated from the Offset area. However, if the weed is already established by the time it is detected and cannot be eradicated in must be controlled to less than 1% cover.

he surrounding landscape is the most likely source of new weeds so that it is advisable to have weed monitoring and treatment schedules for the rest of the property (although this cannot be enforced via the OMP or TfN covenant). This is likely to be a cost effective way to reduce weed loads in the Offset area. Public land can also be a source of weeds (e.g. council managed road reserves) and it would be prudent for the Landholder to alert the relevant authority to any weed problems on public land adjoining the property.

### 3.10 Pest animals

The Catchment and Land Protection Act 1994 requires that Landholders must take all reasonable steps to prevent the spread of - and as far as possible eradicate - established pest animals on their land. In addition to this legal duty, the control of declared pest animals including rabbits and other pest herbivores is a requirement of this OMP.

Foxes, rabbits and hares must be monitored and controlled throughout the year. Activity by European Rabbits *Oryctolagus cuniculus* was not evident during site visits.

Pest management should use an integrated approach such as is described in Output Delivery Standards for the Delivery of Environmental Activities (DELWP 2015). For rabbits, an integrated approach involves fumigation, hand collapsing of burrows and baiting. Ripping of rabbit warrens within the Offset area is not permitted. If any warrens develop within the Offset area, they are to be treated by low impact measures such as fumigation or implosion. Remove any carcasses to prevent poisoning of native predators. In the event of an explosion in the rabbit population, rabbit-proof fencing of the Offset area will need to be considered as control options for these pests.

Other problem pest animals may include mice, cats and foxes that may find shelter in crops, rock formations and rock walls within and adjacent to the Offset area. The Landholder will select from the range of control techniques available and apply the most effective in the local conditions. Control works targeting these pest animals are not expected to have any negative impact on any MNES.

### 3.11 Understorey diversity and recruitment

The grassy ground cover of the Offset area already supports a relatively high number and diversity of native plant species. The management actions associated with plant diversity therefore aim to protect the existing plant diversity and encourage its growth and recruitment.

The main risks to understorey diversity in the Offset area once it is protect by the TfN covenant will be: over-grazing by herbivores such as kangaroos, uncontrolled weed growth and the accumulation of biomass over a prolonged period (greater than a year). Since all three risks are addressed in the previous management actions no further mitigation measures are required to manage native plant diversity and recruitment.

### 3.12 Supplementary planting / Revegetation

The Conservation Reserve supports a number of mature trees and associated regeneration of various ages. The recruitment of River Red-gum is not considered to be restricted within the reserve. However, over abundant recruitment may place undesirable stress on the existing mature trees. While selected sapling trees will be retained within the reserve, to maintain a level of canopy cover roughly equal to the DELWP



benchmark for Plains Grassy Woodland (15% canopy cover), most eucalypt regeneration will be subject to burning or slashing to prevent the establishment of high densities of saplings.

Ground cover revegetation works are also required within the area of the Conservation Reserve not identified as native vegetation (Figure 4). However, a dense contiguous ground-cover of grasses is inappropriate for the objectives of this reserve. This area can be subject to high intensity weed control works in year 1 followed by the seeding and planting of indigenous grasses and herbs collected from the local area (within 50 km).

Potential species for ground cover revegetation works are listed in Appendix 2. This list is not comprehensive and other locally indigenous species can also be included in any revegetation works. The reintroduction of other ground cover species throughout the Conservation Reserve is also encouraged as a high species richness of the indigenous flora would provide a greater resilience to weed invasion.

Risks associated with revegetation works include:

- Introducing new weeds or plant diseases, which can be brought in on potting mix from nursery-grown seedlings;
- Disturbance to the Offset area by digging holes to plant seedlings; and
- Introduction of weed seeds in seed mixes or machinery.

These risks will need to be appropriately managed during these works.

Revegetation works will be planned for year 2 of management, after the collection of adequate material to implement the required revegetation works in areas of non-native vegetation (Figure 4).

Initial works will include the design of the revegetation program within three months of the initiation of this OMP. Implementation of the plan will depend on the seasonal condition at the end of the planning phase but seed and propagule collection will begin at the end of the planning phase.

Initial works will include high intensity weed control works and burning as required. By the end of year 4 it is expected that these works would establish a 50% cover of indigenous grasses and herbs. A target of at least 10 indigenous herbs are to be established in this area.

### 3.13 Offset area maintenance (Year 11-onwards)

At the end of Year 10, ecological monitoring will determine the condition of the GSM habitat using Habitat Hectares and the results of GSM surveys. The condition measured at the end of 10 years must be maintained in perpetuity to ensure that GSM continue to be provided with a conservation benefit. The following ongoing management actions will apply in-perpetuity and align with the management commitments listed in Section 3.1.

As the responsible authority for TfN covenant, it will be the responsibility of TfN to ensure the land under covenant continues to be managed in accordance with their requirements.

The Landholder agrees to undertake the following on-going management actions listed in the following Table (Table 12).

### 3.14 Contractor requirements

Due to the sensitive nature of the working environment, contractors working with Offset area are required to be suitably qualified and experienced. All workers should be familiar with the restrictions association with working within a conservation area prior to starting works. This can be in the form of a site induction or supervision by the Landholder. Note that the contractor requirements apply to all of the establishment, improvement and on-going management actions.



**Table 12 Summary of on-going management actions (Year 11 onwards)**

Management action	On-going requirement
<b>Access and signage</b>	<ul style="list-style-type: none"> <li>• Routine inspections to check the condition of fencing and any signs.</li> <li>• Maintaining the existing paddock fencing and signage including the arrangement of gates, unless otherwise authorised by TfN as appropriate.</li> </ul>
<b>Weeds</b>	<ul style="list-style-type: none"> <li>• Routine inspections to look for and detect any new and emerging weeds and eliminate to &lt; 1% cover.</li> <li>• Ensuring that overall weed cover does not increase beyond the levels attained at the end of the 10-year management period either.</li> </ul>
<b>Pest animals</b>	<ul style="list-style-type: none"> <li>• Routine inspections to look for and detect pest animals, particularly rabbits, hares, foxes and cats;</li> <li>• Ensuring that size of the pest animal population does not increase beyond the levels attained at the end of the 10-year management period.</li> </ul>
<b>Biomass</b>	<ul style="list-style-type: none"> <li>• Manage biomass so that bare ground stays at its current level of 20 to 40% cover.</li> <li>• Manage organic litter to meet the EVC benchmark cover of 10% - 20%.</li> </ul>
<b>Ecological burning</b>	<ul style="list-style-type: none"> <li>• Ensure the application of ecological burning regimes required to facilitate biomass control and weed control activities.</li> </ul>

### 3.14.1 Required qualifications

All management works are to be carried out by the Landholder (their delegate) or their contractor. All unsupervised contractors should be suitably qualified and experienced and familiar with the Offset area. For labourers being supervised by a suitably qualified contractor, the labourers should be carefully supervised until the Landholder or supervisor is satisfied that the contractor is suitably skilled at the required tasks.

All ecological monitoring of vegetation should be undertaken by a suitably qualified professional ecologist who has at least 3 years of experience in assessment of native grasslands and grassy woodlands. All GSM surveys should be overseen by a suitably qualified ecologist who has experience in identifying GSM for field surveys.

DAWE defines suitably qualified person as follows:

- Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

### 3.14.2 Required independence

The suitably qualified ecologist undertaking the monitoring must have sufficient independence to objectively assess the results of management actions and therefore cannot be employed by the same contractor engaged to implement the management actions. DAWE also has requirements for auditors to be independent. Please refer to any approval conditions for EPBC Act referral 2015/7516 for auditor requirements.

### 3.14.3 Site inductions

For contractors that are unfamiliar with the Offset area, the Landholder (or delegate) should provide site inductions to ensure that any contractors undertaking management works within the Offset area are aware of the allowed activities and work methods. Site inductions should include the following key information:

- The Offset area is a conservation area that is protected by federal legislation.
- There are fines associated with damage to the grasslands and grassy woodlands.
- A work order with specific tasks or a list of works permitted in the Offset area.



- A list of works prohibited in the Offset area.
- Weed hygiene protocols to avoid introducing new weeds on boots, vehicles, plant or equipment.
- All vegetation within the Offset area is protected (other than weeds). Protected vegetation includes native grasses and wildflowers, sedges and rushes, mosses and lichen.
- Surface rocks should not be disturbed as these provide habitat for native reptiles.
- Works will have a minimal impact on the grassy ground cover and every effort will be made to avoid leaving wheel ruts due to driving in wet conditions or otherwise disturbing the grassy ground cover.
- The emergency management and reporting procedures for Incidents. Note to contractors that possible or actual damage to the grassy ground cover counts as an Incident along with weather-related, bushfire, accidents or medical emergencies.

#### **3.14.4 Contracts**

For engagement of new contractors, the Request for Tender or Request for Quote should include a requirement to comply with the relevant provisions in the OMP. The Landholder should request details of the contractor's experience with undertaking works in native grasslands. The services contract should include requirements for compliance with the relevant provisions on the OMP or include requirements to comply with all instructions regarding protection of native plants and animals on site.

## 4. Monitoring Actions

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This section presents the nature, timing and frequency of monitoring to determine the success of management actions against key performance indicators. The detailed schedule of monitoring actions is provided in Appendix 1.

Surveillance of the Offset area is an integral component of the regular management actions. Routine inspections and ecological monitoring are separate activities in the OMP but both are important for early identification of changes, allowing an appropriate and timely management response to matters which would otherwise undermine the objectives of the OMP. Routine inspections include observations by the Landholder during normal activities within the Offset area and broader property and which are important for maintaining a record over the entire year that is not possible during annual ecological monitoring events. Ecological monitoring is undertaken by qualified ecologists who will collect data from repeat surveys of permanent monitoring plots to assess the overall improvement in Quality over time.

### 4.1 Routine inspections undertaken by Landholder

The progress of management works will be surveyed and recorded by the Landholder or their representative on a regular basis. Most of these records are normally kept in the course of land management activities but the requirement to keep these records has been formalised in this OMP for the Offset area specifically.

The Landholder will provide a progress report to TfN and DAWE on an annual basis. The report will utilize the compiled records of observations and management works as described below.

#### 4.1.1 Records of management works

The Landholder or their representative must keep a diary of any management actions/works undertaken within the Offset area. The works will include weed control, pest animal control, fence maintenance and burning activities. These records of all management actions must be kept to provide evidence of the implementation of the OMP.

#### 4.1.2 Records of routine inspections

The Landholder is to undertake regular site inspections in accordance with the schedule in Appendix 1 (at a minimum once every 3 months, with additional requirements to inspect the results of ecological burns, Appendix 1). During the site inspections the Landholder is to record general observations including on fence condition, weed levels, progress of revegetation works and biomass levels and well as the location and management requirements of any problems observed during the inspections.

As part of these notes, the Landholder must record any observations that could influence or initiate a management response. It is helpful to allocate a timeframe to undertake the identified management response. e.g. "seedlings of a new woody weed seen in the middle of the Offset area today. Will spot spray these with glyphosate by the end of the week". The Landholder should also record any new or emerging weed problems or if any weed species have been eradicated. These details provide valuable information on the management of the Offset area and contribute to the records that detail the commitment of the Landholder to the OMP.

Some specific requirements are detailed in Table 13 below.

### 4.2 Routine visits and oversight provided by Trust for Nature

More general supervision/monitoring of the offset site will be undertaken by TfN to ensure the management actions produce the desired outcome outlined by this OMP.



**Table 13 Routine inspection requirements each quarter**

Management action	Routine inspection requirement
<b>Fence condition</b>	Surveys of the property boundary fence must be conducted quarterly, and when visiting the Offset area to do 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.
<b>Weed monitoring</b>	<p>Once a year in spring, the entire Offset area should be surveyed for woody weeds, by walking and / or driving throughout the area such that a visual inspection (including with binoculars) would detect the presence of any woody weeds. Complete coverage of the Offset area will likely require at least six 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 surveys will then revisit previously mapped infestations to evaluate the success of weed control, as well as inspecting the entire Offset area for new infestations.</p> <p>While conducting the woody weed surveys, notes will be taken regarding the cover of herbaceous weed species, (estimated to the nearest 5%). Species and areas suitable for targeted treatment (such as spot spraying), will be mapped and supplied to the weed management contractor/Landholder for treatment.</p>
<b>Biomass and fire related inspections</b>	To inform the annual works plan, the Offset area should be inspected to determine biomass, ecological burning requirements for the coming season and the results of any previous burns. The Landholder will inspect the offset site to evaluate biomass and weed levels, and to determine future management requirements for previously burnt areas. Records are to be kept on post fire regeneration on a monthly basis.
<b>Pest animal monitoring</b>	Signs of pest animals (rabbits, hares and foxes) will be recorded when visiting the Offset area. 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 will then revisit previously mapped warrens to check for on-going use, as well as searching for new warrens throughout the Offset area.

TfN will visit the Offset area a minimum of four times over the 10 year management period (of years 1, 3, 7 and 10). This level of monitoring is the minimum that TfN can commit to as advised in their review of a previous draft of the OMP. TfN can commit to at least one site visit to be undertaken in spring with the other visits undertaken throughout the year, although spring is the best time to assess grassland condition. Further site visits can be requested by the Landholder as needed to address specific management problems or to discuss the progress of the Offset area. During Years 11 to 20, TfN will visit the Offset area a minimum of once every five years. Further site visits can be requested by the Landholder as needed during Years 11 to 20.

On an annual basis, the Landholder provides an annual report to TfN, which is in the form of a template based on the schedule of management actions in Appendix 1. TfN reviews the annual report before releasing funding to the Landholder for works completed. This process ensures that the works are undertaken in accordance with the OMP each year of the 10 year management period or funds are withheld until the works are completed to a satisfactory standard. After the 10 year management period has been completed, TfN has a statutory responsibility to ensure compliance with the TFN covenant. Since the OMP is attached to the covenant, TfN also provides oversight of the OMP.



### 4.3 Ecological monitoring undertaken by qualified ecologists

Suitably qualified ecologists as defined in section 3.14 must be engaged to undertake ecological monitoring on a regular basis according to the schedule in Appendix 1. The monitoring will include assessments that require expert skills such as Habitat Hectares assessment that cannot be undertaken by the Landholder.

#### 4.3.1 Control plots

To determine if management actions have been effective, it is necessary to have a baseline and a control against which to compare the treatment areas. Monitoring done without control plots can only record change over time but does not provide a way to link the management actions to the changes recorded. To address this problem, the Landholder will allow some small exclusion plots to be installed prior to any management actions being undertaken. Two exclusion plots placed by an ecologist within the Offset area will be installed in the offset area. These will be 20 metres x 20 metres and fenced with chicken wire to prevent any herbivore grazing. No weed control works will be undertaken in these plots. The plots will be removed at the end of the 10 years of management.

#### 4.3.2 Vegetation condition

Ecological monitoring of the condition of vegetation (which includes GEWVP) will be undertaken annually in spring, ideally at the peak flowering time for native grasses. The first monitoring event should occur in 2020 prior to introduction of conservation management. This will provide a baseline or “before” measure against which the results of future management actions can be compared.

The monitoring will consist of the following components:

- General site inspection and average Habitat hectare assessment. The walkover will take at least 5 hours and make notes on woody weed abundance, evidence of biomass management, herbaceous weed cover for target weed species and general condition (evidence of pests, new weeds etc.). This assessment will document the general overall condition of the Offset area and the ability of management works to maintain the condition of GSM habitat.
- Permanent monitoring points (5 over and above the controls) will be established throughout the Offset area, stratified by weed cover and topography. The plots will be a square 20 m by 20 m in size to allow for the detection of herb diversity during the monitoring. The plots will be clearly marked and their location accurately recorded using GPS.
- The following data will be collected from each plot and the control plots. It is estimated an hour will be required to collect these data from each plot:
  - List of native and introduced species.
  - Total vegetation cover (%)
  - Total cover of native perennial vegetation (%)
  - Total cover of native herbs (%)
  - Total cover of perennial weeds (%)
  - Total cover of annual weeds (%)
  - Cover of bare ground (%)
  - Cover of organic litter (%)
  - Average height of vegetation (cm).
  - Habitat Hectares score.
- A photo of each plot will also serve as permanent photo points. Using the NE corner of the plot for the photo point, a photo will be taken facing the four points of the compass (N, S, E & W).

Information will be collated as part of the annual reporting requirements (Section 4.4). The objective of this OMP is to have the entire offset site classifiable as GEWVP by the end of the first ten years of management.



### 4.3.3 Golden Sun Moth monitoring

Monitoring during the flight season for GSM is necessary to evaluate the size of the population over time. Baseline surveys of the GSM population will be undertaken in the summer of 2020. It is recommended that subsequent GSM monitoring surveys be undertaken after one year of management has been achieved and then every second year thereafter for the duration of the 10 year management period. It is unlikely that management actions to encourage increased growth of GSM food plant species will have an immediate effect on GSM numbers, therefore, surveys every second year are considered sufficient to monitor the health of the GSM population. GSM surveys area therefore required in the following summers:

- 2020/21
- 2021/22
- 2023/24
- 2025/26
- 2027/28
- 2029/30

Monitoring will record the number of individuals observed from set monitoring transects. A team of 2 people will survey the entire Offset area in one day using 50 metre wide transects. The chosen method must be repeated exactly the same for each of the four surveys completed in a survey year (i.e. it is not acceptable to assess a quarter of the Offset area once in order to survey the whole Offset area in four visits).

Monitoring for GSM will be undertaken in accordance with the requirements of DEWHA (2009) with regard to survey season and weather conditions on the day of survey. As GSM are known to occur at this site no reference sites are required. The Landholder is likely best placed to watch for when the flight season has started but other GSM sites within the district can also be used. A monitoring event requires four visits to the Offset area on four days approximately one week apart. Surveys will take place when conditions are suitable for male flight (generally >20°C, bright, clear days, full sun, absence of rain and wind other than a light breeze) between 10:00 hrs and 15:00 hrs. Tracks will be recorded using a GPS receiving device and a waypoint taken for each location where GSM are observed. Notes on habitat condition including cover of food plants and inter-tussock spaces will also be recorded.

The results of these surveys will be compared to the original baseline surveys (2019 /20 flight season) and those of the previous monitoring event.

Any observations of GSM during monitoring for vegetation condition and during inspections by the Landholder or TfN will also be recorded.

### 4.3.4 Monitoring report

Once monitoring is complete, a monitoring report with the following information will be provided:

- Assessment of condition improvement of vegetation
- Results of GSM surveys (every second year).
- Advice on planned burning and weed/biomass control approach for the coming year.

The monitoring report is to be provided to the Landholder, SPG and TfN. It will be the responsibility of SPG to supply the ecological monitoring reports to DAWE as their annual compliance report.

### 4.3.5 Independent audits

The approval holder (SPG) must ensure that independent audits of compliance with the conditions are conducted as requested in writing by the Minister. In addition, as the approval holder, SPG is responsible for ensuring the implementation and effectiveness of the OMP.



If required, audits will be conducted by an independent ecologist appointed by SPG 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 DAWE, 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, as well as an independent assessment of the condition of GSM habitat within the Offset area.
- 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 the OMP.

Additional audits may be triggered as a result of a review of the OMP or following an environmental Incident resulting in significant change to site conditions, as identified in the risk assessment.

#### 4.4 Reporting

The approval holder (SPG) must submit an annual compliance report to DAWE for the period of the approval. The detailed schedule of reporting is provided in Appendix 1.

As part of this reporting, the Landholder will prepare an Annual Report to address 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 management commitments and completion criteria for the Offset area. Reports will be submitted prior to the anniversary date of the execution of the OMP to allow time for compliance to be assessed.

The annual report will include:

- Details of management actions undertaken within the reporting period.
- Results of at least four routine inspections, including fence condition, weeds, pest animals, and biomass accumulation.
- Details of compliance or non-compliance with the schedule of management actions (Appendix 1).
- Details of compliance or non-compliance with management targets (Appendix 1).
- Details of any incidents or new and emerging management issues, with required corrective action.
- Any triggers exceeded and which corrective actions were implemented.
- Details of ecological monitoring results including photos from photo points and GSM survey results in relevant years.

The reporting schedule is detailed in Appendix 1.

## 5. Risk assessment and adaptive management

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### 5.1 Risk assessment

Table 14 on the following pages uses the DAWE risk framework to assess the risk of the KPIs not being met. The risk of the KPIs not being met is assessed by comparing two scenarios: a situation with an approved OMP and a situation without an approved OMP. This is done by identifying a hazard based on each KPI. The risk assessment then provides a summary of how the management actions provide control measures for each of the hazards identified. This allows the risk of the offset failing to meet the KPI's to be reduced. The risk assessment also details the residual risk after the control measures in the OMP are put in place. A strategy for addressing the residual risk is provided in the last column.

The likelihood and consequence classification is summarised in Appendix 2.

### 5.2 Emergency management

There is residual risk posed by emergency events such as wildfire, floods or unexpected pest outbreak. These events present a risk of damage to the Offset area, because emergency activities may involve any of the following:

- Extreme change in conditions requiring rapid adaptation of management actions and/or management targets (e.g. rapid change from unburnt to burnt in the case of wildfire).
- Emergency works such as earthworks to plough or excavate firebreaks.
- New threats previously absent to the Offset area (e.g. new weeds brought in during emergency works).
- Previously controlled threats becoming more prevalent (e.g. rapid increase in existing weed cover).
- Unauthorised access, livestock grazing or trespass (i.e. as a result of fences being destroyed). While the likelihood of an emergency management scenario occurring over the life of the OMP is rare, the consequences could be Major and resulting in a risk assessment of Medium. The risk assessment of Medium is based on the impacts that emergency management actions can have on the protected matters, especially during a wildfire event.

### 5.3 Emergency Contacts and procedures

Should any emergency occur, the relevant contacts (listed below) must be notified as soon as possible:

- In the event of a life-threatening emergency, the relevant emergency services should be contacted immediately. Emergency services must be advised of the conservation protections to avoid inadvertent damage (e.g. ploughing fire breaks, use of chemical fire suppressants).
- SPG is required to notify DAWE of any incident within 10 days so that the Landholder must notify SPG and DAWE within this timeframe.
- A delegate of the Landholder (e.g. managing ecologist) must notify the Landholder within 12 hours and the Landholder must notify TfN within 24 hours.

### 5.4 Emergency contact details

- Bushfire or other life-threatening emergency: Phone 000, ask for fire brigade
- Non-emergency criminal activity (illegal dumping, trespass): Phone Victoria Police 131 444
- Department of the Environment and Energy (DAWE): Phone 1800 803 772



- Trust for Nature: Offset advisor phone (03) 8631 5888
- Landholder (or their representative): Currently Satterley Property Group Pty Ltd

## 5.5 Review of OMP

This OMP includes an adaptive management framework so that a review of the OMP will only be necessary under the following circumstances:

- A major incident that makes a significant change to the character or condition of the Offset area requiring updates to management targets or KPIs (most likely wildfire, Table 14).
- The Landholder / TFN identifies a beneficial permanent management change such as might arise from new research or on-ground observations and requiring updates to permitted activities or management actions.

If a review required by the Landholder or after a major incident, this will be undertaken by the Landholder in consultation with TfN and DAWE.

If a review is required by DAWE as part of the conditions of approval, the review will be undertaken by SPG.



Table 14 Risk assessment of potential hazards as defined by Key Performance Indicators

Potential hazards as defined by key performance indicators (KPIs)	Likelihood	Consequence	Without OMP			Management action # (see Appendix 3)	Hazard Control Methods	Likelihood	Consequence	Risk Level	Residual risks	Management strategy for residual risks
			Likelihood	Consequence	Risk Level							
<b>Failure to register, TFN agreement on relevant land titles</b>  <b>Failure to implement the OMP to the required standard.</b> (NOTE: for the other risks in the table, when assessing the risk, it is assumed that the OMP has been implemented to the required standard.)	Unlikely	Major			1, 15	<ul style="list-style-type: none"> <li>Statutory approval condition for LVRD</li> <li>DAWE post-approvals team to regulate execution of approval conditions</li> </ul> OMP is implemented to ensure standard: <ul style="list-style-type: none"> <li>TFN review of annual report from landholder each year.</li> <li>Release of annual funding from TFN only when satisfied works have been undertaken in accordance with the OMP</li> <li>Ecological monitoring undertaken yearly during 10-year period</li> <li>TFN to visit offset area a minimum of four times during 10 year period</li> <li>TFN to visit offset area every 5 years after Year 10</li> <li>Independent audits undertaken as directed by DAWE</li> <li>The TFN covenant binds the current and future Landholder to both the standard restrictions in the TFN covenant and to the requirements described in this OMP</li> </ul>	Rare	High	Low	The risk assessment of low is based on the Offset area being identified prior to the approval and secured using a TFN covenant. The funds for the Offset area are only release by TFN after the Credit Tracing Agreement has been finalised. This provides a strong financial incentive for both the Landholder and approval holder to ensure the security mechanism is placed on title.	If the TFN covenant is not registered on title, TFN will hold the funds in trust until a TFN agreement is registered.	
	Likely	High			5, 6, 14, 15	<ul style="list-style-type: none"> <li>OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation in OMP and TFN covenant</li> <li>Offset owner required to maintain erosion control infrastructure to a high standard</li> </ul>	Rare	High	Low	The risk assessment of low is based on the oversight provided by TFN. TFN reviews the annual report before releasing funding to the Landholder for works completed. This process ensures that the works are undertaken in accordance with the OMP each year of the 10 year management period.	In the event that the landholder fails to undertake the management actions in accordance with the OMP, TFN will withhold funds until the works are completed to a satisfactory standard.	
<b>Loss of GSM habitat over 20 year time horizon</b>	Likely	High			2, 3, 15	<ul style="list-style-type: none"> <li>OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation in OMP and TFN covenant</li> <li>Offset owner required to maintain erosion control infrastructure to a high standard</li> </ul>	Rare	Moderate	Low	The risk assessment of low is based on the resourcing being provided to the offset area and the proper maintenance of surrounding erosion control infrastructure. That is, Biosis has observed that for grassland/grassy woodland reserves throughout Melbourne and Victoria, loss of native vegetation is usually attributable to insufficient funding to provide for the intensity of management required to address the labile nature of native grasslands/grassy woodlands. Where there is insufficient intensity of management, this has led to invasion of perennial grassy weeds, which dominate the tussock structure. Since the offset area has a dedicated manager (the Landholder), regular monitoring, and funding available to undertake the required works, it is expected that only exceptional climatic conditions or an emergency event would lead to a loss of GSM.	Emergency management provisions are provided in the OMP. Incident reporting procedures of the OMP will also apply. TFN and the consulting ecologist will be consulted for advice, DAWE will be informed and the OMP will be reviewed by the landholder.	
<b>Preventable weed introductions over 20 year time horizon</b>	Likely	High			2, 3, 15	<ul style="list-style-type: none"> <li>OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation in OMP and TFN covenant</li> </ul>	Unlikely	Moderate	Low	The risk assessment of low is based on the monitoring and oversight of the offset area such that any introduction of new weeds will be detected early and management actions undertaken to rectify the problem. N.B. This risk addresses preventable weed introductions only (such as weed seeds brought in on vehicles or machinery) so that the source of the introduction can be traced and prevented in future. Non-human mediated introduction of weeds by fauna or wind-blown seed are addressed in "new or emerging threats".	Preventable weed introductions over 20 year time horizon will be addressed using the adaptive management provisions in the OMP and in consultation with TFN. The management actions in Appendix 1 detail the process by which to address new or emerging threats.	
<b>Unauthorised access or works within offset area</b>	Possible	Major			3, 4, 15	<ul style="list-style-type: none"> <li>OMP provides a schedule of management actions to control access and authorise works within offset area</li> </ul>	Unlikely	Moderate	Low	The risk assessment of low is based on the Offset area being fully fenced and not accessible by the public or easily respaced upon due to its distance from the road so that contravention of the covenant by malicious damage to the Offset area is Low risk. Signage and site induction will ensure that any workers will be aware of the activities allowed in the offset area.	Since unauthorised access would most likely be a result of trespass, this will be referred to police and will be addressed using the emergency management provisions in the OMP. Where unauthorised access or works within offset area result in an incident, the incident reporting procedures in the OMP will be followed.	

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Management actions	Likely	High	Rare	High	Low
<p><b>Management actions fail to adapt to seasonal conditions or monitoring/routine inspection results.</b></p>					
<p>Landholder to prepare annual works plan in consultation with TFN and incorporating monitoring results and information from routine inspections.</p>					
<p>Management actions provide multiple methods of weed control that can be implemented in response to changing conditions.</p>					
<p>OMP provides an adaptive management strategy to allow the landholder to respond to changing the weed levels.</p>					
<p>Management actions for weed control compatible with other management targets.</p>					
<p>Options for weed control in OMP are:</p> <ul style="list-style-type: none"> <li>- Herbicidal application</li> <li>- Non-chemical weed control methods</li> <li>- Ecological burning</li> </ul>					
<p>Management actions provide process to identify and control or eliminate new or emerging threats complimented by oversight by TFN</p>					
<p>OMP provides a schedule of ten detailed management commitments to change land management and protect native vegetation all of which are designed to protect native herb diversity and improve cover of native grasses.</p>					
<p>OMP provides detailed schedule of management actions all of which consider the need to protect native species diversity.</p>					
<p>Oversight provided by TFN and ecological monitoring annually will record and track vegetation condition.</p>					
<p>OMP provides for biomass control using ecological burning.</p>					
<p>OMP provides an adaptive management strategy to allow the landholder to respond to changing the biomass levels.</p>					
<p>Management actions for biomass control compatible with other management targets.</p>					
<p>Offset area already has a low density of pest animals.</p>					
<p>OMP provides process for monitoring and treating pest animal populations.</p>					
<p>Oversight provided by TFN and ecological monitoring annually will record and track evidence of pest animal impacts.</p>					
<p>5, 15</p>					
<p><b>Failure to improve Lack of Weeds score or Lack of Weeds score declines.</b></p>					
<p>In the event that the management actions even in accordance with the OMP fail to improve the Lack of Weeds score in any one year, TFN will be consulted for advice. In the event that the management actions even in accordance with the OMP fail to improve the Lack of Weeds score in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.</p>					
<p>The management actions in Appendix 1 detail the process by which to address new or emerging threats. Where new or emerging threats are not treated promptly and allowed to proliferate, this will be considered a failure to implement the OMP to the required standard and addressed by TFN as above.</p>					
<p>The management actions in Appendix 1 provide a detailed strategy to manage grassy groundcover condition. In the event that the management actions even in accordance with the OMP fail to maintain the Understorey score in any one year, TFN and the consulting ecologist will be consulted for advice, DAWG will be informed and the OMP will be reviewed by the landholder.</p>					
<p>Management actions in Appendix 1 provide a strategy to manage grassy groundcover condition. In the event management actions in accordance with the OMP fail to maintain organic litter score in any one year, TFN will be consulted for advice. In the event that the management actions fail to improve the organic litter score in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.</p>					
<p>Management actions in Appendix 1 provide a strategy to manage pest animals. In the event that the management actions fail to maintain pest animal numbers in any one year, TFN will be consulted for advice. In the event that the management actions fail to manage pest numbers in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.</p>					
<p>7, 8, 11, 12, (13)</p>					
<p><b>Failure to eliminate new weeds, emerging weed problems not controlled to &lt;1% cover, failure to eliminate new pest animals</b></p>					
<p>The risk assessment of low is based on the difficulty of controlling weed invasions once a particular weed species is well established. The circumstances when this could occur include unpredictable extreme climatic or weather event or a post wildfire weed outbreak. In such cases, review of the OMP would be warranted to address the failure to improve the Lack of Weeds score.</p>					
<p>The risk assessment of low is based on the relatively robust nature of native grasses, the principle component of GSM habitat, when compared with native herbs. The circumstances when a loss of native tussock grass cover could occur include unpredictable extreme climatic or weather event or a post wildfire weed outbreak. N.B. Loss refers to death of established tussocks rather than changes in projective foliage cover due to burning or drought. In such cases, review of the OMP would be warranted to address the failure to improve the habitat score.</p>					
<p>The risk assessment of low is based on biomass being relatively easy to manage and rectify and therefore space for organic matter is also relatively easy to manage.</p>					
<p>The risk assessment of low is based on pest animals and their impacts being relatively easy to detect and monitor and is undertaken as part of farm management in the rest of the property as well.</p>					
<p>6, 10, 15</p>					
<p><b>Loss of GSM food plant cover or inadequate inter-tussock spaces, with associated decline in Understorey score</b></p>					
<p>N.B. Loss refers to dieback or death of established tussocks rather than changes in projective foliage cover due to burning or season, the latter being captured using inter-tussock space data</p>					
<p>2, 3, 4, 7, 8, 9, 10, 11, 12, (13), 14, 1</p>					
<p><b>Failure to maintain/increase Organic litter score</b></p>					
<p>Management actions in Appendix 1 provide a strategy to manage grassy groundcover condition. In the event management actions in accordance with the OMP fail to maintain organic litter score in any one year, TFN will be consulted for advice. In the event that the management actions fail to improve the organic litter score in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.</p>					
<p>8, 11 (12, 13)</p>					
<p><b>Failure to eliminate active rabbit warrens or fox dens, evidence of pest animal impacts present</b></p>					
<p>Management actions in Appendix 1 provide a strategy to manage pest animals. In the event that the management actions fail to maintain pest animal numbers in any one year, TFN will be consulted for advice. In the event that the management actions fail to manage pest numbers in consecutive years, and no reason for this can be identified, the OMP will be reviewed by the landholder.</p>					
<p>9</p>					



<p><b>Failure to maintain Tussock cover sufficient to provide fauna habitat after ecological burns</b></p>	Possible	Major	High	(12, 13)	<p>OMP provides clear guidelines for ecological burning requirements. Burn works plan in consultation with TfN. Ecological monitoring will track weed levels post-burn.</p>	Rare	Major	Medium	<p>This risk assessment of medium is based on the large scale burn which a burn would have to occur for this target not to be met (i.e. more than 50% of the offset area to be burnt in any one year). The most likely cause of a large-scale burn would be escape of a controlled burn, which would be a rare occurrence.</p>
<p><b>Failure to undertake ecological monitoring in accordance with OMP</b></p>	Highly Likely	Moderate	High	14	<p>Ecological monitoring remains the responsibility of the approval holder. TfN to review annual report from landholder each year and release funding only when satisfied works have been undertaken in accordance with the OMP</p>	Unlikely	Minor	Low	<p>The risk assessment of low is based on the approval holder remaining responsible for ensuring the ecological monitoring is undertaken and the oversight provided by TfN. SPG has agreed to be responsible for engaging an ecologist to undertake monitoring each year during the 10 year management period.</p>
<p><b>Failure to undertake reporting in accordance with OMP</b></p>	Highly Likely	Moderate	High	16	<p>Ecological monitoring report remains the responsibility of the approval holder. TfN to review annual report from landholder each year and release funding only when satisfied works have been undertaken in accordance with the OMP</p>	Unlikely	Minor	Low	<p>The risk assessment of low is based on the approval holder remaining responsible for ensuring the ecological reporting is provided and the oversight provided by TfN.</p>
<p><b>Failure to undertake emergency management in accordance with OMP</b></p>	Possible	Major	High	17	<p>OMP provides emergency management procedure. Offset area will have signage to alert emergency services to conservation values within offset area.</p>	Rare	Major	Medium	<p>The risk assessment of medium is based on the large impacts that emergency management actions can have on native vegetation, especially ploughing of fire breaks. However, the frequency of emergency events is expected to be rare and the risk has been reduced compared to the current conditions of no OMP.</p>
<p><b>Failure to maintain habitat hectares score achieved at the end of Year 10 from Year 11 to Year 20 (to achieve 20 year time horizon)</b></p>	N/A	N/A	N/A	18	<p>The TfN covenant binds the current (and future) Landholder to the standard restrictions in the TfN covenant and to the requirements described in this OMP. TfN to visit offset area every 5 years after Year 10.</p>	Possible	High	Medium	<p>This risk assessment of medium is based on the difficulty of improving conditions once they start to decline when compared to simply maintaining conditions. Failure to maintain the habitat hectares score would likely be derived from one of two sources: unpredictable extreme event or insufficient inputs to maintain the vegetation condition, both of which have been addressed above.</p>
<p><b>Failure to review OMP when circumstances change or management actions become ineffective</b></p>	N/A	N/A	N/A	19	<p>OMP allows both the landholder and the approval holder to review the OMP and make changes as needed. TfN will provide advice on management to landholder in the event management actions become ineffective.</p>	Unlikely	Moderate	Low	<p>The risk assessment is low because failure to review the OMP after a change of circumstances/due to ineffective management actions would be a failure to implement the OMP to the required standard, which is addressed above.</p>

For an escaped burn, the emergency provisions and incident reporting of the OMP will apply. TfN and the consulting ecologist will be consulted for advice. DAWF will be informed and the OMP will be reviewed by the landholder.

In the event that the ecological monitoring is not undertaken in accordance with OMP, the cause of the failure will be investigated and rectified prior to the next monitoring season (annually for vegetation or alternate years for GSM surveys).

In the event that reporting is not undertaken in accordance with OMP, the cause of the failure will be investigated and rectified prior to the next reporting season (annually for landholder annual report and vegetation or alternate years for GSM surveys).

Failure to implement the emergency provisions of the OMP will likely result in an incident and the incident reporting provisions of the OMP will apply. TfN and the consulting ecologist will be consulted, DAWF will be informed and the OMP will be reviewed by the landholder if the offset area is affected.

The annual works plan will address management actions required for the coming season including routine monitoring.

In development of the annual works plan, TfN will be consulted where management actions do not appear to be effective and their advice sought on how to address any problems. TfN will visit the offset area at least twice from Year 11 to Year 20 period and require annual reports to be submitted for review to ensure compliance continues. For extreme events, the emergency management provisions will apply.

The OMP provides the details of how and when the OMP is to be reviewed and updated.





## Appendices

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## Appendix 1 Schedule of management actions

**Table A1** Schedule of management actions and management targets

Legend to table:



Management Action	1	2	3	4	5	6	7	8	9	10
1 Register the Offset Area OMA Immediately upon OMP commencement. See OMP commencement in Section 1.										
2 Implement management commitments to change land management and protect native vegetation in OMP and TIN covenant Immediately upon OMP commencement. See OMP commencement in Section 1.										
3 Implement permanent changes to grazing Immediately upon OMP commencement. See OMP commencement in Section 1.										

**1 Register the Offset Area OMA**  
Immediately upon OMP commencement. See OMP commencement in Section 1.

**2 Implement management commitments to change land management and protect native vegetation in OMP and TIN covenant**  
Immediately upon OMP commencement. See OMP commencement in Section 1.

**3 Implement permanent changes to grazing**  
Immediately upon OMP commencement. See OMP commencement in Section 1.

TIN covenant registered on title in accordance with Section 3A Victorian Conservation Trust Act 1972  
Covenant to cover 7,201 ha

Landholder to register TIN covenant on title  
Landholder to provide copies of title to SPG within 2 weeks of registration being completed  
SPG to provide title to DAWE within 4 weeks of registration

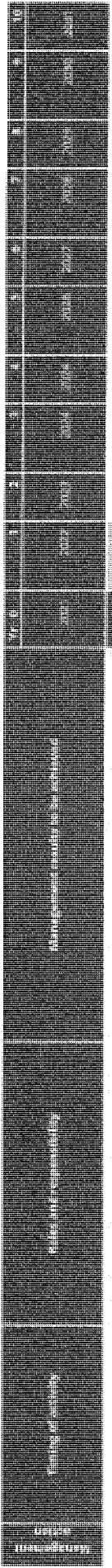
Landholder to ensure all excluded activities no longer permitted within Offset area  
Permanently exclude all activities involving mechanical disturbance (excavation, geological exploration, ploughing of fire breaks, cultivation etc.)  
All posts to be direct driven  
Permanently exclude all activities that would knowingly introduce new weeds/weed seeds, e.g. over-sowing or other pasture improvement using hay, silage or feed that could contain viable weed seeds planting of tree belts.

Exclude all broad-acre herbicide use except in accordance with OMP. No creating fence lines or firebreaks with spraying.  
No infrastructure except in accordance with OMP (e.g. no yards, barbed wire fencing etc)

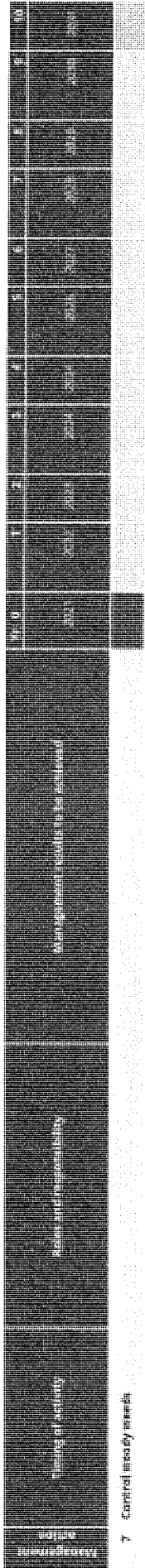
Approvals obtained from TIN for any new infrastructure not in accordance with OMP  
All workers are aware of activities that are not permitted in offset area

No unauthorised access or unapproved works within offset area  
Weed hygiene protocol developed for sheep, workers, vehicles, plant and equipment

Permanently exclude all fertilizer application.  
Permanently exclude all grazing by any domestic stock.



<p>4 Prepare and implement revegetation works</p>	<p>Landowner to engage ecologist to identify sites for revegetation</p> <p>Landowner to engage bushland regeneration expert to collect propagules for revegetation works.</p> <p>Landowner to commission on ground revegetation works as guided by the revegetation plan</p>	<p>Revegetation area defined by start of year 2. Revegetation plan prepared by end of year 1</p> <p>Adequate material available to start revegetation works at the start of year 2</p> <p>20% cover of native grasses by end of year 4. Progressive increase in herb and shrub diversity</p>
<p>5 Prepare and implement annual works plan</p>	<p>Landholder to prepare annual works plan in consultation with TIN and incorporating monitoring results and information from routine inspections.</p> <p>Landholder to ensure overall progress/results are reviewed at least once per year.</p> <p>Landholder to ensure works plan adapts to seasonal conditions and/or new or emerging threats</p>	<p>Review results from routine inspections and monitoring, determine management requirements for coming season in timely manner</p> <p>Identify areas for improvement, incidents or changing conditions</p> <p>Prepare annual works plan based on review</p> <p>Identify suitably qualified staff or suitably qualified contractors to undertake works. All work to be undertaken by/supervised by suitably qualified individuals</p> <p>Provide site induction to new staff or contractors</p> <p>Seek advice from TIN, CMA, ecologist or other contractor, if necessary</p>
<p>6 Routine inspections and records of works</p>	<p>Minimum of once per quarter (4 times per year)</p> <p>Landholder to ensure routine inspections record are undertaken at regular intervals</p> <p>Landholder to records are kept of all routine inspections</p> <p>Landholder to records are kept of all works undertaken in the offset area</p>	<p>Undertake routine inspections of Offset area at least once every three months</p> <p>Identify any maintenance requirements for external paddock fencing, signage. Note if additional impacts from livestock movements become apparent around gates, fencelines or watering points.</p> <p>Records are kept of any maintenance requirements and timeline for repair.</p> <p>Records are kept of all routine inspections</p> <p>Use GPS to record any weed infestations to target for treatment, new or unknown weeds/pests or weeds/pests that appear to be increasing</p> <p>Record any pest sightings or evidence of pest activating</p> <p>Use GPS to record the location of active rabbit warrens or fox dens</p>



**7 Control woody weeds**  
July-Nov or as detailed in the annual works plan

Landholder to ensure annual works plan details target species, methods and timing of woody weed control

Landholder to ensure woody weeds are controlled using minimal impact methods and in accordance with OMP

Landholder to ensure woody weed mapping is undertaken at least once per year.

Landholder to ensure woody weed control starts in Year 1 and the management target is met by Year 2 and then maintained.

Search offset area and use GPS to record location of woody weeds (at least once per year). Record any areas to target for herbaceous weed control at the same time.

Treat woody weeds using appropriate herbicide at correct time of year and to prevent fruiting and seeding. Refer to manufacturer's instructions or seek advice from TFN or weed contractor if needed.

Treat woody weeds with methods that have minimal impact on native species

Avoid off target damage to native species

**Eliminate all established adult plants by end of Year 2**

- After Year 2, continue treat woody weed seedlings/resprouting stumps to achieve the management target of <1% cover of woody weed seedlings at end of Year 10

**8 Control herbaceous weeds**  
July-Nov or as detailed in the annual works plan

Landholder to ensure annual works plan details target species, methods and timing of herbaceous weed control

Landholder to ensure herbaceous weeds are controlled using minimal impact methods and in accordance with OMP

Landholder to ensure herbaceous weeds control starts in Year 1 and management target is met by the end of Year 10

Determine target weed species/groups for each season, determine treatment method (burning/herbicide/combination/other)

Determine number of spot spraying/chemical free weed control events required and record in annual works plan

For spot spraying, determine appropriate herbicide/rate and record in annual works plan

For burning, determine seasonal requirements and record in annual works plan

Treat herbaceous weeds with appropriate method at appropriate season according to annual works plan.

Avoid off target damage to native species

**Targets for all areas:**

- Woody weeds: <1%
- Perennial tussock grasses (e.g. Phalaris): <1%
- Noxious grassy weeds (e.g. Serrated Tussock): eliminated if found
- Broad-leaved high threat weeds (e.g. Thistles): <1%
- Annual weeds: <10%
- Perennial mat-forming grasses (e.g. Brown-top bent): <5%
- Sweet Vernal-grass: <1%



Activity	Frequency	Responsible Party	Notes
Annual pest control plan	Annual	Landholder	
Routine monitoring	Quarterly	Landholder	
Ecological burning	Annual	Landholder	

**10 Identify and control or eliminate new or emerging threats**

Routine monitoring, treatment as needed

Landholder to ensure annual works plan details target species, methods and timing of pest animal control

Landholder to ensure pest animals are controlled using minimal impact methods and in accordance with OMP

Landholder to ensure pest animal control starts in Year 1 and management target is met by the end of Year 10

Determine pest animal control requirements and record in annual works plan. A minimum requirement is quarterly spotlighting searches.

Treat pests with appropriate method at appropriate season, record results in accordance with annual works plan. A

Treatment methods will be in accordance with OMP and will not cause damage to the grassland. E.g. no ripping of rabbit warrens. Refer to DELWP (2015) for details on low-impact methods

Rabbit warrens fumigated within three weeks of detection.

Record any incidental sightings

- By end of Year 2, no active rabbit warrens within offset area, minimal surface harbour in the form of Woody Weeds
- By end of Year 10 there should be no fresh ground disturbance by pest animals (particularly rabbits) observed in the offset area or active rabbit warrens or fox dens.

Routine inspections undertaken according to OMP and all new and emerging threats are identified early.

Identify correct treatment and treat infestation appropriately

For unknown weeds/pests, consult appropriately qualified person to establish identity

If possible, identify source of new infestation, change procedures to prevent further infestations if within control of Landholder

For unknown weeds/pests, consult appropriately qualified person to establish identity

Adaptive management used to update procedures in response to new or changing conditions

If not already established (not reproducing in the site) threat should be eliminated

If already established, threat should be minimised to <1% cover

**Target to be achieved from Year 1 onwards:**

- New weeds eliminated, emerging weed problems controlled to <1% cover, new pest animals eliminated

**11 Ecological burning for Offset area**

Sep-Oct or February - May (or as specified in the burn plan)

Landholder to develop burn plan in consultation with TFN and where necessary, CFA or ecological consultant

Landholder to ensure all ecological burns are in accordance with the OMP

Determine appropriate location for ecological burning trial in consultation with TFN / ecologist and record in annual works plan

Undertake burning of up to 3.5 hectares, followed by 6 to 12 months protection from grazing if required and follow up weed control

Review results of burning against management targets, discuss with TFN and ecologist and adjust management inputs and effort accordingly

			(summer 2022/23)	(summer 2024/25)	(summer 2026/27)	(summer 2028/29)	(summer 2030/31)	Start in Year 11	
<b>12 Ecological monitoring</b>	Vegetation condition: Oct-early Dec GSM: night season: Nov-early Jan	Landholder to facilitate access to offset area for ecologists undertaking monitoring  Landholder to ensure any permanent markers of monitoring plots are not accidentally removed  SPG to engage and fund ecological monitoring in accordance with the schedule in the OMP	Ecologist to establish monitoring plots and undertake baseline surveys in Year 0  Ecologist to undertake annual vegetation surveys in mid-late spring, data collected consistently to determine improvement in GSM habitat; identify problems early, identify opportunities for adaptive management  Ecologist to review results of planned burns and provide advice on burn planning (as needed). Data collected to determine weed cover does not increase in burnt areas compared to unburnt areas  Ecologist to undertake GSM surveys during flight season at end of Years 1, 3, 5, 7, 9. Data collected consistently to determine improvement in GSM breeding population						
<b>13 Trust for Nature routine inspections</b>	Years 1, 3, 7 and 10 with at least one visit in spring	TIN will visit the Offset area a minimum of four times over the 10 year management period	Provide advice to landholder, ensure covenant is compliant						
<b>14 Reporting</b>	Ecological monitoring report - 15th January Landholder annual report - anniversary of OMP	Ecologist to prepare report and supply to Landholder and SPG prior to start of grazing period each year  Landholder to supply annual report to SPG and TIN  SPG to supply all reports to DAWE in fulfillment of approval conditions	Ecologist to prepare report on ecological monitoring and planned burn advice as detailed above.  Landholder to prepare annual report on based on records of works undertaken and routine inspections.  Report must demonstrate progress of offset area has been tracked regularly each year over the 10 year management period						
<b>15 Emergency management</b>	Immediately as needed	Landholder to report any incidents that could threaten GSM to TIN with 24 hours  Landholder to report any incidents that could threaten GSM to SPG and DAWE within 5 days	Identify and respond to emergency events according to Mickleham emergency management plan  Report any incidents that could threaten GSM to TIN with 24 hours (03) 8631 5888  Report any incidents that could threaten GSM to SPG and DAWE within 5 days: post: approvals@environment.gov.au						
<b>16 Years 11+: Maintain an annual works plan as above for the ongoing maintenance of the condition</b>	Year 11 onwards	Landholder to maintain condition achieved at the end of Year 10  Landholder to consult with TIN periodically to discuss effectiveness of on-going management	Develop annual works plan to ensure management actions continue to adapt to current conditions for weeds, pest animals and biomass control.  * Maintain fencing and signage. * Continued protection of herb diversity and native tussock grass structure. * Woody weeds maintained at <1% cover with no adult plants * Cover of herbaceous weeds does not increase beyond levels achieved at Year 10 * Pest animals do not increase beyond levels achieved at Year 10 * Biomass is maintained to achieve >20 to 40% inter-tussock space * Seek advice from TIN, CMA, ecologist or other contractor, if necessary						





## Appendix 2 Species for use in reserve revegetation works

Life form	Scientific Name	Common Name
<b>Trees</b>		
	<i>Eucalyptus camaldulensis</i>	River Red-gum
<b>Shrubs</b>		
	<i>Acacia paradoxa</i>	Hedge Wattle
	<i>Allocasuarina verticillata</i>	Drooping Sheoak
	<i>Meliccytus dentatus</i>	Tree Violet
<b>Grasses or grass-like species</b>		
	<i>Anthosachne scabra</i>	Common Wheat-grass
	<i>Arthropodium strictum</i>	Chocolate Lily
	<i>Austrostipa bigeniculata</i>	Kneed Spear-grass
	<i>Austrostipa mollis</i>	Supple Spear-grass
	<i>Austrostipa scabra</i> subsp. <i>falcata</i>	Rough Spear-grass
	<i>Austrostipa semibarbata</i>	Fibrous Spear-grass
	<i>Bothriochloa macra</i>	Red-leg Grass
	<i>Burchardia umbellata</i>	Milkmaids
	<i>Carex inversa</i>	Knob Sedge
	<i>Chloris truncata</i>	Windmill Grass
	<i>Dianella revoluta</i> s.l.	Black-anther Flax-lily
	<i>Dichelachne crinita</i>	Long-hair Plume-grass
	<i>Lachnagrostis filiformis</i>	Common Blown-grass
	<i>Lomandra filiformis</i>	Wattle Mat-rush
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass
	<i>Poa labillardierei</i>	Common Tussock-grass
	<i>Poa morrisii</i>	Soft Tussock-grass
	<i>Rytidosperma duttonianum</i>	Brown-back Wallaby-grass
	<i>Rytidosperma geniculatum</i>	Kneed Wallaby-grass
	<i>Rytidosperma racemosum</i> var. <i>racemosum</i>	Slender Wallaby-grass



Life form	Scientific Name	Common Name
	<i>Rytidosperma setaceum</i>	Bristly Wallaby-grass
	<i>Themeda triandra</i>	Kangaroo Grass
<b>Herbs and forbs</b>		
	<i>Arthropodium strictum</i>	Chocolate Lily
P	<i>Chrysocephalum</i> sp. 1	Plains Everlasting
	<i>Dichondra repens</i>	Kidney-weed
	<i>Eryngium ovinum</i>	Blue Devil
P	<i>Euchiton sphaericus</i>	Annual Cudweed
	<i>Geranium retrorsum</i> s.s.	Grassland Crane's-bill
	<i>Geranium solanderi</i> var. <i>solanderi</i> s.s.	Austral Crane's-bill
	<i>Goodenia pinnatifida</i>	Cut-leaf Goodenia
	<i>Hypericum gramineum</i> spp. agg.	Small St John's Wort
P	<i>Leptorhynchos squamatus</i>	Scaly Buttons
	<i>Rumex brownii</i>	Slender Dock
P	<i>Senecio quadridentatus</i>	Cotton Fireweed
P	<i>Solenogyne dominii</i>	Smooth Solenogyne
	<i>Tricoryne elatior</i>	Yellow Rush-lily
	<i>Veronica gracilis</i>	Slender Speedwell
	<i>Wahlenbergia luteola</i>	Bronze Bluebell



## Appendix 3 DAWE 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 4 Quality scoring methods

### VEGETATION

Quality improvement will be measured using the Habitat Hectares method at each of the permanent monitoring plots and as an average quality for the whole area. A Habitat Hectare score is easily converted to a score out of 10 as shown in the Table below. The vegetation quality scoring method was used to obtain the quality score of the offset area in the Offsets Assessment Guide and should be replicated to determine the final quality score. Where the score is a decimal, it is rounded to the nearest whole number for entry into the Offsets Assessment Guide. Scores with a decimal place value of less than 0.5 are rounded down, scores with a decimal place value of 0.5 or above are rounded up.

**Table A4.1 Habitat Hectares score conversion to Quality score out of 10**

Parameter	Components measured	Max. Habitat Hectares score	Equivalent Quality score
<b>Site context</b>	Number of species, cover and diversity of lifeforms	75/100	7.5/10
	Percentage of weed cover moderated by percentage of high threat weed cover		
	Percentage of recruitment area scaled by herb diversity		
	Percentage cover of organic litter scaled to litter type (native/non-native)		
<b>Site condition &amp; stocking rate equivalent</b>	Size of patch	25/100	2.5/10
	Neighbourhood measured as percentage of surrounding area		
	Distance to large areas of native vegetation (>50 ha)		
<b>Total score</b>		100/100	10/10

### GSM habitat

Quality improvement will be measured using the vegetation results for site score described above and the results of targeted surveys for GSM.

The scoring methods used to obtain the Quality score of the Offset area in the Offsets Assessment Guide is shown in Table A4.2 and should be replicated to determine the final Quality score.



**TableA4.2 GSM habitat Quality scoring system as advised by DAWE (pers. comm. 2019)**

Parameter	Scoring system
<b>Site context</b> <b>(max. 3 points)</b>	<ul style="list-style-type: none"> <li>• 0/3 = Habitat patch<sup>1</sup> size &lt;0.25 ha.<sup>2</sup></li> <li>• 1/3 = Habitat patch size more than 0.25 ha and up to 10 ha.<sup>2</sup></li> <li>• 2/3 = Habitat patch size more than 10 ha, shaped appropriately<sup>3</sup> to reduce edge effects.<sup>2</sup></li> <li>• 3/3 = Habitat patch size more than 10 ha, shaped appropriately to reduce edge effects, slightly sloped (3° or less) and north-facing, minimal shading.</li> </ul>
<b>Site condition</b> <b>(max. 3 points)</b>	<ul style="list-style-type: none"> <li>• 0/3 = dominated by introduced vegetation that is not a known food source.</li> <li>• 1/3 = dominated by poor condition native vegetation (VQA site condition score up to 30/75) including &lt;20% cover known food source, or dominated by introduced vegetation that is a known food source (i.e. Chilean needle grass) where the species stocking rate<sup>4</sup> is less than 20 moths per hectare.</li> <li>• 2/3 = dominated by moderate condition native vegetation (VQA site condition score 31-45/75) including between 20% and 40% cover known food source with limited inter-tussock space (&lt;5%), or dominated by introduced vegetation that is a known food source (i.e. Chilean needle grass) where the species stocking rate<sup>4</sup> is greater than 20 moths per hectare.</li> <li>• 3/3 = dominated by high conservation value native vegetation (VQA site condition score 46+/75) including &gt;40% cover known food source and appropriate inter-tussock space.</li> </ul>
<b>Species stocking rate<sup>4,5</sup></b> <b>(max. 4 points)</b>	<ul style="list-style-type: none"> <li>• 0/4 = species not present</li> <li>• 1/4 = 0-5 males per hectare</li> <li>• 2/4 = &gt;5-20 males per hectare</li> <li>• 3/4 = &gt;20-50 males per hectare</li> <li>• 4/4 = &gt;50 males per hectare</li> </ul>

**Total (out of 10)**

<sup>1</sup>A patch is considered to be an area of GSM habitat separated from other areas of suitable habitat by >200m of unsuitable habitat, or barriers to flight (e.g. buildings, solid fences). A habitat patch should not be defined by administrative boundaries such as farm fencing, title or lot boundaries if habitat is continuous on either side of the boundary. According to the guidelines, if the amount of GSM habitat adjoining the site of the action cannot be determined, the area of habitat will be considered to be the same as that identified within the site.

<sup>2</sup>Add 1 point (up to a maximum of 3) where a patch is an occupied linkage between 2 populations.

<sup>3</sup>Assessed on a case by case basis.

<sup>4</sup>Stocking rate (measured as males per hectare) calculated as: total number of males recorded across four surveys in one flight season divided by area of habitat surveyed (with survey area confirmed with GPS tracks). It is not expected that results can be extrapolated across unsurveyed areas unless justification is given (e.g. the surveyed area is a sub-sample of the total area). Stocking rate calculations to be rounded up if required.

<sup>5</sup>It is expected that impact and offset sites to be surveyed on four occasions during the flying season and the survey results to be summed (consistent with survey guidelines). Justification will need to be provided to the Department to support proceeding in the absence of suitable survey effort.

For clarity, if lower survey effort than four complete surveys is accepted, the Department will consider:

- For impact sites: the highest recorded density is assumed to be the remaining score (e.g. if three surveys detect 5, 10, 15 males/ha, the assumed score for the last survey is 15 males/ha).
- For offset sites: the lowest record is assumed to be the remaining score (e.g. if three surveys detect 5, 10, 15 males/ha, the assumed score for the last survey is 5 males/ha).

For either type of site, if one survey records 5 males/ha, then assumed total of four surveys is 20 males/ha.



## Appendix 5 Glossary

---

The following abbreviations and symbols are relevant to this plan:

### **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.

### **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 offset area. 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 offset area's condition score (measured between 0 and 1) with the area of the offset (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.

### **Indigenous vegetation\***

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



**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 area.

**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.

**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).

### SCHEDULE 3: COMPLIANCE AND PAYMENT CONDITIONS

1. The conditions in this Schedule 3 shall apply until the expiration of the Offset Management Plan.
2. Before the Trust will be obliged to make any payment to the Owner, the Owner must reasonably satisfy the Trust as to its compliance with the Covenant by:
  - a. providing all reports as to the progress of implementing the Offset Management Plan, in accordance with the Covenant;
  - b. responding to any other reasonable requests by the Trust for information relating to the Owner's compliance with the Covenant; and
  - c. allowing the Trust and any person it nominates to enter the Land to carry out site inspections at any reasonable time upon provision of reasonable notice to the Owner.
3. If satisfied that the Owner has implemented the Offset Management Plan for a particular year and otherwise complied with this Covenant, the Trust must make payments in accordance with Schedule 4 to the Owner for the relevant year.
4. If, for any of the reasons described in clause 11.1.2 of the Covenant (acts out of the control of the Owner), native vegetation within Conservation Tier is damaged or destroyed, or the completion of management actions required by the Offset Management Plan is delayed:
  - a. the Owner must:
    - i. immediately advise the Trust in writing, describing the extent of the affected area; and
    - ii. to the extent that it is reasonably practicable, and to the reasonable satisfaction of the Trust:
      - A. complete the outstanding management actions as soon as possible;
      - B. make best endeavours to assist the regeneration of the affected area; and
      - C. continue to manage the affected area for conservation purposes and consistently with the Covenant Objectives; and
  - b. provided that the Owner has complied with clause 4.a of this Schedule 3, the Trust agrees that it will not withhold any payment for the relevant year.
5. Subject to clause 4 of this Schedule 3, if the Trust believes, acting reasonably, that the Owner has failed to comply with the Covenant, the Trust may withhold any payment to the Owner until the relevant requirement has been complied with to the Trust's reasonable satisfaction.

- a. Where a payment has been withheld, the Trust must provide the Owner with reasonable particulars describing what must be done before a payment will be made.
  - b. If 30 days have passed since the Trust provided reasonable particulars, and the Owner continues to fail to comply with the Covenant, the Trust or its agents may enter the Land to undertake the necessary conservation work, or undertake other actions off the Land with a view to rectifying the breach.
  - c. The Trust may recover the costs incurred pursuant to sub-clause 5.b of this Schedule 3 (which costs may include staff wages and disbursements) by either, at its sole option:
    - i. providing an account of costs to the Owner, which must be paid by the Owner immediately upon receipt; or
    - ii. deducting the costs from the amount(s) payable to the Owner pursuant to Schedule 4 .
  - d. The costs incurred pursuant to sub-clause 5.b of this Schedule 3 shall be capable of being recovered by the Trust in any court or competent jurisdiction as a civil debt recovered summarily.
  - e. If the Owner fails to comply with the Covenant for two years in succession, moneys held by the Trust may be forfeited and the Trust shall be entitled to deal with those moneys for the purposes of funding a substitute offset, through the purchase of Biodiversity Credits or other conservation works.
  - f. The Trust's rights in this clause 5 of this Schedule 3 are granted in addition to any rights of remedy provided in the operative provisions of the Covenant.
6. Any money held by the Trust for the purpose of making payments to the Owner will be deposited in an interest bearing account. The Trust will pay the Owner interest earned on the moneys, less any costs.
  7. The parties consent to the Trust issuing a Recipient Created Tax Invoice (as defined in A New Tax System (Goods and Services Tax) Act 1999 (Cth)) in relation to any supply made in connection with the Covenant, where the Trust is willing to do so, but acknowledge that the Trust shall not be obliged to issue a Recipient Created Tax Invoice.

**SCHEDULE 4: PAYMENT SCHEDULE TO THE OWNER**

<b>Date</b>	<b>Payment to Owner by the Trust (Ex GST)</b>
Initial payment on registration of the Covenant (Initial Payment)	25% of total (\$369,251.32)
At the first anniversary of registration	10% of total (\$147,700.53)
At the second anniversary of registration	5% of total (\$73,850.26)
At the third anniversary of registration	10% of total (\$147,700.53)
At the fourth anniversary of registration	10% of total (\$147,700.53)
At the fifth anniversary of registration	5% of total (\$73,850.26)
At the sixth anniversary of registration	5% of total (\$73,850.26)
At the seventh anniversary of registration	10% of total (\$147,700.53)
At the eighth anniversary of registration	5% of total (\$73,850.26)
At the ninth anniversary of registration	5% of total (\$73,850.26)
At the tenth anniversary of registration	10% of total (\$147,700.53)
<b>Total payment:</b>	<b>\$1,477,005.26 (Ex GST)</b>

**SCHEDULE 5: MORTGAGEE'S CONSENT**

**Commonwealth Bank of Australia [ACN 123 123 124]** as Mortgagee of registered mortgage No. AS780823V consents to the Owner entering into this Covenant and in the event that the Mortgagee becomes Mortgagee-in-possession, agrees to be bound by the covenants and conditions of this Covenant.

Executed by Commonwealth Bank of Australia [ACN 123 123 124] (in its capacity as agent) by its attorney under Power of Attorney dated:

In the presence of:

*SEE BELOW*

.....  
Signature of witness

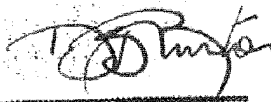
.....  
Attorney name and tier

.....  
Name of witness (print)

By executing this agreement the attorney states that the attorney has received no notice of revocation of the power of attorney

**EXECUTED by COMMONWEALTH BANK OF AUSTRALIA TRADING AS BANKWEST ABN: 48 123 123 124 by its duly constituted attorney under power of attorney no. ~~123456~~ PERMANENT ORDER BOOK 277 PAGE 31 ITEM 4**  
Dated 7th August 2012 who at the date hereof had no notice of revocation of such power of attorney in the presence of:

by its attorney:




Signature

Name

Title

**Dougal Burton**  
Senior Director  
Property Finance Unit

  
An Officer of the Bank  
**Christopher Bragg**  
Witness name



# Department of Environment, Land, Water and Planning

## Native Vegetation Credit Register

### Allocated credit extract

Credit ID: 2021-0712

**Credit owner: Satterley Mickleham Pty Ltd**

#### Credits allocated to:

<b>Planning approval type:</b>	Planning permit
<b>Approval reference:</b>	P22453
<b>Project name:</b>	1960 Mickleham Road, Mickleham
<b>Responsible authority:</b>	Hume City Council
<b>Date of allocation:</b>	08/09/2021

#### Credits allocated:

Site-Zone	Large Trees	General Habitat Units	Strategic Biodiversity Value Score
1-C	0	1.229	0.775
1-D	0	0.207	0.630
<b>Total</b>	<b>0</b>	<b>1.436</b>	

#### Credit site details:

<b>Property identifier:</b>	VC_CFL-3700_01
<b>Catchment Management Authority:</b>	Port Phillip And Westernport
<b>Local Government Authority:</b>	French-Elizabeth-Sandstone Islands (Uninc)
<b>Locality:</b>	French Island
<b>Bioregion:</b>	Gippsland Plain
<b>Ecological Vegetation Class:</b>	Sand Heathland (0006), Wet Heathland (0008)
<b>Credit type:</b>	Remnant vegetation

This extract provides evidence of an allocation of credits to a planning document with a condition requiring an offset. The specified credits can no longer be traded or allocated for another purpose.

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# Department of Environment, Land, Water and Planning

## Native Vegetation Credit Register

### Allocated credit extract

Credit ID: 2021-0698

**Credit owner: Satterley Mickleham Pty Ltd**

#### Credits allocated to:

**Planning approval type:** Planning permit  
**Approval reference:** P22453  
**Project name:** 1960 Mickleham Road, Mickleham  
**Responsible authority:** Hume City Council  
**Date of allocation:** 06/09/2021

#### PLANNING AND ENVIRONMENT ACT 1987

This plan/document is endorsed in accordance with Condition No. 6.b of Permit No. P22453

Sheet No. 1 of 2  
Date: 26-11-2021

Signature for the Responsible Authority:  
Christopher Bryce



#### Credits allocated:

Site-Zone	Large Trees	General Habitat Units	Strategic Biodiversity Value Score
2-A	16	0.001	0.527
<b>Total</b>	<b>16</b>	<b>0.001</b>	

#### Credit site details:

**Property identifier:** VC\_CFL-0838\_01  
**Catchment Management Authority:** Port Phillip And Westernport  
**Local Government Authority:** Yarra Ranges Shire  
**Locality:** Launching Place  
**Bioregion:** Highlands - Southern Fall  
**Ecological Vegetation Class:** Lowland Forest (0016), Riparian Forest (0018)  
**Credit type:** Remnant vegetation

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# Department of Environment, Land, Water and Planning

## Native Vegetation Credit Register

### Allocated credit extract

Credit ID: 2021-0712

**Credit owner: Satterley Mickleham Pty Ltd**

#### Credits allocated to:

**Planning approval type:** Planning permit  
**Approval reference:** P22453  
**Project name:** 1960 Mickleham Road, Mickleham  
**Responsible authority:** Hume City Council  
**Date of allocation:** 08/09/2021

#### PLANNING AND ENVIRONMENT ACT 1987

This plan/document is endorsed in accordance with Condition No. 6.b of Permit No. P22453

Sheet No. 2 of 2  
Date: 26-11-2021

Signature for the Responsible Authority:  
Christopher Bryce



#### Credits allocated:

Site-Zone	Large Trees	General Habitat Units	Strategic Biodiversity Value Score
1-C	0	1.229	0.775
1-D	0	0.207	0.630
<b>Total</b>	<b>0</b>	<b>1.436</b>	

#### Credit site details:

**Property identifier:** VC\_CFL-3700\_01  
**Catchment Management Authority:** Port Phillip And Westernport  
**Local Government Authority:** French-Elizabeth-Sandstone Islands (Uninc)  
**Locality:** French Island  
**Bioregion:** Gippsland Plain  
**Ecological Vegetation Class:** Sand Heathland (0006), Wet Heathland (0008)  
**Credit type:** Remnant vegetation

This extract provides evidence of an allocation of credits to a planning document with a condition requiring an offset. The specified credits can no longer be traded or allocated for another purpose.

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REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 11614 FOLIO 152

Security no : 124096056559A  
Produced 10/03/2022 11:08 AM

LAND DESCRIPTION

Lot 4A on Plan of Subdivision 727373F.  
PARENT TITLE Volume 09323 Folio 474  
Created by instrument PS727373F 20/11/2015

REGISTERED PROPRIETOR

Estate Fee Simple  
Sole Proprietor  
DEEP LEAD PROPERTY PTY LTD of 2B STOTT STREET PRESTON VIC 3072  
AS581593V 02/10/2019

ENCUMBRANCES, CAVEATS AND NOTICES

COVENANT as to part Section 3A Victorian Conservation Trust Act 1972  
AV387782Y 02/03/2022

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PS727373F FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NUMBER	COVENANT	STATUS	DATE
AV387782Y		Registered	09/03/2022

-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

Street Address: CAULFIELD LANE BEAUFORT VIC 3373

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REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 12297 FOLIO 405

Security no : 124096056249M  
Produced 10/03/2022 11:02 AM

LAND DESCRIPTION

Land in Plan of Consolidation 380485M.

PARENT TITLES :

Volume 11614 Folio 153          Volume 11614 Folio 155

Created by instrument PC380485M 15/04/2021

REGISTERED PROPRIETOR

Estate Fee Simple

Sole Proprietor

DEEP LEAD PROPERTY PTY LTD of 2B STOTT STREET PRESTON VIC 3072  
PC380485M 15/04/2021

ENCUMBRANCES, CAVEATS AND NOTICES

COVENANT as to part Section 3A Victorian Conservation Trust Act 1972  
AV387215M 02/03/2022

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PC380485M FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NUMBER		STATUS	DATE
AV387215M	COVENANT	Registered	04/03/2022

-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

Street Address: CAULFIELD LANE BEAUFORT VIC 3373

ADMINISTRATIVE NOTICES

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eCT Control          16815L AUGHTERSONS LAWYERS PTY LTD

Register Search Statement - Volume 11609 Folio 437

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REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 11609 FOLIO 437

Security no : 124096056986L  
Produced 10/03/2022 11:15 AM

LAND DESCRIPTION

Lot 8 on Plan of Subdivision 727973E.

PARENT TITLES :

Volume 03561 Folio 197      Volume 04609 Folio 710

Created by instrument PS727973E 02/11/2015

REGISTERED PROPRIETOR

Estate Fee Simple

Sole Proprietor

KINRARA PTY LTD of BURKE AND WILLS TRACK KYNETON VIC 3444

PS727973E 02/11/2015

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AQ757680Q 22/02/2018

AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD

COVENANT as to part Section 3A Victorian Conservation Trust Act 1972

AV387489W 02/03/2022

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AGREEMENT as to part Section 72(1) Conservation Forest and Lands Act 1987

AL455639P 30/10/2014

AGREEMENT as to part Section 72(1) Conservation Forest and Lands Act 1987

AN521275T 03/02/2017

DIAGRAM LOCATION

SEE PS727973E FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NUMBER

AV387489W

COVENANT

STATUS

Registered

DATE

09/03/2022

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Additional information: (not part of the Register Search Statement)

Street Address: SIEVERS LANE GLENHOPE VIC 3444

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VOLUME 11609 FOLIO 438

Security no : 124096057725H  
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LAND DESCRIPTION

Lot 9 on Plan of Subdivision 727973E.

PARENT TITLES :

Volume 03561 Folio 197      Volume 04609 Folio 710

Created by instrument PS727973E 02/11/2015

REGISTERED PROPRIETOR

Estate Fee Simple

Sole Proprietor

KINRARA PTY LTD of BURKE AND WILLS TRACK KYNETON VIC 3444

PS727973E 02/11/2015

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AQ757680Q 22/02/2018

AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD

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AV387441C 02/03/2022

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DIAGRAM LOCATION

SEE PS727973E FOR FURTHER DETAILS AND BOUNDARIES

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NUMBER	COVENANT	STATUS	DATE
AV387441C	COVENANT	Registered	04/03/2022

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## Kimberly Spragg

---

**From:** Jeremy Hughes <jeremyh@satterley.com.au>  
**Sent:** Wednesday, 8 March 2023 6:39 PM  
**To:** EPBC Monitoring  
**Cc:** Smith, Tom; Steve Mueck; Kimberly Spragg  
**Subject:** EPBC 2015/7516 notification of securing offsets (condition 5)

Dear Department of Climate Change, Energy, the Environment and Water,

Please find below Satterley's notification relating to EPBC 2015/7516 approval Condition 5 and request for notification received from Department of Climate Change, Energy, the Environment and Water on 21/02/23.

The following offset sites have been secured:

- 1960 Mickleham Road, Mickleham VIC 3064
- 235 Muncktons Lane, Glenaroua VIC 3764
- 5066 Western Highway, Beaufort VIC 3373
- Sievers Lane, Glenhope VIC 3444

Documents referenced below can be downloaded here <https://spaces.hightail.com/receive/yKu00QjDiB>

### **1960 Mickleham Road, Mickleham VIC 3064**

Property address: 1960 Mickleham Road, Mickleham VIC 3064

Mechanism: Section 3A of the *Victorian Conservation Trust Act 1972*

Registration date: 2 May 2022 (AV576689K)

Trust for Nature Reference: INT9530

Protected matters present: Golden Sun Moth *Synemon plana* (Vulnerable) and Grassy Eucalypt Woodland of the Victorian Volcanic Plain (Critically Endangered)

See linked documents relating to this offset site for the following :

- Proof of registration - Register Search Statement – Volume 11252 Folio 162 (*INT9530 - VIC LANDATA - Title Search Online - Vol Fol 11252 162 – 74072*)
- Title Plan (*TP947278H*)
- Location and attribute information of the offset in an Esri shapefile format (*OffsetSite\_1960MicklehamRd*)
- Coordinates of boundary points (decimal degrees) (*OffsetSites.boundary.coordinates*)

### **235 Muncktons Lane, Glenaroua VIC 3764**

Property address: 235 Muncktons Lane, Glenaroua VIC 3764

Mechanism: Section 3A of the *Victorian Conservation Trust Act 1972*

Registration date: 20, 21 & 27 May 2021 (AU355344P, AU355013P & AU355230F)

Trust for Nature Reference: C2047\_2

Protected matters present: Golden Sun Moth *Synemon plana* (Vulnerable)

See linked documents relating to this offset site:

- Proof of registration
  - Register Search Statement – Volume 11229 Folio 155 (*C2047\_2 - VIC LANDATA - Title Search Online - Vol Fol 11229 155*)
  - Register Search Statement – Volume 11229 Folio 154 (*C2047\_2 - VIC LANDATA - Title Search Online - Vol Fol 11229 154*)

- Register Search Statement – Volume 11229 Folio 152 (*C2047\_2 - VIC LANDATA - Title Search Online - Vol Fol 11229 152*)
- Title Plan (*TP307153B*)
- Location and attribute information of the offset in an Esri shapefile format (*OffsetSite\_Glenaroua*)
- Coordinates of boundary points (decimal degrees) (*OffsetSites.boundary.coordinates*)

### **5066 Western Highway, Beaufort VIC 3373**

Property address: 5066 Western Highway, Beaufort VIC 3373

Mechanism: Section 3A of the *Victorian Conservation Trust Act 1972*

Registration date: 4 & 9 March 2022 (AV387215M & AV387782Y)

Trust for Nature Reference: INT9344

Protected matters present: Golden Sun Moth *Synemon plana* (Vulnerable)

See linked documents relating to this offset site:

- Proof of registration
  - Register Search Statement – Volume 112297 Folio 405 (*Deep Lead Vol 112297 Fol 405 - evidence of registration*)
  - Register Search Statement – Volume 11614 Folio 152 (*Deep Lead Vol 11614 Fol 152 - evidence of registration*)
- Plan of Subdivision (*PS727373F*)
- Plan of Consolidation (*PC380485M*)
- Location and attribute information of the offset in an Esri shapefile format (*OffsetSite\_Beaufort*)
- Coordinates of boundary points (decimal degrees) (*OffsetSites.boundary.coordinates*)

### **Sievers Lane, Glenhope VIC 3444**

Property address: Sievers Lane, Glenhope VIC 3444

Mechanism: Section 3A of the *Victorian Conservation Trust Act 1972*

Registration date: 4 & 9 March 2022 (AV387441C & AV387489W)

Trust for Nature Reference: C2050\_3

Protected matters present: Golden Sun Moth *Synemon plana* (Vulnerable)

See linked documents relating to this offset site:

- Proof of registration
  - Register Search Statement – Volume 11609 Folio 438 (*Kinrara Vol 11609 Fol 438 - evidence of registration*)
  - Register Search Statement – Volume 11609 Folio 437 (*Kinrara Vol 11609 Fol 437 - evidence of registration*)
- Plan of Subdivision (*PS727973E*)
- Location and attribute information of the offset in an Esri shapefile format (*OffsetSite\_Glenhope*)
- Coordinates of boundary points (decimal degrees) (*OffsetSites.boundary.coordinates*)

Should you have any queries, please let me know.

Kind Regards,

**JEREMY HUGHES**  
Development Manager



Level 10, 5 Queens Road, Melbourne Victoria 3004 | PO Box 33244 Domain LPO Melbourne Victoria 3004

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## Kimberly Spragg

---

**From:** Jeremy Hughes <jeremyh@satterley.com.au>  
**Sent:** Wednesday, 8 March 2023 5:30 PM  
**To:** EPBC Monitoring  
**Cc:** thomas.smith@dcceew.gov.au; Steve Mueck; Kimberly Spragg  
**Subject:** EPBC 2015/7516 notification of commencement (condition 7)

Dear Department of Climate Change, Energy, the Environment and Water,

Please be advised that works for EPBC 2015/7516 approval commenced on the following dates:

- Stage 1 – 26 October 2021; and
- Stage 2 – 14 March 2022.

Should you have any queries, please let me know.

Kind Regards,

**JEREMY HUGHES**  
Development Manager



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T +61 3 9223 6712 | M 0419 789 443 | E [jeremyh@satterley.com.au](mailto:jeremyh@satterley.com.au) | W [satterley.com.au](http://satterley.com.au)

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## Kimberly Spragg

---

**From:** EPBC Monitoring <epbcmonitoring@dcceew.gov.au>  
**Sent:** Thursday, 6 April 2023 10:03 AM  
**To:** Jeremy Hughes  
**Cc:** Kimberly Spragg; EPBC Monitoring  
**Subject:** RE: EPBC 2015/7516 notification of publication of plans (condition 11) [SEC=UNOFFICIAL]

Dear Jeremy,

Thank you for notifying the department of the Offset Management Plan's website publication for EPBC 2015/7516.

The department acknowledges receipt of this notification, and it will be reviewed accordingly.

For further information please do not hesitate to contact the EPBC Monitoring Mailbox.

Kind regards,

[Hannah Brugman](#)

Administration Officer

Environmental Audit Section | Environment Compliance Branch | Chief Counsel Division

Department of Climate Change, Energy, the Environment and Water

Ngunnawal and Ngambri Country, John Gorton Building, King Edward Terrace, Parkes ACT 2600 Australia

[DCCEEW.gov.au](http://DCCEEW.gov.au) ABN 63 573 932 849

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---

**From:** Jeremy Hughes <jeremyh@satterley.com.au>  
**Sent:** Wednesday, 5 April 2023 10:30 PM  
**To:** EPBC Monitoring <epbcmonitoring@dcceew.gov.au>  
**Cc:** Smith, Tom <Tom.Smith@dcceew.gov.au>; Kimberly Spragg <KSpragg@biosis.com.au>  
**Subject:** RE: EPBC 2015/7516 notification of publication of plans (condition 11) [SEC=UNOFFICIAL]

Dear Department of Climate Change, Energy, the Environment and Water,

Further to my email below, the website link has been updated so that the documents are now published on a standalone page.

The following documents have been published on the Satterley website: <https://satterley.com.au/botanical/buying-building/lindum-vale-precinct-structure-plan/>

Please acknowledge your consent to compliance with EPBC 2015/7516 approval Condition 11.

Regards,  
Jeremy

**JEREMY HUGHES**  
Development Manager



Level 10, 5 Queens Road, Melbourne Victoria 3004 | PO Box 33244 Domain LPO Melbourne Victoria 3004

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---

**From:** Jeremy Hughes <[jeremyh@satterley.com.au](mailto:jeremyh@satterley.com.au)>  
**Sent:** Wednesday, 29 March 2023 9:34 AM  
**To:** EPBC Monitoring <[epbcmonitoring@dcceew.gov.au](mailto:epbcmonitoring@dcceew.gov.au)>  
**Cc:** Smith, Tom <[Tom.Smith@dcceew.gov.au](mailto:Tom.Smith@dcceew.gov.au)>; Kimberly Spragg <[KSpragg@biosis.com.au](mailto:KSpragg@biosis.com.au)>  
**Subject:** EPBC 2015/7516 notification of publication of plans (condition 11) [SEC=UNOFFICIAL]

Dear Department of Climate Change, Energy, the Environment and Water,

Please find below Satterley's notification relating to EPBC 2015/7516 approval Condition 11:

The following documents have been published on the Satterley website: <https://satterley.com.au/botanical/buying-building/>

1. EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Grassy Eucalypt Woodland and Golden Sun Moth habitat: 1960 Mickleham Road, Mickleham, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 9 April 2020.
2. EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: Sievers Lane, Glenhope, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 02 prepared 26 May 2020.
3. EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: 235 Muncktons Lane, Glenaroua, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 12 May 2020.
4. EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: 5066 Western Highway, Beaufort, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 16 October 2020.

Should you have any queries around the above, please let me know.

Kind Regards,

**JEREMY HUGHES**  
Development Manager



Level 10, 5 Queens Road, Melbourne Victoria 3004 | PO Box 33244 Domain LPO Melbourne Victoria 3004

T +61 3 9223 6712 | M 0419 789 443 | E [jeremyh@satterley.com.au](mailto:jeremyh@satterley.com.au) | W [satterley.com.au](http://satterley.com.au)

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**Contract Variation Order No 4**  
**Progress Certificate No 2**  
**Botanical - Stage 11**  
**Contract No 303991**  
**Principal - Satterley Property Group Pty Ltd**  
**Contractor - Symon Bros Constructions (Vic) Pty Ltd**

Date this VO first issued 7/7/2021

Item	Description	Qty	Unit	Rate	Addition	Deduction	Works completed to date		
							Qty	%	Value
4.1	Contractor Ref: 3B (28/06/2021) NH02 temporary fence installation and hire around conservation area	1,370.0	Lm	\$12.00	\$16,440.00			100%	\$16,440.00
4.2	Contractor Reference 3C (28/6/2021) NH02 temporary fence installation and hire around conservation area permanent farm fencing and gate	1.0	item	\$16,128.00	\$16,128.00			100%	\$16,128.00
4.3	Contractor Ref: 4 (28/6/2021) Street Sweeping May	4.0	weeks	\$1,390.04	\$5,560.16			100%	\$5,560.16
<b>Total</b>					\$38,128.16				
<b>Net Variation</b>					\$38,128.16			<b>Works to date</b>	\$38,128.16

Signed on behalf of  
**Spiire Australia Pty Ltd**

Date 7 Jul 21

Page 1 of 1

Grassy Eucalypt Woodland and Golden Sun Moth habitat  
Offset Site, 1960 Mickleham Road, Mickleham (EPBC  
2015/7516):

## Baseline Vegetation Monitoring Report

FINAL REPORT

Prepared for SATTERLEY PROPERTY GROUP

25 February 2022

## Biosis offices

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## Document information

**Report to:** Satterley Property Group (Melbourne)

**Prepared by:** Samuel Bodycomb

**Biosis project no.:** 34282

**File name:** 34282.Lindum.Vale.Offset.Site.Baseline.Monitoring.FIN  
01.20230227

**Citation:** Biosis 2023. Grassy Eucalypt Woodland and Golden Sun Moth Habitat Offset Site. Baseline Vegetation Monitoring. Report prepared for Satterley Property Group. Authors: S Bodycomb, Biosis Pty Ltd, Melbourne, Vic. Project no. 34282

## Document control

Version	Internal reviewer	Date issued
Draft version 01	Sjaan Bidwell	25/02/22
Final version 01	No changes	No changes

## Acknowledgements

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

- Client: Satterley Property Group (Melbourne)

Biosis staff involved in this project were:

- Molly Farquharson & Rose Baulch (assistance in the field)
- Lucy Wilson (mapping)

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# 1 Introduction

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## 1.1 Background

In 2020, Biosis Pty Ltd prepared an Offset Management Plan (OMP) for a Grassy Eucalyptus Woodland of the Victorian Volcanic Plain (GEWVVP) and Golden Sun Moth *Synemon plana* (GSM) habitat offset site at the Woodland Conservation Reserve for the Lindum Vale Residential Development Project (LVRD) (Biosis 2020). The purpose of the OMP is to describe how Satterley Property Group (SPG) will compensate for residual impacts on 97.05 hectares of GSM habitat and 0.226 hectares of GEWVVP. Baseline vegetation monitoring was completed in February 2022, prior to the implementation of major conservation management works. This report outlines the baseline condition of the vegetation within the Offset Area. The results will inform land management and actions required to fulfil management commitments for the Offset. This report does not include an assessment of whether management actions have commenced or have been completed.

## 1.2 Description of the offset site

### 1.2.1 Location and surrounding land uses

This first party Offset Area is located at 1960 Mickleham Road, Mickleham 3373 (Figure 1). The Offset Area is defined as the conservation reserve identified within the Native Vegetation Precinct Plan prepared for the development site (VPA 2018). It is located within the Victorian Volcanic Plains Bioregion and supports a range of uses including cattle and sheep grazing on native pasture. The conservation area does not include other Victorian biodiversity offset sites.

The Offset Area is located in the south eastern corner of the property. The property is otherwise surrounded by agricultural land and land zoned for residential development and for rural residential use. Land around the offset site is progressively being developed for residential purposes as part of its inclusion within an expanded Melbourne Urban Growth Boundary.

The Offset area has a blocky shape to minimise the edge-to-interior ratio of the Offset Area. Because the Offset Area is relatively close to other reserves (i.e. the Mount Ridley Conservation Reserve) and open space (VPA 2018a) the landscape values of the Offset Area also add to its conservation value.

The Offset site supports 7.21 hectares of GSM habitat and includes 2.59 hectares of GEWVVP (Figure 2).

### 1.2.2 Environmental values

The Offset Area has no known history of cultivation, intensive fertilizer application or significant pasture improvement.

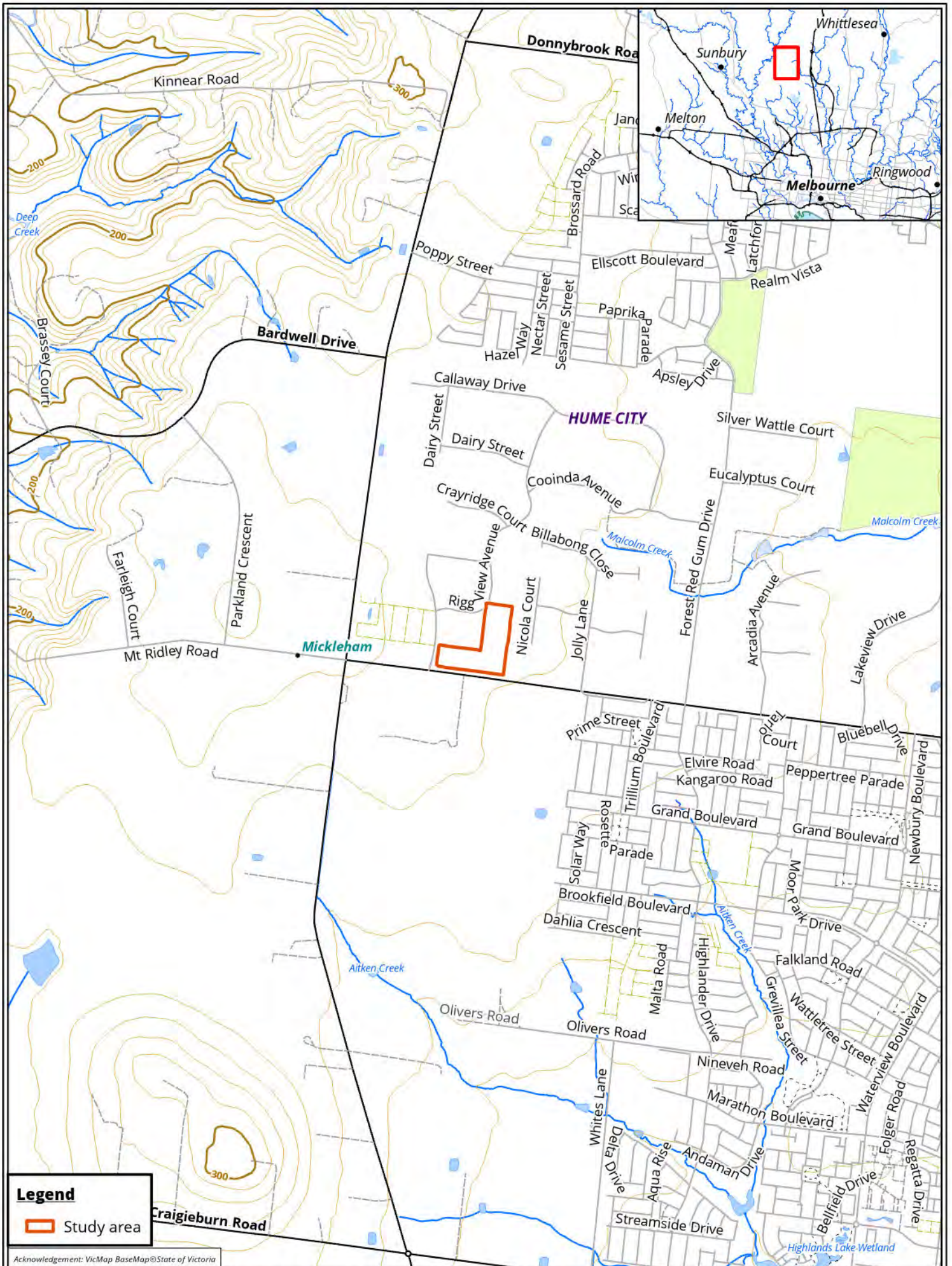
The understorey of the Offset Area is mostly dominated by introduced grasses such as Brown-top Bent *Agrostis capillaris* and Chilean Needle-grass *Nassella neesiana*. Patches of African Box-thorn *Lycium ferocissimum* and thistles including Ox-tongue *Helminthotheca echinoides* and Spear Thistle *Cirsium vulgare* are abundant under several mature River Red-gum *Eucalyptus camaldulensis*.

The Offset Area supports Plains Grassy Woodland Ecological Vegetation Class (EVC) 55\_61, which currently supports an open cover of River Red-gum, the overall canopy cover is less than 10%. Recruitment of eucalypts is evident, multiple cohorts of River Red-gum saplings provide potential for improvement in canopy cover and abundance. Wallaby-grass species, including *Rytidosperma caespitosum*, *R. duttonianum* and *R. racemosum*, as well as Kangaroo Grass *Themeda triandra* are the most

---

abundant native grasses within the Offset Area. Finger Rush *Juncus subsecundus* occupies damper indentations on the site.

The relative abundance of Wallaby-grasses, Spear-grasses and Needle-grass provides good quality habitat for GSM.



**Legend**  
 Study area

Acknowledgement: VicMap BaseMap©State of Victoria

**Figure 1 Location of the study area - Mickleham, Victoria**



Matter: 34282,  
 Date: 24 February 2022,  
 Prepared for: SB, Prepared by: LW, Last edited by: lwilson  
 Layout: 34282\_F1\_Locality  
 Project: P:\34200s\34282\Mapping\34282\_LindumVale\_ConsRes\_monitoring.aprx

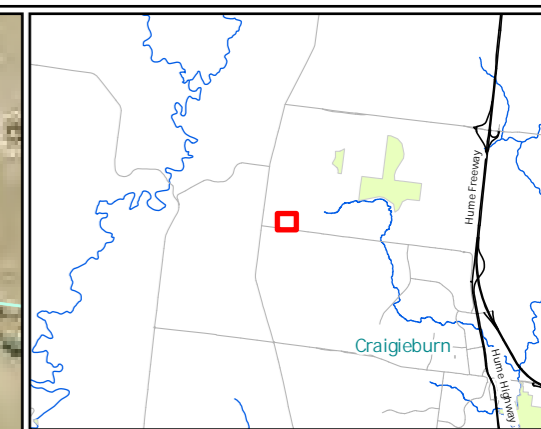
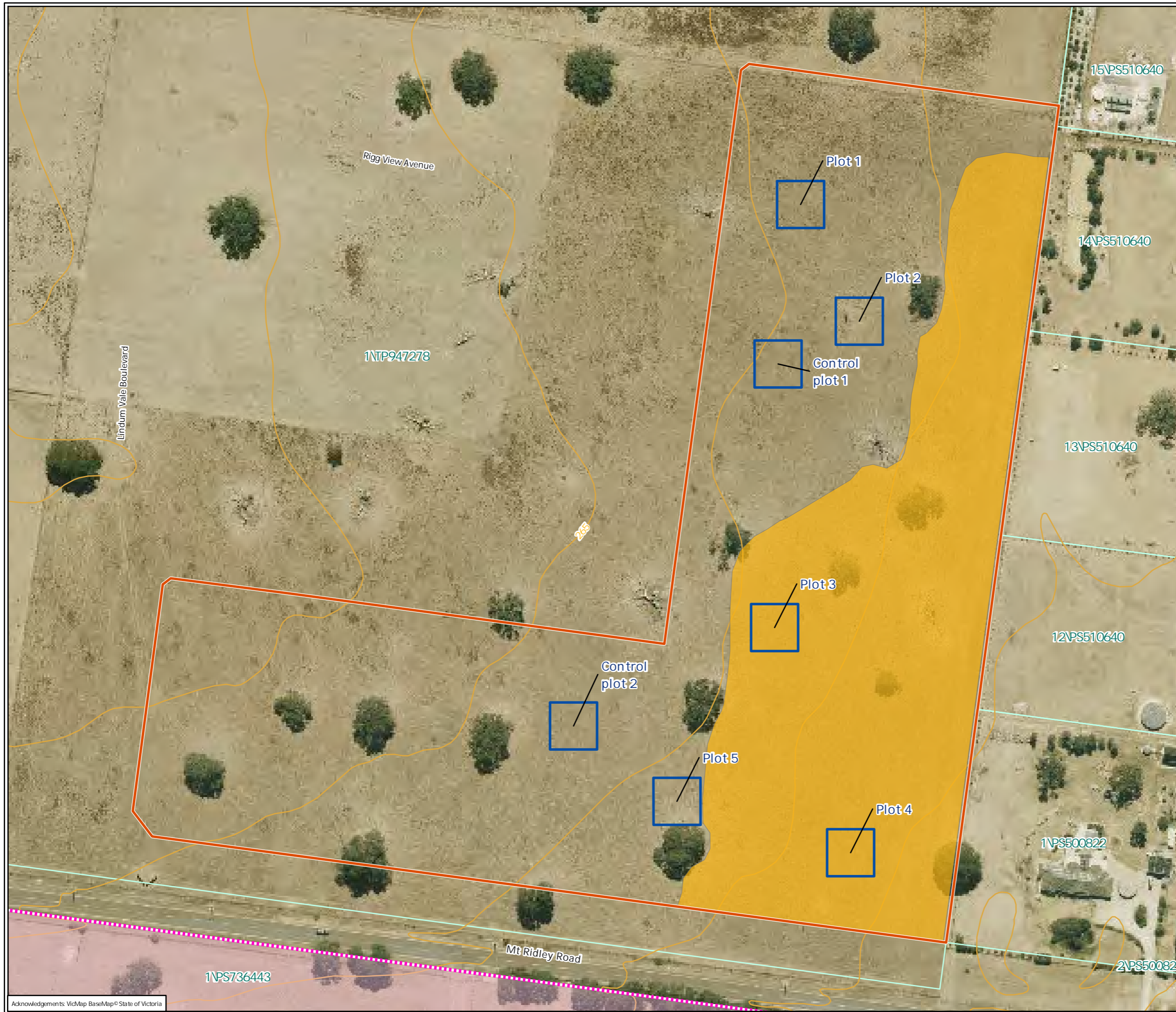
0 200 400 600 800 1,000

Metres

Scale: 1:25,000 @ A4

Coordinate System GDA 1994 MGA Zone 55






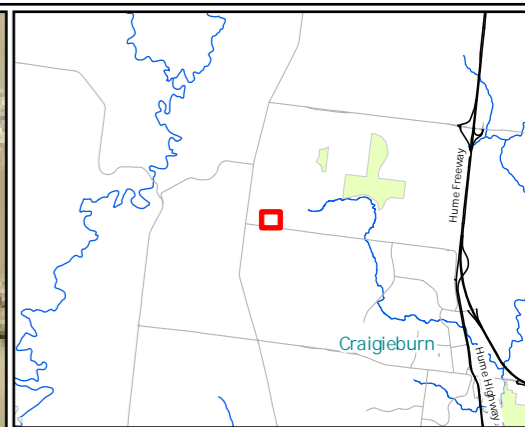
- Legend**
- Conservation area
  - Monitoring plot
  - Current parcel boundary
  - Melbourne Strategic Assessment area - BCS
  - Grassy Eucalypt Woodland of the Victorian Volcanic Plain

Figure 2 Location of monitoring plots

0 10 20 30 40 50  
 Metres  
 Scale: 1:1,500 @ A3  
 Coordinate System: GDA 1994 MGA Zone 55



Matter: 34282  
 Date: 25 February 2022  
 Prepared for: SB, Prepared by: LW, Last edited by: IWilson  
 Layout: 34282\_F2\_MonitoringPlots  
 Project: P:\34200s\34282\Mapping\34282\_LindumVale\_ConsRes\_monitoring.aprx



**Legend**

- Conservation area
- Patch of woody weeds

**Weed cover zones**

- High weed cover (> 50%)
- Moderate weed cover (25% - 50%)

Figure 3 Weeds within the conservation area

0 10 20 30 40 50  
 Metres  
 Scale: 1:1,484 @ A3  
 Coordinate System: GDA 1994 MGA Zone 55



Matter: 34282  
 Date: 25 February 2022  
 Prepared for: SB, Prepared by: LW, Last edited by: IWilson  
 Layout: 34282\_F3\_WeedAreas  
 Project: P:\34200s\34282\Mapping\34282\_LindumVale\_ConsRes\_monitoring.aprx

### 1.3 Offset management objectives and targets

Management commitments are the over-arching land use commitments made by the Landholder with regard to the in-perpetuity management of the Offset Area. The management commitments contribute to fulfilling the specific objectives for the Offset Area and apply as long as the conservation covenant is registered on-title.

The in-perpetuity management commitments of the OMP are as follows:

#### 1. Retain all native vegetation:

- 1.1 *Permanently exclude all activities that would result in direct mechanical removal of native vegetation (excavation, geological exploration, ploughing of fire breaks, cultivation etc.). Direct-driving of posts to mark out the Offset Area, monitoring plots or install low-impact fencing is permitted to the minimum extent necessary.*
- 1.2 *Permanently exclude all activities that would knowingly introduce new weeds, weed seeds or other non-indigenous vegetation into the Offset Area. It is acknowledged that not all weed invasions are within the control of the landholder.*
- 1.3 *Permanently exclude all grazing by domestic stock.*
- 1.4 *Exclude all broad-acre herbicide application use for purposes not related to weed control for conservation as specified in this OMP (e.g. maintaining fence lines or other easements, creating fire breaks).*
- 1.5 *Exclude installation of any infrastructure or associated easements (e.g. drainage, sewer, power or communication easements are not allowed).*

#### 2. Protect native herb diversity and native groundcover tussock structure:

- 2.1 *Permanently exclude all fertilizer application.*
- 2.2 *Permanently exclude domestic stock of any kind.*

#### 3. Implement management actions as detailed in this OMP:

- 3.1 *Secure Offset Area for conservation via TjN conservation covenant registered on-title.*
- 3.2 *Years 1 to 10: implement works according to the OMP to achieve a minimum 5 point gain in Quality for native vegetation condition. The annual works plan must address:*
  - Fencing, signage & access
  - Adaptive management
  - Woody weeds
  - Herbaceous weeds
  - Pest animals
  - New or emerging threats
  - Revegetation
  - Ecological burning
  - Inspections, monitoring and reporting
  - Emergency management

- 3.3 *Years 11+: Maintain an annual works plan for the ongoing maintenance of the condition (Habitat Hectares score) of the GEWVP and GSM habitat that was achieved at the end of Year 10. The annual works plan must incorporate methods to ensure that management actions continue to adapt to current conditions for weeds, pest animals, and biomass control as well as:*
- Maintain fencing and signage.
  - Continued protection of large trees, herb diversity and native tussock grass structure.
  - Woody weeds maintained at <1% cover with no adult plants present
  - Cover of herbaceous weeds does not increase beyond levels achieved at Year 10
  - Pest animals do not increase beyond levels achieved at Year 10
  - Biomass is maintained to achieve >20 to 40% cover of bare ground
  - Continued management of woody vegetation to maintain open GSM habitat.
- 3.4 *Revise OMP in response to either ineffective management actions, or improvements identified through on-ground evidence/external research and development, or in response to an incident or emergency. The implementation of these commitments provides the reasonable expectation that the Offset Area will meet the specific objectives of habitat Quality improvement over the period of the OMP's implementation.*

## 1.4 Purpose of baseline monitoring

Baseline monitoring provides an indication of the starting condition of the Offset Area, before commencement of major conservation management works. The purpose of ongoing monitoring is to track progress towards meeting the management objectives and targets. The results of all monitoring (baseline and subsequent monitoring) should inform adaptive management of the Offset Area, so that management is responding to the latest site conditions.

## 1.5 Baseline monitoring tasks

The following surveys and assessments have contributed to the baseline monitoring results presented in this report:

- Permanent establishment of quadrats, conducted in January 2021.
- A vegetation quality assessment and weed mapping, completed in February 2022.
- A general site inspection and walkover, completed in February 2022.

The methods for the monitoring tasks are outlined in Section 2 of this report. Baseline monitoring results are outlined in Section 3 of this report.

## 2 Methods

---

### 2.1 Vegetation quality assessment

On 1 February 2022, the quality of the native vegetation was assessed using the Vegetation Quality Assessment (VQA) method (DSE 2004).

### 2.2 Weed mapping

On 1 February 2022, weed zones were identified and mapped across the Offset Area using the following four weed cover categories, derived from the VQA method (DSE 2004):

- Very low weed cover (less than 5% weed cover)
- Low weed cover (from 5% to 25% weed cover)
- Moderate weed cover (greater than 25% and up to 50% weed cover)
- High weed cover (greater than 50% weed cover).

As is the case with the habitat hectares scoring method, total weed cover (both annual and perennial weeds) was considered when mapping weed zones.

Patches of woody weeds, including African Box-thorn and Sweet Briar *Rosa rubiginosa*, as well as the high threat herbaceous weeds, Spear Thistle and Bristly Ox-tongue, were also mapped to allow monitoring of extent of incursions of these high threat weed species over time, and to inform land managers where to perform targeted weed control. Areas identified as woody weed patches include the number of adult woody weed plants in each species within each patch.

### 2.3 Permanent quadrat establishment and monitoring

#### 2.3.1 Location and layout of quadrats

Seven monitoring plots, including two control plots, were established throughout the Offset Area, stratified by weed cover and topography (Figure 2). Each plot is 20 metres by 20 metres in size. The corners of the plots (and therefore the star pickets) were oriented NE, NW, SE and SW from the centre of the plot.

#### 2.3.2 Photo points

Using the NE corner of the plot, a photo was taken facing the four points of the compass (N, S, E, & W). Photos will be taken at the same point each monitoring event and these four photos will provide comparison of vegetation condition over time.

The following camera settings were used and are important for consistency of photo point photos from year to year:

- Landscape mode
- Aspect ratio of 4:3
- Resolution of at least 72 dots per inch (dpi)
- No optical or digital magnification
- Natural lighting (no flash).

### 2.3.3 Plant list and covers

The following data was collected from each plot including the control plots:

- List of native and introduced species.
- Total vegetation cover (%).
- Total cover of native perennial vegetation (%).
- Total cover of native herbs (%).
- Total cover of perennial weeds (%).
- Total cover of annual weeds (%).
- Cover of bare ground (%).
- Cover of organic litter (%).
- Average height of vegetation (cm).

Importantly, more than one plant group, life form and/or ground condition may intercept with a given point within the plot, thus, the cumulative cover of all of the above attributes may plausibly be more than 100%. For example, it is possible for a perennial grassy weed and herbaceous weed to be present above or below each other in the same space.

## 2.4 General site inspection and walkover

During the vegetation assessment in February 2022, a general walkover was completed and a flora species list was collected for the Offset Area. While the species list is relatively comprehensive, it is not exhaustive. Some species may not have been observed due to their very low abundance, dormancy or seasonal conditions. Since the timing of the baseline monitoring took place in February 2022, many species had recently finished flowering, making it difficult to identify some specimens to species level. During the walkover, notes were made on woody weed abundance, herbaceous weed cover for target weed species and general condition (evidence of pests, new weeds etc.). This assessment will document overall condition of the Offset Area and the ability of management works to maintain the condition of GSM habitat and GEWVP.

## 2.5 Future monitoring

Future annual vegetation monitoring must follow the methods outlined in the OMP (Biosis 2020), while incorporating the methods outlined above.

## 3 Results

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### 3.1 General site condition and observations

It should be noted that the baseline vegetation quality assessment was undertaken in summer. The exclusion of stock grazing within the Offset Area for the previous 12 months meant that the vegetation was suitable for assessment. Nevertheless, many grasses and herbs had died off or were drying out at the time of assessment, meaning that seasonal conditions may have somewhat influenced vegetation quality scores. This should be taken into consideration when vegetation quality comparisons are made in the future.

### 3.2 Vegetation quality assessment

According to the endorsed OMP, the Offset Area must be dominated by high quality native vegetation by the end of year 10. The Offset Area supports 7.201 hectares Plains Grassy Woodland (PGW) including 2.586 hectares of the EPBC Act listed community: *Grassy Eucalypt Woodland of the Victorian Volcanic Plains* (GEWVVP). The entire site was assessed against the Plains Grassy Woodland Ecological Vegetation Class (EVC) 55\_61. The Offset Area received a habitat score of 36 out of 100, the target score is 44 out of 100 (Table 1).

For each permanent monitoring plot, the average vegetation height, habitat hectares score (site condition score only) and percent cover for certain attributes outlined in section 2.3.4, were measured. The results reflect a high weed cover (> 50%) for all plots, with exception of Plot 3 (50%) and Plot 4 (36%) (Table 2). None of the monitoring plots recorded greater than 25% native perennial vegetation cover. Plot 4 and Plot 5 were observed to have the greatest native perennial cover (23% and 15% respectively).

**Table 1 Baseline Vegetation Quality Assessment score and target score (bold scores show improvement, italicised scores are maintenance)**

EVC #: Name		EVC 55_61: Plains Grassy Woodland		
		Maximum Score	Baseline Score (2021)	Target Score (by 2030)
Site Condition	Large Trees	10	4	4
	Canopy Cover	5	3	3 <i>(canopy cover increase but not to the extent where it significantly shades GSM habitat)</i>
	Lack of Weeds	15	4	<b>9</b>
	Understorey	25	5	<b>15</b>
	Recruitment	10	3	<b>6</b>
	Organic Litter	5	4	<b>5</b>
	Logs	5	2	2 <i>(no increase target set)</i>
	<b>Total Site Condition Score</b>			25
Landscape Value	Patch Size	10	4	4
	Neighbourhood	10	3	3
	Distance to Core	5	4	4
	<b>Total Landscape Score</b>			11
<b>HABITAT SCORE</b>		<b>100</b>	36	55
<b>Habitat points = #/100</b>			0.36	0.55

\* These targets are not mandated but are suggested targets to the overall site condition target.

**Table 2 Cover (%) of attributes and average vegetation height (cm) for permanent monitoring plots**

Covers (%)	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Control plot 1	Control plot 2	Average across monitoring plots
<b>Total Vegetation</b>	77	66	59	56	85	80	85	73
<b>Native perennial vegetation</b>	8	11	8	23	15	10	5	13
<b>Native herbs</b>	1	1	1	1	1	2	5	2
<b>Perennial weeds</b>	62	51	43	31	60	60	65	51
<b>Annual weeds</b>	3	4	7	5	10	4	10	6
<b>Bare ground</b>	4	10	15	20	2	2	5	8
<b>Organic litter</b>	10	15	15	10	15	15	10	13
<b>Average vegetation height</b>	55cm	35cm	40cm	40cm	50cm	40cm	45cm	44cm

### 3.3 Native species richness

A total of 25 species were observed on the Offset Area during a general site walkover (Table A.1). On average, 10 native species were recorded across all seven monitoring plots. Plot 2 recorded the greatest richness of native species (13), while Plot 1 recorded the lowest richness of native species (7) (Table A2.2).

**Table 3 Flora species richness across monitoring plots**

Monitoring plot	Native species richness (# of species)	Weed species richness (# of species)
Plot 1	7	11
Plot 2	13	15
Plot 3	8	14
Plot 4	11	12
Plot 5	10	16
Control Plot 1	10	15
Control Plot 2	11	17
<b>Average species richness across all monitoring plots</b>	10 ( $\pm 2$ )	14 ( $\pm 2$ )

The baseline VQA produced a score of five out of 25 for the Understorey component (Table 1). This score is calculated by assessing the native species life form richness and cover against the Plains Grassy Woodland EVC 55\_61 benchmark. Dominant life forms within this benchmark are Medium Herbs (MH) (benchmark #Spp. = 8, Cover = 15%) and Medium to Small Tufted Graminoids (MTG) (benchmark #Spp. = 12, Cover = 45%). The baseline monitoring of the Offset Area observed six native MH (covering 1%) and six MTG (covering 15%). There were no Small Shrubs (benchmark #Spp. = 2), Prostrate Shrubs (benchmark #Spp. = 1) or Large Herbs (benchmark #Spp. = 3) observed within monitoring plots Offset Area.

### 3.4 Native species cover

Kangaroo Grass, Finger Rush and Wallaby-grass spp. (grouped) are the only native species that have an average cover greater than 1% across the monitoring plots (Table A.2). Kangaroo Grass is the only native species that was observed to cover 5% or greater in a monitoring plot (Plot 4 = 15%, Plot 5 = 5%. Table A.2).

The target score for the Understorey VQA component is 15. A greater cover and richness, particularly in those species within dominant life forms (MS, MH and MTG), will have to improve for the Understorey component score to increase.

### 3.5 Weeds

To achieve an increase in native vegetation condition of the Offset Area, management of high threat weeds is essential to allow native plants to increase in richness and cover, while attention to maintaining suitable GSM habitat is required.

The weed mapping exercise, undertaken during the baseline vegetation monitoring, identified a moderate cover weed zone (5 - 25%) and a high cover weed zone (> 50%) across the Offset Area (Figure 3). The cover estimates include both annual and perennial weeds.

### 3.5.1 Woody weeds and thistles

Less than 1% of woody weeds is the target identified in the Offset Management Plan (OMP, Biosis 2020). To assist land managers, and to compare woody weed abundance throughout monitoring events, Figure 3 includes the location of obvious patches of woody weeds and estimate of number of mature individuals within each plot (Table 4). African Box-thorn and Sweet Briar are the observed woody weeds within the Offset Area.

Table 4 describes the abundance and location of the species, as well as the abundance of thistles, which are considered high threat weeds. The greatest abundance of African Box-thorn was recorded in Patch 5 and Patch 7, with six adult plants within each patch (Table 4). Patch 2 had two adult Sweet Briar and three African Box-thorn, 20 Ox-tongue at the time of baseline monitoring (Table 4).

**Table 4 Patches of woody weeds and thistles**

Scientific name	Common name	Patch 1	Patch 2	Patch 3	Patch 4	Patch 5	Patch 6	Patch 7
<i>Lycium ferocissimum</i>	African Box-thorn	3	3	2	5	6	2	6
<i>Rose rubiginosa</i>	Briar Rose	N/O	2	N/O	N/O	N/O	N/O	N/O
<i>Cirsium vulgare</i>	Spear Thistle	N/O	N/O	N/O	5	N/O	7	2
<i>Cynara cardunculus</i>	Artichoke Thistle	N/O	N/O	N/O	1	N/O	N/O	1
<i>Helminthotheca echioides</i>	Ox-tongue	N/O	20	N/O	2	N/O	N/O	N/O

('N/O' is for 'None observed')

### 3.5.2 High threat herbaceous weeds (perennial tussock grasses, perennial broad-leaved weeds)

High threat herbaceous weeds are those that have potential to displace native species of the same type. For example, perennial grassy weeds like Toowoomba Canary-grass *Phalaris aquatica* and *Paspalum dilatatum* have potential to replace native perennial tussock grasses like Kangaroo Grass. The overall management objective is to ensure that all high threat herbaceous weeds are controlled to ensure that there is no increase in their cover where they currently occur, no further spread of these weeds into new areas of the Offset Area, and to actively reduce their cover and abundance. The management targets for high threat weeds are set for weed species grouped according to growth form and status (Table 6).

Introduced perennial tussock grasses have a stated target of less than 5% cover (Biosis 2020). Chilean Needle-grass is the most abundant, covering close to 10% on average across the permanent monitoring plots (Table 6). The OMP also states a target of <5% for the perennial mat-forming grass Brown-top Bent (Biosis 2020), which covered on average 30% across the permanent monitoring plots in the baseline monitoring (Table 6).

Spear Thistle, Artichoke Thistle and Ox-tongue were observed to occur sporadically throughout the Offset Area. Elimination of these weeds is desirable.

### 3.5.3 Annual weeds

The most abundant annual grasses were Hair-grasses *Aira* spp., Soft Brome *Bromus hordeaceus* and Fescue *Vulpia* spp. A combined average cover of 3% was recorded across all seven monitoring plots for these species.

### **3.6 Biomass**

Organic litter cover ranged from 10% and 15% across all seven monitoring plots, averaging 13% (Table 2). The relevant EVC benchmark for organic litter cover is 10% to 20%. Bare ground varied greatly between plots, values from 2% (Plot 5 and Control Plot 1) to 20% (Plot 4) were recorded across monitoring plots, with an average of 8% bare ground cover.

## 4 Discussion and recommendations

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### 4.1 Assessment of progress towards management targets

Given the baseline monitoring was conducted prior to implementation of major conservation management works, it is too early to monitor progress towards meeting certain management objectives and targets. Particular attention is required to achieve vegetation quality and weed control targets by 2030. This will require diligent implementation of the OMP, regular monitoring of progress and adjusting management actions accordingly, where relevant.

### 4.2 Weed management

The weed control strategy is a multi-faceted approach that takes advantage of the ecological conditions of the Offset Area. The weed control strategy focuses on providing ecological conditions favourable to native plant species while limiting the growth and reproduction of weed species as well as directly treating weed infestations. This strategy provides the native species with opportunities to recolonise the areas that were previously occupied by weeds once the weeds have been killed. The weed control strategy is comparable to that used for well-managed grassy woodland reserves making the weed control strategy practical and feasible within the conservation reserve context of the Offset Area.

The weed control strategy aims to achieve the following outcomes:

- Maximise recruitment opportunities for native plant species by providing decreased competition from weeds for space, light, nutrients and water.
- Minimise weed cover and reduce recruitment conditions that favour weeds by:
  - Minimising nutrient enrichment.
  - Directly killing weeds prior to seed set with herbicide or physical removal. Other chemical free methods of weed control such as steam weeding or flame weeding can also be used.
  - Limiting the yearly growth of weeds to minimise the total space they occupy in the Offset Area and to prevent excessive build-up of organic litter (i.e. dead grass) that can smother the growth of seedlings and other plants.
  - Limiting the yearly growth of weeds at the correct time to also prevent seed set.
  - The use of fire to encourage germination of soil stored weed seed and exhaust the soil weed seed bank.

#### 4.2.1 Woody weeds

Woody weeds, notably African Box-thorn and Sweet Briar, were recorded in the study area in small patches (Table 4). Woody weeds are considered easier to control than herbaceous weeds due to their larger size, slower growth/recruitment, and their occurrence as small numbers of plants. The elimination of all established adult woody weeds is considered practical within the 10 year management period and could reasonably be achieved within 2-3 years (Table 5).

New and emerging woody weeds that are detected either incidentally during site management or as part of further monitoring activities should be recorded with GPS and controlled / eliminated as soon as possible and before flowering and setting seed. After the adult plants have been eliminated, woody weed control should focus on detection and treatment of new seedlings or any re-sprouting stumps that may occur.

**Table 5 Management targets for woody weed control**

Scientific name	Common name	Proposed control measures	Number of mature plants (baseline condition)	2030 management target for abundance
<i>Lycium ferocissimum</i>	African Box-thorn	Cut and paint, hand pull, spray with approved herbicide	27	Eliminated
<i>Rose rubiginosa</i>	Sweet Briar	Cut and paint, hand pull, spray with approved herbicide	2	Eliminated

#### 4.2.2 High threat herbaceous weeds

The overall management objective is to ensure that all high threat herbaceous weeds are controlled to ensure that there is no increase in their cover where they currently occur, no further spread of these weeds into new areas of the Offset Area, and to actively reduce their cover and abundance. Management targets and proposed control measures for herbaceous weeds are detailed in Table 6.

Ecological burning and herbicide application will be the principal control methods for these species. Weed control will be a regular activity.

#### 4.2.3 Annual grassy weeds

Annual weeds are not considered a key threat to the conservation values of the Offset Area. However, uncontrolled growth of annual weeds can reduce the vegetation condition and Habitat Hectares score by decreasing the Lack of Weeds score, and Organic Litter score. Given this is the case, management will be directed at minimising the annual weed cover, at worst maintaining it at the existing level and minimising its growth and reproduction (Table 6).

### 4.3 Biomass management

In native grassy woodlands, biomass management is required to ensure that grasses do not dominate all the space in the ground cover so that inter-tussock spaces are maintained. Where there are insufficient inter-tussock spaces, grasses will shade out native forbs and prevent them from photosynthesising, flowering and setting seed. Sufficient inter-tussock spaces are also required by GSM, which favours an open groundcover for breeding.

The OMP management commitments state that biomass should be managed so that bare ground stays at around benchmark levels of 20% to 40% cover (Section 3.1, Biosis 2020). Currently, bare ground averages 8% across all monitoring plots (Table 2). The relevant EVC benchmark for organic litter cover is 10% to 20%. Management should take action to reduce biomass and increase the bare ground cover to target levels mentioned above. This could be achieved through conducting an ecological burn.

While the conduct of ecological burning has been approved, obtaining permits has been problematic for the contractor. Access has also been made difficult as temporary fencing has significantly restricted the contractors' access. Due to the significant accumulation of ground cover biomass, ecological burning must be implemented as soon as possible.

**Table 6 Management targets for herbaceous weed control**

Scientific name	Common name	Proposed control measures	Average cover across monitoring plots (baseline condition)	2030 management target for cover
<b>Short-lived perennial grasses</b>				
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	<1%	<1% (prevent any expansion of existing infestation but preferably eliminate)
<b>Annual grasses</b>				
<i>Vulpia</i> spp., <i>Briza</i> spp., <i>Bromus</i> spp., <i>Aira</i> spp. & <i>Hordeum</i> spp.	Fescue, Quaking-grass, Brome, Hair-grass & Barley-grass	Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass and destroy standing seed. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	3%	<10%
<b>High threat herbaceous weeds</b>				
<b>Perennial tussock grasses:</b> <i>Phalaris aquatica</i> , <i>Paspalum dilatatum</i> , <i>Holcus lanatus</i> , <i>Nassella</i> spp.	Toowoomba Canary-grass, Paspalum, Yorkshire Fog and Needle-grasses	Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass and facilitate herbicide spraying. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	11%	<5%
<b>Broad-leaved weeds:</b> <i>Cirsium vulgare</i> , <i>Helminthotheca echioides</i> , <i>Hypochaeris radicata</i> , <i>Leontodon saxatilis</i> and <i>Acetosella vulgaris</i>	Primarily Spear Thistle, Flatweed, Hairy Hawkbit and Sheep Sorrel	Spot spraying with appropriate herbicide (prevent flowering). Ecological burning to germinate seed. Areas with high cover of Sheep Sorrel and little or no cover of other broad-leaf natives could be broad area sprayed with a broad-leaf specific herbicide.	11%	1%
<b>Perennial mat-forming grasses:</b> <i>Agrostis capillaris</i>	Brown-top Bent	Controlled burning. Spot spraying appropriate herbicide (early spring)	30% (±15%)	<5%
<b>Total estimated herbaceous weed cover</b>			40% - 70%	<20%

## References

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Biosis 2020. EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Grassy Eucalypt Woodland and Golden Sun Moth habitat: 1960 Mickleham Road, Mickleham, Victoria, Report prepared for Satterley Property Group. Author: Mueck.S, Biosis, Melbourne, VIC. Project no. 27761.

DSE 2004. Native Vegetation: Sustaining a living landscape. Vegetation Quality Assessment Manual – Guidelines for applying the Habitat hectares scoring method. Version 1.3, Victorian Government Department of Sustainability and Environment. Melbourne, Victoria.

VPA 2018. Lindum Vale Native Vegetation Precinct Plan, Victorian Planning Authority. Melbourne, VIC. <https://vpa-web.s3.amazonaws.com/wp-content/uploads/2019/07/Hume-C205hume-Lindum-Vale-Native-Vegetation-Precinct-Plan-September-2018-Approval-Gazetted-2.pdf>.

## Appendices

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## Appendix 1 Flora species list

**Table A.1 Flora species recorded from the study area**

Status	Scientific Name	Common Name
<b>Indigenous species</b>		
	<i>Acaena echinata</i>	Sheep's Burr
	<i>Anthosachne scabra</i>	Common Wheat-grass
	<i>Austrostipa bigeniculata</i>	Kneed Spear-grass
P	<i>Calocephalus citreus</i>	Lemon Beauty-heads
	<i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i>	Blushing Bindweed
k	<i>Convolvulus angustissimus</i> subsp. <i>omnigracilis</i>	Slender Bindweed
	<i>Dichelachne crinita</i>	Long-hair Plume-grass
	<i>Epilobium billardioreanum</i>	Variable Willow-herb
	<i>Eryngium ovinum</i>	Blue Devil
	<i>Eucalyptus camaldulensis</i>	River Red-gum
	<i>Hypericum gramineum</i>	Small St John's Wort
	<i>Juncus subsecundus</i>	Finger Rush
	<i>Lythrum hyssopifolia</i>	Small Loosestrife
	<i>Oxalis perennans</i>	Grassland Wood-sorrel
	<i>Poa labillardierei</i>	Common Tussock-grass
	<i>Poa sieberiana</i>	Grey Tussock-grass
	<i>Rumex dumosus</i>	Wiry Dock
	<i>Rytidosperma caespitosum</i>	Common Wallaby-grass
	<i>Rytidosperma duttonianum</i>	Brown-back Wallaby-grass
	<i>Rytidosperma racemosum</i> var. <i>racemosum</i>	Slender Wallaby-grass
	<i>Themeda triandra</i>	Kangaroo Grass
	<i>Wahlenbergia</i> spp.	Bluebell
<b>Introduced species</b>		
	<i>Acetosella vulgaris</i>	Sheep Sorrel
	<i>Agrostis capillaris</i>	Brown-top Bent
	<i>Aira</i> spp.	Hair Grass
	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass
	<i>Arctotheca calendula</i>	Cape Weed
	<i>Bromus hordeaceus</i>	Soft Brome
	<i>Centaureum</i> spp.	Centaury
RC	<i>Cirsium vulgare</i>	Spear Thistle
RC	<i>Cynara cardunculus</i> subsp. <i>flavescens</i>	Artichoke Thistle
	<i>Cynosurus echinatus</i>	Rough Dog's-tail
	<i>Helminthotheca echioides</i>	Ox-tongue
	<i>Holcus lanatus</i>	Yorkshire Fog
	<i>Hypochaeris radicata</i>	Flatweed

Status	Scientific Name	Common Name
	<i>Leontodon saxatilis</i> subsp. <i>saxatilis</i>	Hairy Hawkbit
	<i>Lepidium africanum</i>	Common Peppergrass
	<i>Lolium rigidum</i>	Wimmera Rye-grass
	<i>Lotus corniculatus</i>	Bird's-foot Trefoil
RC	<i>Lycium ferocissimum</i>	African Box-thorn
R	<i>Nassella neesiana</i>	Chilean Needle-grass
	<i>Paspalum dilatatum</i>	Paspalum
	<i>Phalaris aquatica</i>	Toowoomba Canary-grass
	<i>Plantago coronopus</i>	Buck's-horn Plantain
	<i>Plantago lanceolata</i>	Ribwort
	<i>Polygonum aviculare</i> s.s.	Hogweed
	<i>Romulea rosea</i>	Onion Grass
RC	<i>Rosa rubiginosa</i>	Sweet Briar
	<i>Sonchus asper</i> s.s.	Rough Sow-thistle
	<i>Sonchus oleraceus</i>	Common Sow-thistle
	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover
	<i>Trifolium</i> spp.	Clover
	<i>Vulpia</i> spp.	Fescue

## Appendix 2 Detailed monitoring plot results

Table A.2 Percent cover of most abundant plant species from all monitoring plots

Scientific name	Plot 1 cover (%)	Plot 2 cover (%)	Plot 3 cover (%)	Plot 4 cover (%)	Plot 5 cover (%)	Control plot 1 cover (%)	Control plot 2 cover (%)	Average cover across monitoring plots (%)
<b>Native</b>								
<i>Anthosachne scabra</i>	1	1	1	1	1	1	1	1
<i>Eucalyptus camaldulensis</i> (saplings)		1	1		1	2	2	1
<i>Juncus subsecundus</i>	3	1	1	1	3	3	2	2
<i>Oxalis perennans</i>	1	1	1	1	1	1	1	1
<i>Poa sieberiana</i>	1	1	1	1	1			0.7
<i>Rumex dumosus</i>		1		1	1	1		0.6
<i>Rytidosperma caespitosum</i>		1		1	1	1	1	0.7
<i>Rytidosperma duttonianum</i>	1	1		1	1	1	1	0.9
<i>Rytidosperma racemosum</i>	1	1	1	1	1	1		0.9
<i>Themeda triandra</i>		1		15	5		1	3.1
<b>Introduced</b>								
<i>Agrostis capillaris</i>	55	40	35	25	25	35	5	31.1
<i>Aira spp.</i>	1	1	1	1		1		0.7
<i>Bromus hordeaceus</i>		1	2	1	1	1	1	1
<i>Cirsium vulgare</i>		1		1	1	1	1	0.7
<i>Cynosurus</i>	1	1	2	1	1	1	3	1.4

Scientific name	Plot 1 cover (%)	Plot 2 cover (%)	Plot 3 cover (%)	Plot 4 cover (%)	Plot 5 cover (%)	Control plot 1 cover (%)	Control plot 2 cover (%)	Average cover across monitoring plots (%)
<i>echinatus</i>								
<i>Helminthotheca echioides</i>	1	1		1			1	0.6
<i>Holcus lanatus</i>	2	2			2	4	1	1.6
<i>Hypochaeris radicata</i>	1	1	1	1	1	10	20	5
<i>Leontodon taraxacoides</i>	1	1	1	1	1	10	20	5
<i>Lolium rigidum</i>		1	1	1		1	1	0.7
<i>Nassella neesiana</i>	2	2	2	1	30	1	20	8.3
<i>Phalaris aquatica</i>	1	1			1	1	2	0.9
<i>Romulea rosea</i>	1	1	1	1	1	1		0.9
<i>Vulpia spp.</i>	1	1	1	1	1	2	1	1.1

## Appendix 3 Monitoring plots photo points



**Plot 1 photo point facing north, 9 February 2022**



**Plot 1 photo point facing east, 9 February 2022**



**Plot 1 photo point facing west, 9 February 2022**



**Plot 1 photo point facing south, 9 February 2022**



**Plot 2 photo point facing north, 9 February 2022**



**Plot 2 photo point facing east, 9 February 2022**



**Plot 2 photo point facing west, 9 February 2022**



**Plot 2 photo point facing south, 9 February 2022**



**Plot 3 photo point facing north, 9 February 2022**



**Plot 3 photo point facing east, 9 February 2022**



**Plot 3 photo point facing south, 9 February 2022**



**Plot 3 photo point facing west, 9 February 2022**



**Plot 4 photo point facing north, 9 February 2022**



**Plot 4 photo point facing east, 9 February 2022**



**Plot 4 photo point facing south, 9 February 2022**



**Plot 4 photo point facing west, 9 February 2022**



**Plot 5 photo point facing north, 9 February 2022**



**Plot 5 photo point facing east, 9 February 2022**



**Plot 5 photo point facing west, 9 February 2022**



**Plot 5 photo point facing south, 9 February 2022**



**Control plot 1 photo point facing north, 9 February 2022**



**Control plot 1 photo point facing east, 9 February 2022**



**Control plot 1 photo point facing west, 9 February 2022**



**Control plot 1 photo point facing south, 9 February 2022**



**Control plot 2 photo point facing north, 9 February 2022**



**Control plot 2 photo point facing east, 9 February 2022**



**Control plot 2 photo point facing west, 9 February 2022**



**Control plot 2 photo point facing south, 9 February 2022**

## Appendix 4 Photos of woody weed patches

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**Woody weed patch 1, 1 February 2022**



**Woody weed patch 2, 1 February 2022**



**Woody weed patch 2b, 1 February 2022**



**Woody weed patch 3, 1 February 2022**



**Woody weed patch 3b, 1 February 2022**



**Woody weed patch 4, 1 February 2022**



**Woody weed patch 4b, 1 February 2022**



**Woody weed patch 4c, 1 February 2022**



**Woody weed patch 5, 1 February 2022**



**Woody weed patch 5b, 1 February 2022**



**Woody weed patch 5c, 1 February 2022**



**Woody weed patch 6, 1 February 2022**



**Woody weed patch 7, 1 February 2022**

**Tax invoice**

**Purchase order no**  
54358

**Invoice number**  
C7537

**Issue date**  
09/12/2022

**Due date**  
08/01/2023

**Bill to**

Satterley Property Group  
PO BOX 1346  
West Perth WA 6872  
Australia

Item ID	Description	Units	Unit price (\$) <i>excluding tax</i>	Disc. (%)	Tax	Amount (\$) <i>excluding tax</i>
0008	October 21 REDGUM RESERVE Spray thistles Seed collection	1	900.00	0.00	GST	900.00

**Notes**

Please use the invoice number as your reference

Subtotal ( <i>exc. tax</i> )	\$900.00
Tax	\$90.00
<b>Total Amount (<i>inc. tax</i>)</b>	<b>\$990.00</b>
Total paid	\$0.00
<b>Balance due</b>	<b>\$990.00</b>

**View your invoice online**

[Click here to view](#)

**How to pay**

Due date: 08/01/2023

**View your invoice online**

**Bank deposit via EFT**

Scan the QR code or click the link above to view this invoice online.



**Bank** WESTPACK  
**Name** PETER WLODARCZYK  
**BSB** 733602  
**AC#** 511412  
**Ref#** C7537

## Appendix D: Photopoints (10 quadrats) and control plots (3 plots)

Photos at each photopoint were taken facing the four directions of the compass (N, E, S, W – in that order). A photo of the golf ball survey was also taken at each point.

### Photopoint 1



Photopoint 2



Photopoint 3



Photopoint 4



Photopoint 5



Photopoint 6



Photopoint 7



Photopoint 8



Photopoint 9



Photopoint 10



Control plot 1



Control plot 2



Control plot 3





**CASSINIA**  
ENVIRONMENTAL

# Golden Sun Moth Offset Management Report

235 Muncktons Lane, Glenaroua, Victoria

EPBC Act referral 2015/7516

TFN Reference: C2047

Annual report: Year 1

Submitted: 5 April 2022

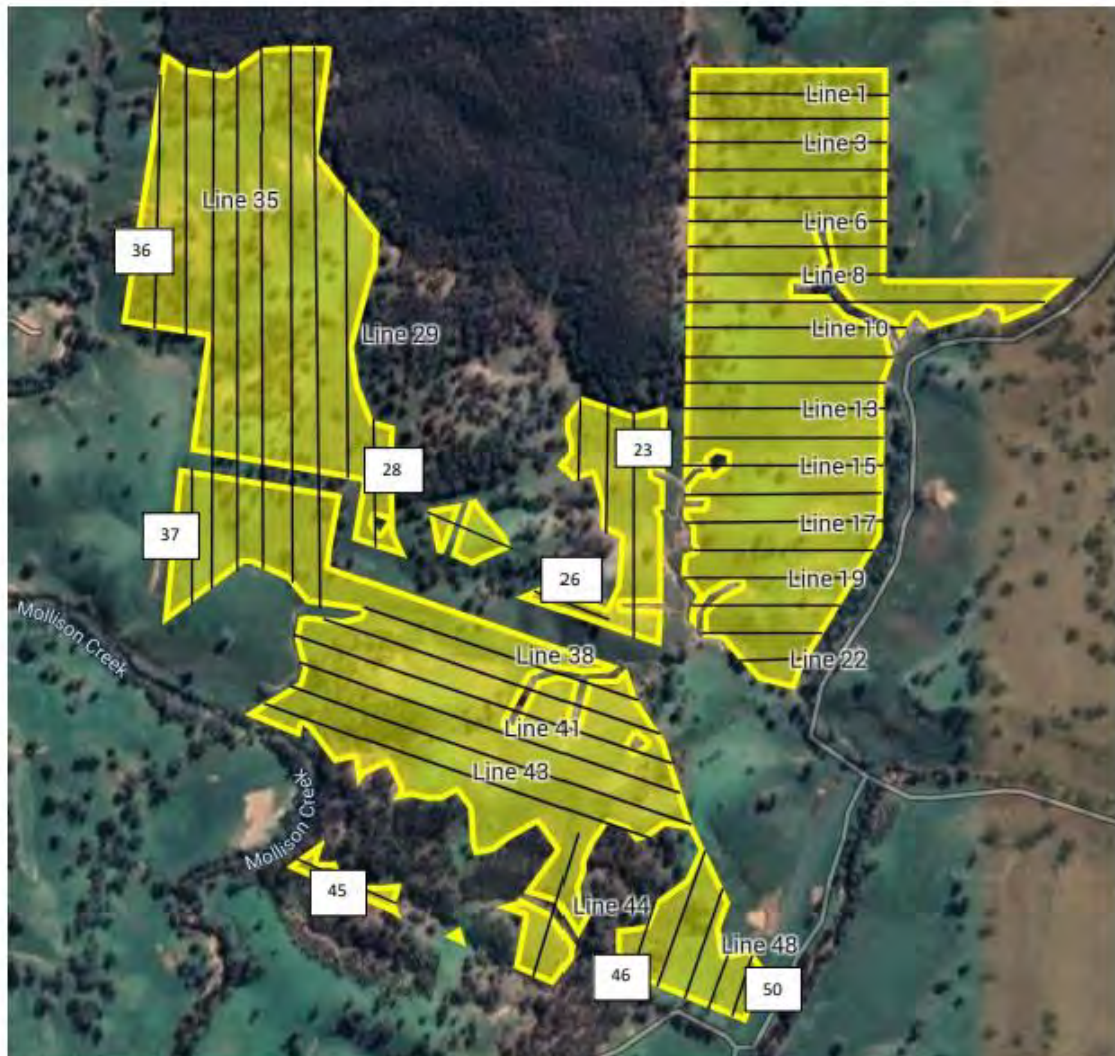
Landowner of offset site: Implexa Property Pty Ltd (ABN 91614987021)

Approval holder: Satterley Property Group



## 1. Introduction

The offset area provides 120.1 hectares of GSM habitat located in the Victorian Goldfields Bioregion.



*Figure 1. Offset area and GSM survey transect lines*

Work has begun on the management actions specified in the Offset Management Plan (Appendix 1 of OMP). Key management actions carried out in Year 1 of implementation include:

- Weed control, fencing, and stock control. Summary of records in Appendix A
- Habitat hectares survey was conducted in February 2022. Results in Appendix B.1.
- Vegetation surveys were conducted in November 2021. Results in Appendix B.2.
- Year 1 surveys (2021/22) for Golden Sun Moths were conducted by Cassinia Environmental in December 2021. Results in Appendix C.
- Ten permanent twenty-by-twenty metre vegetation monitoring quadrats were established at the photopoints in April 2021. Photopoints in Appendix D.

- Three twenty-by-twenty metre control plots were established across offset. Photos in Appendix D.

List of Appendices:

- Appendix A – Record of on-ground works
- Appendix B.1 – Vegetation survey results (Habitat Hectares method)
- Appendix B.2 – Vegetation survey results (Golf Ball method)
- Appendix C – Golden Sun Moth survey results
- Appendix D – Photopoints

## 2. Details of compliance with the schedule of management actions (as per Appendix 1 of OMP)

### 3 - Implement permanent changes to grazing

All cattle and horse grazing have been permanently excluded. Sheep were removed from the property at the start of the management plan (February 2021) to allow for fencing and erosion works across the property. Stock was reintroduced to the property in March 2022.

All fertilizer application has been permanently excluded.

### 4 - Prevent uncontrolled livestock grazing and unauthorised access. Install fencing for Offset area if needed

See above for livestock movement.

Extensive fencing installation and maintenance in accordance with OMP requirements were undertaken between March-December 2021. Fencing works were regularly required due to the widespread erosion on the property and to restrict livestock access to erosion areas in the future. Fencing within the GSM offset area has been completed.

### 5 - Prepare and implement annual works plan

First annual work plan prepared based on on-ground inspections and implemented by suitably qualified staff and contractors. Details below.

## 6 - Routine inspections and records of works

Inspections on fencing, weeds, pests, and/or other management requirements were carried out every month in Year 1 except July. Records of evidence/sightings and works were kept using the Fulcrum mobile app. Details of records below.

## 7 - Control woody weeds

Total cover of woody weeds remains at <1% of the Offset area.

Sweet briar was controlled by spraying.

## 8 - Control herbaceous weeds

The focus of weed control in Year 1 are listed in Table 1. Weed control involved spot spraying herbicide and manual removal depending on species.

Table 1. Herbaceous weeds identified for control

Scientific name	Common name	Method of control	Timing
<i>Arctotheca calendula</i>	Capeweed	Spot spray	Late winter to spring
<i>Cirsium vulgare</i>	Spear thistle	Spot spray	Early autumn
<i>Disa bracteata</i>	South African weed orchid	Manual removal	Spring
<i>Juncus acutus</i>	Spiny rush	Spot spray	Early autumn
<i>Nassella neesiana</i>	Chilean needle grass	Manual removal	Summer
<i>Sonchus oleraceus</i>	Common sow-thistle	Spot spray	Spring

Areas where other weed species, including annual and perennial grasses, are prevalent were identified during vegetation monitoring surveys. As there was no livestock on the property in 2021, it is expected that such grasses were allowed to grow. However, these areas will be a focus in 2022.

Areas where brown-top bent cover is high will be mapped and monitored in 2022 to inform future grazing options.

As sheep are reintroduced onto the property and offset areas, we expect grazing to have an impact on weed cover and will be supplemented by herbicide or other methods of weed control.

The presence of South African weed orchid (SAWO) presents an ongoing management challenge. The manual removal of SAWO was given considerable attention in spring and early summer 2021 (Figure 2). Six days of manual removal of

SAWO were undertaken and a total of 26 bags of SAWO were removed from the property in 2021.

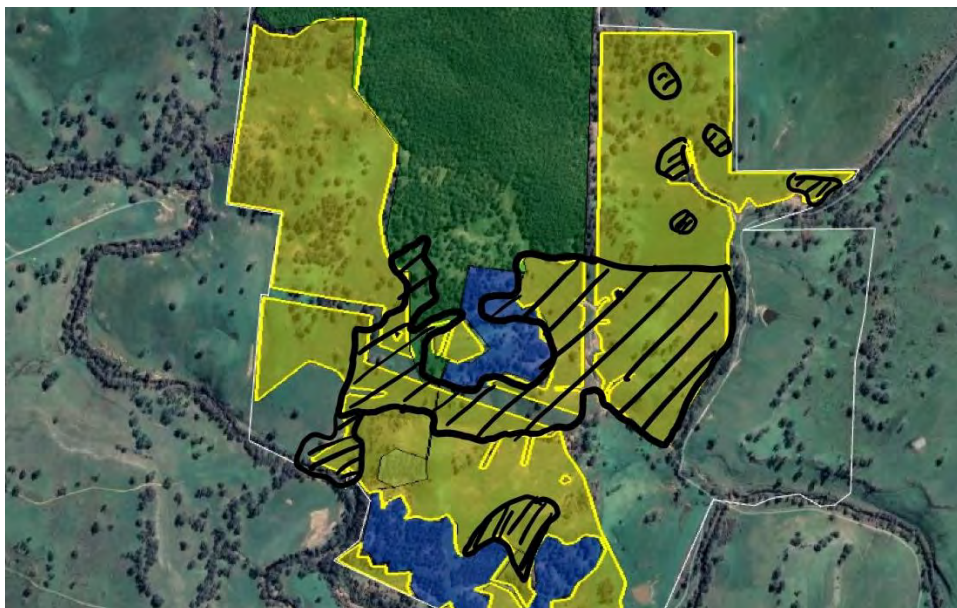


Figure 2. Areas (shaded) where South African weed orchid was treated by manual removal in 2021

#### 9 – Control pest animals (eg. rabbits, hares, foxes)

Pest animal control was carried out over the entirety of the property, which includes the offset area. Overall, 17 rabbits, 4 foxes, and 14 kangaroos were recorded over the whole property. A shooter was on site in November 2021 to control for rabbits. No active rabbit warrens were found within the offset area.

Four cows from the neighbour were found and removed from the property in October.

#### 10 - Identify and control or eliminate new or emerging threats

The following weeds were identified on the property and treated. They will continue to be managed under the management plan.

Table 2. Herbaceous weeds not previously recorded from the property

Scientific name	Common name	Method of control	Timing
<i>Carduus tenuiflorus</i>	Slender Thistle	Spot spray	Spring
<i>Cynara cardunculus</i>	Artichoke thistle	Spot spray	Spring

### 11 - Use pulse grazing for biomass/weed control

Sheep were removed from the property at the start of the management plan (February 2021) to allow for fencing and erosion works.

Stock was reintroduced to the property in March 2022. Pulse grazing will be applied according to the OMP. Biomass and organic litter were surveyed as part of the Golf Ball vegetation monitoring method (Appendix B.2) and will be used to inform the grazing strategy. Inter-tussock space is expected to increase once grazing is applied.

### 12 - Ecological burning trial for Offset area

No ecological burning has been undertaken as grazing remains the main approach to biomass management.

### 14 - Ecological monitoring

Vegetation monitoring using Habitat Hectares was conducted by a qualified external ecologist on February 8, 2022. See Appendix B.1 for survey results.

Vegetation monitoring sites using the Golf Ball survey method were established on April 13, 2021. Ten quadrats (20mx20m) were established with photopoints allocated at the north-east corner of each quadrat. Golf Ball surveys were conducted by Cassinia Environmental on November 24, 2021 to estimate biomass at each site. See Appendix B.2 for survey results. See Appendix D for photopoints.

Golden sun moth (GSM) surveys were conducted on December 6, 13, and 17, 2021. See Appendix C for survey method and results.

Based on the results from vegetation (Habitat hectares) and GSM surveys, the following GSM habitat quality score is calculated for Year 1 of the OMP:

Table 2. GSM habitat quality score for Year 1 of OMP

Parameter	Score -Year 1	Justification
Site context	2/3	N/A
Site condition	2/3	VQA site condition score = 44/75
Species stocking rate	2/4	Average density of male GSM = 11 males/ha
Quality score	6/10	-

The offset area has reached the target GSM habitat quality score of 6/10 as a result of an increase in site condition.

#### 15 - Trust for Nature routine inspections

The offset area is available for Trust for Nature inspections.

#### 16 - Reporting

Title Registration with Trust for Nature was completed on May 6, 2021. Reporting to Trust for Nature is due March 6 each year.

### 3. Recommendations for action and plan review 2022/23

Focus actions for the following year will include:

- Pulse grazing strategy informed by vegetation surveys and reviewed to ensure effectiveness
- Weed control: mapping and planning brown-top bent control, SAWO control, continual management of slender thistle and artichoke thistle
- Vegetation surveys conducted using Habitat Hectares and Golf Ball methods
- Record of pest animal evidence (eg. scat) during vegetation surveys


### 4. Tracking of results with management performance targets and completion criteria

Key performance indicators	Completed/tracking to completion
TfN agreement registered on relevant land titles	Yes
No loss of GSM habitat or preventable weed introductions over 20 year time horizon	Yes
No unauthorised access or unapproved works within offset area	Yes
Management actions adapted to seasonal conditions and/or new or emerging threats based on routine inspections and monitoring results.	Yes
GSM habitat quality score improved from 5 to 6: <ul style="list-style-type: none"> <li>- Large tree score maintained at 3</li> <li>- Tree canopy cover score maintained at 0</li> </ul>	Yes

<ul style="list-style-type: none"> <li>- Lack of weeds score increases from 6 to 9</li> <li>- Understorey score increases to 20</li> <li>- Recruitment score maintained at 3</li> <li>- Organic litter score increases from 3 to 5</li> </ul>	
Habitat hectares score achieved at the end of Year 10 is maintained over next 10 years (to achieve 20 year time horizon)	Yes
OMP adapted to changing circumstances or ineffective management actions	Yes

## 5. Declaration

I hereby declare that the supplied information contained within this report and attached photopoint report is accurate and complies with all the reporting requirements under the Offset Management Plan.

Signed: 

**Name:** Paul Dettmann

**Date:** 5 April 2022

## Appendix A: Record of Works

Action	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
Fence works													
Weed control													
Pest control													
Vegetation survey													
GSM survey													
Other													

Date	Notes in brief from Fulcrum
2/03/2021	Sprayed spear thistle. Karen C. from TFN visit.
10/03/2021	Repaired fence damaged by fallen limbs. Sprayed sweet briar, spear thistle, spiny rush.
13/04/2021	Set up 10 photopoints for GSM vegetation monitoring.
20/04/2021	Started constructing fence for sheep exclusion zones (control plots). Saw 4 rabbits.
5/05/2021	Continued fence works for sheep exclusion zones (control plots).
6/05/2021	Completed fence works for sheep exclusion zones (control plots).
4/06/2021	Constructed fence next to dam.
8/06/2021	Continued fence works near dam.
17/06/2021	Repaired fence.
30/08/2021	Sprayed capeweed.
13/09/2021	Repaired fence.
21/09/2021	Repaired fence.
5/10/2021	Sprayed capeweed, spear thistle, artichoke thistle, slender thistle, milk thistle.
18/10/2021	Checked and constructed fence. Removed neighbour's 4 cows.
21/10/2021	Completed fences around GSM offset areas.
22/10/2021	Manual removal of South African weed orchid.
10/11/2021	Shooter onsite to control for rabbits.
11/11/2021	Manual removal of South African weed orchid.
12/11/2021	Checked fences.
19/11/2021	Manual removal of South African weed orchid.
23/11/2021	Manual removal of South African weed orchid.
24/11/2021	Vegetation surveys and photopoint monitoring.

25/11/2021	Manual removal of South African weed orchid.
1/12/2021	Manual removal of South African weed orchid. Saw 6 GSM.
6/12/2021	GSM survey.
8/12/2021	Native grass seed harvesting.
13/12/2021	GSM survey.
16/12/2021	Native grass seed harvesting.
17/12/2021	GSM survey.
22/12/2021	Manual removal of Chilean needle grass at front gate. Repaired fence.
23/02/2022	Re-strained two fence wires
25/03/2022	Installed gate for access to dam

Photos:



*Figure 1. Spraying spear thistle; March 2, 2021*



*Figure 2. Constructing fence around sheep exclusion zone (control plot); April 20, 2021*



*Figure 3. Constructing fence near dam; June 4, 2021*



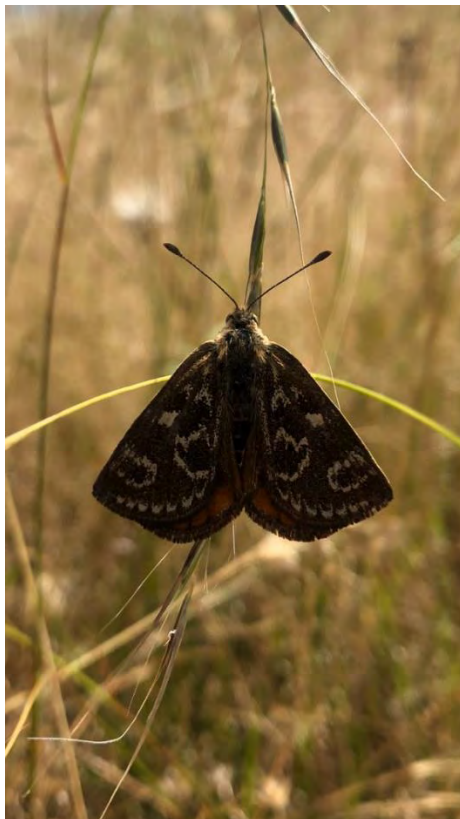
*Figure 4. Spraying thistles; October 5, 2021*



*Figure 5. Removing South African weed orchid; October 22, 2021*



*Figure 6. Manual removal of South African weed orchid; November 23, 2021*



*Figure 7. GSM sighted incidentally during routine visits; December 1, 2021*



*Figure 8. Native grass seed harvesting for future direct seeding at site; December 16, 2021*

Appendix B.1: Vegetation monitoring results (Habitat Hectares), February 2022

Table B.1.1 Vegetation survey results using Habitat Hectares method by external ecologist

Habitat Zone		HZ1
EVC Name		Low Rises Grassy Woodland (EVC 175_61)
Total area of habitat zone (ha)		<b>123</b>
Site Condition	Large Old Trees	3
	Tree Canopy Cover	3
	Understorey	20
	Lack of Weeds	6
	Recruitment	6
	Organic Matter	4
	Logs	2
	<b>Site Condition Score</b>	<b>44</b>
	EVC standardiser	x 1
	<b>Adjusted Site Condition Score</b>	<b>44</b>
Landscape Condition	Patch Size	8
	Neighbourhood	4
	Distance to Core	4
	<b>Landscape Condition Score</b>	<b>16</b>
<b>Habitat Score</b>		<b>60</b>
<b>Habitat Points = #/100</b>		<b>0.60</b>

Appendix B.2: Vegetation monitoring results (Golf Ball survey), November 2021

Table B.2.1. Vegetation survey results using Golf Ball method for 10 quadrats

Date	Quadrat number	Topography	Total vegetation cover (%)	Cover of bare ground (%)	Cover of organic litter (%)	Total cover of native perennial vegetation (%)	Total cover of native herbs (%)	Total cover of perennial weeds (%)	Total cover of annual weeds (%)	Average height of vegetation (cm)	Biomass score (Total no. of balls = 18)			Golf Ball score
											No. balls >90% visible (score = 1)	No. balls <33% visible (score = 0)	No. balls remaining (score = 0.5)	
24/11/2021	1	West facing slope	100	0	<1	50	<1	0	50	30	2	1	15	9.5
24/11/2021	2	Half of site has western facing slope	94	5	1	60	1	0	40	30-100	15	1	2	7.5
24/11/2021	3	East facing slope	100	0	20	40	<2	0	60	40	7	9	2	8
24/11/2021	4	Gentle south facing slope	100	0	0	70	2	0	28	30	15	3	0	15
24/11/2021	5	Top of ridge, facing south slope	100	0	0	75	25	0	25	35	16	2	0	16
24/11/2021	6		100	0	0	2	<1	0	98	50	4	5	9	8.5
24/11/2021	7	Top of ridge	80	20	0	99	<1	0	1	20	18	0	0	18
24/11/2021	8	Gentle south facing slope	100	0	0	95	<1	0	5	40	18	0	0	18
24/11/2021	9	Flat, alongside creek	100	0	0	25	<1	0	75	25	4	7	7	7.5
24/11/2021	10	West facing slope	100	0	1	10	<1	0	90	30	14	4	0	14

Table B.2.2. Native and exotic species identified in each quadrat during vegetation surveys

Quadrat number	Native species identified	Exotic species identified
1	<i>Rytidosperma spp.</i> (x2 species), <i>Juncus sp.</i> , <i>Eucalyptus sp.</i> , <i>Microlaena sp.</i> , Raspwort, <i>Acaena sp.</i> , <i>Oxalis sp.</i> , St. John's wort	<i>Vulpia sp.</i> , flatweed (x2 species), <i>Aira sp.</i> , <i>Trifolium suffocatum</i> , storksbill, soft brome
2	<i>Rytidosperma spp.</i> (x2 species), <i>Microlaena sp.</i> , <i>Juncus sp.</i> , St. John's wort, Sundew	<i>Aira sp.</i> , <i>Vulpia sp.</i> , Fog grass, flatweed (x2 species), clover, storksbill, capeweed
3	<i>Rytidosperma spp.</i> (x2 species), <i>Juncus sp.</i> , raspwort, <i>Microlaena sp.</i> , Native dock, <i>Spergula arvensis</i>	Capeweed, clover (x2 species), <i>Vulpia sp.</i> , flatweed, soft brome, milk thistle, Yorkshire fog, <i>Aira sp.</i> , Paterson's curse
4	Sun orchid, onion orchid, <i>Wahlenbergia sp.</i> , <i>Acaena sp.</i> , <i>Drosera sp.</i> , <i>Drosera sp.</i> , St. Johns wort, chocolate lily, raspwort, common rush, <i>Microlaena sp.</i> , <i>Rytidosperma sp.</i>	Flatweed, South African weed orchid, strawberry clover, <i>Trifolium suffocatum</i> , fog grass, <i>Vulpia sp.</i> , <i>Aira sp.</i> , <i>Briza maxima</i> , <i>Briza minor</i> , <i>Euchiton japonicus</i>
5	<i>Elymus sp.</i> , <i>Rytidosperma sp.</i> , <i>Microlaena sp.</i> , Raspwort, <i>Acaena sp.</i>	<i>Aira sp.</i> , <i>Vulpia sp.</i> , Fog grass, flatweed, clover, capeweed
6	Wiry dock, <i>Juncus spp.</i> (x2), <i>Rytidosperma sp.</i>	<i>Trifolium suffocatum</i> , capeweed, milk thistle, soft brome, <i>Vulpia sp.</i> , barley (x2 species), fog grass, red brome, <i>Aira sp.</i>
7	Short wallaby, <i>Microlaena sp.</i> , Taller wallaby, <i>Stipa mollis</i> , <i>Lomandra sp.</i> , <i>Juncus sp.</i> , <i>Wahlenbergia sp.</i> , corn spurry, <i>Acaena sp.</i> , onion orchid, sun orchid, <i>Oxalis sp.</i> , <i>Elymus sp.</i>	<i>Aira sp.</i> , fog grass, <i>Vulpia sp.</i> , <i>Phalaris minor</i> , flatweed, South African weed orchid, clover-yellow
8	<i>Rytidosperma spp.</i> (x3), <i>Elymus sp.</i> , <i>Juncus sp.</i> , <i>Stipa sp.</i> , dock, <i>Drosera sp.</i> , sun orchid, onion orchid, <i>Acaena sp.</i> , <i>Hibbertia sp.</i> , raspwort	Flatweed, <i>Centaurium sp.</i> , South African weed orchid, <i>Trifolium suffocatum</i> , <i>Briza maxima</i> , <i>Aira sp.</i> , <i>Briza minor</i> , <i>Vulpia sp.</i>
9	Dock, raspwort, <i>Eucalyptus sp.</i> , <i>Rytidosperma sp.</i> , <i>Elymus sp.</i> , <i>Microlaena sp.</i>	<i>Vulpia sp.</i> , fog grass, <i>Aira sp.</i> , <i>Briza minor</i> , sweet vernal, flatweed, <i>Trifolium suffocatum</i>
10	<i>Stipa scabra</i> , <i>Rytidosperma sp.</i> , raspwort, dock, <i>Acaena sp.</i>	<i>Aira sp.</i> , <i>Vulpia sp.</i> , barley, soft brome, capeweed, <i>Erodium sp.</i> , <i>Trifolium suffocatum</i> , Centaurium, clover-yellow, clover - pink, fluffy

## Appendix C: Golden Sun Moth (GSM) survey, December 2021

### Method

In December 2021, Year 1 surveys were conducted to determine the abundance of Golden Sun Moths at the offset site. Visits were regularly made once conditions became suitable and the moths were first observed on December 1, 2021, signalling the start to the GSM flight season. Surveys were subsequently conducted by Cassinia Environmental on the 6<sup>th</sup>, 13<sup>th</sup>, and 17<sup>th</sup> of December. The late rains and late onset of higher temperatures noticeably delayed the start of the monitoring season. Monitoring was paused over the Christmas season and the site was subsequently checked again for moths in early January 2022 but none were observed.

Following the DEWHA (2009) guidelines, 50 transects were established 50m apart from each other (Figure 9). During surveys, observers walked each parallel transect, counting flying GSM within a 5m arc on either side of the transect. Records were made of the number of moths observed and the location where each observation was made. Only observations of males were recorded.

As per the guidelines from DEWHA (2009) and described in the OMP, the Golden Sun Moth was surveyed after 10am and before 2pm during warm, sunny, and calm conditions. Weather conditions were recorded for each day, including temperature, cloud cover (/8), and wind speed (using Beaufort Scale). Cloud cover was estimated on the day while temperature and wind speed data were obtained retrospectively using Bureau of Meteorology records from the 'Puckapunyal West' weather station, 13.8km from Glenaroua.

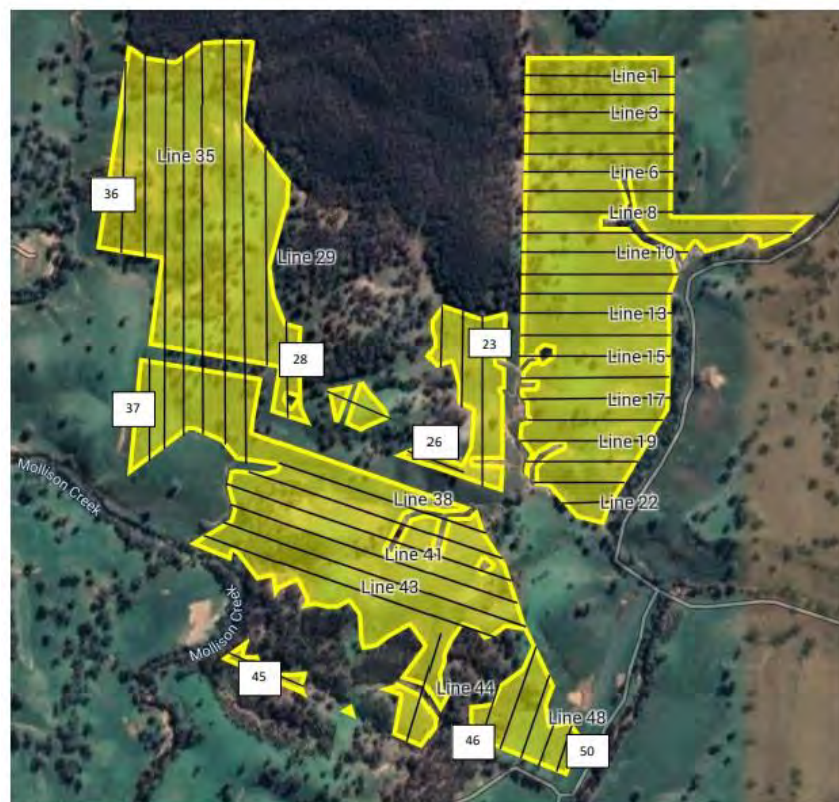


Figure 9. Fifty transects walked during GSM surveys at Glenaroua, December 2021

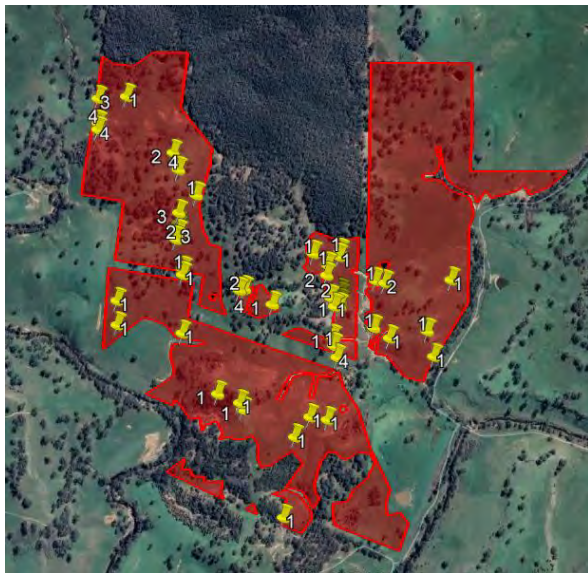
**Results**

A total of 725 male Golden Sun Moths were observed over the three days of surveys (Table 1).

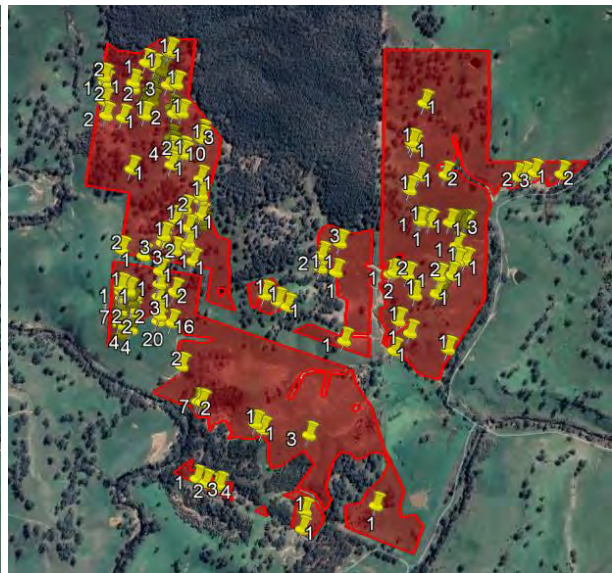
Table C.1. Number of male GSM observed during three survey days, 2021

<i>Date</i>	6 December	13 December	17 December	Total
<i>No. of male GSM observed</i>	81	290	354	725

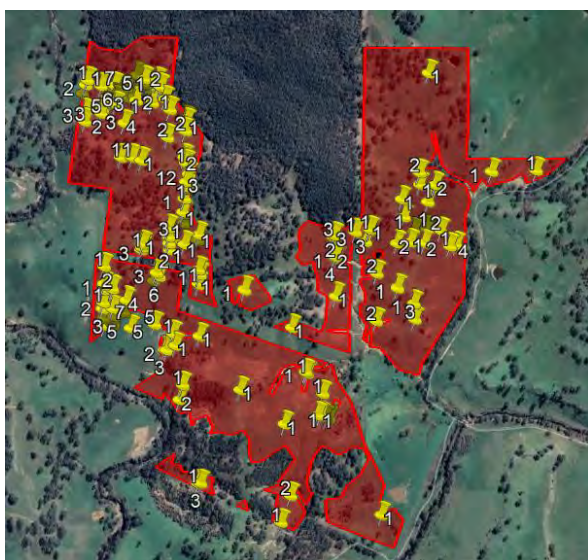
*Figures 10-12. Locations and numbers of male GSM observed on each survey day across the offset area*



*Figure 10. December 6, 2021*



*Figure 11. December 13, 2021*



*Figure 12. December 17, 2021*

The total transect distance for each survey was 21,846m. This distance was used to determine the number of hectares covered during each survey (21.8ha). Subsequently, an estimate of the number of male GSM per ha was calculated for each day.

The highest density of GSM over the three days was 16 males/ha whereas the lowest density was 4 males/ha (Table C.2).

An average density of 11 male Golden Sun Moths per hectare was recorded this season.

Table C.2. Number of male GSM per ha according to number of observations made and metres walked in 2021

<i>Date</i>	<b>No. of male GSM observed</b>	<b>Transect distance walked (m)</b>	<b>No. of male GSM/ha</b>
<i>6 December</i>	81	21,846	4
<i>13 December</i>	290	21,846	13
<i>17 December</i>	354	21,846	16
<b>Average</b>	242	21,846	11



*Figure 13. Golden sun moth; December 13, 2021*



*Figure 14. Golden sun moth; December 17, 2021*



*Figure 15. Golden sun moth; December 17, 2021*

Table C.3. GSM survey data records, December 2021

Transect no.	Date	Time	Observer	Latitude	Longitude	Temperature at 9am (°C)	Temperature at 3pm (°C)	Windspeed and direction at 9am	Windspeed and direction at 3pm	Cloud cover (0 = clear, 8 = complete cover)	Number of moths (males/transect)
2	17/12/2021	10:13	ACo	-37.1162	144.9964	19.6	30.3	7km/h ESE	9km/h E	0-1	1
4	13/12/2021	10:25	LH	-37.1171	144.9954	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
7	13/12/2021	10:39	ACh	-37.1185	144.9949	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
7	13/12/2021	10:41	ACh	-37.1184	144.9948	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
9	13/12/2021	10:51	ZD	-37.1195	144.9952	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
9	13/12/2021	10:53	ZD	-37.1194	144.9962	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
9	13/12/2021	10:58	ZD	-37.1195	144.9992	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
9	13/12/2021	11:01	ZD	-37.1194	144.9995	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
9	13/12/2021	11:02	ZD	-37.1193	144.9999	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
9	13/12/2021	11:04	ZD	-37.1194	145.001	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
9	17/12/2021	10:34	ACh	-37.1195	144.996	19.6	30.3	7km/h ESE	9km/h E	0-1	2
9	17/12/2021	10:41	ACh	-37.1194	144.999	19.6	30.3	7km/h ESE	9km/h E	0-1	1
9	17/12/2021	10:43	ACh	-37.1194	145.0009	19.6	30.3	7km/h ESE	9km/h E	0-1	1
10	13/12/2021	10:50	AW	-37.1199	144.9947	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
10	17/12/2021	10:44	RD	-37.1199	144.9967	19.6	30.3	7km/h ESE	9km/h E	0-1	2
10	17/12/2021	10:44	RD	-37.1199	144.9967	19.6	30.3	7km/h ESE	9km/h E	0-1	1
10	17/12/2021	10:45	RD	-37.1199	144.9967	19.6	30.3	7km/h ESE	9km/h E	0-1	1
10	17/12/2021	10:46	RD	-37.1199	144.996	19.6	30.3	7km/h ESE	9km/h E	0-1	1
11	17/12/2021	10:42	ACo	-37.1204	144.9964	19.6	30.3	7km/h ESE	9km/h E	0-1	1
11	17/12/2021	10:44	ACo	-37.1203	144.9953	19.6	30.3	7km/h ESE	9km/h E	0-1	1
12	13/12/2021	10:53	LH	-37.121	144.9953	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
12	13/12/2021	10:54	LH	-37.121	144.9956	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
12	13/12/2021	10:55	LH	-37.121	144.9964	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
12	13/12/2021	10:55	LH	-37.121	144.9967	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
12	13/12/2021	10:55	LH	-37.121	144.9969	22.1	30.7	13km/h NE	9km/h NNW	0-4	1

12	13/12/2021	10:56	LH	-37.121	144.9971	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
12	13/12/2021	10:56	LH	-37.121	144.9972	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
12	17/12/2021	10:55	ACh	-37.1209	144.9954	19.6	30.3	7km/h ESE	9km/h E	0-1	1
13	13/12/2021	11:13	ZD	-37.121	144.9952	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
13	13/12/2021	11:14	ZD	-37.121	144.9952	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
13	17/12/2021	10:56	RD	-37.1214	144.9969	19.6	30.3	7km/h ESE	9km/h E	0-1	2
13	17/12/2021	10:57	RD	-37.1213	144.9963	19.6	30.3	7km/h ESE	9km/h E	0-1	2
13	17/12/2021	10:58	RD	-37.1214	144.9958	19.6	30.3	7km/h ESE	9km/h E	0-1	1
13	17/12/2021	11:00	RD	-37.1214	144.9939	19.6	30.3	7km/h ESE	9km/h E	0-1	1
13	17/12/2021	11:01	RD	-37.1214	144.994	19.6	30.3	7km/h ESE	9km/h E	0-1	1
13	17/12/2021	11:01	RD	-37.1214	144.9933	19.6	30.3	7km/h ESE	9km/h E	0-1	1
14	13/12/2021	11:03	AW	-37.1218	144.9967	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
14	17/12/2021	10:51	ACo	-37.1218	144.9938	19.6	30.3	7km/h ESE	9km/h E	0-1	3
14	17/12/2021	10:53	ACo	-37.1218	144.9951	19.6	30.3	7km/h ESE	9km/h E	0-1	2
14	17/12/2021	10:54	ACo	-37.1218	144.9956	19.6	30.3	7km/h ESE	9km/h E	0-1	1
14	17/12/2021	10:55	ACo	-37.1218	144.9962	19.6	30.3	7km/h ESE	9km/h E	0-1	2
14	17/12/2021	10:57	ACo	-37.1219	144.9973	19.6	30.3	7km/h ESE	9km/h E	0-1	1
14	17/12/2021	10:58	ACo	-37.1219	144.9976	19.6	30.3	7km/h ESE	9km/h E	0-1	4
15	13/12/2021	11:01	ACh	-37.1223	144.9971	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
15	13/12/2021	11:02	ACh	-37.1223	144.9967	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
16	6/12/2021	11:08	LH	-37.1227	144.9972	16.6	24.1	17km/h NE	17km/h N	2-6	1
16	6/12/2021	11:12	LH	-37.1228	144.9943	16.6	24.1	17km/h NE	17km/h N	2-6	2
16	6/12/2021	11:12	LH	-37.1227	144.9939	16.6	24.1	17km/h NE	17km/h N	2-6	1
16	13/12/2021	11:04	LH	-37.1227	144.9965	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
16	13/12/2021	11:05	LH	-37.1228	144.996	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
16	13/12/2021	11:05	LH	-37.1228	144.996	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
16	13/12/2021	11:07	LH	-37.1228	144.9947	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
16	13/12/2021	11:07	LH	-37.1227	144.9941	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
16	13/12/2021	11:08	LH	-37.1227	144.994	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
16	17/12/2021	11:05	RD	-37.1228	144.9942	19.6	30.3	7km/h ESE	9km/h E	0-1	2

17	13/12/2021	11:16	LH	-37.1234	144.995	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
17	13/12/2021	11:17	LH	-37.1233	144.9959	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
17	13/12/2021	11:18	LH	-37.1233	144.9961	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
17	17/12/2021	11:06	ACo	-37.1233	144.9951	19.6	30.3	7km/h ESE	9km/h E	0-1	1
18	17/12/2021	11:16	ACh	-37.1238	144.9958	19.6	30.3	7km/h ESE	9km/h E	0-1	1
19	6/12/2021	11:18	LH	-37.1243	144.9939	16.6	24.1	17km/h NE	17km/h N	2-6	1
19	6/12/2021	11:23	ACh	-37.1244	144.9961	16.6	24.1	17km/h NE	17km/h N	2-6	1
19	13/12/2021	11:15	ACh	-37.1242	144.9943	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
19	17/12/2021	11:18	RD	-37.1243	144.9958	19.6	30.3	7km/h ESE	9km/h E	0-1	3
19	17/12/2021	11:21	RD	-37.1244	144.9942	19.6	30.3	7km/h ESE	9km/h E	0-1	2
20	6/12/2021	11:21	LH	-37.1247	144.9945	16.6	24.1	17km/h NE	17km/h N	2-6	1
20	13/12/2021	11:35	AW	-37.1246	144.9948	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
21	6/12/2021	11:32	JO	-37.1253	144.9964	16.6	24.1	17km/h NE	17km/h N	2-6	1
21	13/12/2021	11:28	LH	-37.1252	144.9964	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
21	13/12/2021	11:32	LH	-37.1252	144.9941	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
23	6/12/2021	11:39	LH	-37.1253	144.9923	16.6	24.1	17km/h NE	17km/h N	2-6	4
23	6/12/2021	11:40	LH	-37.1249	144.9922	16.6	24.1	17km/h NE	17km/h N	2-6	1
23	6/12/2021	11:41	LH	-37.1247	144.9921	16.6	24.1	17km/h NE	17km/h N	2-6	1
23	6/12/2021	11:43	LH	-37.1236	144.9924	16.6	24.1	17km/h NE	17km/h N	2-6	1
23	6/12/2021	11:43	LH	-37.1234	144.9925	16.6	24.1	17km/h NE	17km/h N	2-6	2
23	6/12/2021	11:44	LH	-37.1232	144.9924	16.6	24.1	17km/h NE	17km/h N	2-6	2
23	6/12/2021	11:44	LH	-37.1231	144.9924	16.6	24.1	17km/h NE	17km/h N	2-6	2
23	6/12/2021	11:46	LH	-37.1219	144.9924	16.6	24.1	17km/h NE	17km/h N	2-6	1
23	6/12/2021	11:46	LH	-37.1217	144.9924	16.6	24.1	17km/h NE	17km/h N	2-6	1
23	13/12/2021	11:28	ZD	-37.1249	144.9921	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
23	17/12/2021	11:36	RD	-37.1216	144.9925	19.6	30.3	7km/h ESE	9km/h E	0-1	3
23	17/12/2021	11:37	RD	-37.1216	144.9924	19.6	30.3	7km/h ESE	9km/h E	0-1	3
23	17/12/2021	11:38	RD	-37.1223	144.9925	19.6	30.3	7km/h ESE	9km/h E	0-1	4
23	17/12/2021	11:38	RD	-37.1223	144.9925	19.6	30.3	7km/h ESE	9km/h E	0-1	1
23	17/12/2021	11:38	RD	-37.1223	144.9925	19.6	30.3	7km/h ESE	9km/h E	0-1	2

23	17/12/2021	11:39	RD	-37.1223	144.9925	19.6	30.3	7km/h ESE	9km/h E	0-1	2
23	17/12/2021	11:40	RD	-37.1235	144.9925	19.6	30.3	7km/h ESE	9km/h E	0-1	1
24	6/12/2021	11:50	LH	-37.1222	144.9919	16.6	24.1	17km/h NE	17km/h N	2-6	1
24	6/12/2021	11:53	LH	-37.1225	144.9918	16.6	24.1	17km/h NE	17km/h N	2-6	2
24	6/12/2021	11:53	LH	-37.1233	144.992	16.6	24.1	17km/h NE	17km/h N	2-6	2
24	6/12/2021	11:54	LH	-37.1236	144.9922	16.6	24.1	17km/h NE	17km/h N	2-6	1
24	13/12/2021	11:33	ZD	-37.1227	144.9917	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
24	13/12/2021	11:35	ZD	-37.1217	144.9919	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
25	6/12/2021	12:01	LH	-37.1218	144.9913	16.6	24.1	17km/h NE	17km/h N	2-6	1
25	13/12/2021	11:38	ZD	-37.1221	144.9911	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
25	13/12/2021	11:38	ZD	-37.1222	144.9911	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
25	13/12/2021	11:39	ZD	-37.1225	144.9911	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
26	17/12/2021	11:34	ACh	-37.1246	144.9907	19.6	30.3	7km/h ESE	9km/h E	0-1	1
27	6/12/2021	11:53	ACh	-37.1231	144.9881	16.6	24.1	17km/h NE	17km/h N	2-6	2
27	6/12/2021	11:54	ACh	-37.123	144.9884	16.6	24.1	17km/h NE	17km/h N	2-6	4
27	6/12/2021	11:56	ACh	-37.1235	144.9895	16.6	24.1	17km/h NE	17km/h N	2-6	1
27	13/12/2021	11:47	ACh	-37.1238	144.9897	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
27	13/12/2021	11:49	ACh	-37.1236	144.9893	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
27	13/12/2021	11:50	ACh	-37.1234	144.9888	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
27	17/12/2021	11:40	ACh	-37.1233	144.9887	19.6	30.3	7km/h ESE	9km/h E	0-1	1
28	17/12/2021	11:48	ACh	-37.1232	144.9868	19.6	30.3	7km/h ESE	9km/h E	0-1	1
28	17/12/2021	11:49	ACh	-37.1229	144.9869	19.6	30.3	7km/h ESE	9km/h E	0-1	1
28	17/12/2021	11:49	ACh	-37.1227	144.9868	19.6	30.3	7km/h ESE	9km/h E	0-1	1
28	17/12/2021	11:51	ACh	-37.1217	144.9868	19.6	30.3	7km/h ESE	9km/h E	0-1	1
28	17/12/2021	11:52	ACh	-37.1215	144.9868	19.6	30.3	7km/h ESE	9km/h E	0-1	1
29	6/12/2021	12:07	JO	-37.1198	144.9863	16.6	24.1	17km/h NE	17km/h N	2-6	1
29	13/12/2021	12:03	AW	-37.1211	144.9863	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
29	13/12/2021	12:03	AW	-37.1209	144.9862	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
29	13/12/2021	12:05	AW	-37.1208	144.9862	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
29	13/12/2021	12:07	AW	-37.1203	144.9862	22.1	30.7	13km/h NE	9km/h NNW	0-4	2

29	13/12/2021	12:08	AW	-37.1201	144.9862	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
29	13/12/2021	12:09	AW	-37.1196	144.9862	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
29	13/12/2021	12:12	AW	-37.1183	144.9862	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
29	13/12/2021	12:12	AW	-37.1183	144.9862	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
29	13/12/2021	12:13	AW	-37.1181	144.9862	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
29	17/12/2021	12:00	ACh	-37.1218	144.9862	19.6	30.3	7km/h ESE	9km/h E	0-1	1
29	17/12/2021	12:01	ACh	-37.1212	144.9862	19.6	30.3	7km/h ESE	9km/h E	0-1	2
29	17/12/2021	12:02	ACh	-37.1209	144.9862	19.6	30.3	7km/h ESE	9km/h E	0-1	2
29	17/12/2021	12:02	ACh	-37.1208	144.9862	19.6	30.3	7km/h ESE	9km/h E	0-1	1
29	17/12/2021	12:03	ACh	-37.1203	144.9862	19.6	30.3	7km/h ESE	9km/h E	0-1	1
29	17/12/2021	12:03	ACh	-37.12	144.9863	19.6	30.3	7km/h ESE	9km/h E	0-1	1
29	17/12/2021	12:03	ACh	-37.12	144.9863	19.6	30.3	7km/h ESE	9km/h E	0-1	1
29	17/12/2021	12:04	ACh	-37.1198	144.9863	19.6	30.3	7km/h ESE	9km/h E	0-1	3
29	17/12/2021	12:04	ACh	-37.1195	144.9864	19.6	30.3	7km/h ESE	9km/h E	0-1	12
29	17/12/2021	12:05	ACh	-37.1192	144.9863	19.6	30.3	7km/h ESE	9km/h E	0-1	1
29	17/12/2021	12:05	ACh	-37.119	144.9862	19.6	30.3	7km/h ESE	9km/h E	0-1	2
29	17/12/2021	12:07	ACh	-37.1181	144.9863	19.6	30.3	7km/h ESE	9km/h E	0-1	2
29	17/12/2021	12:07	ACh	-37.1178	144.9863	19.6	30.3	7km/h ESE	9km/h E	0-1	1
29	17/12/2021	12:08	ACh	-37.1177	144.9863	19.6	30.3	7km/h ESE	9km/h E	0-1	1
30	6/12/2021	12:12	ACh	-37.1245	144.9857	16.6	24.1	17km/h NE	17km/h N	2-6	1
30	6/12/2021	12:16	ACh	-37.1225	144.9857	16.6	24.1	17km/h NE	17km/h N	2-6	1
30	6/12/2021	12:17	ACh	-37.1223	144.9857	16.6	24.1	17km/h NE	17km/h N	2-6	1
30	6/12/2021	12:19	ACh	-37.1213	144.9855	16.6	24.1	17km/h NE	17km/h N	2-6	2
30	6/12/2021	12:20	ACh	-37.1211	144.9856	16.6	24.1	17km/h NE	17km/h N	2-6	3
30	6/12/2021	12:21	ACh	-37.1209	144.9856	16.6	24.1	17km/h NE	17km/h N	2-6	1
30	6/12/2021	12:21	ACh	-37.1208	144.9856	16.6	24.1	17km/h NE	17km/h N	2-6	4
30	6/12/2021	12:22	ACh	-37.1204	144.9856	16.6	24.1	17km/h NE	17km/h N	2-6	3
30	6/12/2021	12:26	ACh	-37.119	144.9856	16.6	24.1	17km/h NE	17km/h N	2-6	4
30	6/12/2021	12:26	ACh	-37.1184	144.9853	16.6	24.1	17km/h NE	17km/h N	2-6	2
30	13/12/2021	12:15	ACh	-37.1223	144.9858	22.1	30.7	13km/h NE	9km/h NNW	0-4	1

30	13/12/2021	12:17	ACh	-37.1218	144.9856	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
30	13/12/2021	12:18	ACh	-37.1217	144.9857	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
30	13/12/2021	12:18	ACh	-37.1212	144.9856	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
30	13/12/2021	12:19	ACh	-37.1206	144.9855	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
30	13/12/2021	12:23	ACh	-37.1188	144.9855	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
30	13/12/2021	12:24	ACh	-37.1186	144.9854	22.1	30.7	13km/h NE	9km/h NNW	0-4	10
30	13/12/2021	12:27	ACh	-37.1174	144.9854	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
30	13/12/2021	12:29	ACh	-37.1165	144.9851	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
30	13/12/2021	12:43	ACh	-37.1176	144.9829	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
30	17/12/2021	11:15	JS	-37.1248	144.9857	19.6	30.3	7km/h ESE	9km/h E	0-1	1
30	17/12/2021	11:25	JS	-37.122	144.9856	19.6	30.3	7km/h ESE	9km/h E	0-1	1
30	17/12/2021	11:25	JS	-37.1218	144.9856	19.6	30.3	7km/h ESE	9km/h E	0-1	2
30	17/12/2021	11:26	JS	-37.1216	144.9856	19.6	30.3	7km/h ESE	9km/h E	0-1	3
30	17/12/2021	11:27	JS	-37.1213	144.9856	19.6	30.3	7km/h ESE	9km/h E	0-1	1
30	17/12/2021	11:32	JS	-37.1183	144.9855	19.6	30.3	7km/h ESE	9km/h E	0-1	2
30	17/12/2021	11:34	JS	-37.1174	144.9856	19.6	30.3	7km/h ESE	9km/h E	0-1	1
30	17/12/2021	11:35	JS	-37.117	144.9854	19.6	30.3	7km/h ESE	9km/h E	0-1	2
30	17/12/2021	11:36	JS	-37.1166	144.9852	19.6	30.3	7km/h ESE	9km/h E	0-1	2
30	17/12/2021	11:37	JS	-37.1164	144.9851	19.6	30.3	7km/h ESE	9km/h E	0-1	1
31	13/12/2021	12:03	LH	-37.1243	144.9849	22.1	30.7	13km/h NE	9km/h NNW	0-4	16
31	13/12/2021	12:04	LH	-37.1233	144.9851	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
31	13/12/2021	12:07	LH	-37.1219	144.9851	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
31	13/12/2021	12:10	LH	-37.1209	144.9851	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
31	13/12/2021	12:12	LH	-37.1191	144.985	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
31	13/12/2021	12:13	LH	-37.1188	144.985	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
31	13/12/2021	12:13	LH	-37.1186	144.985	22.1	30.7	13km/h NE	9km/h NNW	0-4	4
31	13/12/2021	12:13	LH	-37.1185	144.9849	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
31	13/12/2021	12:14	LH	-37.1182	144.9849	22.1	30.7	13km/h NE	9km/h NNW	0-4	5
31	13/12/2021	12:15	LH	-37.1174	144.985	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
31	13/12/2021	12:15	LH	-37.1174	144.985	22.1	30.7	13km/h NE	9km/h NNW	0-4	2

31	13/12/2021	12:16	LH	-37.1172	144.9849	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
31	13/12/2021	12:17	LH	-37.1165	144.9848	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
31	13/12/2021	12:18	LH	-37.116	144.9846	22.1	30.7	13km/h NE	9km/h NNW	0-4	13
31	13/12/2021	12:19	LH	-37.1154	144.9848	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
31	13/12/2021	12:20	LH	-37.1154	144.9849	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
31	17/12/2021	11:23	LH	-37.1245	144.985	19.6	30.3	7km/h ESE	9km/h E	0-1	5
31	17/12/2021	11:26	LH	-37.1231	144.985	19.6	30.3	7km/h ESE	9km/h E	0-1	1
31	17/12/2021	11:26	LH	-37.1229	144.9852	19.6	30.3	7km/h ESE	9km/h E	0-1	6
31	17/12/2021	11:27	LH	-37.1228	144.9851	19.6	30.3	7km/h ESE	9km/h E	0-1	3
31	17/12/2021	11:40	LH	-37.1171	144.9849	19.6	30.3	7km/h ESE	9km/h E	0-1	1
31	17/12/2021	11:40	LH	-37.1167	144.9846	19.6	30.3	7km/h ESE	9km/h E	0-1	1
31	17/12/2021	11:41	LH	-37.1166	144.9846	19.6	30.3	7km/h ESE	9km/h E	0-1	1
31	17/12/2021	11:41	LH	-37.1166	144.9846	19.6	30.3	7km/h ESE	9km/h E	0-1	5
31	17/12/2021	11:41	LH	-37.1165	144.9846	19.6	30.3	7km/h ESE	9km/h E	0-1	1
31	17/12/2021	11:42	LH	-37.1164	144.9846	19.6	30.3	7km/h ESE	9km/h E	0-1	5
32	13/12/2021	12:01	ZD	-37.1242	144.9844	22.1	30.7	13km/h NE	9km/h NNW	0-4	20
32	13/12/2021	12:02	ZD	-37.124	144.9844	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
32	13/12/2021	12:03	ZD	-37.1234	144.9844	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
32	13/12/2021	12:04	ZD	-37.123	144.9844	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
32	13/12/2021	12:06	ZD	-37.1226	144.9845	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
32	13/12/2021	12:07	ZD	-37.1217	144.9846	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
32	13/12/2021	12:08	ZD	-37.1215	144.9847	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
32	13/12/2021	12:17	ZD	-37.117	144.9841	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
32	13/12/2021	12:18	ZD	-37.1168	144.9841	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
32	13/12/2021	12:19	ZD	-37.1166	144.9841	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
32	13/12/2021	12:20	ZD	-37.1159	144.9843	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
32	17/12/2021	11:28	ZD	-37.122	144.9845	19.6	30.3	7km/h ESE	9km/h E	0-1	3
32	17/12/2021	11:29	ZD	-37.122	144.9845	19.6	30.3	7km/h ESE	9km/h E	0-1	1
32	17/12/2021	11:29	ZD	-37.1218	144.9845	19.6	30.3	7km/h ESE	9km/h E	0-1	1
32	17/12/2021	11:35	ZD	-37.1191	144.9845	19.6	30.3	7km/h ESE	9km/h E	0-1	1

32	17/12/2021	11:40	ZD	-37.1171	144.9842	19.6	30.3	7km/h ESE	9km/h E	0-1	3
32	17/12/2021	11:41	ZD	-37.1169	144.9841	19.6	30.3	7km/h ESE	9km/h E	0-1	9
32	17/12/2021	11:41	ZD	-37.1168	144.9842	19.6	30.3	7km/h ESE	9km/h E	0-1	5
32	17/12/2021	11:42	ZD	-37.1166	144.9842	19.6	30.3	7km/h ESE	9km/h E	0-1	1
32	17/12/2021	11:42	ZD	-37.1162	144.9842	19.6	30.3	7km/h ESE	9km/h E	0-1	2
33	13/12/2021	12:26	AW	-37.1157	144.9839	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
33	13/12/2021	12:29	AW	-37.1171	144.9838	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
33	13/12/2021	12:30	AW	-37.1172	144.9838	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
33	13/12/2021	12:31	AW	-37.1175	144.9838	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
33	13/12/2021	12:44	AW	-37.1221	144.9838	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
33	17/12/2021	11:54	JS	-37.1167	144.9838	19.6	30.3	7km/h ESE	9km/h E	0-1	2
33	17/12/2021	11:55	JS	-37.1169	144.9837	19.6	30.3	7km/h ESE	9km/h E	0-1	6
33	17/12/2021	11:56	JS	-37.117	144.9838	19.6	30.3	7km/h ESE	9km/h E	0-1	27
33	17/12/2021	11:58	JS	-37.1178	144.9837	19.6	30.3	7km/h ESE	9km/h E	0-1	4
33	17/12/2021	12:00	JS	-37.119	144.9841	19.6	30.3	7km/h ESE	9km/h E	0-1	1
33	17/12/2021	12:09	JS	-37.1237	144.9838	19.6	30.3	7km/h ESE	9km/h E	0-1	4
33	17/12/2021	12:10	JS	-37.1241	144.9837	19.6	30.3	7km/h ESE	9km/h E	0-1	6
33	17/12/2021	12:13	JS	-37.1246	144.984	19.6	30.3	7km/h ESE	9km/h E	0-1	5
34	6/12/2021	13:03	AW	-37.1165	144.9833	16.6	24.1	17km/h NE	17km/h N	2-6	1
34	13/12/2021	12:28	ZD	-37.1164	144.9833	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
34	13/12/2021	12:28	ZD	-37.1166	144.9833	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
34	13/12/2021	12:33	ZD	-37.1193	144.9833	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
34	13/12/2021	12:39	ZD	-37.1219	144.9829	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
34	13/12/2021	12:42	ZD	-37.1232	144.9832	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
34	13/12/2021	12:42	ZD	-37.1234	144.9832	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
34	13/12/2021	12:43	ZD	-37.1236	144.9833	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
34	13/12/2021	12:43	ZD	-37.1238	144.9833	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
34	13/12/2021	12:44	ZD	-37.1239	144.9833	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
34	13/12/2021	12:44	ZD	-37.1242	144.9833	22.1	30.7	13km/h NE	9km/h NNW	0-4	7
34	13/12/2021	12:45	ZD	-37.1245	144.9832	22.1	30.7	13km/h NE	9km/h NNW	0-4	4

34	17/12/2021	11:54	ZD	-37.1166	144.9833	19.6	30.3	7km/h ESE	9km/h E	0-1	7
34	17/12/2021	11:54	ZD	-37.1167	144.9833	19.6	30.3	7km/h ESE	9km/h E	0-1	4
34	17/12/2021	11:55	ZD	-37.117	144.9833	19.6	30.3	7km/h ESE	9km/h E	0-1	2
34	17/12/2021	11:56	ZD	-37.117	144.9833	19.6	30.3	7km/h ESE	9km/h E	0-1	3
34	17/12/2021	11:56	ZD	-37.1172	144.9834	19.6	30.3	7km/h ESE	9km/h E	0-1	3
34	17/12/2021	11:59	ZD	-37.119	144.9836	19.6	30.3	7km/h ESE	9km/h E	0-1	1
34	17/12/2021	12:07	ZD	-37.1226	144.9829	19.6	30.3	7km/h ESE	9km/h E	0-1	1
34	17/12/2021	12:08	ZD	-37.1233	144.9832	19.6	30.3	7km/h ESE	9km/h E	0-1	2
34	17/12/2021	12:09	ZD	-37.1239	144.9832	19.6	30.3	7km/h ESE	9km/h E	0-1	7
34	17/12/2021	12:10	ZD	-37.1242	144.9833	19.6	30.3	7km/h ESE	9km/h E	0-1	11
34	17/12/2021	12:11	ZD	-37.1245	144.9832	19.6	30.3	7km/h ESE	9km/h E	0-1	20
35	17/12/2021	11:54	LH	-37.1166	144.9827	19.6	30.3	7km/h ESE	9km/h E	0-1	1
35	17/12/2021	11:55	LH	-37.1172	144.9829	19.6	30.3	7km/h ESE	9km/h E	0-1	5
35	17/12/2021	11:56	LH	-37.1174	144.9828	19.6	30.3	7km/h ESE	9km/h E	0-1	2
35	17/12/2021	11:57	LH	-37.1175	144.9828	19.6	30.3	7km/h ESE	9km/h E	0-1	5
36	6/12/2021	12:36	LH	-37.1176	144.9821	16.6	24.1	17km/h NE	17km/h N	2-6	4
36	6/12/2021	12:36	LH	-37.1174	144.9821	16.6	24.1	17km/h NE	17km/h N	2-6	4
36	6/12/2021	12:39	LH	-37.1165	144.9821	16.6	24.1	17km/h NE	17km/h N	2-6	3
36	13/12/2021	12:31	LH	-37.1162	144.9821	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
36	13/12/2021	12:31	LH	-37.1164	144.9822	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
36	13/12/2021	12:32	LH	-37.1168	144.9821	22.1	30.7	13km/h NE	9km/h NNW	0-4	5
36	13/12/2021	12:32	LH	-37.117	144.9821	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
36	13/12/2021	12:33	LH	-37.1175	144.9822	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
36	17/12/2021	12:09	LH	-37.1178	144.9821	19.6	30.3	7km/h ESE	9km/h E	0-1	3
36	17/12/2021	12:10	LH	-37.1174	144.9821	19.6	30.3	7km/h ESE	9km/h E	0-1	3
36	17/12/2021	12:11	LH	-37.1168	144.982	19.6	30.3	7km/h ESE	9km/h E	0-1	2
36	17/12/2021	12:12	LH	-37.1165	144.9821	19.6	30.3	7km/h ESE	9km/h E	0-1	2
36	17/12/2021	12:13	LH	-37.1164	144.9822	19.6	30.3	7km/h ESE	9km/h E	0-1	1
37	6/12/2021	12:22	LH	-37.1242	144.9829	16.6	24.1	17km/h NE	17km/h N	2-6	1
37	6/12/2021	12:24	LH	-37.1234	144.9829	16.6	24.1	17km/h NE	17km/h N	2-6	1

37	13/12/2021	12:45	LH	-37.1231	144.9828	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
37	13/12/2021	12:46	LH	-37.1233	144.9829	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
37	13/12/2021	12:46	LH	-37.1235	144.9829	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
37	13/12/2021	12:46	LH	-37.1237	144.9829	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
37	13/12/2021	12:47	LH	-37.1239	144.9829	22.1	30.7	13km/h NE	9km/h NNW	0-4	7
37	13/12/2021	12:47	LH	-37.1241	144.9828	22.1	30.7	13km/h NE	9km/h NNW	0-4	10
37	13/12/2021	12:48	LH	-37.1243	144.9828	22.1	30.7	13km/h NE	9km/h NNW	0-4	4
37	13/12/2021	12:49	LH	-37.1247	144.9828	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
37	17/12/2021	12:13	ZD	-37.1245	144.9829	19.6	30.3	7km/h ESE	9km/h E	0-1	5
37	17/12/2021	12:13	ZD	-37.1243	144.9829	19.6	30.3	7km/h ESE	9km/h E	0-1	4
37	17/12/2021	12:14	ZD	-37.124	144.9828	19.6	30.3	7km/h ESE	9km/h E	0-1	3
37	17/12/2021	12:14	ZD	-37.1237	144.9828	19.6	30.3	7km/h ESE	9km/h E	0-1	2
37	17/12/2021	12:15	ZD	-37.1233	144.9828	19.6	30.3	7km/h ESE	9km/h E	0-1	1
37	17/12/2021	12:16	ZD	-37.1232	144.9829	19.6	30.3	7km/h ESE	9km/h E	0-1	1
38	17/12/2021	10:59	ZD	-37.1261	144.9913	19.6	30.3	7km/h ESE	9km/h E	0-1	1
38	17/12/2021	11:00	ZD	-37.1261	144.9913	19.6	30.3	7km/h ESE	9km/h E	0-1	1
38	17/12/2021	11:06	ZD	-37.1249	144.9868	19.6	30.3	7km/h ESE	9km/h E	0-1	1
39	17/12/2021	11:00	JS	-37.1268	144.992	19.6	30.3	7km/h ESE	9km/h E	0-1	1
39	17/12/2021	11:08	JS	-37.1252	144.9858	19.6	30.3	7km/h ESE	9km/h E	0-1	1
40	17/12/2021	11:14	LH	-37.1253	144.9854	19.6	30.3	7km/h ESE	9km/h E	0-1	3
40	17/12/2021	11:14	LH	-37.1253	144.9855	19.6	30.3	7km/h ESE	9km/h E	0-1	2
41	6/12/2021	14:21	AW	-37.1269	144.9882	16.6	24.1	17km/h NE	17km/h N	2-6	1
41	6/12/2021	14:25	AW	-37.1266	144.9872	16.6	24.1	17km/h NE	17km/h N	2-6	1
41	6/12/2021	14:47	LH	-37.1274	144.9919	16.6	24.1	17km/h NE	17km/h N	2-6	1
41	6/12/2021	14:49	LH	-37.1273	144.9911	16.6	24.1	17km/h NE	17km/h N	2-6	1
41	13/12/2021	14:14	ZD	-37.1257	144.9853	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
41	17/12/2021	10:46	JS	-37.1266	144.9886	19.6	30.3	7km/h ESE	9km/h E	0-1	1
41	17/12/2021	10:51	JS	-37.1275	144.9918	19.6	30.3	7km/h ESE	9km/h E	0-1	1
41	17/12/2021	10:51	JS	-37.1275	144.9919	19.6	30.3	7km/h ESE	9km/h E	0-1	1
41	17/12/2021	10:52	JS	-37.1276	144.9921	19.6	30.3	7km/h ESE	9km/h E	0-1	4

41	17/12/2021	10:53	JS	-37.1276	144.9922	19.6	30.3	7km/h ESE	9km/h E	0-1	1
42	6/12/2021	14:20	LH	-37.1271	144.9883	16.6	24.1	17km/h NE	17km/h N	2-6	1
42	17/12/2021	11:05	LH	-37.1265	144.9861	19.6	30.3	7km/h ESE	9km/h E	0-1	1
42	17/12/2021	10:25	ZD	-37.1278	144.9904	19.6	30.3	7km/h ESE	9km/h E	0-1	1
43	6/12/2021	14:13	ACh	-37.128	144.9905	16.6	24.1	17km/h NE	17km/h N	2-6	1
43	13/12/2021	14:34	ZD	-37.128	144.9906	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
43	13/12/2021	14:37	ZD	-37.1278	144.9887	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
43	13/12/2021	14:38	ZD	-37.1276	144.9884	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
43	13/12/2021	13:51	LH	-37.1269	144.9862	22.1	30.7	13km/h NE	9km/h NNW	0-4	7
43	13/12/2021	13:52	LH	-37.1269	144.986	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
43	13/12/2021	13:52	LH	-37.1269	144.9859	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
43	17/12/2021	10:57	LH	-37.127	144.986	19.6	30.3	7km/h ESE	9km/h E	0-1	2
44	6/12/2021	14:16	JO	-37.1308	144.99	16.6	24.1	17km/h NE	17km/h N	2-6	1
44	13/12/2021	14:15	LH	-37.1311	144.9903	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
44	13/12/2021	14:16	LH	-37.1305	144.9904	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
44	17/12/2021	10:33	LH	-37.1302	144.9906	19.6	30.3	7km/h ESE	9km/h E	0-1	2
44	17/12/2021	10:36	LH	-37.131	144.9902	19.6	30.3	7km/h ESE	9km/h E	0-1	1
45	13/12/2021	14:04	LH	-37.1294	144.986	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
45	13/12/2021	14:05	LH	-37.1296	144.9863	22.1	30.7	13km/h NE	9km/h NNW	0-4	3
45	13/12/2021	14:06	LH	-37.1297	144.9868	22.1	30.7	13km/h NE	9km/h NNW	0-4	2
45	13/12/2021	14:08	LH	-37.1296	144.9869	22.1	30.7	13km/h NE	9km/h NNW	0-4	4
45	17/12/2021	10:43	LH	-37.1297	144.9869	19.6	30.3	7km/h ESE	9km/h E	0-1	3
45	17/12/2021	10:44	LH	-37.1297	144.9868	19.6	30.3	7km/h ESE	9km/h E	0-1	1
47	13/12/2021	14:42	ACh	-37.1303	144.9934	22.1	30.7	13km/h NE	9km/h NNW	0-4	1
49	17/12/2021	10:12	JS	-37.1308	144.9944	19.6	30.3	7km/h ESE	9km/h E	0-1	1

## Appendix D: Photopoints (10 quadrats) and control plots (3 plots)

See attached document.



**CASSINIA**  
ENVIRONMENTAL

# Golden Sun Moth Offset Management Report

235 Muncktons Lane, Glenaroua, Victoria

EPBC Act referral 2015/7516

TFN Reference: C2047\_02

Annual report: Year 2

Submitted: 28 March 2023

Landowner of offset site: Implexa Property Pty Ltd (ABN 91614987021)

Approval holder: Satterley Property Group



EPBC Act referral 2015/7516  
235 Muncktons Lane, Glenaroua, Victoria  
Annual report: Year 2, March 2023

## 1. Introduction

The offset area provides 120.1 hectares of GSM habitat located in the Victorian Goldfields Bioregion.

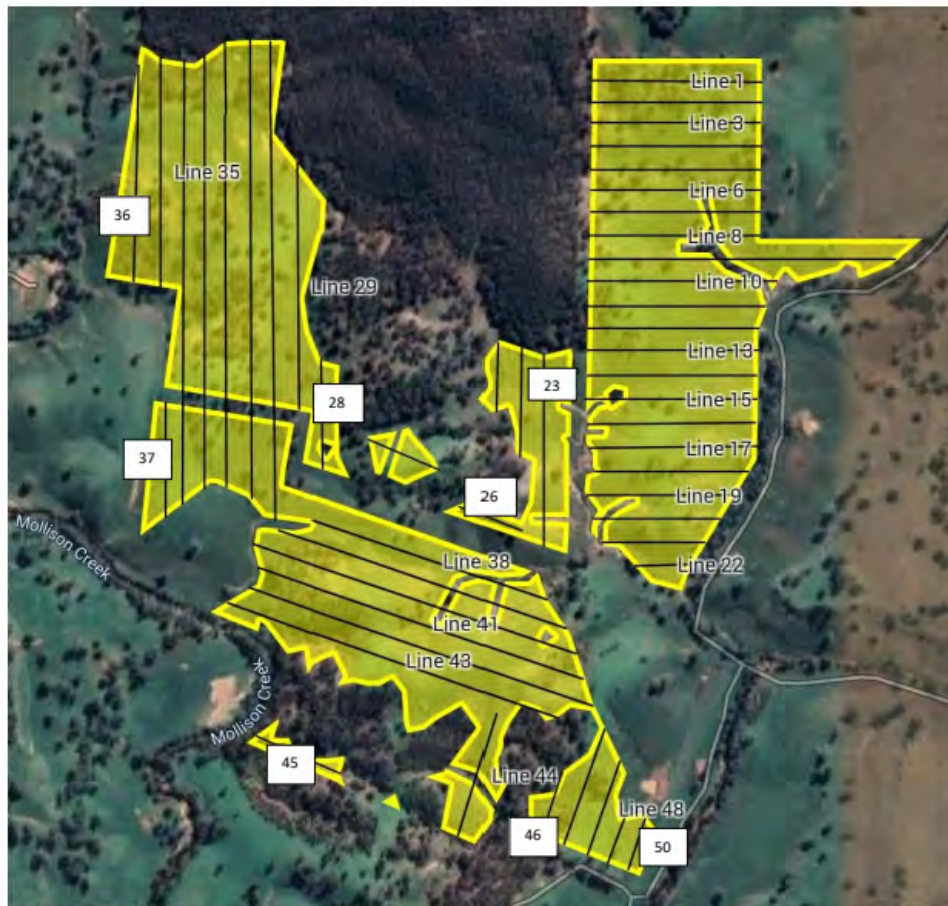


Figure 1. Offset area and GSM survey transect lines

Work continues on the management actions specified in the Offset Management Plan (Appendix 1 of OMP). Key management actions carried out in Year 2 of implementation include:

- Thinning dense areas of eucalyptus. Records and photos in Appendix A.
- Fence repairs. Records and photos in Appendix A.
- Weed control. Records and photos in Appendix A.
- Pest animal monitoring and control. Records in Appendix A.
- Vegetation surveys and photopoint monitoring were conducted in December 2022. Results in Appendix B and photopoints in Appendix C.

List of Appendices:

- Appendix A – Record of Works
- Appendix B – Vegetation monitoring results (including Golf Ball method), December 2022
- Appendix C (attached document) – Photopoints, December 2022

EPBC Act referral 2015/7516  
235 Muncktons Lane, Glenaroua, Victoria  
Annual report: Year 2, March 2023

## 2. Details of compliance with the schedule of management actions

### **1 - Implement permanent changes to grazing**

All cattle and horse grazing have been permanently excluded.

Pulse grazing by sheep is applied to the offset area at a 20% stocking rate. Cassinia employs a Farm Manager, working part-time on the property. This is in addition to the land management work noted in Appendix A.

Management of stocking rate and grazing duration are currently managed and recorded via an app, AgriWebb.

All fertilizer application has been permanently excluded.

### **2 - Prevent uncontrolled livestock grazing and unauthorised access. Install fencing for Offset area if needed**

Fencing within the GSM offset area was completed in Year 1. Fences have been regularly monitored since. The heavy rainfall in Spring 2022 caused extensive flooding on the property, damaging fences. Fences were repaired after the flood receded. See Appendix A for details.

### **3 - Prepare and implement annual works plan**

The annual work plan continues to be implemented by suitably qualified staff and contractors. See details below.

### **4 - Routine inspections and records of works**

Inspections on fencing, weeds, pests, and/or other management requirements were carried out every month in Year 2 except September. Records of evidence/sightings and works were kept using the Fulcrum mobile app. See details of records in Appendix A.

### **5 - Control woody weeds**

Total cover of woody weeds remains at <1% of the Offset area.

Sweet briar was controlled by cutting and painting.

## **6 - Control herbaceous weeds**

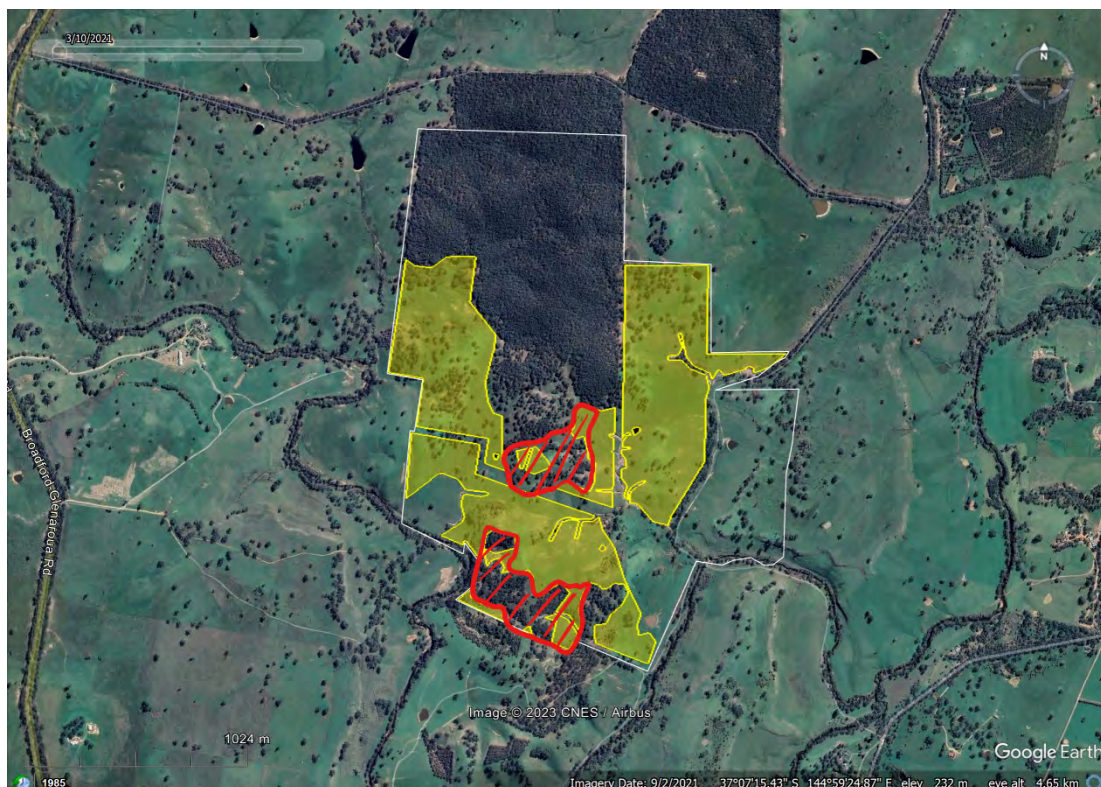
The focus of weed control in Year 2 are listed in Table 1. Weed control involved spot spraying herbicide and manual removal.

Table 1. Herbaceous weeds identified for control

Scientific name	Common name	Method of control	Timing
<i>Cirsium vulgare</i>	Spear thistle	Spot spray	Autumn
<i>Disa bracteata</i>	South African weed orchid	Manual removal and spot spray	Spring
<i>Juncus acutus</i>	Spiny rush	Spot spray	Autumn

Annual and perennial grass weeds are managed by targeted sheep grazing based on Year 1 vegetation monitoring surveys. However, above-average rainfall in spring and summer 2022 caused significant vegetation growth and cover. This year's vegetation survey (results in Appendix B) will be used to identify target areas for the next reporting period.

South African weed orchid (SAWO) continues to be managed and areas of targeted control are shown below. Sheep grazing has also been an effective method of control for SAWO.

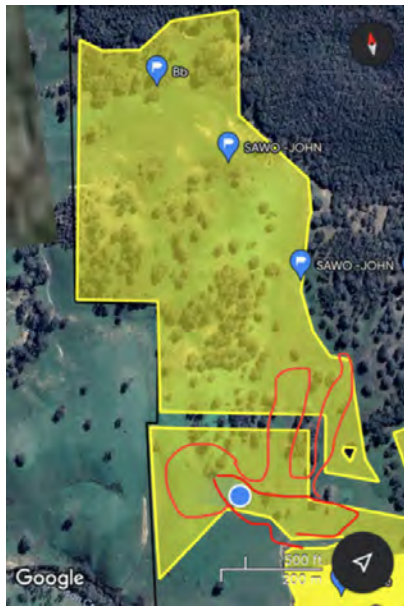


*Figure 2. Areas (shaded red) where South African weed orchid was treated by manual removal and spot spray in 2022*

### *Browntop Bent Grass*

Areas with higher densities of brown-top bent grass cover were mapped in October 2022 and March 2023 (Figures 3 to 6 below). This will be used to inform future grazing options to manage brown-top bent in Year 3, ie heavier rotational grazing in winter to trample bent grass and enable other species to recover and thrive.

One section in the south-east corner will be used to begin trialling the impact of fire on brown-top bent grass.



**7 – Control pest  
rabbits, hares, foxes)**

**animals (eg.**

Spotlighting surveys were conducted in August 2022 to monitor for pest animals. Two transects were mapped and surveyed to provide appropriate coverage of the offset area, with each transect being at least 1km (Figure 2). Transect 1 (left) is 1.9km and Transect 2 (right) is 1.88km. These transects will be surveyed quarterly to monitor pest animal populations.

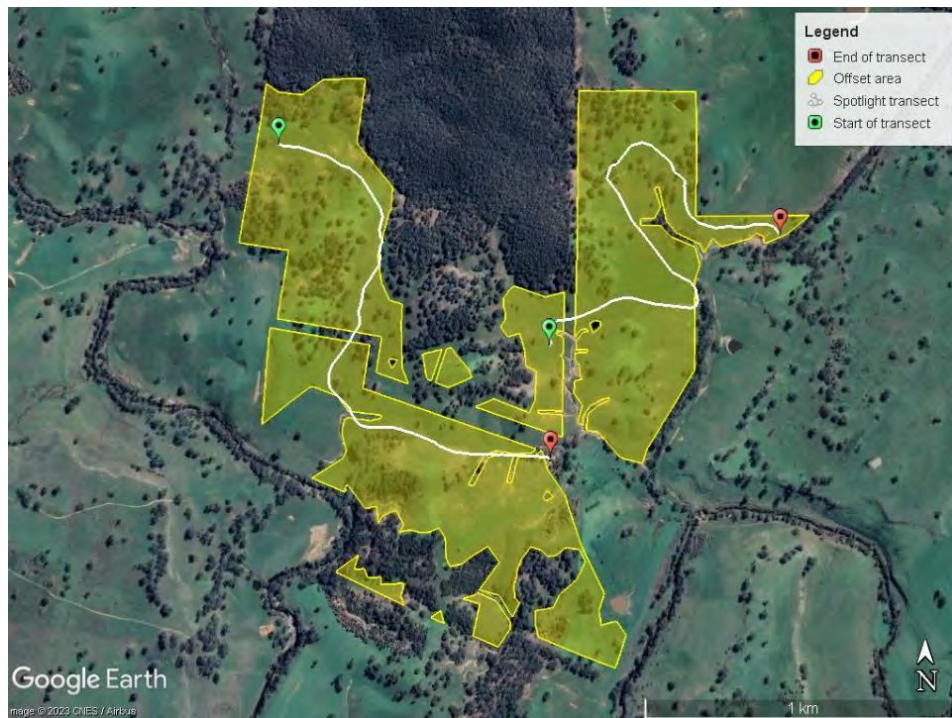


Figure 7. Spotlighting transects in offset area

The results from the spotlighting survey in Year 2 are presented in Table 2. The total counts for each pest animal species were divided by 3.78km (total length of both transects) to give an estimate of count per km.

Table 2. Pest animals observed during spotlighting survey in August 2022

Glenaroua				
<b>Date: 10/08/2022</b>				
<b>Start time:</b>	20:37	<b>Transects total length:</b>		3.78km
<b>End time:</b>	21:23			
<b>Conditions</b>	<b>Temperature</b>	<b>Wind</b>	<b>Moon Visibility</b>	<b>Last rain</b>
	Cool	Light	Full	A week ago
<b>Species</b>		<b>Total count</b>		<b>Count/km</b>
Foxes		2		1
Rabbits		6		2
Kangaroos		75		20

Wallabies	0	0
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Evidence of pest animals (ie. scat) was also included in vegetation surveys this year (Appendix B). No evidence of pest animals were found during the surveys; all scat identified were sheep scat.

Pest animal control was carried out over the entirety of the property, which includes the offset area, throughout the year. Overall, 13 foxes, 22 rabbits, and 83 kangaroos were shot within the property.

No active rabbit warrens were found within the offset area.

Cows from a neighbouring property were found and removed from the property in October 2022.

### **8 - Identify and control or eliminate new or emerging threats**

The following weeds were identified on the property and treated. They will continue to be managed under the management plan.

Table 3. Herbaceous weeds not previously recorded from the property

Scientific name	Common name	Method of control	Timing
<i>Onopordum acanthium</i>	Scotch thistle	Manual removal	Autumn

Above-average rainfall in Spring 2022 caused extensive flooding and damage on the property. Fences were identified for repair after the flood receded.

### **9 - Use pulse grazing for biomass/weed control**

Pulse grazing by sheep is applied to the offset area at a 20% stocking rate.

Stock were excluded from the offset area after October 15, 2022. The extension to the grazing period, approved by Trust for Nature, was requested due to the unusual seasonal conditions. The forecasted high rainfall between August and November would promote significant grass growth and therefore a delay in the exclusion period was requested to manage biomass and organic litter conditions for golden sun moth habitat. Biomass and organic litter were surveyed as part of the Golf Ball vegetation monitoring method (Appendix B) in November and will be used to inform the grazing strategy for the following year.

## **10 - Ecological burning trial for Offset area**

No ecological burning has been undertaken as grazing remains the main approach to biomass management.

Ecological burning to improve recruitment of native species may be considered in the future to maintain the Site Quality score.

Two sites are being prepared for sowing native grass seed. Cassinia harvested native grass seed from the property in Spring 2021 to resource and enable improvements in native grass cover in degraded areas. Site preparations involve weed spraying and sowing will only proceed this year when there has been sufficient elimination of competing weed species.



## **11 - Ecological monitoring**

Vegetation monitoring at the ten quadrats (20mx20m) previously established was conducted in December 2022. Photopoints were also monitored, located at the north-east corner of each quadrat. Golf Ball surveys were conducted by a qualified contractor on December 6 and 15, 2022 to estimate biomass at each site. See Appendix B for survey results. See Appendix C for photopoints.

Golden sun moth (GSM) surveys were not required during Year 2.

A VQA assessment was done by an accredited native vegetation assessor, Karl Just, for Cassinia Environmental in February 2022. See results below.

**Table 1 Vegetation Quality Assessment Results, Glenaroura, February 2022**

Habitat Zone		HZ1
EVC Name		Low Rises Grassy Woodland (EVC 175_61)
Total area of habitat zone (ha)		<b>123</b>
Site Condition	Large Old Trees	3
	Tree Canopy Cover	3
	Understorey	20
	Lack of Weeds	6
	Recruitment	6
	Organic Matter	4
	Logs	2
	<b>Site Condition Score</b>	<b>44</b>
	EVC standardiser	x 1
<b>Adjusted Site Condition Score</b>	<b>44</b>	
Landscape Condition	Patch Size	8
	Neighbourhood	4
	Distance to Core	4
	<b>Landscape Condition Score</b>	<b>16</b>
<b>Habitat Score</b>	<b>100</b>	60
<b>Habitat Points = #/100</b>	<b>1</b>	<b>0.60</b>

Just provided recommendations for improving the Quality score, supplied spatial data, and a full Flora list. The results give confidence that the GSM habitat quality can be improved, and is well on track.

As required in the OMP (4.3.1), three exclusion plots were established within the first few months of management.



*Figure 8. Locations of Exclusion Plots*

Photographs below, and in Photopoint Report.



*Figure 9. Photos of Exclusion Plots 1, 2, 3 (in order), 8 March 2023.*

## **12 - Trust for Nature routine inspections**

The offset area is available for Trust for Nature inspections. A stewardship visit with TfN will be organised shortly.

## **13 - Reporting**

Annual report prepared and submitted to Trust for Nature on 28 March 2023.

### 3. Recommendations for action and plan review 2022/23

Focus actions for the following year will include:

- Pulse grazing strategy informed by vegetation surveys and reviewed to ensure effectiveness
- Weed control: SAWO - grazing and manual removal
- Weed control: Brown-top bent - grazing and fire trials
- Vegetation surveys using Golf Ball method
- Year 3 GSM surveys in spring/summer 2023/24

### 4. Tracking of results with management performance targets and completion criteria

Key performance indicators	Completed/tracking to completion
TfN agreement registered on relevant land titles	Yes
No loss of GSM habitat or preventable weed introductions over 20 year time horizon	Yes
No unauthorised access or unapproved works within offset area	Yes
Management actions adapted to seasonal conditions and/or new or emerging threats based on routine inspections and monitoring results.	Yes
GSM habitat quality score improved from 5 to 6: <ul style="list-style-type: none"> <li>- Large tree score maintained at 3</li> <li>- Tree canopy cover score maintained at 0</li> <li>- Lack of weeds score increases from 6 to 9</li> <li>- Understorey score increases to 20</li> <li>- Recruitment score maintained at 3</li> <li>- Organic litter score increases from 3 to 5</li> </ul>	Yes
Habitat hectares score achieved at the end of Year 10 is maintained over next 10 years (to achieve 20 year time horizon)	Yes
OMP adapted to changing circumstances or ineffective management actions	Yes

## 5. Declaration

I hereby declare that the supplied information contained within this report and attached photopoint report is accurate and complies with all the reporting requirements under the Offset Management Plan.

Signed:

A handwritten signature in black ink, appearing to be 'P. Dettmann', followed by a long horizontal line extending to the right.

**Name:** Paul Dettmann

**Date:** 28 March 2023

## Appendix A: Record of Works

Action	Mar-2 2	Apr-2 2	May-2 2	Jun-2 2	Jul-2 2	Aug-2 2	Sep-2 2	Oct-2 2	Nov-2 2	Dec-2 2	Jan-2 3	Feb-2 3	Mar-2 3
Fence works													
Weed control													
Pest animal works/control													
Vegetation survey													
GSM survey													
Other													

Date	Notes in brief from Fulcrum
11/3/2022	Pest control. 2 foxes and 2 rabbits shot.
19/3/2022	Pest control. 1 fox and 5 rabbits shot.
29/03/2022	Mapped dense areas of eucalyptus for thinning.
14/4/2022	Pest control. 24 kangaroos shot and 1 fox seen.
17/4/2022	Pest control. 2 rabbits shot.
22/04/2022	Checked and repaired fences around exclusion zones and creek crossing fence at 1st bridge.
4/05/2022	Weed control - sprayed spear thistle, cut and painted sweet briar, sprayed spiny rush, manually removed scotch thistle.
19/05/2022	Eucalyptus thinning.
28/5/2022	Pest control. 2 foxes shot.
6/06/2022	Eucalyptus thinning.
22/06/2022	Eucalyptus thinning
2/7/2022	Pest control. 4 rabbits shot.
8/07/2022	Eucalyptus thinning.
11/7/2022	Pest control. 33 kangaroos shot.
28/07/2022	Eucalyptus thinning.
9/08/2022	Eucalyptus thinning.
10/8/2022	Pest animal spotlighting.
28/10/2022	Weed control - sprayed South African weed orchid

31/10/2022	<p>Mapped brown-top bent grass areas.</p> <p>Set up photopoints for two direct seeding areas.</p> <p>Moved cows back to neighbour's property.</p> <p>Repaired fences from flood damage - removed grass and branches, retightened wire.</p> <p>Moved sheep.</p>
8/11/2022	Fixed fences from flood damage. Retightened and removed clumping grass and sticks/logs.
16/11/2022	Fixed fences from flood damage. Re-dug post into ground.
20/11/2022	Pest control. 2 rabbits shot and 1 fox seen.
3/12/2022	Pest control. 3 foxes and 4 rabbits shot.
6/12/2022	Vegetation surveys and photopoints.
15/12/2022	Vegetation surveys and photopoints.
17/1/2023	Pest control. 26 kangaroos shot.
25/1/2023	Pest control. 4 foxes and 1 rabbit shot.
11/2/2023	Pest control. 1 fox and 2 rabbits shot.
2/3/2023	Mapped brown-top bent grass areas.

Photos:



*Figure 1. Spraying spiny rush*



*Figure 2. Manual removal of scotch thistle*



*Figures 3-5. Eucalyptus thinning*



*Figures 6 and 7. Before and after eucalyptus thinning process*



*Figures 8 and 9. Flood during Spring 2023*



*Figures 10-12. Repairing flood damage during Spring 2023*



*Figure 13. Removing cows that came from neighbouring property*

## Appendix B: Vegetation monitoring results (Golf Ball method), December 2022

Table B1. Vegetation survey results using Golf Ball method for 10 quadrats

Date	Quadrat Number	Total vegetation cover (%)	Cover of bare ground (%)	Cover of organic litter (%)	Total cover of native perennial vegetation (%)	Total cover of native herbs (%)	Total cover of perennial weeds (%)	Total cover of annual weeds (%)	Average height of vegetation (cm)	Biomass score (golf ball method) total no. Of balls = 18			Golf Ball Score	Notes
										No. Balls >90% visible (score = 1)	No. Balls <33% visible (score = 0)	No. Balls remaining (score = 0.5)		
6/12/2022	1	80	15	5	40	1	9	50	15-30	2	1	15	9.5	Sheep scat. Escarpment slope to W
6/12/2022	2	70	25	5	60	15	5	20	15-30	13	2	3	14.5	Flat top of plateau. Slight slope to NE
6/12/2022	3	90	5	5	20	5	10	65	30-100	4	9	5	6.5	Flattish, slight slope to NE
15/12/22	4	80	10	10	65	10	10	15	15-30	17	0	1	17.5	Flat mid plateau, slight SW slope
6/12/2022	5	85	5	10	15	0	5	80	15-30	14	0	4	16	Sheep scat. Top of plateau, slope to NW
6/12/2022	6	95	0	5	10	2	5	83	30-100	17	0	1	17.5	Flat top of plateau. Slope to NE
15/12/22	7	55	40	5	80	0	10	10	15-30	18	0	0	18	Sheep grazing and scat. Steepish slope to NE
15/12/22	8	65	25	10	75	2	3	20	15-30	18	0	0	18	Top of plateau. Slope to NE
15/12/22	9	90	5	5	35	0	15	50	15-30	3	9	6	6	Flat and open grassy woodland

15/12/22	10	85	10	5	20	0	25	55	15-30	14	1	3	15.5	Flat grassy woodland on plateau, slight slope NW
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Table B2. Native and exotic species identified in each quadrat during vegetation surveys

<b>Quadrat Number</b>	<b>Native species identified</b>	<b>Exotic species identified</b>
<b>1</b>	<i>Rytidosperma</i> x2, <i>Austrostipa</i> , <i>Microlaena</i> , <i>Juncus</i> , <i>Eucalyptus</i> sp., <i>Oxalis perennans</i> , <i>Rumex brownii</i>	<i>Aira</i> , <i>Vulpia</i> x2, Barley ( <i>Hordeum</i> ), <i>Bromus</i> x2, Rye grass ( <i>Lolium</i> ), <i>Cynosurus</i> (Rough Dog's tail), Cat's Ear ( <i>Hypochaeris</i> ), <i>Erodium</i> (Stork's bill), <i>Trifolium</i> , Capeweed, Sheep sorrel ( <i>Acetosella</i> ), Yorkshire Fog, Nettle ( <i>Urtica</i> ), <i>Romulea</i>
<b>2</b>	<i>Rytidosperma</i> , <i>Anthosachne</i> wheat-grass, <i>Microlaena</i> , <i>Juncus</i> x2, <i>Hypericum</i> (St Johns), <i>Microtis</i> onion-orchid, <i>Gonocarpus</i> (common raspwort), <i>Oxalis perennans</i> , <i>Eucalyptus</i> sp., <i>Schoenus</i> (bog rush), <i>Drosera</i> Sundew, <i>Acaena</i> , <i>Amphibromus</i> (Swamp wallaby)	<i>Aira</i> , <i>Vulpia</i> x2, <i>Briza</i> , <i>Bromus</i> , Yorkshire Fog, <i>Agrostis</i> , Cat's Ear ( <i>Hypochaeris</i> ), <i>Erodium</i> (Stork's bill), <i>Trifolium</i> x2, Sheep sorrel ( <i>Acetosella</i> ), <i>Isolepis levynsiana</i> , <i>Romulea</i> , Capeweed
<b>3</b>	<i>Rytidosperma</i> , <i>Anthosachne</i> wheat-grass, <i>Microlaena</i> , <i>Oxalis perennans</i> , <i>Acaena</i> , <i>Juncus</i> , <i>Rumex brownii</i>	<i>Vulpia</i> , Rye grass ( <i>Lolium</i> ), <i>Bromus</i> x2, Cat's Ear ( <i>Hypochaeris</i> ), <i>Trifolium</i> x2, <i>Romulea</i> , Capeweed, Sheep sorrel ( <i>Acetosella</i> )

<b>4</b>	<i>Rytidosperma, Microlaena, Austrostipa, Lomandra, Wahlenbergia, Microtis</i> onion-orchid, <i>Gonocarpus</i> (common raspwort), <i>Juncus</i> x2, <i>Hypericum</i> (St Johns), <i>Schoenus</i> (bog rush), <i>Acaena, Euchtiton</i> cudweed, <i>Anthosachne</i> wheat-grass, <i>Amphibromus</i> (Swamp wallaby)	<i>Vulpia, Aira, Briza, Bromus</i> , Yorkshire Fog, <i>Agrostis, Disa</i> weed orchid, <i>Isolepis levynsiana, Dittrichia</i> stinkwort, <i>Petrahagia</i> , Cat's Ear ( <i>Hypochaeris</i> )
<b>5</b>	<i>Rytidosperma, Austrostipa, Microlaena, Juncus</i> x2, <i>Oxalis perennans, Rumex brownii</i>	Rye grass ( <i>Lolium</i> ), <i>Vulpia</i> x2, <i>Bromus, Aira, Trifolium</i> x3, Capeweed, Sheep sorrel ( <i>Acetosella</i> ), Cat's Ear ( <i>Hypochaeris</i> ), Ox Tongue, <i>Romulea</i>
<b>6</b>	<i>Rytidosperma, Microlaena, Juncus, Oxalis perennans, Eucalyptus sp., Rumex brownii</i>	Rye grass ( <i>Lolium</i> ), <i>Vulpia</i> x2, <i>Bromus</i> x3, Yorkshire Fog, <i>Avena</i> Oat, Cat's Ear ( <i>Hypochaeris</i> ), <i>Trifolium</i> x3, Sheep sorrel ( <i>Acetosella</i> ), Barley ( <i>Hordeum</i> ), <i>Romulea</i>
<b>7</b>	<i>Rytidosperma, Austrostipa, Microlaena, Juncus, Lomandra, Wahlenbergia, Oxalis perennans, Gonocarpus</i> (common raspwort), <i>Hypericum</i> (St Johns)	<i>Vulpia, Bromus</i> , Yorkshire Fog, <i>Briza, Aira, Centaurium</i> , Cat's Ear ( <i>Hypochaeris</i> ), <i>Romulea, Dittrichia</i> stinkwort, Capeweed
<b>8</b>	<i>Rytidosperma, Austrostipa, Microlaena, Anthosachne</i> wheat-grass, <i>Wahlenbergia, Microtis</i> onion-orchid, <i>Gonocarpus</i> (common raspwort), <i>Hypericum</i> (St Johns), <i>Juncus, Schoenus</i> (bog rush), <i>Acaena</i>	<i>Vulpia, Agrostis</i> , Yorkshire Fog, <i>Aira, Bromus, Briza</i> , Sweet Vernal gras, <i>Centaurium</i> , Cat's Ear ( <i>Hypochaeris</i> ), <i>Disa</i> weed orchid, <i>Dittrichia</i> stinkwort, <i>Romulea, Isolepis levynsiana</i> , Capeweed

9	<i>Rytidosperma, Austrostipa, Microlaena, Rumex brownii</i>	<i>Vulpia, Agrostis, Yorkshire Fog, Briza, Sweet Vernal gras, Aira, Cat's Ear (Hypochaeris), Trifolium, Romulea, Erodium (Stork's bill), Sheep sorrel (Acetosella), Avena Oat</i>
10	<i>Rytidosperma, Microlaena, Oxalis perennans, Rumex brownii</i>	<i>Vulpia, Barley (Hordeum), Avena Oat, Bromus x2, Aira, Trifolium x2, Capeweed, Sheep sorrel (Acetosella), Cat's Ear (Hypochaeris), Romulea</i>

The above vegetation surveys were conducted by Matt Tudor, a qualified ecologist, on December 6 and 15, 2022. Surveys were conducted in accordance with the Victorian BushBroker standards for management.



**CONTRACTOR AGREEMENT  
GOLDEN SUN MOTH OFFSET MANAGEMENT**

Contractor Name	Matt Tudor
Company Name	
Role	Ecologist
Cassinia Property	Sievers Lane
Date(s) of Work	22-25 November 2022
Summary of experience and Qualifications*	6 years experience in native grassland systems Dip Horticulture, all relevant tickets.
Date Site Induction Completed**	Yes
Cassinia Representative (Name)	Kim Cornford, Landscape Operations Manager
Cassinia Representative (Signature)	
Contractor Signature	

**\*Suitably Qualified Person**

DAWE defines suitably qualified person as follows:

- Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

**\*\*Site Induction**

**3.13.3 Site inductions**

For contractors that are unfamiliar with the Offset area, the Landholder (or delegate) should provide site inductions to ensure that any contractors undertaking management works within the Offset area are aware of the allowed activities and work methods. Site inductions should include the following key information:

- The Offset area is a conservation area that is protected by federal legislation.
- There are fires associated with damage to the grasslands and grassy woodlands.
- A work order with specific tasks or a list of works permitted in the Offset area.
- A list of works prohibited in the Offset area.
- Weed hygiene protocols to avoid introducing new weeds on boots, vehicles, plant or equipment.
- All vegetation within the Offset area is protected (other than weeds). Protected vegetation includes native grasses and wildflowers, sedges and rushes, mosses and lichens.
- Surface rocks should not be disturbed as these provide habitat for native reptiles.
- Works should have a minimal impact on the grassland and efforts should be made to avoid leaving wheel ruts due to driving in wet conditions or otherwise disturbing the grassy ground cover.
- The emergency management and reporting procedures for incidents. Note to contractor's that possible or actual damage to the grassy ground cover counts as an incident along with weather-related, bushfire, accidents or medical emergencies.

## Comments on Vegetation Monitoring

Data was collected in all categories as required in 4.3.2 of the Offset Management Plan at ten 20mx20m quadrats.

i) Inter-tussock space

Target = 20%-40%.

Percentage inter-tussock space (noted by cover of bare ground in table above) across the 10 quadrats ranged between 0 and 40%. Biomass, mostly annual grasses, was higher this year due to the consistently higher rainfall through Spring and into Summer. Grazing was extended with this in mind, however biomass remained high.

ii) Biomass accumulation using the 'golf ball method'

Total vegetation cover target = 60-80%

Four quadrats had vegetation cover within the 60-80% target. Biomass score using the golf ball method ranged between 6 and 18. Three of the quadrats scored below 12 indicating very high biomass. Three quadrats scored either 15.5 or higher which indicates biomass more suitable for Golden Sun Moth.

iii) Average height of vegetation

The average height of vegetation ranged between 15 and 100cm. Two quadrats contained the higher average vegetation height of 30-100cm, indicating higher biomass.

The results of the vegetation surveys indicate a relatively high biomass and vegetation cover. The differences in inter-tussock space and cover of annual weeds, and the species composition across different quadrats will inform the grazing regime in the coming year.

## **Appendix C: Photopoints, December 2022**

See attached document.

## Appendix C: Photopoints, December 2022

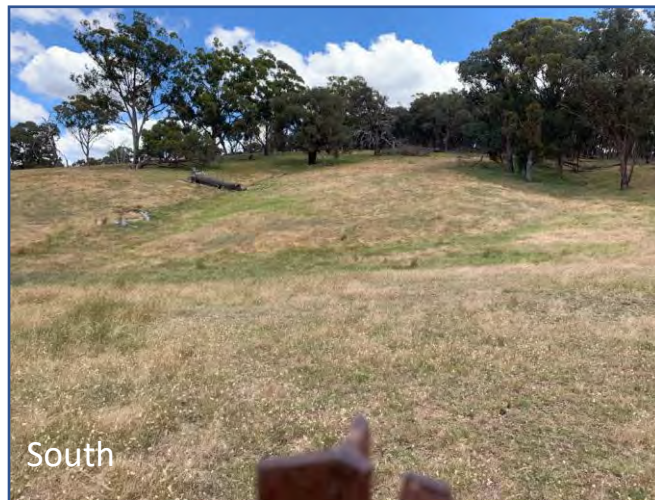
Photos at each photopoint were taken facing the four directions of the compass (N, E, S, W – in that order). A photo of the golf ball survey was also taken at each point. Photos of control plots were taken from two angles.

### Photopoint 1



EPBC Act referral 2015/7516  
235 Munccktons Lane, Glenaroua, Victoria  
Annual report: Year 2, March 2023

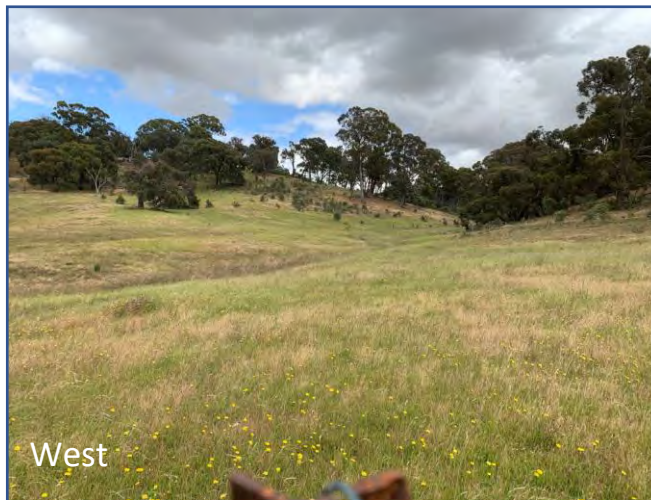
# Photopoint 2



# Photopoint 3

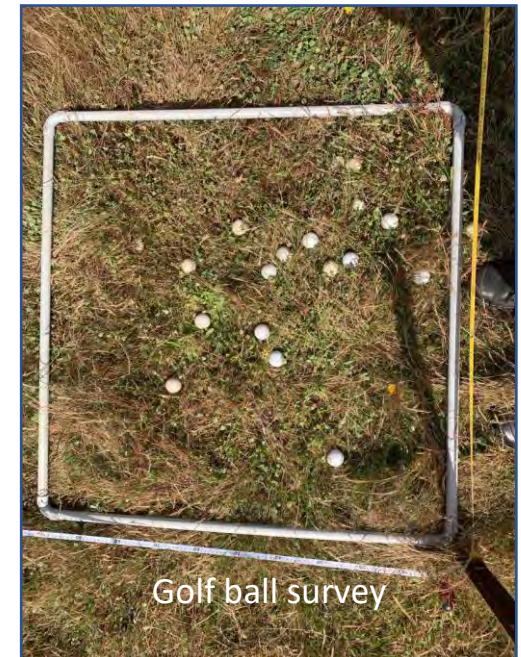
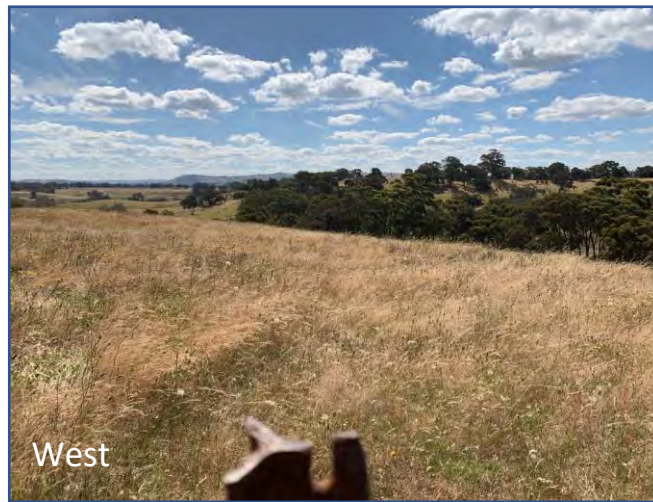


# Photopoint 4



EPBC Act referral 2015/7516  
235 Munccktons Lane, Glenaroua, Victoria  
Annual report: Year 2, March 2023

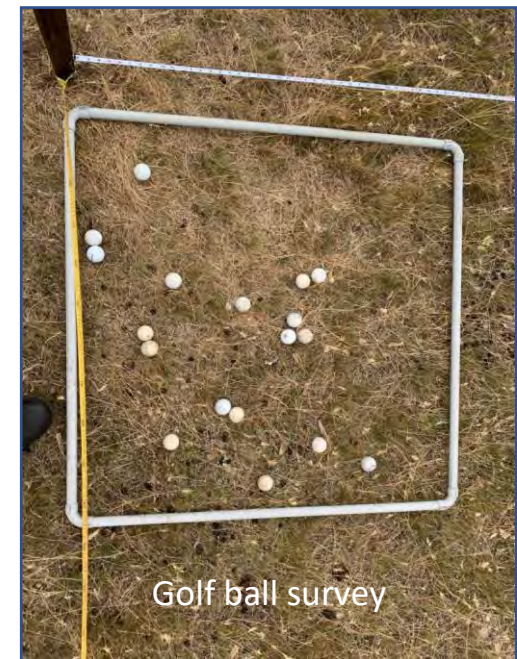
# Photopoint 5



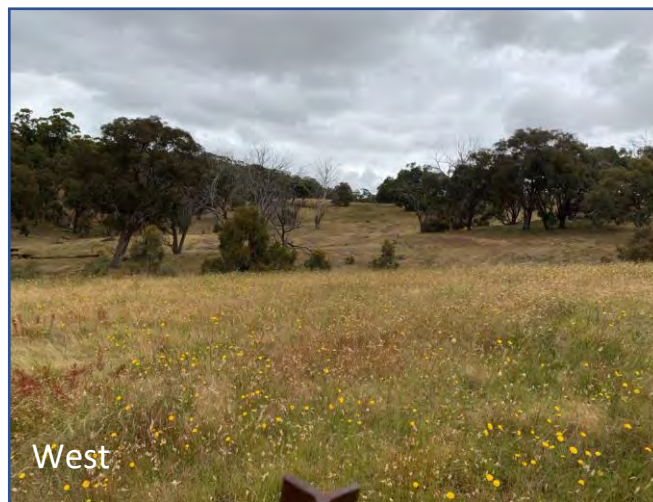
# Photopoint 6



# Photopoint 7

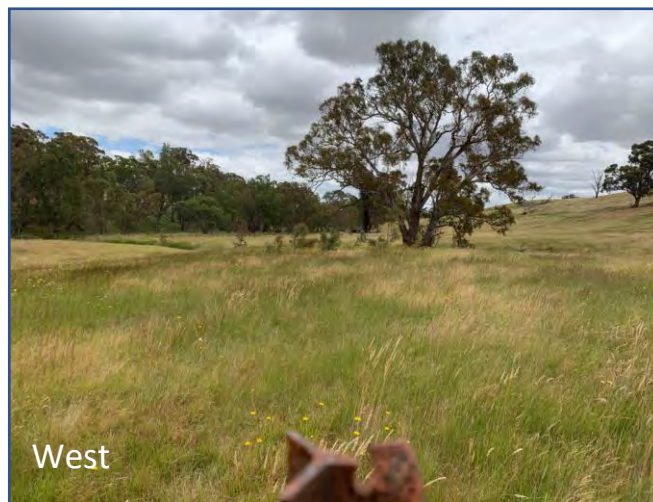
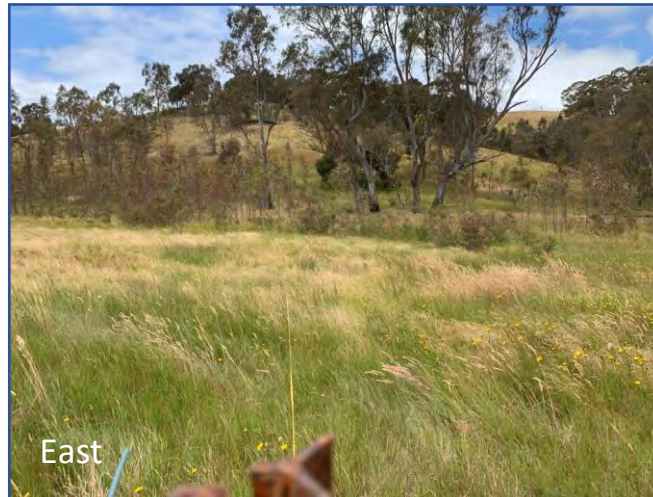


# Photopoint 8

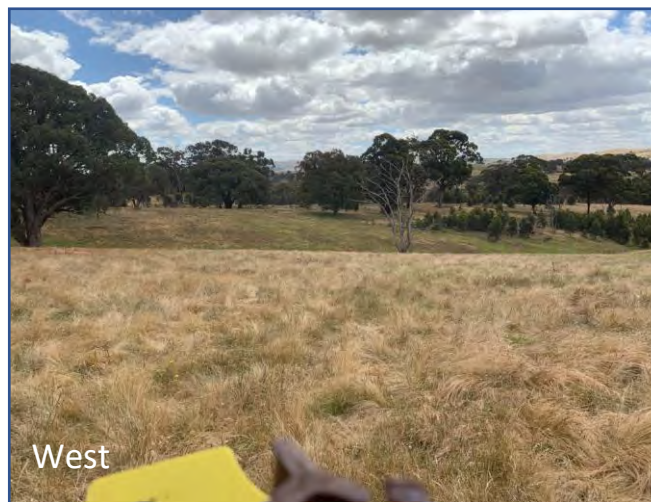


EPBC Act referral 2015/7516  
235 Munccktons Lane, Glenaroua, Victoria  
Annual report: Year 2, March 2023

# Photopoint 9



# Photopoint 10



EPBC Act referral 2015/7516  
235 Munccktons Lane, Glenaroua, Victoria  
Annual report: Year 2, March 2023

# Control plot 1



# Control plot 2



# Control plot 3



**Martins Lane, Beaufort: Vegetation Monitoring Plots/Photopoints – Year 1**  
Assessed by Ecocentric on 11/10/2022 - Photopoints taken at NE corner of each plot

PP

North

East

South

West

1



2



3



North

East

South

West

4



5



6



North

East

South

West

7



8



9



North

East

South

West

10



11



12



North



East



South



West



13

14



Landowner(s): Deep Lead Property Pty Ltd

Site Reference: TFN-GPN8175 (Off-INT9344-5066 Western Highway (East), Beaufort)

Year: 1

Year	Site and Zone(s) <small>(e.g. 001/A)</small>	Management Actions to be completed <small>(Management actions and Targets are found listed in the Offset Management Plan appended to your Deed of Covenant)</small>	Timing <small>(What time of year?)</small>	Actions completed this year (yes/no) <small>(if no state % completed)</small>	Description of Action <small>(What method of control did you use? E.g. Hand weeding/spot spray using glyphosate)</small>	Supporting Documents <small>(e.g. photos, receipts)</small>	Comments and Observations <small>(Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/decreased/ remained the same?)</small>
1-10	All	<b>Fencing</b> Monitoring of Fences and access will be conducted on an ongoing basis with fencing repaired or upgraded as required.	Prior to commencement of Year 1 grazing period and then ongoing	No (90%)	<ul style="list-style-type: none"> <li>Frequent site visits included walking both internal and boundary fencing</li> <li>Contractor visits (Project Platypus)</li> </ul>	Photos Logbook Additional notes	<ul style="list-style-type: none"> <li>Entire property is fenced</li> <li>All GSM offset areas fenced to DELWP standard prior to commencement of Year 1, except for the north-west paddock – C2 refer to additional notes</li> </ul>
<b>Standard to be achieved:</b> Fencing should meet the minimum standard set by DELWP detailed in Output Delivery Standards for the Delivery of Environmental Activities (DELWP 2015).							
1-10	All	<b>Marking of Offset</b> Direct-driven posts or other low-impact permanent marker, will be installed to clearly identify the boundary of the Offset area.	Commencement of offset agreement	Yes	<ul style="list-style-type: none"> <li>Installed star-pickets along Offset Area NW boundary where adjacent to bushland area</li> </ul>	Logbook	<ul style="list-style-type: none"> <li>All paddocks included in GSM offset area – marked by boundary fencing.</li> <li>Bushland area boundary marked with star pickets/caps and tagged</li> </ul>
1-10	All	<b>Temporary Fencing</b> Temporary livestock fencing will be established and maintained around the boundary of any burnt area within the Offset area for at least 6 months post-burn to prevent stock access and damage to regenerating vegetation from grazing.	Ongoing	No	NA	NA	<ul style="list-style-type: none"> <li>No ecological burns conducted within the Year 1 period</li> </ul>
		Temporary livestock fencing can be established to delineate smaller cells for higher intensity grazing if this is required. The temporary fencing must have negligible impacts to native vegetation associated with the placement and removal of that fencing.		Yes	<ul style="list-style-type: none"> <li>Low impact and kangaroo friendly fencing installed to add additional grazing cells, using stock-lock sheep mesh</li> <li>Barbed wire in place prior to purchase of site is in process of being removed</li> </ul>	Photos Logbook Additional notes Invoices	<ul style="list-style-type: none"> <li>Additional low impact, permanent internal fencing has been installed during the Year 1 period, commencing in March 2022, for the purpose of creating additional cell grazing (refer to additional notes)</li> <li>Barbed wire removal is ongoing</li> </ul>
<b>Standard to be achieved:</b> Fencing will use plain wire or electric wire only. Barbed wire is not permitted as it is a hazard to wildlife.							
1-10	All	<b>Signage</b> at a minimum, will state to the effect: "Conservation Area – Access not permitted unless strictly authorised by the manager". No external signage identifying the property as an offset area is proposed in this OMP but could be	Ongoing	No	Private Property signage only  (no mention of conservation area)	Site Brief	All paddocks are protected under the conservation covenant, with remaining areas of the site set aside for future offsets.



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Year	Site and Zone(s)  (e.g. 001/A)	Management Actions to be completed  (Management actions and Targets are found listed in the Offset Management Plan appended to your Deed of Covenant)	Timing  (What time of year?)	Actions completed this year (yes/no)  (if no state % completed)	Description of Action  (What method of control did you use? E.g. Hand weeding/spot spray using glyphosate)	Supporting Documents  (e.g. photos, receipts)	Comments and Observations  (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/decreased/ remained the same?)
		considered by the Landholder at their discretion. Conservation-related signage has potential to inadvertently attract undesirable impacts.					Conservation signage not applicable to boundary fencing due to potential to inadvertently attract undesirable impacts. Communication with all visitors regarding protection of the site is in place through provision of a site brief – refer attached
		<p><b>Monitoring Plots:</b>  <b>Control Plots:</b> Four exclusion plots scattered across the Offset area will be installed in consultation with a suitably qualified ecologist. These will be 20 metres x 20 metres and fenced with chicken wire to prevent herbivore grazing as the existing plots show this has been sufficient to exclude most grazing.            No weed control works will be undertaken in these plots. The plots can be removed at the end of the 10 years of management if required.</p> <p><b>Monitoring Plots:</b>            Permanent monitoring points (<u>10 over and above the controls</u>) will be established throughout the Offset area, stratified by weed cover and topography. The plots will be a square 20 m by 20 m in size to allow for the detection of herb diversity during the monitoring. The plots will be clearly marked and their location accurately recorded using GPS.</p>	Prior to the commencement of works and monitored annually in spring	Yes	<p>Control Plots installed by Project Platypus in Nov 2021. Fencing consists of single plain wire and rabbit mesh with skirt – refer photos. Monitoring plots were also established and are marked at each corner, as well as GPS waypoints.</p> <p>The location of both control and monitoring plots was completed in consultation with qualified ecologist Lincoln Kern (also Landowner). Locations were chosen to be representative of the variety of overall site conditions and aspects.</p>	Photos Site Logbook Invoices	<p>Control/Monitoring plots were installed and baseline data collected prior to offset commencement in Nov 2021, prior to offset establishment in March 2022</p> <p>Year 1 monitoring was conducted in October 2023 by independent ecologists Ecocentric. Results to be provided in separate monitoring report.</p>
1-10	All	<b>Photo points:</b> Each plot (14 in total) will also serve as permanent photo points. Using the NE corner of the plot for the photo point, a photo will be taken facing the four points of the compass (N, S, E & W).	Annually in spring	Yes	Photopoints taken during vegetation monitoring on 11/10/2022	Photopoint table	Photopoints provided in separate table to allow for comparison over time. Provided in monitoring report (Ecocentric) and attached



TRUST FOR  
NATURE

Year	Site and Zone(s) (e.g. 001/A)	Management Actions to be completed (Management actions and Targets are found listed in the Offset Management Plan appended to your Deed of Covenant)	Timing (What time of year?)	Actions completed this year (yes/no) (if no state % completed)	Description of Action (What method of control did you use? E.g. Hand weeding/spot spray using glyphosate)	Supporting Documents (e.g. photos, receipts)	Comments and Observations (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/decreased/ remained the same?)
1-10	All	<b>Routine inspections:</b> The Landholder is to undertake regular site inspections in accordance with the schedule in Appendix 1 in the OMP. During the site inspections the Landholder is to record general observations including on fence condition, weed levels and biomass levels and well as the location and management requirements of any problems observed during the inspections.	A minimum once every 3 months, with additional requirements to inspect grazing results during the grazing period	Yes	Combination of driving and walking within paddocks	Logbook Photos	Refer to logbook summary for all site visits, including quarterly site visits. Detailed notes of site visits, including photos are available on request.
1-10	All	<b>Annual Works Plan:</b> the annual works plan will be reviewed and updated in consultation with TfN. The updates will be based on the results of the management actions implemented the previous year and any new research or advice that may arise.	Prior to works towards the management actions being undertaken each year,	Yes	Discussed in Zoom Meeting TFN 1/2/2023	Annual Works Plan	Key issues of the site discussed, including additional paddocks, grazing/ biomass management and GSM. Annual works plan provided with reporting for additional comment
<b>Woody weeds to be eliminated</b>							
1-10	All	<b>Woody Weeds</b> Monitor and eliminate all new & emerging woody weeds	July–Nov or as detailed in the annual works plan:	Yes	On-site observation/documentation/photos	logbook	Note: Early black wattle is present within the offset area and not listed in the OMP as mature plants (present at the time of offset establishment. Species was treated in 2021 and 2022 using drill/fill
<b>Standard to be achieved:</b> Eliminate all established adult plants, regeneration/seedlings <1%**							
1-10	All	<b>Woody Weeds</b> <i>Gorse (Ulex europaeus)</i> <b>Control Method:</b> Cut and paint or other appropriate application of appropriate herbicide. Mechanical removal only if low impact	July–Nov or as detailed in the annual works plan:		Foliar Spray  Drill/fill	DWR Photos	Treated in 2021 (Year 0) and 2022 (Year 1) All treated areas show significant die-off, with only a couple small areas that remain green and have been scheduled for follow-up treatment
<b>Standard to be achieved:</b> Eliminate all established adult plants, regeneration/seedlings <1%**							
<b>Weeds to be controlled</b>							
1-10	All	<b>Short-lived perennial grasses</b> Sweet Vernal grass ( <i>Anthoxanthum odoratum</i> ) <b>Control Method:</b> Targeted slashing to prevent seed set and reduce biomass. Ecological burning	July–Nov or as detailed in the annual works plan	Yes  (Partial)	Treatment through grazing, preventing flowering/see germination across most of the site.	Site log	Sweet Vernal most obvious once yellowing towards mid-late summer. Mainly occurs in moderate sized patches in the northern third of the site, C4



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Year	Site and Zone(s)  (e.g. 001/A)	Management Actions to be completed  (Management actions and Targets are found listed in the Offset Management Plan appended to your Deed of Covenant)	Timing  (What time of year?)	Actions completed this year (yes/no)  (if no state % completed)	Description of Action  (What method of control did you use? E.g. Hand weeding/spot spray using glyphosate)	Supporting Documents  (e.g. photos, receipts)	Comments and Observations  (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/decreased/ remained the same?)
		to reduce biomass. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding					New paddock in NW corner, C2, contains high cover of sweet vernal. Fencing of this paddock to contain sheep was not completed, and sweet vernal went to seed, as such this area is prioritised for control in Year 2
<b>Standard to be achieved:</b> <1% (prevent any expansion of existing infestations but preferably eliminate)							
1-10	All	<b>Annual grasses</b> <i>Fescue (Vulpia spp.)</i> , <i>Quaking-grass (Briza spp.)</i> , <i>Brome, (Bromus spp.)</i> , <i>Hairgrass (Aira spp.)</i> , <i>Rough Dog's-tail (Cynosurus echinatus)</i> <b>Control Method:</b> Crash grazing to reduce seed set. Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass and destroy standing seed. Spot spraying appropriate herbicide (or nonchemical methods if available) to prevent seeding.	July–Nov or as detailed in the annual works plan	Yes	Treatment through grazing, preventing flowering/seed germination across most of the site.		Northern third of the property contains highest cover of exotic grasses, along with the highest biomass. Grazing extension was sought form Trust for Nature to address overall biomass in the lead up to GSM survey season, as well as to increase grazing pressure on exotic grasses in the northern weedy areas. Grazing schedule for 2023 ( Year 2) is designed to target this area for both exotic cover and biomass.
<b>Standard to be achieved:</b> <10% cover across offset site							
1-10	All	<b>High threat herbaceous weeds- Perennial tussock grasses:</b> <i>Toowoomba Canary-grass (Phalaris aquatica)</i> <i>Yorkshire Fog (Holcus lanatus)</i> <b>Control Method:</b> Targeted slashing to prevent seed set and reduce biomass. Ecological burning to reduce biomass and destroy standing seed. Spot spraying appropriate herbicide (or non-chemical methods if available) to prevent seeding.	July–Nov or as detailed in the annual works plan	Yes (partial)	Treatment through grazing, preventing flowering/seed germination across most of the site.		Both species occur mainly in Northern third of site, as well as in some of the wetter gullies and around dams. No herbicide application in Year 1, control primarily through grazing.
<b>Standard to be achieved:</b> <1% cover							
1-10	All	<b>High threat herbaceous weeds- Perennial mat-forming grasses:</b> <i>Brown-top Bent (Agrostis capillaris)</i> <b>Control Method:</b> Time-controlled pulse grazing by sheep to prevent seed set and reduce biomass (may require grazing within grazing exclusion period). Spot spraying appropriate herbicide (early spring).	July–Nov or as detailed in the annual works plan		Treatment through grazing, preventing flowering/seed germination across most of the site.		Mapping of Brown-top Bent completed in Spring 2022 when dried runners are easily visible. Results show this species is present across most of the site,



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Year	Site and Zone(s)  (e.g. 001/A)	Management Actions to be completed  (Management actions and Targets are found listed in the Offset Management Plan appended to your Deed of Covenant)	Timing  (What time of year?)	Actions completed this year (yes/no)  (if no state % completed)	Description of Action  (What method of control did you use? E.g. Hand weeding/spot spray using glyphosate)	Supporting Documents  (e.g. photos, receipts)	Comments and Observations  (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/decreased/ remained the same?)
<b>Standard to be achieved:</b> <10% cover							
1-10	All	<p><b>High threat herbaceous weeds- Broad-leaved weeds:</b> Primarily Spear Thistle (<i>Cirsium vulgare</i>), Flatweed (<i>Hypochaeris radicata</i>), Hairy Hawkbit (<i>Leontodon saxatilis</i>), Clovers (<i>Trifolium spp.</i>) and Sheep Sorrel (<i>Acetosella vulgaris</i>)</p> <p><b>Control Method:</b> Spot Spraying appropriate herbicide (prevent flowering). Ecological burning to germinate seed.</p> <p>Areas with a high cover of Sheep Sorrel and little or no cover of other broad-leaf natives could be broad area sprayed with a broad-leaf specific herbicide.</p>	July–Nov or as detailed in the annual works plan	Yes (Partial)	Spot-spraying of Capeweed Handweed of South African Weed Orchid	DWR  Annual works Plan	<p>Presence of thistles is low overall- mainly occurring near a few of the dams- prioritised for treatment in 2023.</p> <p>Weed mapping has determined areas suitable for broadleaf spaying in the northern third of the site to target., C4</p> <p>Treatment of capeweed will also be prioritised, and some target areas have been mapped for treatment in Winter/Spring 2023 (Year 2)</p> <p>Note: South African Weed Orchid is listed onsite and is treated as a high-threat weed. Handweeding in Nov 2022 removed approx. 11 kg of the weed, from C5, C6. Other target areas have been identified in C2, C3, C4 for management in Spring/Summer 2023</p>
<b>Standard to be achieved:</b> 1% cover							
1-10	All	<p><b>New &amp; emerging weeds</b></p> <p><b>Control Method:</b> Monitor for new and emerging weeds and eliminate any found</p>	Continuous	Yes	Frequent site visits Weed mapping in Spring	Logbook	No new or emerging weeds identified in Year 1 period
<b>Standard to be achieved:</b> <1% cover of new and emerging weeds across offset site							
<b>Pest animals to be controlled</b>							
1-10	All	<p><b>Pests (Animals)-Foxes</b></p> <p><b>Control Method:</b> Monitor and control foxes. No active fox dens to be present, no rubbish, minimal artificial piles of logs and rocks.</p>	<p><b>Monitor-</b> A minimum requirement is quarterly spotlighting searches.</p> <p><b>Control-</b> Feb–Apr, Sep–Nov or in accordance with annual works plan</p>	Yes	On-site observations Hunting	Logbook	<p>Foxes occasionally seen both in the offset area as well in the neighbouring bushland.</p> <p>Hunting as main approach for fox control.</p> <p>No foxes destroyed during hunting in Year 0, Year 1 period.</p>
<b>Standard to be achieved:</b> Control numbers of foxes							



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Year	Site and Zone(s)  (e.g. 001/A)	Management Actions to be completed  (Management actions and Targets are found listed in the Offset Management Plan appended to your Deed of Covenant)	Timing  (What time of year?)	Actions completed this year (yes/no)  (if no state % completed)	Description of Action  (What method of control did you use? E.g. Hand weeding/spot spray using glyphosate)	Supporting Documents  (e.g. photos, receipts)	Comments and Observations  (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/decreased/ remained the same?)
1-10	All	<p><b>Pests (Animals)- Rabbits</b>  <b>Control Method:</b> Monitor and control rabbits. Control using integrated methods including fumigation, hand collapsing of burrows and baiting. When baiting remove any carcasses to prevent poisoning of native predators. Ripping of rabbit warrens within the Offset area is not permitted. If any warrens develop within the Offset area, they are to be treated by low impact measures such as fumigation or implosion. Rabbit warrens fumigated within three weeks of detection. In the event of an explosion in the rabbit population, rabbit-proof fencing of the Offset area will need to be considered as control options for these pests.</p>	<p><b>Monitor-</b> A minimum requirement is quarterly spotlighting searches.  <b>Control-</b> Feb–Apr, Sep–Nov or in accordance with annual works plan</p>	Yes	Ferreting	Invoices Logbook	<p>Mapping of warrens completed in Year 1. Many warrens present are no longer active. Ferreting of all mapped warrens completed in November 2022, with only 2 mature rabbits and several kittens destroyed.</p> <p>Key locations for control in Year 2 are problem areas which include under the house, and beneath the shearing shed/stockyards. These areas also show typical signs of rabbits including browsing pressure and scats.</p> <p>Ferreting will continue to be used to identify warrens that can be targeted for fumigation.</p>
<p><b>Standard to be achieved:</b> By end of Year 2, no active rabbit warrens within offset area, minimal surface harbour in the form of woody weeds by end of year 10 there should be no fresh ground disturbance by pest animals particularly rabbits) observed in the offset area or active rabbit warrens.</p>							
1-10	All	<p><b>Pests (Animals)-Hares</b>  <b>Control Method:</b> Monitor and control hares</p>	<p><b>Monitor-</b> A minimum requirement is quarterly spotlighting searches.  <b>Control-</b> Feb–Apr, Sep–Nov or in accordance with annual works plan</p>	Yes	Hunting – including night time spotlighting On-site observations	Logbook	<p>Hares rarely seen on the site. No hares removed through hunting in Year 1 Hunting to continue to be main form of control</p>
<p><b>Standard to be achieved:</b> Control numbers of hares</p>							
1-10	All	<p><b>Pests (Animals)- New and emerging</b>  <b>Control Methods:</b> Monitor for new and emerging pest animal species and control any found.</p>	<p><b>Monitor-</b> A minimum requirement is quarterly spotlighting searches.  <b>Control-</b> Feb–Apr, Sep–Nov or in accordance with annual works plan</p>				<p>No new and emerging pest animals found on site in Year 1 Cat trapping to commence in neighbouring bushland in Year 2</p>
<p><b>Standard to be achieved:</b> Control numbers of any new and emerging pest animals on offset site. New pest animals eliminated.</p>							



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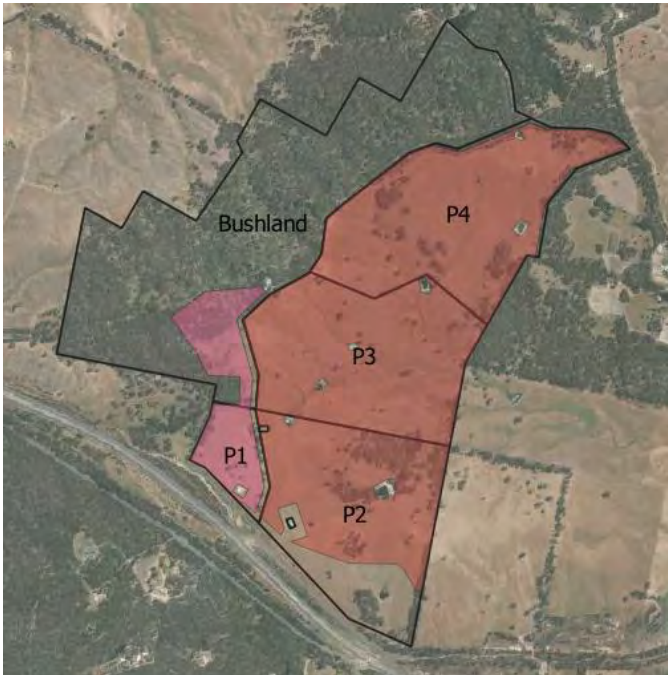
Year	Site and Zone(s)  (e.g. 001/A)	Management Actions to be completed  (Management actions and Targets are found listed in the Offset Management Plan appended to your Deed of Covenant)	Timing  (What time of year?)	Actions completed this year (yes/no)  (if no state % completed)	Description of Action  (What method of control did you use? E.g. Hand weeding/spot spray using glyphosate)	Supporting Documents  (e.g. photos, receipts)	Comments and Observations  (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/ decreased/ remained the same?)
<b>Biomass management</b>							
1-10	All	<p><b>Pulse grazing for biomass/weed control</b> Use pulse grazing during grazing period to graze target weeds before seed set. If needed, use strategic pulse grazing during exclusion period to control a specified weed problem in consultation with TfN.</p>	<p>Exclude grazing from 15<sup>th</sup> September to 31st January each year Rotational pulse between 1 February to 14th September each year (grazing adapted to seasonal conditions within these dates Maximum grazing duration: 3 weeks Minimum rest period: 5 weeks</p>	Yes (partial)		Grazing Schedule – Year 0- Year 1	<p>Grazing present throughout most of Year 1 Pulse grazing cycles as stated in OMP not strictly adhered to due to weather conditions (3<sup>rd</sup> La Nina year in a row) and incomplete installation of additional fencing required for cell grazing. Biomass levels remained relatively high throughout Year 1, mainly due to high rainfall, however conditions on ground in Dec 2022/Jan 2023 show sufficient intertussock space for much of the site, with the exception of the ungrazed NW paddock, and sections to the north of the property which contain high/biomass and exotic cover.</p>
<p><b>Standard to be achieved-to be maintained from Year 1 onwards:</b> Total vegetation cover of approx. 70% (maintain within range of 60 to 80%) Inter-tussock space is maintained at 20 to 40%. Organic litter is maintained at 10 to 30%</p>							
		<p><b>Ecological burning trial for Offset area</b> Undertake burning trial of up to 2 hectares, followed by 6 to 12 months grazing exclusion and follow up weed control. Determine appropriate location for ecological burning trial in consultation with TfN / ecologist and record in annual works plan. Landholder to develop trial burn plan in consultation with TfN and where necessary, CFA or ecological consultant</p>	<p>Sep-Oct or March - May (or as specified in the burn plan)</p>	No	<p>Preliminary planning of ecological burn trials is ongoing</p>	NA	<p>No ecological burn trail completed in Year 0/ Year 1 period.</p>

**Comments:**

**Addition Fencing**

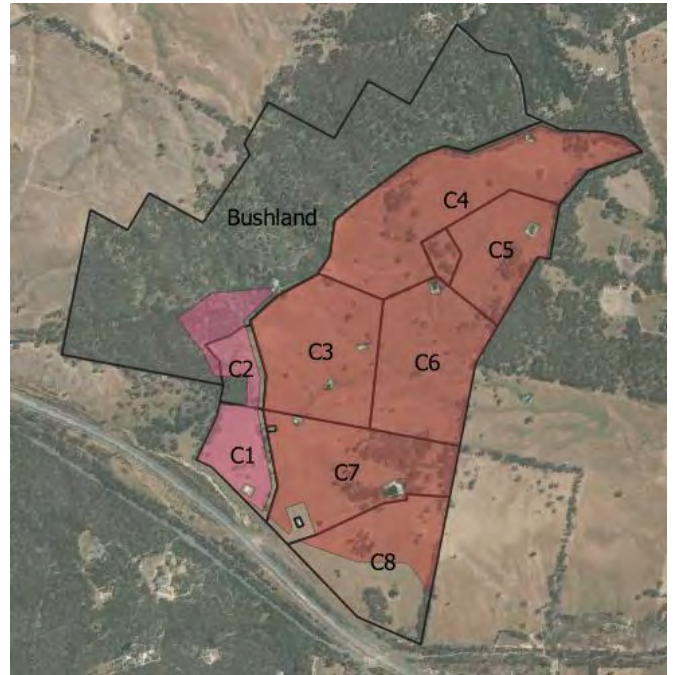
Additional fencing was required to that which was present at the time of purchase of the property and the establishment of offsets for GSM habitat. Management prescriptions specific to grassland ecosystems require rotational grazing of stock in the absence of fire. While ecological burns are recommended where possible, the main process to ensure adequate tussock separation though control of biomass is grazing of sheep.

The installation of additional internal fencing creates 8 grazing cells to enable rotational grazing in line with the OMP. Grazing duration and stocking rates will be adapted to seasonal conditions, and discussed with TfN as required.



**Paddock arrangement on purchase of property 2019-2022**

3 large paddocks on the eastern title, with several dams in each.  
1 small paddock on the south-western title, and unfenced areas in the north-western title leading into large sections of bushland and rocky escarpments.



**Cell grazing arrangement- 2023**

Total of 8 grazing cells, each with a dam  
6 larger paddocks in the eastern title  
2 smaller in the western title and small section of unfenced bushland



Fencing is low-impact, permanent fencing, designed to last the duration of the 10-year management plan.

Design is 900mm high stock-lock with stakes, with no additional top wire to reduce harm to wildlife, specifically kangaroos, moving across the site. Existing fencing does include a single-top wire, and there are some locations where barbed wire is present on-site. Removal of top wires/barbed wire is ongoing.

Fencing of C2 has also been designed to include a large mallee gate/ section of fencing that can be removed to allow kangaroos access to dam as a main water source.

## Fencing of North-West paddock

Additional fencing is required to graze segments of grassland that are included in the GSM offset area. The figure below highlights a section of the covenanted area that extend beyond open grassland into acacia shrubland. There is currently no fencing in place that allows for the grazing of the extent of the GSM offset area in this portion of the property.

Understorey condition of the shrubby area varies greatly to the grassland. Three wet years of La Nina have enabled rapid growth of exotic grasses in the open areas, in particularly for Sweet Vernal. As a result, biomass is also high, and preferential grazing by kangaroos has allowed the proliferation of Sweet vernal and other exotic species. Understorey of the shrubland area, by comparison, is higher in native species diversity and lower levels of biomass due to exotics. The Eucalypt canopy along with shrubby understorey of Acacia have so far prevented the spread of Sweet Vernal, and understorey grasses are mostly tussock forming natives including *Poa*, *Stipa* and *Rytidosperma* genera. Other exotic species do occur, but do not show the marked difference in cover as occurs with Sweet vernal. Biomass in this shrubby area is mainly in the form of logs and woody debris, and tussock separation is maintained.

Management of the GSM habitat within the shrubby area therefore requires a different approach to that which is described in the site OMP which focuses on sheep grazing. As there are no specific recommendations for management of this area, it is proposed that the grassy sections are fenced and grazed in line with the OMP, and that grazing by kangaroos continue as the main management action for the wooded areas to ensure tussock separation.



- Property boundary
- Internal sheep-proof fences
- Proposed fencing alignment
- GSM offset area - west
- GSM offset area- east

Discussions between the Federal Environment Team and the Landowners prior to offset establishment included on-site inspection and review of options for management of the bushland area regarding GSM. It was proposed that given the current understorey condition of the bushland was sufficient in terms of biomass and tussock separation, and that this has been achieved with kangaroo grazing only, it was deemed acceptable that this management approach be continued and monitored appropriately.

Fencing installation to separate the grassland into an additional grazing cell requires no tree/shrub removal, and will be done using the same fencing approach that has been used for additional fencing in other areas of the site.

Rotational grazing for this paddock will consider effects on the naïve vegetation, including shrubs, and as such will likely result in shorter grazing periods with timing specific for the control of Sweet Vernal in particular.

Where necessary, occurrence of Sweet Vernal in the remaining wooded/non-fenced sections of the GSM offset area will be treated with conservative spot-spraying, and or slashing to prevent seed set

Monitoring of this approach will take place during quarterly site visits, as well as more frequent grazing progress observations, and where kangaroo grazing is determined to be insufficient, or GSM habitat is otherwise at risk, management alternatives will be discussed with Trust for Nature.

## Monitoring Plot Installation



Photos above showing design of fence for exclusion plots. Existing fence lines were used for 2 of the plots. Combination of single wire and fine rabbit/stock mesh with skirt to prevent sheep grazing or browsing by rabbits and hares. Single top wire to increase height while enabling kangaroos to access area.

## Summary of Golden Sun Moth Monitoring Year 1 - 2022/2023 flight season

- Monitoring for Golden Sun Moth (GSM) was completed by Eco Aerial during the 22/23 flight season.
- GSM were detected during each of the 4 required site checks, and in very high numbers during 2<sup>nd</sup> and 3<sup>rd</sup> site check
- Site checks were conducted 1 week apart, during December 22 and January 23
- Weather conditions were suitable on each day of survey.
- Observations of vegetation included very high cover of wallaby grass across most areas of the site.
- Biomass/inter-tussock space was suitable for GSM habitat across the site, except for some areas of high exotic cover in C4 and C2
- Monitoring report by Eco Aerial will be provided separately

Date	Males recorded	Females recorded
26/12/2022	77	0
2/1/2023	1065	0
9/1/2023	1182	0
16/1/2023	50	0

I hereby declare that the supplied information contained within this report is accurate and complies with all the reporting requirements under the Offset Management Plan

Signed:  \_\_\_\_\_

Name: Paul Guest

Date: 6th March 2023



**CASSINIA**  
ENVIRONMENTAL

# Golden Sun Moth Offset Management Report

Sievers Lane, Glenhope, Victoria

EPBC Act referral 2015/7516

TFN Reference: C2050\_3

Annual report: Year 1

Submitted: 15 February 2023

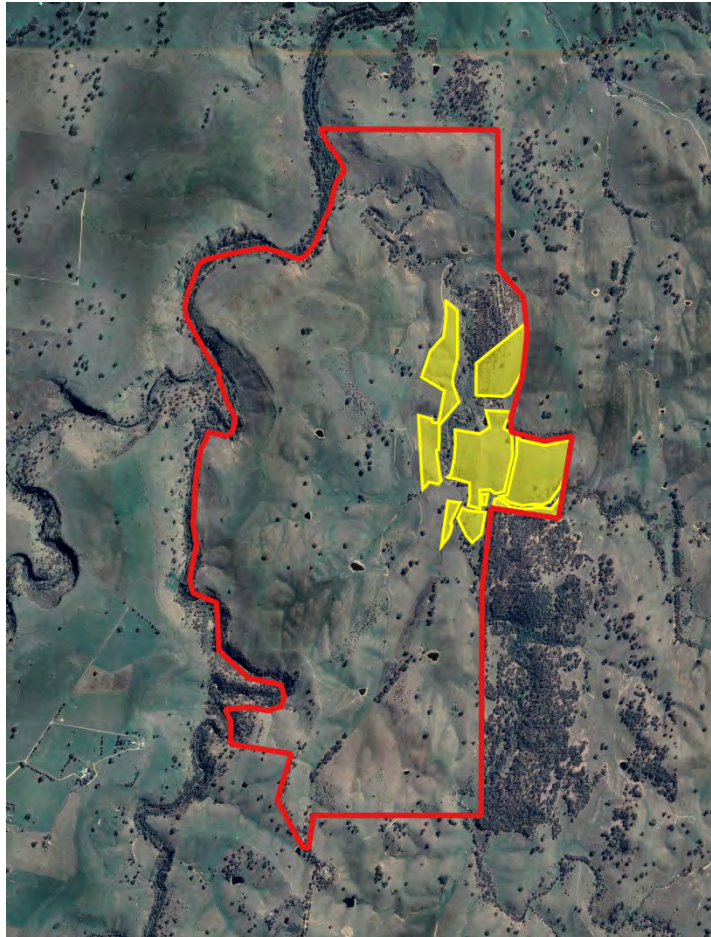
Landowner of offset site: Kinrara Pty Ltd (ACN 065 571 244)

Approval holder: Satterley Property Group



## 1. Introduction

The offset area provides 37.9 hectares of GSM habitat located in the Victorian Goldfields Bioregion. The offset area is located within a larger property which includes other offset sites, each with management prescriptions consistent with this offset.



*Figure 1. Offset area (shaded yellow) within property (red outline)*

Work has begun on the management actions specified in the Offset Management Plan (Appendix 1 of OMP). Key management actions carried out in Year 1 of implementation include:

- Weed control. Summary of records in Appendix A.
- Pest animal control. Summary of records in Appendix A.
- Fence checks and repairs. Summary of records in Appendix A.
- Golf ball method vegetation surveys were conducted in November 2022. Results in Appendix B and photopoints in Appendix D (attached document).
- Year 1 surveys (2022/23) for golden sun moth surveys were conducted in January 2023. Results in Appendix C.

## List of Appendices:

- Appendix A – Record of works
- Appendix B – Vegetation monitoring results (Golf Ball survey), November 2022
- Appendix C – Golden sun moth (GSM) surveys, January 2023
- Appendix D – Photopoints

## 2. Details of compliance with management actions

### 1 – Implement permanent changes to grazing

All cattle and horse grazing have been permanently excluded from the offset and property. All fertilizer application has been permanently excluded from the offset and property.

Pulse grazing by sheep is applied to the offset area at a 20% stocking rate. Cassinia employs a Farm Manager, working across the Sievers Lane property 2-3 days per week. Management of stocking rate and grazing duration are currently managed and recorded via an app, AgriWebb.

Additional comments regarding grazing and biomass control are noted below.

### 2 – Prevent uncontrolled livestock grazing and unauthorised access. Install fencing for offset area if needed

See above for livestock movement.

Fencing around the offset area remains in good condition.

### 3 – Prepare and implement annual works plan

The first annual work plan was prepared based on on-ground inspections and were implemented by suitably qualified staff and contractors. See details below.

### 4 – Routine inspections and records of works

Inspections on fencing, weeds, pests, and/or other management requirements were carried out regularly in Year 1. Records of evidence/sighting and works were made using the Fulcrum mobile app. See Appendix A for a record of works.

## 5 – Control woody weeds

Gorse and briar rose were controlled by both spraying and cutting and painting. A small patch of blackberry was controlled by spraying.

The total cover of woody weeds remains at <1% of the offset area.

## 6 – Control herbaceous weeds

The focus of weed control in Year 1 are listed in Table 1. Weed control involved spot spraying with herbicide and manual removal depending on species.

Table 1. Herbaceous weeds identified for control

Scientific name	Common name	Method of control
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Grazing
Annual grasses: <i>Vulpia spp.</i> , <i>Briza spp.</i> , <i>Bromus spp.</i> , <i>Aira spp.</i> , <i>Lolium spp</i> & <i>Avena spp.</i>	Fescue, Quaking-grass, Brome, Hair-grass, Rye-grass & Oats	Grazing
Perennial tussock grasses: <i>Phalaris aquatica</i> <i>Poa bulbosa</i>	Toowoomba Canary-grass, Bulbous Meadow-grass	Grazing and spot spraying
Broad-leaved weeds: <i>Cirsium vulgare</i> <i>Echium plantagineum</i> <i>Erodium spp</i> <i>Hypochaeris radicata</i>	Spear Thistle Patersons Curse Heron's Bill Flatweed	Grazing, spot spraying and manual removal
Perennial mat-forming grasses: <i>Agrostis capillaris</i>	Brown-top Bent	Grazing

There was significant vegetation growth and cover during this period due to the above-average rainfall in spring and summer, in particular grassy weeds. Broad-leaved weeds presented less of an issue due to this cover.

Annual and perennial grass weeds continue to be managed by targeted sheep grazing. Inspection of pasture and native grass cover was done in January 2023 to identify target areas for the next reporting period.

### 7 – Control pest animals (eg. rabbits, hares, foxes)

Pest animal control was carried out over the entirety of the property, which includes the offset area. Shooters were regularly on the property throughout the reporting period. Overall, 115 kangaroos and 2 foxes were removed from the property during this period.

There was minimal evidence of pest animal impacts in the offset area. No rabbit warrens or fox dens were found.

### 8 – Identify and control or eliminate new or emerging threats

The following weeds were identified in the offset area and treated. They will continue to be managed under the management plan.

Table 2. Herbaceous weeds not previously recorded on the property

Scientific name	Common name	Method of control	Timing
<i>Verbascum thapsus</i>	Great mullein	Spot spray	Late summer
<i>Malva parviflora</i>	Marshmallow	Spot spray	Late autumn
<i>Hypericum perforatum</i>	St John's wort	Manual removal	Spring

### 9 – Use pulse grazing for biomass/weed control

Stock were excluded from the offset area after October 15, 2022. The extension to the grazing period, approved by Trust for Nature, was requested due to the unusual seasonal conditions. The forecasted high rainfall between August and November would promote significant grass growth and therefore a delay in the exclusion period was requested to manage biomass and organic litter conditions for golden sun moth habitat. Biomass and organic litter were surveyed as part of the Golf Ball vegetation monitoring method (Appendix B) in November and will be used to inform the grazing strategy for the following year.

### 10 – Ecological burning trial for Offset area

No ecological burning has been undertaken as grazing remains the main approach to biomass management.

Ecological burning to improve recruitment of native species will be considered in the future to improve the Site Quality score.

A controlled burn followed by spraying was conducted in an area 0.25ha with almost complete cover of *Phalaris aquatica*. This area is being prepared for sowing native grass seed, potentially in Autumn 2023. Cassinia harvested native grass seed from the property in Spring 2021 to resource and enable improvements native grass cover in degraded areas. This strategy will continue in future years, and is being implemented across the property.

Photos taken at the site in October 2022 showing reduction in cover of *Phalaris*.



*Figures 2 & 3: Controlled burn section in offset area*

## 11 – Ecological monitoring

Vegetation monitoring including the use of the Golf Ball survey method for estimating biomass were conducted on November 24 and 25, 2022. Five quadrats (20mx20m) were established with photopoints allocated at the north-east corner of each quadrat. These surveys were conducted by an independent ecologist. See Appendix B for survey results and Appendix D for photopoints.

Golden sun moth (GSM) surveys were conducted on January 11, 17, and 25, 2023. See Appendix C for survey method and results.

A VQA assessment was done by an accredited native vegetation assessor, Karl Just, for Cassinia Environmental in January 2022. See results below.

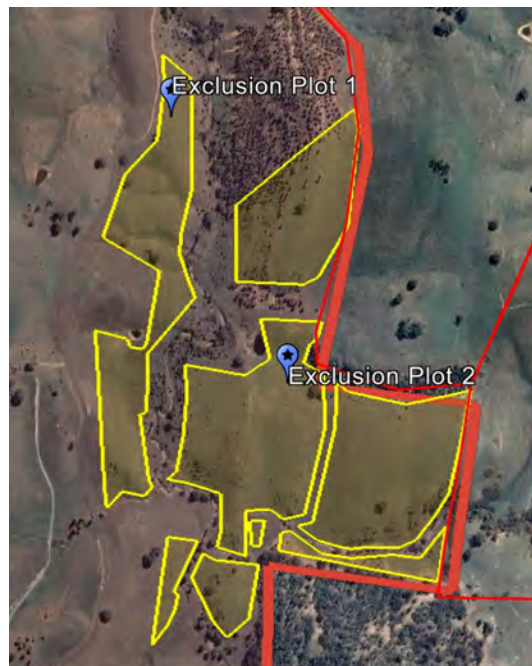
In addition to this, Just provided recommendations for improving the Quality score, supplied spatial data, and a full Flora list. Clover Glycine *Glycine latrobeana* was identified in this offset, which is listed as Vulnerable under the EPBC Act.

The results give confidence that the GSM habitat quality can be improved, and is well on track.

**Table 1 Vegetation Quality Assessment Results, Sievers Lane, January 2021**

Habitat Zone		HZ1
EVC Name		Low Rises Grassy Woodland (EVC 175_61)
Total area of habitat zone (ha)		<b>38</b>
Site Condition	Large Old Trees	3
	Tree Canopy Cover	0
	Understorey	20
	Lack of Weeds	6
	Recruitment	6
	Organic Matter	4
	Logs	2
	<b>Site Condition Score</b>	<b>41</b>
	EVC standardiser	x 1
	<b>Adjusted Site Condition Score</b>	<b>41</b>
Landscape Condition	Patch Size	8
	Neighbourhood	3
	Distance to Core	4
	<b>Landscape Condition Score</b>	<b>15</b>
<b>Habitat Score</b>		<b>100</b>
<b>Habitat Points = #/100</b>		<b>1</b>
		<b>0.56</b>

As required in the OMP (4.3.1), two exclusion plots were established within the first months of management.



*Figure 4: Map showing Exclusion Plot 1 and 2.*



*Figure 5: Exclusion Plot 1, photo taken February 2023.*

## 12 – Trust for Nature routine inspections

The offset area is available for Trust for Nature inspections.

### 13 – Reporting

Annual report prepared and submitted on 15 February 2023.

### 14 – Emergency management

There were no incidents or emergency events during the reporting period.

## **3. Recommendations for action and plan review 2023 - Adaptive management**

Focus actions for the following year will include:

- Pulse grazing strategy informed by vegetation surveys and reviewed to ensure effectiveness
- Weed control
- Pest control
- Vegetation surveys
- Sowing native grass seed

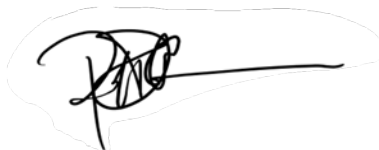
## **4. Tracking of results with management performance targets and completion criteria**

<b>Key performance indicators</b>	<b>Tracking to completion</b>
TfN agreement registered on relevant land titles	Yes
No loss of GSM habitat or preventable weed introductions over 20 year time horizon	Yes
No unauthorised access or unapproved works within offset area	Yes
Management actions adapted to seasonal conditions and/or new or emerging threats based on routine inspections and monitoring results.	Yes
GSM habitat quality score improved from 5 to 6: <ul style="list-style-type: none"><li>● Large tree score maintained at 3</li><li>● Tree canopy cover score maintained at 0</li><li>● Lack of weeds score increases from 6 to 9</li><li>● Understorey score increases to 15 to 20</li><li>● Recruitment score maintained at 3</li><li>● Organic litter score increases from 3 to 5</li></ul>	Yes
Risk management: <ul style="list-style-type: none"><li>● No active rabbit warrens or fox dens, minimal evidence of pest animal impacts</li><li>● Tussock cover always sufficient to provide GSM habitat</li><li>● New weeds eliminated, emerging weed problems controlled to &lt;1% cover, new pest animals eliminated</li></ul>	Yes

<ul style="list-style-type: none"> <li>● Ecological monitoring undertaken in accordance with OMP</li> <li>● Reporting undertaken in accordance with OMP</li> <li>● Emergency management undertaken in accordance with OMP</li> </ul>	
Habitat hectares score achieved at the end of Year 10 is maintained over next 10 years (to achieve 20 year time horizon)	Yes
OMP adapted to changing circumstances or ineffective management actions	Yes

## 5. Declaration

I hereby declare that the supplied information contained within this report and attached photopoint report is accurate and complies with all the reporting requirements under the Offset Management Plan.



**Signed:**

**Name:** Paul Dettmann

**Date:** 15 February 2023

## Appendix A: Record of works

Action	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023
Fence works													
Weed control													
Pest control													
Vegetation survey													
GSM survey													
Other													

NB. In addition to the above record of works indicating when work was done over the past year, the Cassinia Farm (Stock) Manager is present at the Sievers Lane property 2-3 days per week.

Date	Abbreviated notes extracted from Fulcrum app
18/1/2022	Weed control. Spraying, cutting and painting gorse and cutting and painting briar rose.
24/1/2022	Pest control. 22 kangaroos shot.
3/2/2022	Sprayed gorse, spear thistle, great mullein, blackberry, and briar rose.
4/2/2022	Weed control. Sprayed gorse and blackberry.
5/4/2022	Pest control. 24 kangaroos shot and 1 fox seen.
20/5/2022	Weed control. Sprayed Phalaris and marshmallow. A few trees had been pulled out.
23/5/2022	Pest control. 28 kangaroos shot.
4/7/2022	Checked fences. Repaired (retightened) fence. Weed control. Manually removed spear thistle. Cut and painted and manually removed gorse. Cut and painted briar rose. Sprayed Phalaris.
16/8/2022	Pest control. 26 kangaroos and 2 foxes shot.

26/9/2022	Weed control. Cut and painted, manually removed gorse. Manually removed St John's wort.
25/10/2022	Photopoints at controlled burn site.
24/11/2022	Vegetation survey and photopoint monitoring.
25/11/2022	Vegetation survey and photopoint monitoring.
29/11/2022	Pest control. 15 kangaroos shot.
21/12/2022	Checked for GSM – 1 sighted.
11/1/2023	Golden sun moth survey
17/1/2023	Inspection of pasture and native grass cover.
17/1/2023	Golden sun moth survey
25/1/2023	Golden sun moth survey

**Photos:**



Fig. A.1. Spraying gorse



Fig. A.2. Spraying blackberry





Fig. A.5. Manual removal of St John's wort



Fig. A.6. Spraying Phalaris at burn site



Fig. A.7. Golden sun moth spotted during survey



Fig. A.8. Wombat scat observed during GSM survey



Fig. A.9. Pasture during GSM survey



Fig. A.10. Pasture during GSM survey



## Appendix B: Vegetation monitoring results (incl. Golf Ball survey), November 2022

Table B.1. Vegetation survey results using Golf ball method for 5 quadrats

											BIOMASS SCORE (GOLF BALL METHOD) TOTAL NO. OF BALLS = 18				
DATE	Quadrat Number	Paddock Number	Total Vegetation Cover (%)	Cover of bare ground (%)	Cover of organic litter (%)	Total cover of native perennial vegetation (%)	Total cover of native herbs (%)	Total cover of perennial weeds (%)	Total cover of annual weeds (%)	Average Height of Vegetation (cm)	No. Balls >90% visible (score = 1)	No. Balls <33% visible (score = 0)	No. Balls remaining (score = 0.5)	Golf Ball Score	Notes on topography
25/11/2022	1	18	85	10	5	60	5	10	25	30-100	1	14	3	2.5	Top of plateau, gentle slope to SW
25/11/2022	2	19	75	15	10	15	5	15	65	15-30	2	14	2	3.0	Gully, with slope to SW
25/11/2022	3	20	70	25	5	45	15	20	25	30-100	13	0	5	15.5	Top of plateau, slope to SW
25/11/2022	4	21	80	10	10	60	5	10	25	15-30	4	6	8	8	Gentle slope to NE
25/11/2022	5	-	60	25	15	20	2	50	28	15-30	10	0	8	14.0	Steepish slope to NE

Table B.2. Native and exotic species identified in each quadrat during vegetation surveys

Quadrat number	Native species identified	Exotic species identified
1	Rytidosperma x2, Acaena, Microlaena, Rumex brownii	Phalaris, Bromus x2, Vulpia, Trifolium, Cat's Ear (Hypochaeris), Sheep sorrel (Acetosella), Aira, Capeweed, Paterson's Curse, Yorkshire Fog, Erodium (Stork's bill), Rye grass (Lolium)
2	Austrostipa, Elymus, Lomandra, Acaena, Rumex brownii, Vittadinia gracilis	Bromus x3, Vulpia x2, Avena Oat, Yorkshire Fog, Aira, Phalaris, Trifolium x2, Cat's Ear (Hypochaeris), Erodium (Stork's bill), Romulea Onion grass, Paterson's Curse, Capeweed, Sheep sorrel (Acetosella), Sonchus sow thistle
3	Melicytus Tree Violet, Lomandra, Rytidosperma, Juncus x3, Drosera Sundew, Microlaena, Austrostipa, Acaena, Amphibromus (swamp wallaby grass), Gonocarpus (common raspwort)	Bromus x2, Vulpia, Trifolium x2, Cat's Ear (Hypochaeris), Isolepis hystrix, Isolepis levynsiana, Erodium (Stork's bill), Aira, Sheep sorrel (Acetosella), Romulea Onion grass, Paterson's Curse, Capeweed, Yorkshire Fog
4	Rytidosperma, Acaena, Microlaena, Amphibromus (swamp wallaby), Elymus	Phalaris, Bromus x2, Vulpia, Aira, Avena Oat, Trifolium x2, Cat's Ear (Hypochaeris), Romulea Onion grass, Paterson's Curse, Erodium (Stork's bill), Sheep sorrel (Acetosella), Capeweed, Sweet Vernal-grass, Yorkshire Fog
5	Rytidosperma, Acaena, Microlaena, Vittadinia gracilis, Elymus, Lomandra	Phalaris, Bromus x3, Vulpia x2, Aira, Avena Oat, Trifolium x2, Cat's Ear (Hypochaeris), Romulea Onion grass, Paterson's Curse, Erodium (Stork's bill)

The above vegetation surveys were conducted by Matt Tudor, a qualified ecologist, on November 24 and 25, 2022. Surveys were conducted in accordance with the Victorian BushBroker standards for management.



**CONTRACTOR AGREEMENT  
GOLDEN SUN MOTH OFFSET MANAGEMENT**

Contractor Name	Matt Tudor
Company Name	
Role	Ecologist
Cassinia Property	Sievers Lane
Date(s) of Work	22-25 November 2022
Summary of experience and Qualifications*	6 years experience in native grassland systems Dip Horticulture, all relevant tickets.
Date Site Induction Completed**	Yes
Cassinia Representative (Name)	Kim Cornford, Landscape Operations Manager
Cassinia Representative (Signature)	
Contractor Signature	

**\*Suitably Qualified Person**

DAWE defines suitably qualified person as follows:

- Suitably qualified person means a person who has professional qualifications, training, skills and/or experience related to the nominated subject matter and can give authoritative independent assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods and/or literature.

**\*\*Site Induction**

**2.1.1.1 Site inductions**

For contractors that are unfamiliar with the Offset area, the Landholder (or delegate) should provide site inductions to ensure that any contractors undertaking management works within the Offset area are aware of the allowed activities and work methods. Site inductions should include the following key information:

- The Offset area is a conservation area that is protected by federal legislation.
- There are fines associated with damage to the grasslands and grassy woodlands.
- A work order with specific tasks or a list of works permitted in the Offset area.
- A list of works prohibited in the Offset area.
- Weed hygiene protocols to avoid introducing new weeds on boots, vehicles, plant or equipment.
- All vegetation within the Offset area is protected (rather than weeded). Protected vegetation includes native grasses and wildflowers, reeds and rushes, miconia and lilies.
- Surface rocks should not be disturbed as these provide habitat for native reptiles.
- Works should have a minimal impact on the grassland and efforts should be made to avoid leaving wheel ruts due to driving in wet conditions or otherwise disturbing the grassy ground cover.
- The emergency management and reporting procedures for incidents. Note to contractors that possible or actual damage to the grassy ground cover counts as an incident along with weather-related, bushfire, accidents or medical emergencies.

### *Comments on Vegetation Monitoring*

Data was collected in all categories as required in 4.3.2 of the Offset Management Plan at five 20mx20m quadrats.

- i) Inter-tussock space  
Target = 20%-40%.  
Percentage inter-tussock space (noted by cover of bare ground in table above) across the 5 quadrats ranged between 10 and 25%. Biomass, mostly annual grasses, was higher this year due to the consistently higher rainfall through Spring and into Summer. Grazing was extended with this in mind, however biomass remained high.
- ii) Biomass accumulation using the 'golf ball method'  
Biomass score using the golf ball method ranged between 2.5 and 15.5. Three of the quadrats scored below 12 indicating very high biomass. One quadrat scored 15.5 which indicates biomass more suitable for Golden Sun Moth.
- iii) Average height of vegetation  
The average height of vegetation ranged between 15 and 100cm. Two quadrats contained the higher average vegetation height of 30-100m, indicating higher biomass.

The results of the vegetation surveys indicate a relatively high biomass and vegetation cover. The differences in inter-tussock space and cover of annual weeds, and the species composition across different quadrats will inform the grazing regime in the coming year.

## Appendix C: Golden sun moth (GSM) surveys, January 2023

### *Method*

In January 2023, Year 1 surveys were conducted to determine the abundance of Golden Sun Moths at the offset site. Visits were regularly made once conditions became suitable and the moths were first observed in December, signalling the start to the GSM flight season. Surveys were subsequently conducted by Cassinia Environmental on the 11<sup>th</sup>, 17<sup>th</sup>, and 25<sup>th</sup> of January, 2023. The late rains and late onset of higher temperatures due to La Niña noticeably delayed the start of the monitoring season.

Following the DEWHA (2009) guidelines, 20 transects were established 50m apart from each other (Figure 9). During surveys, observers walked each parallel transect, counting flying GSM within a 10m arc on either side of the transect. Records were made of the number of moths observed and the location where each observation was made. Only observations of males were recorded.

As per the guidelines from DEWHA (2009) and described in the OMP, the Golden Sun Moth was surveyed after 10am and before 2pm during warm, sunny, and calm conditions. Weather conditions were recorded for each day, including temperature, cloud cover (/8), and wind speed (using Beaufort Scale). Cloud cover was estimated on the day while temperature and wind speed data were obtained retrospectively using Bureau of Meteorology records from the 'Redesdale' weather station, 5km north of Glenhope.

### *Note on Survey dates in Offset Management Plan (OMP) (4.3.3)*

The first survey has been conducted in Summer 2022/23 after the first year of management and after the covenant was registered on title. Future surveys years will be conducted every 2 years as recommended in the OMP as per the following schedule:

- 2024/25
- 2026/27
- 2028/29
- 2030/31

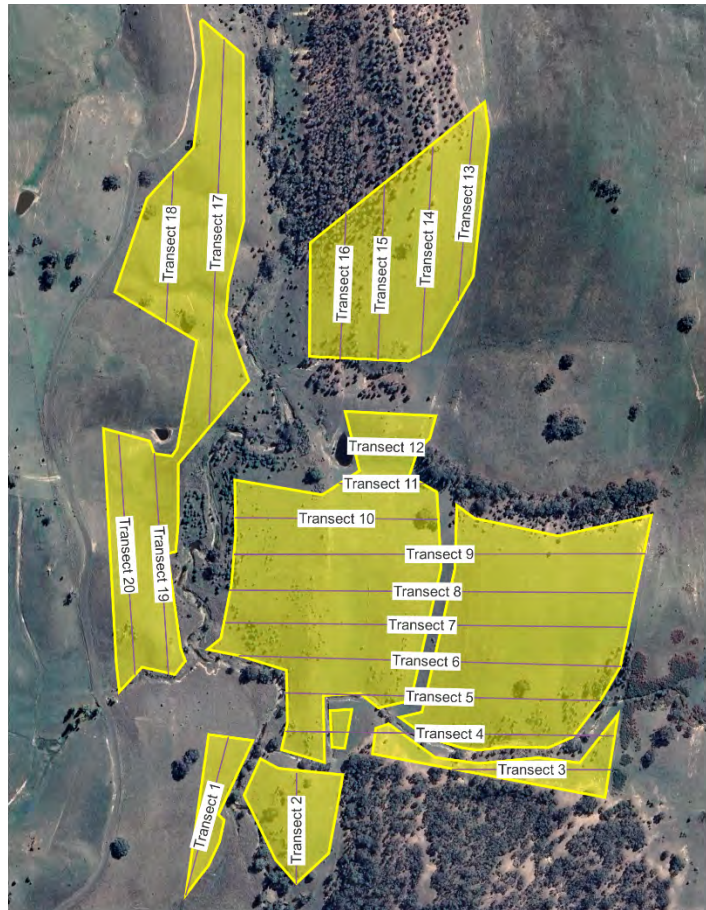


Figure C.1. Twenty transects walked during GSM surveys at Sievers Yellow, January 2023

### Results

A total of 32 male golden sun moths were observed over three days of surveys (Table C.1). Moths were observed during the first two weeks of surveys (11<sup>th</sup> and 17<sup>th</sup> January). However, as no moths were observed by the third week of surveys (25<sup>th</sup>), it was decided that a fourth survey day would not be conducted. The overall low density of moths observed at the offset area during this reporting period was expected due to the particularly wet and cold spring-summer seasons this year.

Table C.1. Number of male GSM observed during three survey days, 2023

<b>Date</b>	<b>11 January</b>	<b>17 January</b>	<b>25 January</b>	<b>Tota l</b>
<i>No. of male GSM observed</i>	25	7	0	32

Figures C.2 and C.3. Locations and numbers of male GSM observed on each survey day across the offset area

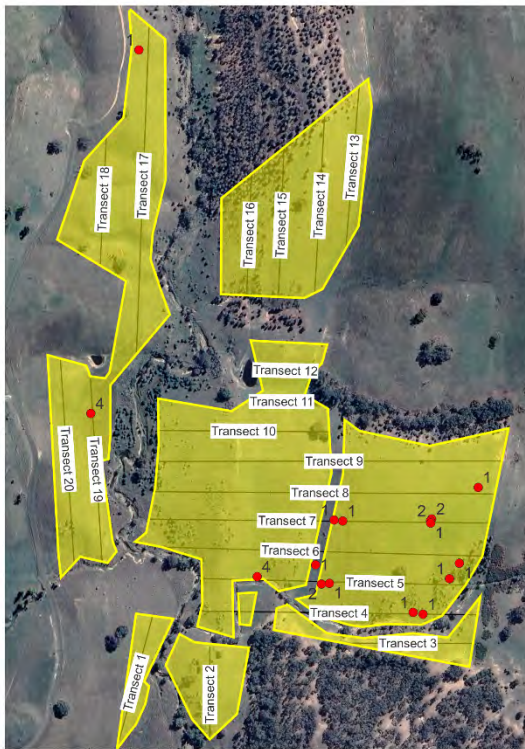


Figure C.2. January 11, 2023

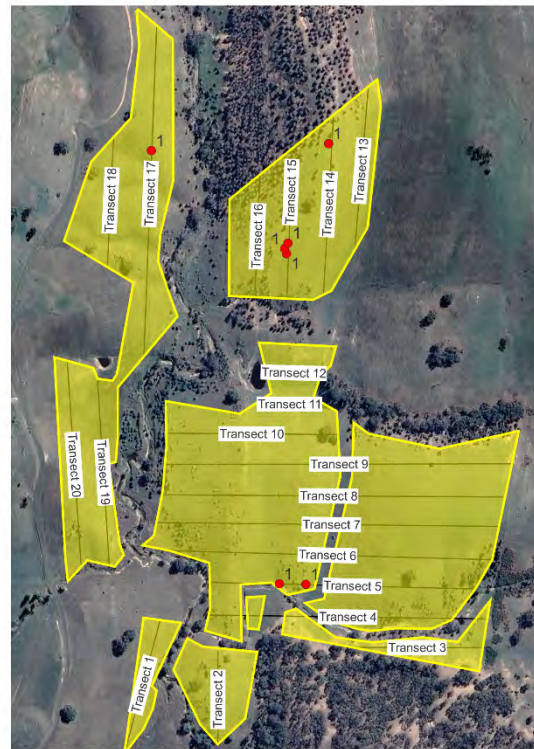
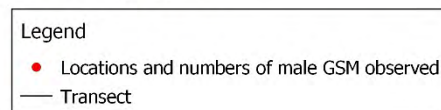


Figure C.3. January 17, 2023



The total transect distance across the five transects for each survey was 6,911m. This distance was used to determine the number of hectares (13.8m<sup>2</sup>) covered during each survey based on a 20m survey belt for each transect. Subsequently, an estimate of the number of male GSM per ha was calculated for each day.

$$\begin{aligned}
 \text{Survey area} &= \text{total distance of 20 transects} \times \text{survey belt} \\
 &= 6,911 \times 20 \\
 &= 138,220\text{m}^2 \\
 &= 13.8\text{ha}
 \end{aligned}$$

The density of GSM observed over the three days ranged between 0 and 2 males/ha. An average of 1 male golden sun moth per hectare was recorded this season (Table C.2).

Table C.2. Number of male GSM per ha according to number of observations made and metres walked in 2023

Date	No. of male GSM observed	Transect distance walked (m)	Survey area (ha)	No. of male GSM/ha
11 January	25	6,911	13.8	2
17 January	7	6,911	13.8	1
25 January	0	6,911	13.8	0
<b>Average</b>	11	6,911	13.8	1

Transect number	Date	Time	Observer	Latitude	Longitude	Temperature at 9am (°C)	Temperature at 3pm (°C)	Windspeed and direction at 9am	Windspeed and direction at 3pm	Cloud cover (0 = clear, 8 = complete cover)	Number of moths (males/transect)
4	11/01/2023	12:36	LH	-37.0794	144.5579	22.7	33.2	7km/h NE	9km/h NNW	0	1
4	11/01/2023	12:45	LH	-37.0794	144.5577	22.7	33.2	7km/h NE	9km/h NNW	0	1
5	11/01/2023	12:42	AC	-37.0789	144.5561	22.7	33.2	7km/h NE	9km/h NNW	0	1
5	11/01/2023	12:43	AC	-37.0789	144.5559	22.7	33.2	7km/h NE	9km/h NNW	0	2
5	11/01/2023	12:47	AC	-37.0788	144.5546	22.7	33.2	7km/h NE	9km/h NNW	0	4
6	11/01/2023	12:27	EC	-37.0786	144.5586	22.7	33.2	7km/h NE	9km/h NNW	0	1
6	11/01/2023	12:29	EC	-37.0789	144.5584	22.7	33.2	7km/h NE	9km/h NNW	0	1
6	11/01/2023	12:39	EC	-37.0786	144.5558	22.7	33.2	7km/h NE	9km/h NNW	0	1
7	11/01/2023	11:58	LH	-37.0779	144.5562	22.7	33.2	7km/h NE	9km/h NNW	0	1
7	11/01/2023	12:01	LH	-37.078	144.5563	22.7	33.2	7km/h NE	9km/h NNW	0	1
7	11/01/2023	12:05	LH	-37.0779	144.5581	22.7	33.2	7km/h NE	9km/h NNW	0	2
7	11/01/2023	12:05	LH	-37.0779	144.558	22.7	33.2	7km/h NE	9km/h NNW	0	2
7	11/01/2023	12:06	LH	-37.078	144.558	22.7	33.2	7km/h NE	9km/h NNW	0	1
8	11/01/2023	12:07	EC	-37.0774	144.559	22.7	33.2	7km/h NE	9km/h NNW	0	1
17	11/01/2023	10:35	LH	-37.0706	144.5523	22.7	33.2	7km/h NE	9km/h NNW	0	1
19	11/01/2023	10:47	EC	-37.0763	144.5514	22.7	33.2	7km/h NE	9km/h NNW	0	4
4	17/01/2023	12:17	LH	-37.0789	144.5549	24.9	33.4	7km/h ENE	13km/h N	0-3	1
4	17/01/2023	12:19	LH	-37.0789	144.5554	24.9	33.4	7km/h ENE	13km/h N	0-3	1
14	17/01/2023	11:08	LH	-37.0721	144.5559	24.9	33.4	7km/h ENE	13km/h N	0-3	1
15	17/01/2023	11:20	AC	-37.0738	144.5551	24.9	33.4	7km/h ENE	13km/h N	0-3	1
15	17/01/2023	11:21	AC	-37.0737	144.555	24.9	33.4	7km/h ENE	13km/h N	0-3	1
15	17/01/2023	11:22	AC	-37.0736	144.5551	24.9	33.4	7km/h ENE	13km/h N	0-3	1
17	17/01/2023	10:40	LH	-37.0722	144.5524	24.9	33.4	7km/h ENE	13km/h N	0-3	1

Table C.3. GSM survey data, January 2023

## **Appendix D: Photopoints**

See attached document.

# Appendix D: Photopoints

Photos at each photopoint (5 quadrats) were taken facing the four directions of the compass (N, E, S, W – in that order). A photo of the golf ball survey was also taken at each point.

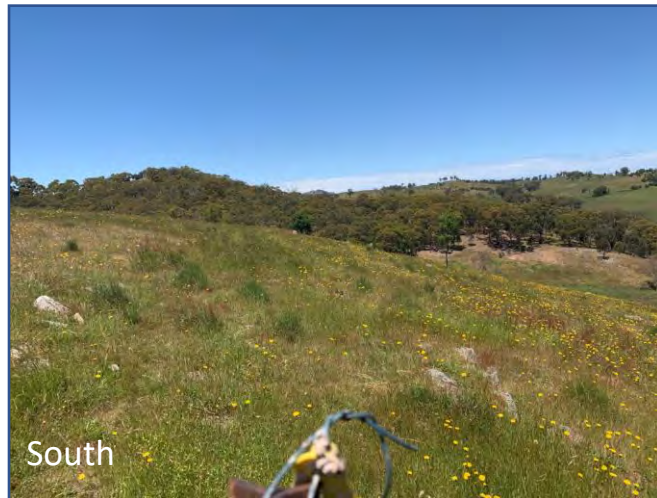
## Photopoint 1



Photopoint 2



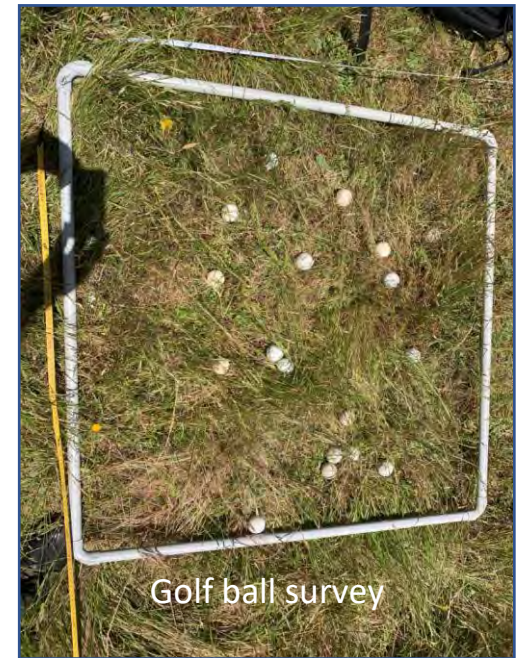
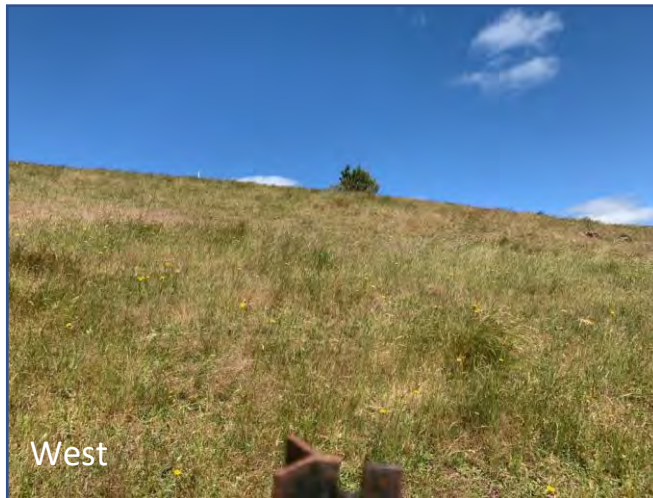
# Photopoint 3



Photopoint 4



Photopoint 5



## Kimberly Spragg

---

**From:** EPBC Monitoring <epbcmonitoring@dcceew.gov.au>  
**Sent:** Tuesday, 18 April 2023 10:48 AM  
**To:** Kimberly Spragg  
**Cc:** Jeremy Hughes; EPBC Monitoring  
**Subject:** RE: EPBC 2015/7516 offset site reporting [SEC=UNOFFICIAL]

Hi Kimberly

Thank you for the submission of the Offset Management Reports for EPBC 2015/7516.

The department acknowledges receipt of this submission, and it will be reviewed accordingly.

For further information please do not hesitate to contact the EPBC Monitoring Mailbox.

Kind regards,

[Hannah Brugman](#)

Administration Officer

Environmental Audit Section | Environment Compliance Branch | Chief Counsel Division

Department of Climate Change, Energy, the Environment and Water

Ngunnawal and Ngambri Country, John Gorton Building, King Edward Terrace, Parkes ACT 2600 Australia

[DCCEEW.gov.au](http://DCCEEW.gov.au) ABN 63 573 932 849

### Acknowledgement of Country

Our department recognises the First Peoples of this nation and their ongoing connection to culture and country. We acknowledge First Nations Peoples as the Traditional Owners, Custodians and Lore Keepers of the world's oldest living culture and pay respects to their Elders past and present.

---

**From:** Kimberly Spragg <KSpragg@biosis.com.au>  
**Sent:** Monday, 17 April 2023 4:41 PM  
**To:** EPBC Monitoring <epbcmonitoring@dcceew.gov.au>  
**Cc:** Jeremy Hughes <jeremyh@satterley.com.au>  
**Subject:** EPBC 2015/7516 offset site reporting [SEC=UNOFFICIAL]

Dear EPBC Monitoring Team,

Please download following information relating to Satterley Property Group's EPBC 2015/7516 approval Condition 11 – implementation of Offset Management Plans at this link <https://spaces.hightail.com/receive/UYwwMj0OQM>:

- Baseline Monitoring Report for 1960 Mickleham Road, Mickleham VIC 3064 offset site (Trust for Nature (TFN) reference: INT9530)
- Year 1 annual report for 235 Muncktons Lane, Glenaroua VIC 3764 offset site (TFN reference: C2047\_2)
- Year 2 annual report for 235 Muncktons Lane, Glenaroua VIC 3764 offset site (TFN reference: C2047\_2)
- Year 1 annual report for 5066 Western Highway, Beaufort VIC 3373 offset site (TFN reference INT9344)

- Year 1 annual report for Sievers Lane, Glenhope VIC 3444 offset site (TFN reference: C2050\_3)

The above information relates to the following Offset Management Plans:

- EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Grassy Eucalypt Woodland and Golden Sun Moth habitat: 1960 Mickleham Road, Mickleham, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 9 April 2020.
- EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: Sievers Lane, Glenhope, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 02 prepared 26 May 2020.
- EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: 235 Muncktons Lane, Glenaroua, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 12 May 2020.
- EPBC Act referral 2015/7516 Lindum Vale Residential Development, Mickleham Road, Mickleham: Offset Management Plan for Golden Sun Moth habitat: 5066 Western Highway, Beaufort, Victoria. Report for Satterley Property Group. Authors: Mueck S Biosis Pty Ltd, Melbourne. Final version 01 prepared 16 October 2020.

Let me know if you have any issues accessing the documents via the link provided.

Kind regards,

**Kimberly Spragg** She/Her  
Environmental Planner

☎ 0438 409 726  
☎ (03) 8686 4835  
✉ KSpragg@biosis.com.au



**Leaders in Ecology and Heritage Consulting**

**Biosis acknowledges the Aboriginal and Torres Strait Islander people as Traditional Custodians of the country on which we live and work. We pay our respects to the Traditional Custodians and Elders past, present and future, and honour their connection to the land and on**

*\*Please note, I do not work Fridays*

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