Melbourne Airport Development Projects

Offset Management Plan for Natural Temperate Grassland of the Victorian Volcanic Plain at [redacted]

DRAFT PLAN

Prepared for Australia Pacific Airports (Melbourne) Pty Ltd (ACN: 076 999 114)

13 November 2024

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- Australia Pacific Airports (Melbourne) Pty Ltd: Rachael Young
- Landowner: [redacted]
- Vegetation Link: Sid Larwill and Brendon Hillermann

Biosis staff involved in this project were:

- Sam Trollope, Hayley Sime, Michael Bodnarcuk, Abi Van der-Linden and Steve Mueck (site assessments)
- Grace O'Loghlin (mapping)
- Michael Goddard (plan preparation)
- Sam Trollope and Michael Goddard (quality assurance)

Biosis acknowledges the Aboriginal and Torres Strait Islander peoples as Traditional Custodians of the land on which we live and work.

We pay our respects to the Traditional Custodians and Elders past and present and honour their connection to Country and ongoing contribution to society.

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Declaration of accuracy

Melbourne Airport Development Projects: Offset Management Plan for Natural Temperate Grassland of the Victorian Volcanic Plain at [redacted]

In making this declaration, we are aware that Section 491 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (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 Commonwealth Environment Protection and Biodiversity Conservation Regulations 2000. The offence is punishable on conviction by imprisonment or a fine, or both. We are authorised to bind the approval holder to this declaration and have no knowledge of this authorisation being revoked at the time of making this declaration.

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Summary

Australia Pacific Airports (Melbourne) Pty Ltd (APAM) commissioned Biosis Pty Ltd (Biosis) to prepare an Offset Management Plan (OMP) for an offset site at [redacted] The site is intended to provide environmental offsets for development projects at Melbourne Airport.

These development projects are still being planned and are subject to environmental approvals, but may have significant impacts on Natural Temperate Grassland of the Victorian Volcanic Plain (Natural Temperate Grassland), a Matter of National Environmental Significance (MNES) listed as critically endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Where future development projects at Melbourne Airport will result in a residual significant impact on Natural Temperate Grassland, an environmental offset for this MNES will be required. Any proposed offset must demonstrate how a conservation outcome will be delivered for the protected matter. The offset site at [redacted] meets the requirements of the EPBC Act Environmental Offsets Policy (DSEWPaC 2012a).

The offset site will be secured by a Trust for Nature (TfN) covenant. The offset site covers 64.96 hectares of the property and supports 26.94 hectares of Natural Temperate Grassland. An additional 0.67 hectares of native grassland is considered future Natural Temperate Grassland because it is expected to be improved over the 10-year offset management period to the extent that it meets the condition thresholds for Natural Temperate Grassland. The remaining 37.31 hectares of the offset site is predominantly introduced vegetation that will be intensively managed to reduce threats to Natural Temperate Grassland within the offset site.

This OMP has regard to the Environmental Management Plan Guidelines (DCCEEW 2024) and specifies a range of management actions for the offset area, including weed and pest animal management and monitoring. The proposed actions are consistent with the published information on Natural Temperate Grassland relating to existing threats and management requirements to achieve positive conservation outcomes. The OMP documents an adaptive management framework, in which management actions are modified based on the results of monitoring and auditing activities in order to keep management focused on the outcome of protecting and enhancing the area of Natural Temperate Grassland. A risk assessment also includes triggers for review of the OMP, following environmental events such as significant weed invasion, fire or prolonged drought that have the potential to significantly alter the character and condition of the offset site.

Using the Offsets Assessment Guide (DSEWPaC 2012b), it is estimated that management and improvement of the 26.94 hectares of Natural Temperate Grassland at the offset site would be able to compensate for the removal of approximately 11 hectares of Natural Temperate Grassland at Melbourne Airport, pending approval from the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW).

Glossary

Adjusted hectares	The standardised metric used by the EPBC Act Offsets Assessment Guide (DSEWPaC 2012b), where extent (in hectares) is multiplied by quality (expressed as a decimal).
Conservation covenant	A binding agreement registered on the title of the property that provides enduring protection of the environmental values of the property. Also known as a Trust for Nature covenant.
DCCEEW	Australia Government Department of Climate Change, Energy, the Environment and Water.
DEECA	Victorian Government Department of Energy, Environment and Climate Action.
DITRDCA	Australian Government Department of Infrastructure, Transport, Regional Development, Communications and the Arts.
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
EVC	Ecological Vegetation Class.
GPS	Global Positioning System.
Incident	Any event that has an impact on a protected matter or has the potential to impact on a protected matter.
Independent audit	An audit conducted by an independent and suitably qualified person as detailed in the Independent Audit and Audit Report Guidelines (DoEE 2019).
MNES	Matters of National Environmental Significance, such as threatened species and threatened ecological communities, listed under the EPBC Act. Also referred to as protected matters.
Monitoring data	The offset management data required to be recorded by this OMP.
Natural Temperate Grassland	Natural Temperate Grassland of the Victorian Volcanic Plain, which is a threatened ecological community listed as critically endangered under the EPBC Act. Sometimes abbreviated to NTGVVP or NTG.
Offset area or offset site	The 64.96-hectare area of land to be secured and managed for Natural Temperate Grassland, in this case part of the property at [redacted]
OMP	The Offset Management Plan (this document or any subsequent version approved by DCCEEW), which outlines the management and protection of the offset area.
Strategic revegetation	The planting of tubestock or use of other restoration methods (such as direct seeding) to target specific plant life forms that are missing or under-represented in a patch of native vegetation when compared to their relevant EVC benchmark. The result should see an improvement in the total VQA score through an increase in the score of the understorey component.
Suitably qualified person	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.
TfN	Trust for Nature (ABN: 60 292 993 543), the Victorian not-for-profit organisation working to protect native plants and wildlife in cooperation with private landowners.
VQA	Vegetation Quality Assessment using the habitat hectares method (DSE 2004).

1 Introduction

1.1 Project background

Australia Pacific Airports (Melbourne) Pty Ltd (APAM) commissioned Biosis Pty Ltd (Biosis) to prepare an Offset Management Plan (OMP) for an offset site at [redacted] The site is intended to provide environmental offsets for development projects at Melbourne Airport (Figure 1).

The Melbourne Airport development projects are still being planned and are subject to environmental approvals, but may have significant impacts on Natural Temperate Grassland of the Victorian Volcanic Plain (Natural Temperate Grassland), a Matter of National Environmental Significance (MNES) listed as critically endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In accordance with the EPBC Act Environmental Offsets Policy, environmental offsets must be secured to compensate for any residual significant impact that a development project has on protected matters (DSEWPaC 2012a).

Biosis undertook preliminary vegetation assessments at the offset site in October and December 2023, followed by detailed assessments in January 2024 (Biosis 2024). Approximately 112 person hours were spent mapping native vegetation, assessing vegetation against condition thresholds for Natural Temperate Grassland (TSSC 2008) and collecting relevant baseline monitoring data to capture the starting condition of the offset site (before commencement of offset management actions). These assessments were used to decide on appropriate offset site boundaries and have informed the objectives and targets of this OMP.

The offset site covers 64.96 hectares of the property (Figure 2) and supports 26.94 hectares of Natural Temperate Grassland (Biosis 2024; Figure 3). An additional 0.67 hectares of native grassland is considered future Natural Temperate Grassland because it is expected to be improved over the 10-year offset management period to the extent that it meets the condition thresholds for Natural Temperate Grassland (TSSC 2008; Biosis 2024; Figure 3). The remaining 37.31 hectares of the offset site is predominantly introduced vegetation that will be intensively managed to reduce threats to the Natural Temperate Grassland within the offset site.

This OMP should be read in conjunction with the baseline monitoring report (Biosis 2024), which provides detailed information on the starting condition of the offset site.

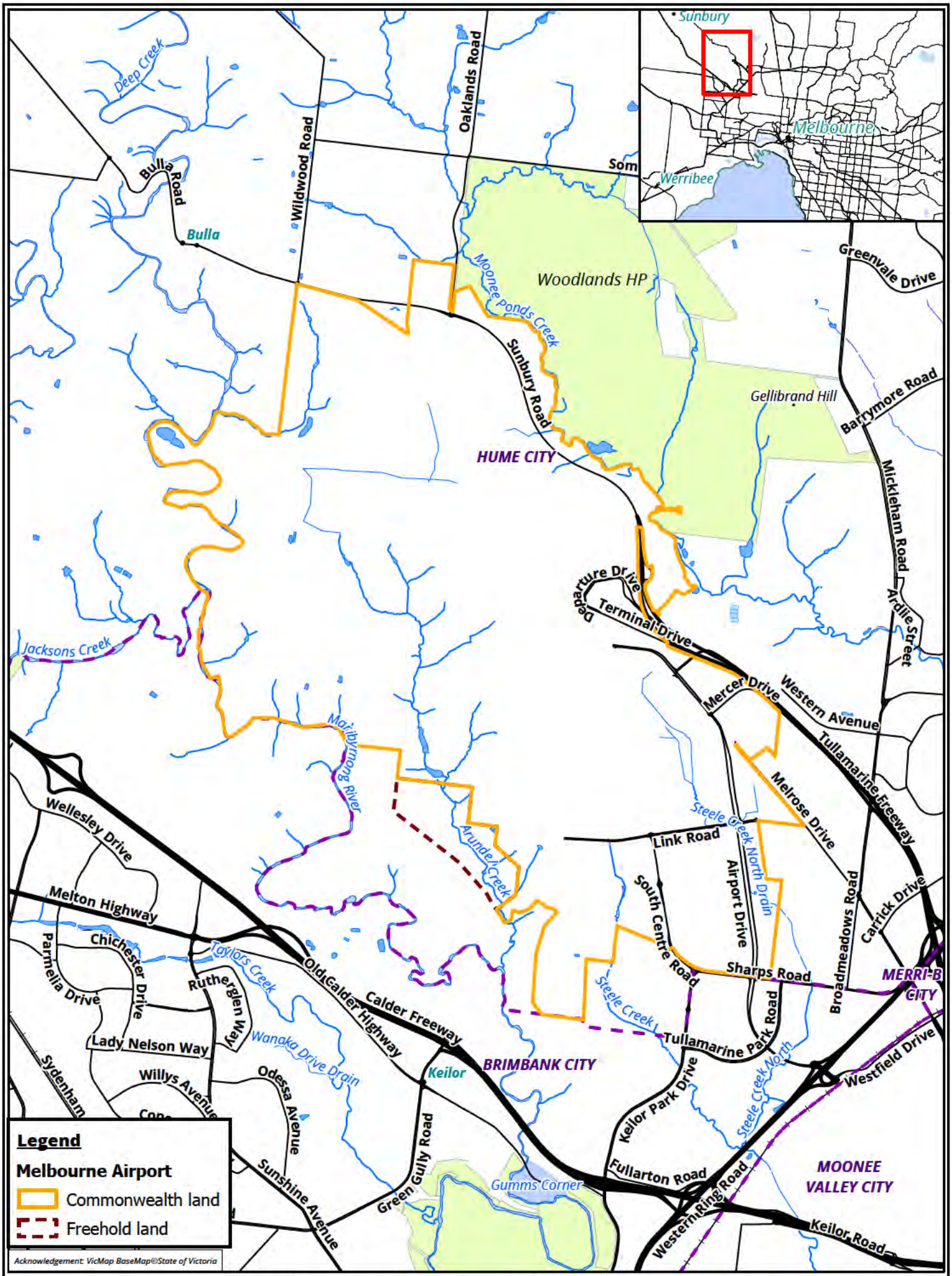

Figure 1 Location of future impact sites, Melbourne Airport, Victoria

Matter: 40459,
Date: 10 July 2024,
Prepared for: MG, Prepared by: GO, Last edited by: gologhlin
Layout: 40459_F1_locality
Project: P:\35900s\35971\Mapping\40459_SkyRoad.aprx

0 500 1,000 1,500 2,000
Metres
Scale: 1:50,000 @ A4
Coordinate System GDA2020 MGA Zone 55

N

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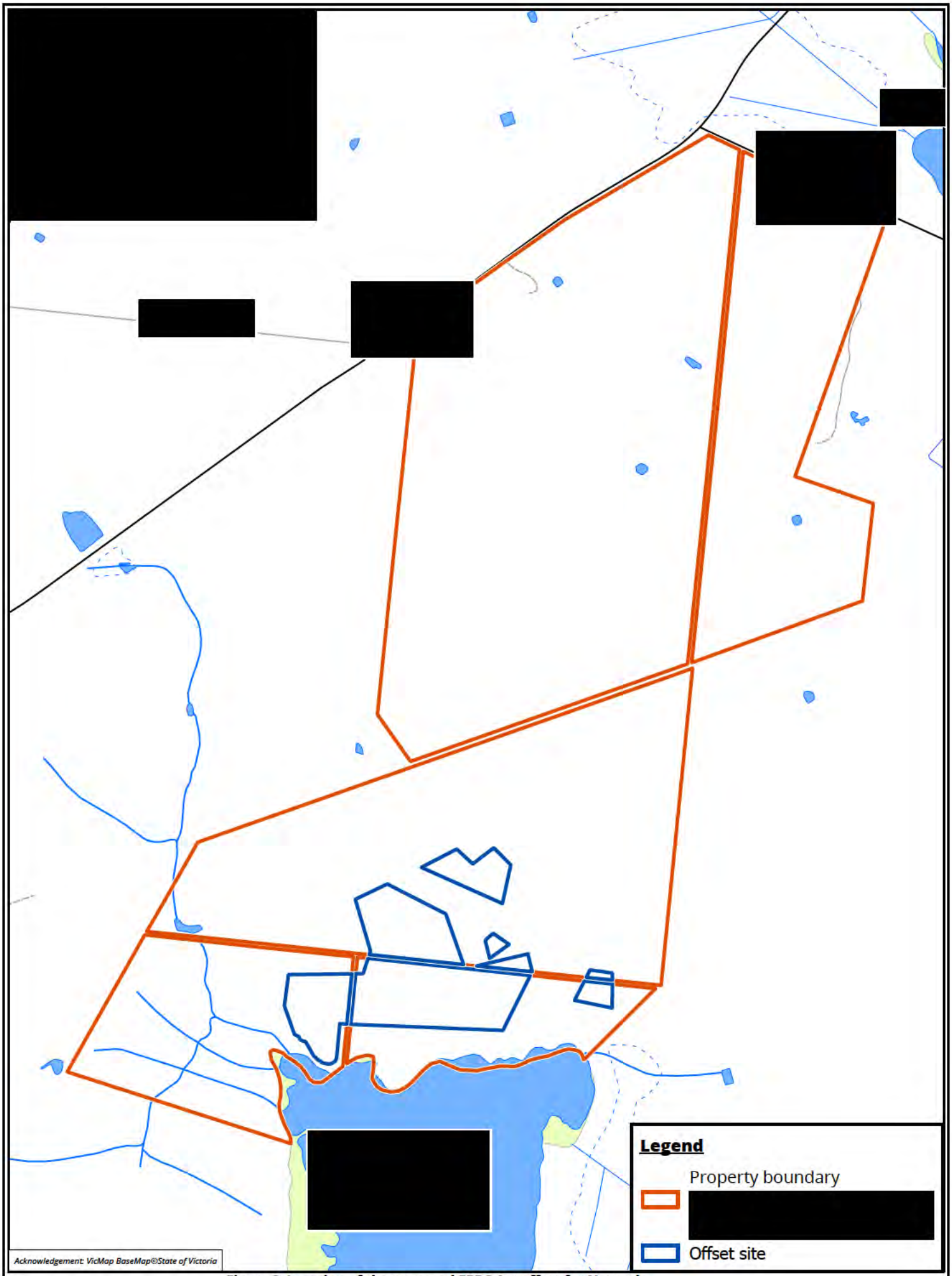

Figure 2 Location of the proposed EPBC Act offset for Natural Temperate Grassland at [redacted]

Matter: 40459,
Date: 10 July 2024,
Prepared for: MG, Prepared by: GO, Last edited by: gologhlin
Layout: 40459_F2_OffsetLocality
Project: P:\35900s\35971\Mapping\40459_SkyRoad.aprx

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[redacted]

HZ 10
HZ 1
HZ 11
HZ 2
HZ 7
HZ 2
HZ 2
HZ 8
HZ 9
HZ 3
HZ 6
HZ 8
HZ 9
HZ 4
HZ 12

Legend

- Offset site
- Livestock exclusion fence
- Property boundaries
- Management area - 20 m buffer

Nationally threatened ecological community (EPBC Act)

- Natural Temperate Grassland
- Future Natural Temperate Grassland

Figure 3 Natural Temperate Grassland within the EPBC Act offset site at [redacted]

0 50 100 150 200

Metres

Scale: 1:5,500 @ A3

Coordinate System: GDA2020 MGA Zone 54

N

biosis

Matter: 40459,
Date: 18 July 2024,
Prepared for: MG, Prepared by: GO, Last edited by: gologhlin
Layout: 40459_MapSeries
Project: P:\35900s\35971\Mapping\40459_SkyRoad.aprx

1.2 Objectives

The overall objective of this OMP is to provide details of the impact and offset sites and to document the requirements for securing, maintaining and improving the quality of Natural Temperate Grassland within the designated offset site. The aims of this OMP are to:

- Identify the location and boundaries of the area at [redacted] that is nominated as an offset site for Natural Temperate Grassland.
- Detail necessary management actions and responsibilities to protect and improve the Natural Temperate Grassland within the offset site.
- Provide sufficient information to demonstrate that management actions are additional to existing obligations under other planning regimes, legislation, schemes or duties of care.
- Document timeframes and key milestones for implementation of the measures to improve the Natural Temperate Grassland within the offset site.
- Outline performance and completion criteria for evaluating management of the offset site.
- Outline a program to monitor and report on the effectiveness of the management in relation to the performance and completion criteria, with the aim of gathering and supplying sufficient information to enable a clear assessment of the conservation benefit that has been realised as a result of the offset management actions.
- Describe potential risks to successful implementation of the OMP, including measures to mitigate these risks.

1.3 Plan structure

The structure and content of this OMP is consistent with the standard requirements for OMPs. This OMP is structured as follows:

- Section 1: Introduction – This section summarises the relevant background information, including the purpose and scope of the OMP.
- Section 2: Offset suitability – This section assesses the suitability of the site as an environmental offset by providing details about approved clearing at the impact site (where relevant) and proposed ecological improvements (conservation gain) at the offset site.
- Section 3: Offset implementation – This section describes how the offset is to be implemented and includes details regarding land manager commitments, areas of responsibility, management activities, monitoring and reporting.
- Section 4: Schedule of management actions, risks, monitoring and reporting – This section provides tabulated summaries of key activities to be undertaken and considered during offset implementation.

Sections 3 and 4 are intended for those responsible for implementing the OMP.

2 Offset suitability

This section assesses the suitability of the site as an environmental offset by providing details about approved clearing at the impact site (where relevant) and proposed ecological improvements (conservation gain) at the offset site.

2.1 Description of the impact site

2.1.1 Impact site details

The impact site is Melbourne Airport (Table 1). Most of Melbourne Airport is within the Victorian Volcanic Plain bioregion. Large areas of Melbourne Airport support grassland vegetation, both native and introduced.

Table 1 Impact site details, Melbourne Airport, Victoria

Impact site details	
Project name	Future Melbourne Airport development projects
Location of impact site	Melbourne Airport (Figure 1)
Land manager of impact site	Australia Pacific Airports (Melbourne) Pty Ltd (APAM)
Local Government Area	City of Hume (Commonwealth Land not controlled by Planning Scheme)
Catchment Management Authority	Melbourne Water
Responsible Authority	Government of Australia
Project proponent	APAM
Planning permit (Victoria)	No planning permit is required
EPBC Act approval	Approval to be sought via EPBC Act referral and/or Major Development Plan

2.1.2 Protected matters approved for removal

The offset site is intended to provide environmental offsets for future development projects at Melbourne Airport. At the time of writing, these projects are still being planned and have not yet received approval. One or more of these projects may have a significant impact on Natural Temperate Grassland. It is anticipated that the 26.94 hectares of Natural Temperate Grassland at the offset site would be able to compensate for the removal of approximately 11 hectares of Natural Temperate Grassland at Melbourne Airport, depending on the quality of the grassland being removed and pending approval from the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW).

2.2 Description of the offset site

2.2.1 Offset site details

The offset site is located at [redacted] (Table 2), approximately [redacted] (Figure 2). The property is otherwise referred to as [redacted] Like the impact site, the offset site is within the Victorian Volcanic Plain bioregion.

The offset site is spread over three private land parcels (allotments), which are separated by public road reserves (Figure 2). The road reserves are currently managed by the landowner in the same way as the three land parcels. At this stage, no roads exist within the road reserves, meaning that patches of native grassland are relatively contiguous between the land parcels, connecting across the road reserves in some locations (Figure 3). However, the road reserves are public land and therefore do not form part of the offset site. Offset and grassland areas quoted in this OMP do not include the road reserves, unless otherwise stated. The offset site is proposed to be 64.96 hectares and protected by livestock and rabbit-proof fencing (see section 3.5.1). It includes patches of Natural Temperate Grassland, 20-metre management buffers around these patches and areas of predominantly introduced vegetation (Figure 3).

Table 2 Offset site details, [redacted] Victoria

Offset site details	
Current landowner of offset site	[redacted]
Type of offset	Third party (private land)
Location and address of offset site	[redacted]
Area of offset site	64.96 hectares
Local Government Area	Corangamite
Parish	[redacted]
Allotment	[redacted]
Plan of subdivision	[redacted]
Volume / Folio	To be confirmed
Bioregion	Victorian Volcanic Plain

2.2.2 Current land use

The property has a 150-year history operating as a sheep farm up until early 2007, when sheep were replaced by cattle for grazing. Cattle are currently being grazed on the broader property and, to a lesser extent, on the three parcels on which the offset site is located. On these parcels, the grazing strategy is opportunistic rather than consistent grazing and therefore at a lower intensity than the remainder of the property.

2.2.3 Protected matters present at the offset site

The offset site supports 26.94 hectares of native vegetation that meets the key diagnostic characteristics and condition thresholds for Natural Temperate Grassland. This includes 25.68 hectares of Heavier-soils Plains Grassland (EVC 132_61) and 1.26 hectares of Plains Grassy Wetland (EVC 125). The baseline monitoring report provides further details on the current condition of native vegetation within the offset site (Biosis 2024).

2.2.4 Current permitted land uses

The offset site is zoned as Farming Zone (FZ) within the Corangamite Planning Scheme. This zone provides for the use of land for agriculture, including livestock grazing and associated activities.

There is currently no existing obligation to protect, manage and improve the Natural Temperate Grassland within the offset site. In contrast, the existing permitted agricultural land uses, including intensive livestock grazing, have the potential to lead to the long-term decline and possible extinction of Natural Temperate Grassland from the offset site. The conservation benefit from establishment and long-term management of an offset site for Natural Temperate Grassland would therefore be additional to any existing obligations.

The EPBC Act offset site will not be subject to any significant incompatible land uses. There are no existing buildings or infrastructure in or within 150 metres of the designated offset area (Figure 3).

2.2.5 Existing offset arrangements

No other offset sites have been established on the property at [redacted] The offset site has not been previously allocated for the provision of any other offsets, either under the EPBC Act or under Victorian State planning policy, including the former Biodiversity Assessment Guidelines (DEPI 2013) or any prior policy.

The offset site will be registered under a Trust for Nature (TfN) covenant. The covenant will likely take more than 12 months to be formally approved by the Victorian Government Minister for Environment. The OMP will be implemented in full once the TfN covenant is registered.

3 Offset implementation

The OMP details methods for the management and conservation of the 64.96-hectare EPBC Act offset site at [redacted]. This section presents the actions required to implement the OMP.

Management actions focus on the protection and enhancement of Natural Temperate Grassland at the offset site. At the end of 10 years of management, the offset site is expected to have achieved a conservation gain for Natural Temperate Grassland to offset the impact on this community from yet-to-be-determined future development projects at Melbourne Airport.

After 10 years, management actions will focus on maintaining the improved condition of the Natural Temperate Grassland and protecting the site in perpetuity under the *Victorian Conservation Trust Act 1972*.

The OMP aims to improve native vegetation at the offset site through on-ground actions that are achievable, measurable and practical. All management works at the offset site will be conducted by the landowner or a suitably qualified and experienced contractor engaged by the landowner. Prescribed management actions are, where relevant, in accordance with the Management Standards for Native Vegetation Offset Sites, prepared by the Victorian Government Department of Energy, Environment and Climate Action (DEECA) and its Native Vegetation Credit Register (DEECA 2023). These actions also align with known threats and management interventions for grasslands and grassy woodlands as documented in Williams *et al*. (2015) and DSEWPaC (2011).

All of the management actions specified will be consistent with a TfN-approved deed of covenant.

3.1 Offset security and responsibilities

The offset site will need to be legally secured prior to the commencement of the action(s) for which it is providing compensation i.e. prior to the impact on Natural Temperate Grassland at Melbourne Airport as part of the future development projects that are yet to be determined.

The offset site will be secured through a conservation covenant, the responsible authority for which will be TfN per Section 3A of the *Victorian Conservation Trust Act 1972*. This agreement will be signed by the landowner and TfN and approved by the Victorian Government Minister for Environment prior to the commencement of the future development projects at Melbourne Airport. Current and future landowners of the offset site will be required to comply with the restrictions in the TfN covenant and the requirements of this OMP.

Offset site security details and responsibilities are summarised in Table 3.

Table 3 Security and management responsibilities and reporting requirements

Offset requirements and responsibilities	
Who is liable/responsible for meeting offset requirements?	APAM
Type of security	TfN covenant
Date of commencement	Upon registration of TfN covenant on title
Date 10-year offset management to commence	Upon registration of TfN covenant on title
TfN stewardship services	Upon registration of TfN covenant on title

Offset requirements and responsibilities	
Date 10-year offset management expires	10 years after the date of commencement described above
Date TfN covenant registered on-title	To be confirmed
Offset site management responsibility	Landowner
Offset site monitoring responsibility	Landowner (except for independent monitoring as part of an audit, which is the responsibility of APAM)
Auditing	APAM
Reporting responsibility (to TfN)	Landowner
Reporting responsibility (to DCCEEW)	APAM
OMP review	APAM and Landowner

3.2 Environmental outcomes to be achieved

The overarching environmental outcomes expected to be achieved through protection and management of the offset site are:

- Ongoing legal protection to ensure that offset site is managed for conservation of Natural Temperate Grassland for the period of this OMP, the life of the relevant future developments at Melbourne Airport and thereafter in perpetuity.
- Physical protection of Natural Temperate Grassland within the offset site from manageable threats, including domestic stock (other than that permitted under this OMP), other agricultural/commercial activities and the impacts of weeds (see sections 3.5.3 and 3.5.4), pest animals (see section 3.5.6) and any other recreational activities that conflict with the conservation objectives of the offset site.
- Maintenance and/or improvement of the extent and condition of Natural Temperate Grassland within the offset site.

3.2.1 Performance and completion criteria

Performance criteria that must be achieved during the 10-year offset management period (i.e. before completion) include the following:

- Land use management:
  - By the end of Year 1, there must be ongoing exclusion of commercial agricultural practices from the offset site, except as permitted by the OMP.
  - By the end of Year 1, there must be ongoing exclusion from the offset site of other inappropriate land uses that conflict with the conservation objectives of the offset site (e.g. recreational activities).
- Woody weed management:
  - There must be no mature woody weeds present within the Natural Temperate Grassland by the end of Year 1 (and annually thereafter). A mature plant is one that can flower and therefore potentially set seed.

  - Woody weed recruits within the Natural Temperate Grassland must be controlled within 12 months of observation and not permitted to set seed.
- Herbaceous weed management:
  - The total cover of all herbaceous weeds (including low threat and high threat weeds) within the Natural Temperate Grassland must be less than baseline levels by Year 4 (and annually thereafter).
- Pest animal control:
  - Signs of pest animal activity (i.e. scats) must be absent or scarce along monitoring transects from Year 1 onwards. Signs of pest animal activity are considered scarce when not readily visible i.e. much searching is required.
- Biomass management:
  - Ground cover biomass accumulation must be controlled such that the cover of inter-tussock space (bare ground, bryophytes, lichens and soil crust) is greater than 20% but no more than 40% (>20% and ≤40%) by Year 4 (and annually thereafter).
- Scheduled management actions must be undertaken (Section 3.4 and Table 6).
- Scheduled monitoring activities must be undertaken (Section 3.7 and Table 8).
- Scheduled reports and audits must be undertaken (Section 3.8, Section 3.9 and Table 9).

Completion criteria that must be achieved by the end of the 10-year offset management period include the following:

- Land use management:
  - At the end of Year 10, there must be exclusion of commercial agricultural practices from the offset site, except as permitted by the OMP.
  - At the end of Year 10, there must be exclusion from the offset site of other inappropriate land uses that conflict with the conservation objectives of the offset site (e.g. recreational activities).
- Viability of Natural Temperate Grassland:
  - The offset site must support at least 14.817 adjusted hectares (i.e. extent x quality) of Natural Temperate Grassland by the end of Year 10. Refer to Section 3.2.2 of this OMP.
- Management of total weed cover:
  - Total weed cover must be <50% within Natural Temperate Grassland at the end of Year 10.
- Woody weed management:
  - Woody weeds within the Natural Temperate Grassland must be eliminated (reduced to <1% cover) by the end of Year 10.
- Herbaceous weed management:
  - The total cover of all herbaceous weeds (including low threat and high threat weeds) within the Natural Temperate Grassland must be <50% at the end of Year 10.
  - The cover of low threat herbaceous weeds within the Natural Temperate Grassland must be <25% at the end of Year 10.

  - The cover of high threat broad-leaved weeds within the Natural Temperate Grassland must be <10% at the end of Year 10.
  - The cover of high threat perennial tussock grass weeds within the Natural Temperate Grassland must be <50% at the end of Year 10.
  - The cover of high threat perennial mat-forming grassy weeds (grasses/rushes) within the Natural Temperate Grassland must be <5% at the end of Year 10.
- Management of new and emerging weeds:
  - New and emerging weeds must be eliminated (reduced to <1% cover) from the offset site by the end of Year 10. Refer to Section 3.2.3 of this OMP.
- Pest animal control:
  - There must be negligible (<1% cover) surface disturbance caused by pest animal species within the offset site by the end of Year 10. Refer to Section 3.5.6 of this OMP.
  - Signs of pest animal activity (i.e. scats) must be absent or scarce along monitoring transects at the end of Year 10. Signs of pest animal activity are considered scarce when not readily visible i.e. much searching is required.
  - There must be no active rabbit warrens or fox dens within the offset site by the end of Year 10.
  - New and emerging pest animals must be controlled within the offset site such that there is negligible impact from these species at the end of Year 10. Refer to Section 3.2.3 of this OMP.
- Biomass management:
  - Ground cover biomass accumulation must be controlled such that the cover of inter-tussock space (bare ground, bryophytes, lichens and soil crust) is greater than 20% but no more than 40% (>20% and ≤40%) at the end of Year 10.
- Scheduled management actions must be completed (Section 3.4 and Table 6).
- Scheduled monitoring activities must be completed (Section 3.7 and Table 8).
- Scheduled reports and audits must be completed (Section 3.8, Section 3.9 and Table 9).

Failure to achieve these performance and completion criteria will result in an OMP review in accordance with Section 3.10 of this OMP.

3.2.2 Natural Temperate Grassland extent and condition

The offset site supports 26.94 hectares of vegetation consistent with Natural Temperate Grassland and an additional 0.67 hectares of vegetation could meet the condition thresholds of Natural Temperate Grassland with active management. The condition thresholds for Natural Temperate Grassland are summarised in Appendix 2. It is proposed that the offset site will support a total of at least 26.94 hectares of Natural Temperate Grassland at the end of the 10-year offset management period and thereafter in perpetuity (although note the allowance for a lesser gain in extent if there is a greater than expected gain in quality, as outlined below).

A Vegetation Quality Assessment (VQA) of native vegetation within the offset site was undertaken in January 2024 (DSE 2004). The weighted average VQA score for the Natural Temperate Grassland within the offset site was 52.65 out of 100. The weighted average VQA score for the future Natural Temperate Grassland within the

offset site was 35.88 out of 100. It is proposed that the weighted average VQA score for all 26.94 hectares of Natural Temperate Grassland will be at least 55 out of 100 at the end of the 10-year offset management period (although note the allowance for a lesser gain in quality if there is a greater than expected gain in extent, as outlined below).

In practice, the combined extent and quality of Natural Temperate Grassland within the offset site must be 14.817 adjusted hectares (equivalent to 26.94 x 55/100 i.e. extent x quality) at the end of the 10-year offset management period. Adjusted hectares are the standardised units of measurement used by the EPBC Act Offsets Assessment Guide (DSEWPaC 2012b) and allow for more realistic comparisons of threatened ecological communities over time, particularly native grasslands, which can be highly variable from year to year. The adjusted hectares metric acknowledges that a greater than expected gain in native grassland extent may be accompanied by a lesser than expected gain in native grassland quality and vice versa. For example, a patch of Natural Temperate Grassland may expand to include an area with a comparatively higher weed cover, meaning that the overall VQA score of the patch may be lower due to a lower 'lack of weeds' score.

Reductions in extent and/or condition may be driven by external factors (stochastic events such droughts, floods, fire and/or climate change) that are beyond the control of the land manager. Successful maintenance and/or improvement of extent and condition will be measured based on controlling factors that operate at the local scale, such as the influence of livestock grazing, kangaroos, pest animals, weed invasion or inappropriate land use. Where stochastic events occur, the intent will be to respond to these events in the recovery phase of the vegetation to facilitate and enhance natural regeneration.

3.2.3 New and emerging weeds and pest animals

For the purposes of this OMP, new weed species and new pest animal species are species that are recorded for the first time at the offset site after baseline monitoring, unless there is reasonable evidence to suggest that the species would have been present at the time of baseline monitoring but were missed. Emerging weed species and emerging pest animal species are species that are known to be in an early stage of invasion in Victoria.

New and emerging weeds must be eliminated (reduced to <1% cover) from the offset site by the end of Year 10. New and emerging pest animals must be controlled within the offset site such that there is negligible impact from these species at the end of Year 10. In practice, this means that new and emerging weeds and new and emerging pest animals must be removed (eradicated) from the offset site as soon as detected.

3.3 Limitations and uncertainty

There are no significant limitations or uncertainties associated with this OMP. The OMP has been formulated using information from preliminary site inspections conducted in October and December 2023 and baseline monitoring conducted in January 2024 (Biosis 2024). These site visits took place at an appropriate time of the year for assessment of grassland vegetation, including an assessment of condition, extent and threats.

The OMP has been subject to internal review and quality assurance by Biosis, APAM and the offset site landowners. The OMP's management activities are consistent with the baseline monitoring report (Biosis 2024). The OMP is also consistent with plans that DEECA approves for the management of Victorian offset sites (DEECA 2023) and Australian Government requirements for the preparation of environmental management plans (DCCEEW 2024). Relevant Australian and Victorian government policies, procedures and databases have also been consulted where appropriate (e.g. DoEE 2019).

3.4 Risk assessment and adaptive management

This OMP provides actions and performance criteria for a period of 10 years and notes that ongoing management will be required in perpetuity. Registration of the offset site under a TfN covenant provides another layer of regulation and scrutiny.

The timing of actions and whether they occur is based on adaptive management. By monitoring the outcomes of actions, management will be adapted to ensure the stated commitments in the OMP are adhered to. In addition, over time, new management techniques may become available or further information on the ecology and status of Natural Temperate Grassland may necessitate adjustment to management actions. Seasonal conditions can also vary greatly from year to year and influence offset site management actions in any one year. This seasonality is recognised in this offset plan by allowing for flexibility around timing of actions at the discretion of the land manager in consultation with DCCEEW, TfN and/or APAM where required.

Section 1 includes a table of management actions (Table 6) and a risk assessment (Table 7), with associated monitoring (Table 8) and reporting (Table 9) programs.

Key risks identified in Table 7 include:

- Unauthorised entry into the offset area.
- Inappropriate activities within the offset area.
- Expansion of high threat weed infestations.
- Establishment of novel weeds to uncontrollable levels.
- New or unpredictable impacts associated with pest animals (i.e. the invasion of feral animals) and /or native herbivores (i.e. kangaroos).
- A reduction in the extent or condition of Natural Temperate Grassland driven by factors outside of the landowner's control, such as drought, fire and/or climate change.

Failure of the adaptive management approach to adequately respond to risks, as identified in monitoring reports (Section 3.8) or audits (Section 3.9), will result in a review of this plan, as discussed in Section 3.10 and Table 7.

3.5 Management actions and land use commitments

This section of the OMP outlines the management actions and land use commitments that must be implemented to achieve the environmental outcomes specified in Section 3.2 of this OMP. As outlined in Section 3.2, it is proposed that the weighted average VQA score for all 26.94 hectares of Natural Temperate Grassland within the offset site will increase from a baseline score of 52.65 out of 100 to at least 55 out of 100 at the end of Year 10 (with an allowance for a lesser gain in quality if there is a greater gain in extent).

The increased VQA score could be achieved through improvements to one or more of the following component scores (Biosis 2024):

- The 'lack of weeds' score, by reducing total weed cover to ≤50%.
- The 'recruitment' and 'organic litter' scores, by managing (reducing) biomass accumulation such that inter-tussock space is maintained at covers greater than 20% but no more than 40% and organic litter is reduced to 50% to 150% of benchmark cover.
- The 'understorey' score, by reintroducing missing or under-represented plant life forms, such as large herbs, medium herbs, medium tufted graminoids and medium non-tufted graminoids.

Improvements to these component scores will come about by implementing a combination of the following management actions and land use commitments in an adaptive manner:

- Fencing and restrictions to agricultural and recreational use:
  - Access to and use of the offset site must be strictly controlled if other management actions are to be successful.
- Adaptive management of woody and herbaceous weeds:
  - An adaptive weed management strategy, with a focus on defined weed categories (e.g. woody weeds and high threat herbaceous weeds), must be implemented to reduce weed cover (i.e. increase the 'lack of weeds' score) within Natural Temperate Grassland patches at the offset site.
- Management of pest animals:
  - The activity of pest animals within the offset site must be controlled, so that it does not compromise the success of other management actions, such as weed management and revegetation.
- Biomass management:
  - Biomass reduction (e.g. through ecological burning) must be undertaken to reduce organic litter cover (i.e. increase the 'organic litter' score) and increase inter-tussock space (i.e. increase the 'recruitment' score) within Natural Temperate Grassland patches at the offset site.
- Revegetation:
  - Strategic revegetation may be required to reintroduce missing or under-represented life forms (i.e. increase the 'understorey' score).
  - Revegetation would also complement other management actions, such as weed control, so as to ultimately achieve a more stable grassland condition requiring less intensive management.

Each of the above management actions or land use commitments is explained in more detail in the following sub-sections.

The management actions and land use commitments apply to the entire offset area (Figure 3), although some actions may be applied at a greater effort (frequency and/or duration) to certain parts of the offset site (e.g. priority weed management areas).

The management actions and land use commitments are to be implemented for a period of 10 years following registration of the TfN covenant (see Table 3). After the completion of Year 10, the landowner will continue to manage the offset site as specified under the TfN covenant and TfN-approved management plan. These ongoing management commitments (i.e. beyond Year 10) are outlined in Section 3.6 of this OMP.

A schedule of management actions is provided in Section 4 of this OMP. Failure to adhere to this schedule will result in an OMP review in accordance with section 3.10 of this OMP.

3.5.1 Fencing

Livestock exclusion and rabbit-proof fencing must be installed around the perimeter of the offset site within 12 months of the commencement of offset management i.e. by the end of Year 1. The livestock exclusion

fencing will mostly follow the boundary of the offset site but will traverse road reserves to connect adjacent parts of the offset site (Figure 3). This will allow the road reserves to be managed to a similar standard as the offset site, thereby improving ecological connectivity. However, the road reserves are public land, are not part of the [redacted] property and therefore do not form part of the offset site. If the road reserves were to be developed in the future, the road reserves would need to be fenced off from the offset site using the same standard of fencing.

It is anticipated that approximately 6330 metres of new exclusion fencing will be installed in Year 1, forming four discrete offset areas (Figure 3). The fencing must meet or exceed the minimum standard outlined in DEECA's Management Standards for Native Vegetation Offset Sites including specifications outlined for rabbit-proof fencing (DEECA 2023). Importantly, the fencing standard can be more onerous for certain livestock (e.g. more wire strands may be required for sheep than beef cattle, depending on the style of fence). The landowner will be responsible for ensuring that the livestock exclusion fence at all times meets or exceeds the standards required for the specific livestock that are held on adjacent parts of the property.

The fencing will need to be fire-resistant to allow for the regular ecological burning required by this OMP. A departure from DEECA's fencing standard is permissible if required to achieve a fire-resistant fence, so long as it does not compromise the ability of the fence to exclude the relevant livestock. For example, DEECA's fencing standard requires fence stays (braces for strainer posts) to be made of 3-metre treated pine (DEECA 2023). For the purposes of achieving a fire-resistant fence, it will be permissible for fence stays to be made of steel or another fire-resistant material. Wetting down of fence lines and slashing of vegetation along fences should also occur prior to ecological burning for the protection of fencing infrastructure.

The alignment of livestock exclusion fences in Figure 3 are indicative only and may need to deviate slightly on the ground subject to topography and terrain (e.g. rocks) and should make allowances to exclude rabbit warrens from the offset site where possible.

Broadscale herbicide application using a boom sprayer outside of the offset site must not occur within five metres of Natural Temperate Grassland (Marrs *et al.* 1989), noting that in most locations along the proposed livestock exclusion fence, internal 20-metre buffers to Natural Temperate Grassland have been initiated and herbicide application via boom sprayer can occur to the edge of the livestock exclusion fence. This buffer can be further reduced if wind conditions are suitable and consistently in the direction away from Natural Temperate Grassland.

3.5.2 Restrictions to agricultural or recreational use

The permitted use of the offset site as agricultural land (as per its existing classification as Farming Zone under the Corangamite Planning Scheme) will be prohibited under this OMP and formally restricted under the TfN covenant. Agricultural activities, such as the application of fertilisers and the uncontrolled grazing of domestic stock, are documented threats to Natural Temperate Grassland (TSSC 2008) and will be prohibited within the offset site. Prohibited activities within the offset site will include:

- Grazing by domestic stock other than grazing by sheep as authorised by this plan or any subsequent approved revisions of this plan.
- The use of agricultural or other machinery used for farming or recreation, unless required to carry out the management actions prescribed by this OMP (e.g. weed or pest animal control).
- The application of any fertiliser or any pasture improvement activities, such as the sowing of introduced pasture species or stock feed plants.
- Cultivation or any soil disturbance associated with cropping or pasture improvement.

- The use of any hay or stockfeed to feed domestic or native animals.
- Installation of water troughs and pipes in areas of Natural Temperate Grassland. Troughs must be positioned so that increased concentration of stock would not damage patches of Natural Temperate Grassland.
- Boom spraying herbicides within 5 metres of Natural Temperate Grassland.

Impacts of these prohibited activities could include:

- Long-term removal of native vegetation.
- Ground compaction, erosion and sedimentation of surrounding native vegetation.
- Spread of weeds.

With appropriate management actions, the risk of these activities occurring is low. The landowner's commitments to manage potential threats from such activities include:

- Preclusion of public access to the offset site at all times for any activity other than conservation-oriented programs consistent with this OMP. Where relevant, this may require management gates to be locked (e.g. to exclude vehicles from the offset site).
- Regular inspection of management gates to ensure they prevent access. Prompt replacement of damaged gates and any locks that have been removed.
- Maintenance of existing fencing to the relevant DEECA standards (DEECA 2023).
- Signage to indicate the commitment of the landowner to the conservation values of the land.

3.5.3 Woody weed management

Woody weeds are introduced plant species that typically have a persistent, lignified (hard and woody) stem above ground.

Elimination of all existing woody weeds

No woody weeds were recorded within the offset site during the preliminary assessment or baseline monitoring undertaken by Biosis, suggesting woody weed cover is already <1% and there are no mature woody weeds present (Biosis 2024).

Any woody weed recruits observed within the offset site in the future will need to be controlled within 12 months of observation and not permitted to set seed. Woody weed cover must be maintained at less than 1% cover with no mature plants present. A mature plant is one that can flower and therefore potentially set seed.

If woody weeds are detected within the offset site in the future, they are likely to be considered as new and/or emerging woody weeds.

Elimination of new and emerging woody weeds

For the purposes of this OMP, new and emerging weeds are defined as follows:

- New or novel weeds are weed species that are recorded for the first time at the offset site after baseline monitoring (unless there is reasonable evidence to suggest that the species would have been present at the time of baseline monitoring but were missed).
- Emerging weeds are weed species that are known to be in an early stage of invasion in Victoria.

Given that no woody weeds were recorded within the offset site during baseline monitoring, it is likely that any woody weeds that are subsequently detected within the offset site are likely to be new and/or emerging woody weeds. New and emerging woody weeds must be eliminated from the offset site. A weed species is taken to be eliminated when its cover is maintained at less than 1%. The process for eliminating new and emerging woody weeds will involve monitoring, identification and treatment of new and emerging woody weeds, with follow-up monitoring and, if necessary, follow-up treatment.

Monitoring for new and emerging woody weeds must be conducted at least twice annually by the landowner. Procedures must be in place to detect any new weed species or emerging weed problems in time to take preventative action. Monitoring will therefore take place during the landowner's routine inspections and/or annual ecological monitoring.

If any new and emerging woody weeds are identified, their location will be recorded with a GPS, clearly marked in the field and treated as soon as possible. New and emerging woody weeds will ideally be treated manually by physical removal (i.e. hand pulled or dug out) with the least amount of soil disturbance possible. If this is not possible, heat or chemical treatment will be needed. Note that the general use of herbicides is discouraged and the use of residual herbicides is explicitly prohibited.

Chemical treatment will be by targeted herbicide application (e.g. cutting and painting), using an appropriate and approved herbicide in optimal conditions (i.e. little or no wind). Damage to native plants (off target species) will be minimised. TfN and DCCEEW should be notified for any proposed 'off label' herbicide use, which may be necessary if specific herbicides are yet to be approved for new and emerging weeds. A permit may be required from the Australian Pesticides and Veterinary Medicines Authority for any use of herbicides contrary to label instructions. Records must be kept of any new or emerging weeds identified and the treatment applied.

Follow-up monitoring of any re-sprouting or new seedlings must occur during subsequent twice yearly monitoring by the landowner. Any re-treatment will follow the methods outlined above.

The surrounding landscape is the most likely source of new weeds. It is therefore 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 (e.g. road reserves) can also be a source of weeds and it would be prudent for the landowner to alert the relevant authority to any weed problems on public land adjoining the property.

New and emerging woody weeds that are likely to be present in the broader environment include:

- African Box-thorn *Lycium ferocissimum*
- Gorse *Ulex europaeus*
- Blackberry *Rubus anglocandicans*

3.5.4 Herbaceous weed management

Herbaceous weeds are introduced plant species with no persistent, lignified (hard and woody) stems above ground. Herbaceous weeds include graminoids (grass-like plants, including sedges, rushes and true grasses) and forbs. The management targets for herbaceous weed control are shown in Figure 4 and further information is provided in the following sections. The south-west corner of the offset site has been designated as a priority weed control zone based on the very high cover of high threat herbaceous weeds (Ox-tongue *Helminthotheca echioides* and Spear Thistle *Cirsium vulgare*) observed during baseline monitoring (Figure 4).

Control of existing low threat herbaceous weeds

Existing low threat herbaceous weeds within the offset area are annual grasses, such as Fescue *Vulpia* spp., Lesser Quaking-grass *Briza minor*, Soft Brome *Bromus hordeaceus*, Hair Grass *Aira* spp. and Wimmera Rye-grass *Lolium rigidum*. These annual weeds were recorded throughout the offset area during baseline monitoring, at an average cover of 28% within the Natural Temperate Grassland and 30% within the future Natural Temperate Grassland (Biosis 2024). Given that the main structural components of the grassland are intact (i.e. native tussock grasses are present with reasonable herb diversity and an intact rock layer), annual weeds are considered to be low threat.

While annual weeds are not considered a threat to the conservation values of the offset area, uncontrolled growth of annual weeds can reduce the vegetation condition and VQA scores by decreasing the component scores for 'lack of weeds', 'recruitment' and 'organic litter' (DSE 2004). The objective of low threat weed management will therefore be to ensure that annual weed cover does not exceed 25%. This will be achieved by ecological burning and other direct control methods, including physical removal, heat treatment and herbicide application conducted by a suitably experienced land manager.

A range of non-chemical weed control methods have been developed that can be effective against annual weeds, including steam weeding and flame weeding. If chemical weed control is proposed for annual weeds, its use will be evaluated by the experienced land manager against the risk of damage to non-target (native) plant species prior to application.

Control of existing high threat herbaceous weeds

High threat herbaceous weeds are those that have displaced or have potential to displace one or more native plant life forms within the offset site. For example, perennial grassy weeds like Serrated Tussock *Nassella trichotoma* (rare in the local area and not recorded within the offset area), Yorkshire Fog *Holcus lanatus*, Toowoomba Canary-grass *Phalaris aquatica* or Sweet Vernal-grass *Anthoxanthum odoratum* have potential to replace native perennial tussocks grasses like Kangaroo Grass *Themeda triandra* and Common Tussock-grass *Poa labillardierei*. Not all high threat herbaceous weeds will be listed as noxious weeds under the Victorian *Catchment and Land Protection Act 1994* (CaLP Act), meaning that there is no legislative obligation on landowners to control all high threat weeds. However, the control of all existing high threat herbaceous weeds is a key management action of this OMP and must be adequately addressed if improvement gains are to be achieved at the offset site.

The overall management objective is to control all high threat herbaceous weeds to reduce their cover where they currently occur and ensure that they do not spread to new areas of the offset site. Management targets for high threat herbaceous weeds are grouped according to growth form and status: broad-leaved weeds, perennial tussock grasses and perennial mat-forming (rhizomatous or stoloniferous) grasses. The total cover of high threat herbaceous weeds was 67.1% within the Natural Temperate Grassland and 41.0% within the

future Natural Temperate Grassland of the offset area, when assessed during baseline monitoring in January 2024 (Biosis 2024).

Table 4 provides estimated covers and specific management targets for each group of high threat herbaceous weeds. Targets have also been provided for patches of future Natural Temperate Grassland, but these are desired targets only and do not form part of the completion criteria. High threat herbaceous weeds can be grouped as follows:

- High threat broad-leaved weeds
  - This includes annual or occasionally biennial species, such as Spear Thistle, and perennial species, such as Hairy Hawkbit *Leontodon saxatilis* subsp. *saxatilis*, Flatweed *Hypochaeris radicata*, Sheep Sorrel *Acetosella vulgaris* and Buck's-horn Plantain *Plantago coronopus*.
  - High threat broad-leaved herbaceous weeds will be treated to reduce their cover from a baseline average of 10.2% within Natural Temperate Grassland and 5.0% in future Natural Temperate Grassland to less than 10% after 10 years.
- High threat grassy weeds
  - This includes perennial tussock grasses, such as Yorkshire Fog, and perennial mat-forming grasses, such as Couch *Cynodon dactylon* var. *dactylon*.
  - The baseline average cover of high threat perennial tussock grasses was 59.8% within Natural Temperate Grassland and 35.0% within future Natural Temperate Grassland.
  - The baseline average cover of high threat perennial mat-forming grasses/rushes was 2.9% within Natural Temperate Grassland and 2.0% within future Natural Temperate Grassland.
  - Biomass management (e.g. through ecological burns) will open up the ground layer and make new growth of high threat grassy weeds easier to target for control. However, biomass management may also make high threat grassy weeds more abundant unless they are actively controlled.
  - Active control of these species will therefore be crucial to successful implementation of this OMP. The aim of active control of high threat grassy weeds will be to reduce their cover to less than 50% for perennial tussock grasses and less than 5% for the mat-forming species by the end of the 10 years.

The principal method for controlling high threat perennial weeds will be ecological burning with intensive follow up physical removal of plants and/or targeted application of herbicide. Heat treatment (steam weeding and flame weeding) may be suitable for treatment of high threat annual weeds, such as Spear Thistle.

[redacted]

Legend

- Offset site
- Livestock exclusion fence
- Property boundaries
- Priority weed control zone
- ★ Rabbit warren

Noxious weeds

- *Cirsium vulgare* - Spear Thistle

Other high-threat weeds

- *Thinopyrum obtusiflorum* - Tall Wheat-grass
- *Helminthotheca echioides* - Ox-tongue

Nationally threatened ecological community (EPBC Act)

- Natural Temperate Grassland
- Future Natural Temperate Grassland

Figure 4 Locations of pest animal activity and high threat weeds recorded during baseline monitoring of the offset site at [redacted]

0 50 100 150 200

Metres

Scale: 1:5,500 @ A3

Coordinate System: GDA2020 MGA Zone 54

N

biosis

Matter: 40459,
Date: 18 July 2024,
Prepared for: MG, Prepared by: GO, Last edited by: gologhlin
Layout: 40459_MapSeries
Project: P:\35900s\35971\Mapping\
40459_SkyRoad.aprx

Acknowledgements: VicMap BaseMap©State of Victoria

Table 4 Management targets for herbaceous weed control

Target weeds	Mean cover 2024*	Proposed control measures	10-year target cover^
Low threat (annual) weeds: Lesser Quaking-grass *Briza minor*, Squirrel-tail Fescue *Vulpia bromoides*, Brome *Bromus* spp., Hair Grass *Aira* spp., Wimmera Rye-grass *Lolium rigidum*.	NTG: 28.0% Future NTG: 30.0%	Ecological burning to prevent seed set and reduce biomass. Physical removal, heat treatment or targeted herbicide application to minimise seed set.	<25%
High threat broad-leaved weeds: Spear Thistle *Cirsium vulgare*, Flatweed *Hypochaeris radicata*, Sheep Sorrel *Acetosella vulgaris*, Capeweed *Arctotheca calendula*, Hairy Hawkbit *Leontodon saxatilis* subsp. *saxatilis*, Ox-tongue *Helminthotheca echioides*, Buck's-horn Plantain *Plantago coronopus*, Clustered Dock *Rumex conglomeratus*.	NTG: 10.2% Future NTG: 5.0%	Physical removal, heat treatment, targeted herbicide application or, in certain circumstances, broad area selective herbicide application to minimise flowering and seed set.	<10%
High threat perennial tussock grasses: Sweet Vernal Grass *Anthoxanthum odoratum*, Toowoomba Canary-grass *Phalaris aquatica*, Tall Wheat-grass *Thinopyrum obtusiflorum*, Tall Fescue *Festuca arundinacea*.	NTG: 59.8% Future NTG: 35.0%	Ecological burning, physical removal or targeted herbicide application in early spring to minimise seed set and biomass.	<50%
High threat perennial mat-forming grasses/rushes: Couch *Cynodon dactylon* var. *dactylon*.	NTG: 2.9% Future NTG: 2.0%	Ecological burning or targeted herbicide application in early spring to minimise seed set and reduce biomass.	<5%
Potential new/emerging weeds: Needle-grass *Nassella* spp., St John's Wort *Hypericum perforatum*, Ragwort *Senecio jacobaea*, Blue Periwinkle *Vinca major* and others.	0% (none detected)	If detected, immediately map location and mark it on the ground. Kill plants by physical removal or targeted herbicide application (in consultation with TfN). Manage ground cover to prevent excess recruitment opportunities. Implement weed hygiene protocols in accordance with OMP.	<1%
Total herbaceous weed cover	**NTG: 78.7%** **Future NTG: 58.0%**		**<50%**

*Average 2024 weed covers are based on point intercept data collected during baseline monitoring in January 2024 (mid-summer). Average total weed cover is less than the sum of its components because there is overlap between the component covers. NTG refers to Natural Temperate Grassland.
^Target for the end of the 10-year offset management period. Progress towards achieving target weed covers will be assessed by annual ecological monitoring. Targets are not mandated for patches of future NTG.

Elimination of new and emerging herbaceous weeds

For the purposes of this OMP, new and emerging weeds are defined as follows:

- New or novel weeds are weed species that are recorded for the first time at the offset site after baseline monitoring (unless there is reasonable evidence to suggest that the species would have been present at the time of baseline monitoring but were missed).
- Emerging weeds are weed species that are known to be in an early stage of invasion in Victoria.

New and emerging herbaceous weeds must be eliminated from the offset site. A weed species is taken to be eliminated when its cover is maintained at less than 1%. The process for eliminating new and emerging herbaceous weeds will involve monitoring, identification and treatment of new and emerging herbaceous weeds, with follow-up monitoring and, if necessary, follow-up treatment.

Monitoring for new and emerging herbaceous weeds will be conducted at least twice annually by the landowner. Procedures must be in place to detect any new weed species or emerging weed problems in time to take preventative action. Monitoring will therefore take place during the landowner's routine inspections and/or annual ecological monitoring.

If any new and emerging herbaceous weeds are identified, their location will be recorded with a GPS, clearly marked in the field and treated as soon as possible. New and emerging herbaceous weeds will ideally be treated manually by physical removal (i.e. hand pulled or dug out) with the least amount of soil disturbance possible. If this is not possible, heat or chemical treatment will be needed. Note that the general use of herbicides is discouraged and the use of residual herbicides is explicitly prohibited.

Chemical treatment will be by targeted herbicide application (preferably by wiping, painting or, if necessary, spot spraying), using an appropriate and approved herbicide in optimal conditions (i.e. little or no wind) and according to the product label. Damage to native plants (off target species) will be minimised. TfN and DCCEEW should be notified for any proposed 'off label' herbicide use, which may be necessary if specific herbicides are yet to be approved for new and emerging weeds. A permit may be required from the Australian Pesticides and Veterinary Medicines Authority for any use of herbicides contrary to label instructions. Records must be kept of any new or emerging weeds identified and the treatment applied.

Follow-up monitoring of any re-growth or new seedlings must occur during subsequent twice yearly monitoring. Any re-treatment will follow the methods outlined above.

The surrounding landscape is the most likely source of new weeds. It is therefore 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 (e.g. road reserves) can also be a source of weeds and it would be prudent for the landowner to alert the relevant authority to any weed problems on public land adjoining the property.

New and emerging herbaceous weeds that are likely to be present in the broader environment include:

- Needle-grasses *Nassella* spp.
- St John's Wort *Hypericum perforatum*
- Ragwort *Senecio jacobaea*
- Blue Periwinkle *Vinca major*

3.5.5 Adaptive weed management strategy

The weed management specified in this OMP is designed to align with DEECA's Management Standards for Native Vegetation Offset Sites (DEECA 2023) and it is expected that weed management achieve these standards. In addition, DEECA's Output Delivery Standards for the Delivery of Environmental Activities (DELWP 2015) provides information about acceptable weed control activities for conservation activities.

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 landowner and in annual ecological monitoring, with management adapted in response to the monitoring results. For example, this OMP lists management targets for particular weed species or groups of weed species and designates a priority weed control zone (Figure 4). However, the target species, their locations and priorities for management are likely to change over time. The abundance of weeds will change in response to seasonal conditions, controlled burns (e.g. post-burn flush of broad-leaved weeds) and other weed control actions that occur. In addition, new weeds may emerge as a result of wind or animal-mediated seed dispersal or germination of soil-stored seed. 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.

The following general principles must guide adaptive weed management at the offset site:

- Reduce the competitive advantage of weeds.
- Buffer native vegetation.
- Minimise herbicide use.
- Record actions and monitor outcomes.

Each of these principles is discussed in more detail below.

Reduce the competitive advantage of weeds

Weed management must focus on ensuring that the ecological conditions stay favourable to native plant species while limiting the growth and reproduction of weed species. This strategy provides native species with opportunities to recolonise areas that were previously occupied by weeds once the weeds have been killed.

Weed management must aim to achieve the following outcomes:

- Maximise recruitment opportunities for native plants species by:
  - Providing decreased competition from weeds for space, light, nutrients and water.
  - Revegetation using site-indigenous seed. Refer to Section 3.5.8 of this OMP.
- Minimise weed recruitment and conditions that favour weed recruitment by:
  - Maintaining sufficient (60% to 80%) native ground cover, to minimise the area of bare ground available for weed seeds to germinate and grow. Excessive bare ground may arise during drought, which is generally outside of management control, and after fire, which may be necessary to control weeds (see below) and typically results in short-term increases in bare ground.
  - Minimising overall weed cover, particularly before seed set, to reduce weed propagule load and improve opportunities for native plant recruitment.
  - Minimising nutrient enrichment, such as run-off of fertilisers from neighbouring land. Increased soil nutrients may provide a competitive advantage to weed recruitment.

- Trialling the use of fire to encourage germination of soil-stored weed seed and exhaust the weed seed bank. Refer to Section 3.5.7 of this OMP.

Buffer native vegetation

Most of the offset site (37.31 hectares in total) is predominantly introduced vegetation – grassland that is dominated by introduced (non-native) flora species. These areas of introduced grassland are a major threat to the Natural Temperate Grassland within the offset site because:

- They are a major source of weed propagules (e.g. seed) in proximity to the Natural Temperate Grassland.
- They are within the offset site boundaries and therefore within the first line of defence that will be formed by the livestock exclusion fence.

However, the inclusion of these areas of introduced grassland within the offset site provides an opportunity to buffer the Natural Temperate Grassland against various threats, including weed invasion. Buffering of native vegetation will be one of the major means by which the competitive advantage of weeds will be reduced within patches of Natural Temperate Grassland and future Natural Temperate Grassland.

The introduced grassland within the offset site must be intensively managed, perhaps even more intensively managed than the areas of current and future Natural Temperate Grassland due to the greater weed cover within the introduced grassland. The intensive management will be concentrated within a 20-metre management buffer around current and future Natural Temperate Grassland patches, but where relevant, will extend across all introduced grassland vegetation within the offset site. Intensive management of the introduced grassland (with a focus on the 20-metre buffer) will involve:

- Annual burning of the introduced grassland during the active growth period of the dominant high threat weeds, but before the dominant high threat weeds are able to set seed.
  - Sweet Vernal Grass and Yorkshire Fog were the dominant high threat weeds within the introduced grassland areas during baseline monitoring. These species flower relatively early in the growth season (spring or early summer) compared with many native grasses. An ecological burn in spring, while these introduced species are actively growing but before they are setting seed, should therefore greatly reduce their reproductive success for that season, while having a lesser effect on the reproductive success of native grasses, many of which will flower and set seed later in the season.
  - The aim of annual burning is to shift the competitive advantage in favour of native species. Annual burning must continue until native flora become dominant (when assessed in summer). Once native flora species are dominant, the frequency of ecological burns can be reduced and should match the biomass management regime used across the Natural Temperate Grassland patches (refer to Section 3.5.7 of this OMP).
  - A follow-up targeted application of herbicide (e.g. by spot spraying) will be required in spring/summer after annual burning, to target weeds that are resprouting after being burnt and to target individual weeds that were otherwise relatively unaffected by the fire.
- Regular inspections of the introduced grassland to inform the timing of the annual burns.
  - The dominant high threat weed species may change over the course of the 10-year management period. The timing of the annual burn will need to coincide with the active growing period for the dominant high threat weed species and occur before these species set seed.

  - Even if the dominant high threat weed species is known, the exact timing of flowering and seed set for the species will vary from year to year with seasonal conditions. Spring conditions may come earlier or later in a given year, meaning that the annual burn may need to occur earlier or later, depending on the timing of seed set. The landowner will need to monitor the growth and flowering of the dominant high threat weed species on a weekly basis in spring, to ensure that the annual burn occurs before seed set.

- If burning is not possible, mechanical removal of biomass within the introduced grassland is an option.
  - There may be some years when an ecological burn cannot take place in time to minimise seed set by the dominant high threat weeds. For example, the grassland may not be able to carry a fire in an unseasonally wet year or fire restrictions may come into force early in an unseasonally dry year. Note, however, that weed species are likely to flower and set seed earlier in dry years, meaning that it should be possible for an ecological burn to take place before the declared fire danger period.
  - If burning is not possible, the introduced grassland will need to be slashed by brushcutter or by mechanical slashing (e.g. a tractor slasher) before the dominant high threat weed species are able to set seed. The slashing will need to occur to a height that removes reproductive tissue (flowers) of the dominant high threat weed species. The introduced grassland is likely to need to be slashed more than once in a given season to prevent seed set. If large machinery is used for slashing, then soil conditions must be dry so that ruts are not created. If excessive biomass is created that would be detrimental in the long term to native flora supported in those areas, that biomass must be removed or broken down into smaller fragments.
- Sheep grazing of the buffer is another option permitted under this OMP, if burning within the introduced grassland is not possible.
  - Grazing will be implemented as a time-controlled grazing system where the buffer only is subject to high intensity grazing for short periods of time (called pulse grazing or crash grazing).
  - Sheep grazing will be timed to coincide with the flowering of weeds within the buffer.
  - Grazing must be excluded from:
    - Patches of Natural Temperate Grassland.
    - During summer when sheep shed their fleeces.
  - Grazing by any other domestic livestock is not permitted under this OMP and will only be considered after consultation with TfN and where there is clear evidence that it would be of greater benefit to the conservation of Natural Temperate Grassland described in this OMP.
- If mechanical removal of biomass and grazing are not possible, there may be a need for herbicide application in a way that targets the dominant high threat weed species.
  - If slashing and grazing are impossible or ineffective (e.g. due to the growth form of the target weed species), targeted herbicide application will be required, but only as a last resort.
  - The herbicide application will need to take place during the active growing period for the target species, but before the species sets seed.

  - The herbicide application must be targeted to the dominant high threat weed species that is present, so as to minimise damage to existing native vegetation. This may require a selective herbicide to be used and applied in a controlled manner e.g. by spot spraying or wick wiping.

- Revegetation by direct seeding.
  - The introduced grassland and, in particular, the 20-metre management buffer would benefit from supplementary revegetation (e.g. using site-indigenous seed) immediately post-fire. Site-indigenous seed may be gathered up in native grass thatch that is taken from existing Natural Temperate Grassland areas and strategically spread over parts of the introduced grassland areas.
  - While revegetation of the introduced grassland areas is not a mandatory requirement of this OMP, it is likely to ultimately reduce the ongoing management effort required in these areas. With successful revegetation, the introduced grassland areas may transition to a native grassland, resulting in an increase in the extent of Natural Temperate Grassland in the offset site. Revegetation (using suitable nursery tubestock or seed) also has the potential to re-introduce native plant life forms that are currently missing or under-represented at the offset site. Refer to Section 3.5.8 of this OMP for more information.

Minimise herbicide use

Where possible, chemical-free weed control methods will be used because avoidance of herbicides is likely to minimise the risk of collateral damage to native vegetation and the local environment. Chemical-free methods include physical weed removal and heat treatment (steam weeding and flame weeding). In some cases, these methods may need to be trialled, in consultation with TfN, to demonstrate their effectiveness before being applied more broadly. Trials are worthwhile and will be done within the requirements for adaptive management within this OMP.

Despite the preference for chemical-free weed control methods, herbicide application is likely to be needed to effectively and efficiently control weeds in a timely manner and to ensure compliance with the OMP. Targeted herbicide application will be undertaken predominantly in spring and summer with a focus on killing weed plants prior to seed set. Herbicide application must only occur in optimal conditions (i.e. little or no wind) and preferably in areas more than two metres away from wet ground (to minimise impacts on aquatic environments). Herbicide application must be targeted in order to minimise damage to existing native vegetation and an appropriate herbicide must be used.

Targeted herbicide application requires an appropriate herbicide to be spot sprayed, wiped or painted on to the target weeds. Where possible, herbicide will be painted, wiped or dabbed (e.g. with a wicker applicator) onto the target plants rather than sprayed. Spot-spraying involves applying herbicide using a small nozzle so that only the target plant is treated.

All herbicide application must be completed in a manner that minimises non-target damage by following all manufacturer's directions (i.e. according to the product label) regarding rainfall and wind speed on the day of application. Herbicide application must also be conducted by a suitability qualified and experienced operator. There will be no spot spraying in close proximity to threatened flora without protective measures in place (i.e. physical shielding). Threatened flora are known to exist within Habitat Zones (HZs) 1, 2 and 9 (Figure 3). Pale Swamp *Everlasting Coronidium* has been recorded within HZs 1 and 2, while Plains Yam-daisy *Microseris scapigera* has been recorded within HZ 9 (Figure 5). Both of these species are listed as critically endangered under the *Flora and Fauna Guarantee Act 1988* (FFG Act) and are at risk of being killed by non-targeted herbicide application.

The offset site drains into Lake [redacted] to the south (Figure 2). Most runoff from the offset area will be slow overland flow due to the high cover of perennial vegetation present. While there may be localised surface water flows and pooling during high rainfall events, herbicide is unlikely to be used during such rainfall events as it would be ineffective. Given the long history of herbicide use in the surrounding cropping areas, there is no elevated runoff risk from application of herbicides in the offset area.

Record actions and monitor outcomes

The adaptive weed management strategy must be informed by ongoing monitoring. Monitoring is described in more detail in Section 3.7 of this OMP. It is crucial that any adaptive management approach be documented and recorded to assist in interpreting monitoring results and in further refining the management approach. Reporting requirements are described in more detail in Section 3.8 of this OMP.

[redacted]

Legend

- Offset site
- Livestock exclusion fence
- Property boundaries

State threatened flora (FFG Act)

- *Coronidium gunnianum* - Pale Swamp Everlasting
- *Microseris scapigera s.s.* - Plains Yam-daisy

Nationally threatened ecological community (EPBC Act)

- Natural Temperate Grassland
- Future Natural Temperate Grassland

Figure 5 Threatened flora recorded during baseline monitoring of the offset site at [redacted]

0 50 100 150 200

Metres

Scale: 1:5,500 @ A3

Coordinate System: GDA2020 MGA Zone 54

N

biosis

Matter: 40459,
Date: 18 July 2024,
Prepared for: MG, Prepared by: GO, Last edited by: gologhlin
Layout: 40459_MapSeries
Project: P:\35900s\35971\Mapping\
40459_SkyRoad.aprx

3.5.6 Pest animals

Established pest animals observed within the offset site (via direct or indirect evidence) include European Rabbit *Oryctolagus cuniculus* and Red Fox *Vulpes vulpes.* These and any other pest animals must be controlled such that their abundance, their activity and the disturbance that they cause are reduced to negligible levels, so far as is within the reasonable control of the landowner. This means that there must be negligible surface disturbance caused by these species, no active rabbit warrens and no active fox dens. Abundance, activity and disturbance are considered negligible when they cannot be detected by conventional monitoring or are detected at such low levels as to be considered insignificant or inconsequential to the overall success of the offset site. For example, surface disturbance would be considered negligible if it were detected at only 1% of point intercepts along monitoring transects.

Pest animals (particularly rabbits, foxes and feral cats) will be controlled in the following ways:

- Shooting and baiting on detection during spotlight surveys, which will be conducted at least twice annually by the landowner or appointed land manager during spring and autumn.
- Destruction of burrows, warrens and dens by implosion or fumigation within one month of detection (note that the ripping of burrows, warrens and dens is not permitted under this OMP).
- Removal within one month of detection of any artificial harbour (e.g. corrugated iron) that may be present within the offset site and that may support pest animals.

Rabbits

Rabbits are the key pest animal species that pose a threat to Natural Temperate Grassland within the offset site. They cause damage by preventing regeneration of native plants and encouraging weed invasion. A rabbit warren was mapped at one location within the offset site in January 2024 (Figure 4). Rabbits will be controlled using the techniques outlined above.

Foxes and cats

One fox scat was observed during baseline monitoring in January 2024, but no fox dens were recorded (Biosis 2024). It is likely that feral cats are also present within the offset site, although indirect signs of this species were not observed during baseline monitoring (Biosis 2024). The density of both of these introduced predators within the offset site is likely to be low. These species will be controlled using the techniques outlined above.

Kangaroos

Macropod scats (probably from Eastern Grey Kangaroo *Macropus giganteus*) were noted within the offset site during baseline monitoring, but the impact of kangaroos on the vegetation within the offset area was not considered detrimental at the time of baseline assessments. A kangaroo management plan is therefore not required at the current levels of grazing. Annual vegetation monitoring will determine whether levels of kangaroo grazing have increased to problematic levels and inform any future kangaroo management.

New and emerging pest animals

Other potential pest animals that are not currently known to occur within the offset site include deer, pigs and goats. These pest animals would cause considerable damage to the condition of Natural Temperate Grassland if they became established. Control measures for rabbits, foxes and feral cats would be broadened to include these new species if they were detected within the offset site.

3.5.7 Biomass management

Importance of biomass reduction

Biomass management throughout the offset site is essential to the maintenance of an open tussock grassy ground cover structure, which prevents excessive competition for grassland forbs such as orchids. The open spaces in a grassland are known as inter-tussock spaces and are generally made up of bare ground, bryophytes, lichens and soil crust (this is captured by the 'recruitment' score during a VQA). The persistent build-up of ground cover biomass is a known threat associated with the degradation of grassland environments. The optimal range for inter-tussock space in a grassland is generally greater than 20% and up to 40% (>20% and ≤40%). This is therefore the target for inter-tussock space set by this OMP.

While no strict target has been set for the cover of organic litter, indicative targets (recommendations but not requirements) are as follows:

- Maintain organic litter cover between 5% and 15% (≥5% and ≤15%) for patches of current and future Natural Temperate Grassland that correspond with Plains Grassland vegetation (HZs 1, 2, 3, 4, 5, 6, 7, 10, 11, 12 and 13).
- Maintain organic litter cover between 10% and 30% cover (≥10% and ≤30%) for patches of current and future Natural Temperate Grassland that correspond with Plains Grassy Wetland vegetation (HZs 8 and 9).
- Maintain a mean golf ball score of ≥15 across current and future Natural Temperate Grassland, which is suggestive of low biomass accumulation.

These indicative targets will assist in achieving the targets for inter-tussock space (>20% and ≤40%) and overall VQA score (≥55 out of 100 or, more precisely, 14.817 adjusted hectares of Natural Temperate Grassland), both of which are performance and/or completion criteria of this OMP.

Ideally, organic litter would comprise fine organic plant matter rather than thatch, which can restrict the recruitment area available for plants and thereby reduce opportunities to improve the condition of the ecological community. Organic litter is usually understated using the VQA method due to its application at the broader scale within the site and the subjectivity between assessors. Conversely, the point intercept method is likely to overestimate organic litter cover due to the fine scale that it captures data and is likely to pick up finer particles of organic litter compared to the VQA method. Consequently, there are no hard targets for organic litter cover, but it will be measured during monitoring to inform the management strategies for inter-tussock space to improve the conditions suitable for recruitment within Natural Temperate Grassland.

Results from baseline monitoring using the point intercept method suggest the following (Biosis 2024):

- Within Natural Temperate Grassland, mean inter-tussock space is 39.1%, mean organic litter cover is 54.7% and the mean golf ball score in 10.8.
- Within future Natural Temperate Grassland, inter-tussock space ranges from 30% to 56%, organic litter cover ranges from 38% to 66% and the mean golf ball score ranges from 6.5 to 9.1.

These results suggest that immediate action is not required to manage inter-tussock space. At all monitoring locations, inter-tussock space is relatively high, despite organic litter cover being relatively high and golf ball scores being relatively low.

Over the 10-year management period, judgements on the cover of inter-tussock space and the build-up of groundcover biomass will be made by the landowner in consultation with a qualified ecologist and include an assessment of relevant monitoring data. The independent ecological monitoring undertaken by a suitably

qualified ecologist will assess the effectiveness of the biomass control techniques applied and the need for any adjustments to the management regime to achieve or maintain the performance or completion criteria.

Where there is a sustained build up in ground cover biomass over any one year, resulting in a reduction in inter-tussock space to an average of less than 25% across Natural Temperate Grassland within the offset area, biomass will be actively reduced by ecological burning.

Ecological burning

The main management action for biomass control in this OMP will be the application of ecological burning, particularly when reduced inter-tussock space has been caused by increased organic litter. The controlled application of fire is an efficient and cost-effective technique for reducing biomass in grasslands. Importantly, burning (as opposed to grazing or slashing) allows greater access and efficiency for weed control and increased natural regeneration of indigenous plant species.

The offset area has not been subject to regular burns in recent decades. As a result, management requirements with respect to burning can only be inferred for the offset area and an adaptive management approach to ecological burning will be required. While burning may enhance germination of indigenous species, it can also be expected to promote certain exotic species and, as such, post-burning weed control will be vital. Stimulating the soil stored weed seed bank is seen as positive as this allows this seed bank to be exhausted, assuming the ecological burning is followed by active weed control to remove weed germinants. Biosis has observed that planned ecological burns in native grasslands can favour weeds unless post-burn weed control is rigorously implemented.

Ecological burning requirements include the following:

- Burning within the offset area will be undertaken only with due consideration to relevant health and safety issues, in consultation with the Country Fire Authority and in line with a fire management plan completed by a suitably qualified person.
- TfN must be notified at least three weeks in advance of any prescribed burn and the burn must comply with deed of covenant conditions and any relevant laws. This OMP provides guidance for use of burning only in an ecological sense. The landowner is responsible for ensuring any burning outlined in this OMP can be carried out in a manner compliant with all other government planning requirements and permits.
- The purpose of ecological burning is for control of weeds and biomass. Fuel hazard reduction burning is not permitted within the offset site.
- Any planned burns must minimise the potential for the uncontrolled spread of fire.
    - Ecological burning will only occur outside the prescribed declared fire danger period for the region and therefore is unlikely to require a permit. However, the Country Fire Authority must be consulted if there is any doubt about the permit requirements for planned burning.
    - Ecological burns will take place during benign conditions (low wind and mild temperature).
    - A firebreak will be maintained on the outside of the livestock exclusion fence that is installed on the boundary of the offset site. Herbicide can be used to maintain the break once a mineral earth break has been created. Mineral earth firebreaks are not permitted within the offset site.

- The location, extent, timing and frequency of ecological burns must be based on the following ecological considerations:
  - At no time will the entire offset area be burnt in a single season (unless occurring outside of the landowner's control such as a wildfire). Adequate unburnt fauna habitat must be maintained within the offset area. Planned burns must therefore be restricted to no more than 50% of Natural Temperate Grassland within any 12-month period. This would align with an optimal burning frequency for Kangaroo Grass dominated grasslands of between two and five years (Williams *et al*. 2015). A mosaic (patchy) burning pattern is preferred that creates a mosaic of successional patches of different times since fire and would assist in retaining unburnt grassland. An array of small burnt and unburnt patches, each covering up to 1 hectare, is an appropriate scale on which to gauge the success of a mosaic (patchy) burn.
  - The extent of burning must consider what is feasible for follow-up weed control.
  - Where burning is used for weed control, areas of grassland may be selected to target particular weed species or to assist in the lowering of soil nitrogen and phosphorous (which would also assist in weed control by limiting weed growth).
  - Where burning is used for biomass control, selected areas of grassland will be those where inter-tussock space is approaching or has already declined to below 20% cover (the lower limit of the target set by this OMP and the lower limit of what is generally considered 'optimal' for a grassland).
  - Ecological burning of current and future Natural Temperate Grassland should ideally occur outside of spring and summer, which are the flowering and fruiting seasons for many native species. Note that this contrasts with ecological burning of introduced grassland areas, which ideally occurs in spring (depending on the dominant weed species that are present) to minimise the reproductive success of weeds. However, burning of current and future Natural Temperate Grassland in spring may be necessary to control high threat herbaceous weeds.
  - The location, timing and frequency of burning should consider threatened and fire-sensitive species that are known to be present (e.g. Figure 5).
  - Should wildfire impact the offset site, then a review must be undertaken by a suitably qualified person (ecologist) appointed by APAM ,
- Burnt areas will be the focus of intensive post-fire weed control works to remove regenerating weeds. Post-burn germination of weeds will be closely monitored and treated until native species have regenerated (at least 6 months).
- Photos will be taken regularly to track the progress of the post-burn recovery.

3.5.8 Revegetation

Strategic revegetation is likely to be required to improve the quality of Natural Temperate Grassland within the offset site and to achieve a more stable grassland condition requiring less intensive management. It involves the targeted selection of flora species so that specific plant life forms that are either missing or under-represented when compared to their relevant EVC benchmark are improved in cover and/or species richness. The result should see an improvement in the quality of the native vegetation which would be reflected in improvements to their respective VQA scores.

Strategic revegetation is likely to be required in the following instances:

- Within current Natural Temperate Grassland patches, where monitoring reveals that successful weed control is not allowing successful recruitment of native plants, an adaptive management approach will be taken that may include a rehabilitation strategy focusing on reintroducing locally extinct flora to fill ecological niches currently occupied by weeds.
- Within future Natural Temperate Grassland patches, revegetation will be needed to re-introduce missing plant life forms. Suggested life forms and flora species are summarised in Table 5.
- Within areas of predominantly introduced vegetation, revegetation may be undertaken to reduce the ongoing management effort required in these areas.

Ideally, revegetation would be undertaken using site-indigenous seed. Site-indigenous seed may be gathered up in native grass thatch that is taken from existing Natural Temperate Grassland areas and strategically spread over other areas. However, external nursery seedstock or even tubestock may be used where site-indigenous seed is not available. Consultation with indigenous nurseries and an ecological consultant will be undertaken to select the most appropriate species for the desired outcomes. Suggestions are provided in Table 5.

Table 5 Suggested flora species for revegetation at the [redacted] grassland offset site

Scientific name	Common name
Medium and large tufted graminoids	
Dianella longifolia var. *grandis* s.l.	Glaucous Flax-lily
Dichelachne crinita	Long-hair Plume-grass
*Poa labillardierei**	Common Tussock-grass
*Poa sieberiana**	Grey Tussock-grass
Rytidosperma bipartitum s.s.	Leafy Wallaby-grass
*Rytidosperma caespitosum**	Common Wallaby-grass
Rytidosperma carphoides	Short Wallaby-grass
*Rytidosperma duttonianum**	Brown-back Wallaby-grass
Rytidosperma geniculatum	Kneed Wallaby-grass
Rytidosperma fulvum	Copper-awned Wallaby-grass
Rytidosperma racemosum var. *racemosum*	Slender Wallaby-grass
*Rytidosperma setaceum**	Bristly Wallaby-grass
*Themeda triandra**	Kangaroo Grass
Tricoryne elatior	Yellow Rush-lily
Medium non-tufted graminoids	
Microlaena stipoides var. *stipoides*	Weeping Grass
Hemarthria uncinata var. *uncinata*	Mat Grass
Small, medium and large herbs	
*Acaena echinata**	Sheep's Burr

Scientific name	Common name
*Calocephalus citreus**	Lemon Beauty-heads
*Calocephalus lacteus**	Milky Beauty-heads
Chrysocephalum apiculatum s.s.*	Common Everlasting
*Coronidium gunnianum**	Pale Swamp Everlasting
Dichondra repens	Kidney Weed
*Eryngium vesiculosum**	Prickfoot
*Haloragis heterophylla**	Varied Raspwort
*Leptorhynchos squamatus**	Scaly Buttons
*Rumex dumosus**	Wiry Dock
Senecio quadridentatus	Cotton Fireweed
Veronica gracilis	Slender Speedwell
Viola hederacea	Ivy-leaf Violet
Wahlenbergia capillaris s.s.	Tufted Bluebell
Wahlenbergia gracilis	Sprawling Bluebell
Wahlenbergia luteola	Bronze Bluebell

*Species recorded in the offset site (Biosis 2024)

3.6 Ongoing management commitments

After 10 years, management actions will focus on maintaining the improved condition of the Natural Temperate Grassland and protecting the site in perpetuity under the *Victorian Conservation Trust Act 1972*. The completion criteria must be reached by the end of Year 10 and maintained in perpetuity. Management actions will be as described above in Section 3.5 on an as-needs basis. Completion criteria and associated management actions are summarised in Table 6.

3.7 Monitoring

A robust annual monitoring program must be implemented to assess progress towards achieving the targets set out in this OMP, as defined by the performance and completion criteria. The monitoring will not only detect changes (ideally improvements) in the condition of the offset site but also identify adaptive changes that may need to be made to management actions so as to bring about further improvements.

Detailed baseline ecological monitoring took place in January 2024 to document the starting (Year 0) condition of the offset site. Upon commencement of management actions under this OMP, detailed ecological monitoring must continue annually under the same or similar seasonal conditions (i.e. summer) and using the same monitoring methods as the baseline monitoring. The extent and quality of Natural Temperate Grassland as well as other grassland habitats, are dynamic in nature and driven by seasonal conditions. Monitoring must consider this when determining the optimal time for assessment of the Kangaroo Grass dominated grasslands under this OMP. For example, *El Niño* weather patterns are likely to result in a drier spring requiring ecological monitoring to occur earlier (i.e. November or December), rather than January

when the baseline assessment occurred. The monitoring must continue until completion of this OMP. Monitoring methods are outlined below and in the baseline monitoring report (Biosis 2024).

A monitoring schedule is provided in Table 8 and explained in more detail in the following sections. As the land manager, the landowner has an almost daily presence at the offset site. Where possible, monitoring has been planned to tie in with the landowner's existing land management obligations.

3.7.1 Land-use monitoring

Threats posed by unauthorised activities are most likely to occur if fencing is damaged or after a land ownership change. Fencing, gates and signage will be assessed for their effectiveness at least annually by the landowner or appointed land manager during a site walkover.

Potential land-use changes will be checked independently at least twice after the offset site is formally established and registered, through the audits required as part of this OMP (Section 3.9). Upon registration of the TfN covenant on title, compliance monitoring by TfN continues for 10 years as part of their stewardship program associated with offset sites.

3.7.2 Weed monitoring

Weed monitoring will be undertaken using two methods:

- Annual point intercept transects as part of the Natural Temperate Grassland condition monitoring (outlined below), conducted in summer by a suitably qualified person (ecologist) appointed by APAM.
- Regular site walkovers by the landowner or appointed land manager.

Permanent point intercept transects will provide an objective estimate of weed covers across the offset site. They will allow for an objective assessment of whether weed management performance targets are being met. However, transects are unlikely to detect all weed infestations across the offset site (particularly new and emerging weeds) because transect monitoring relies on a sub-sampling approach. For this reason, point intercept transects will be complemented with regular site walkovers.

Site walkovers will be conducted at least twice a year (spring and autumn) by the landowner and annually by APAM. Site walkovers are a method of monitoring with the particular intent of identifying new threats (such as new weed species or newly identified weed infestations and management issues) that would require a rapid management response to eradicate or rectify before the issue becomes fully established. This also informs the adaptive management of the offset site (e.g. by informing when and where to conduct ecological burns). Site walkovers involve the dedicated survey of an area to identify such issues and will be documented with dates, duration, personnel and notes, including the general observations that were made during the walkover. This will in turn drive the management efforts in response to emerging issues.

A site walkover covering 3-4 hours is likely to detect even relatively small occurrences of target species, most of which are relatively visible and detectable. During site walkovers, locations of high threat weed infestations will be mapped with a GPS. Gradually, as the landowner becomes more in-tune with the potential threats to Natural Temperate Grassland, site walkovers can be specifically targeted towards either known problematic areas or high value areas (such as those that are more biodiverse or locations of threatened species).

If either weed monitoring technique suggests that that weed cover is increasing, site walkovers will be conducted more frequently and inform a greater weed control effort. Site walkovers would initially increase to quarterly inspections. If increases in weed cover persist despite more concerted weed control efforts, monitoring would be elevated to monthly inspections.

3.7.3 Pest animal monitoring

Spotlight surveys will be conducted at least twice annually by the landowner or appointed land manager during spring and autumn to monitor pest animal activity, particularly rabbits. Pest animal activity will also be recorded by a suitably qualified person (ecologist) appointed by APAM along the point intercept transects established to monitor vegetation. The extent of pest animal detection will determine the extent of control works, with the objective being that these animals have a negligible impact on native vegetation within the offset site.

3.7.4 Biomass monitoring

Biomass accumulation or reduction will be monitored in two ways:

- Annual point intercept transects as part of the Natural Temperate Grassland condition monitoring (outlined below), conducted in summer by a suitably qualified person (ecologist) appointed by APAM.
- Regular site walkovers by the landowner or appointed land manager and an annual walkover by APAM.

As with weed monitoring, point intercept transects will allow for objective estimates of biomass accumulation, including the components of inter-tussock space (bare ground, bryophytes, lichens and soil crust) and the cover of organic litter. Point intercept transects will be supplemented by visual inspections during site walkovers conducted at least twice a year, in the lead up to spring and/or autumn ecological burning. Visual inspections will consider amount of inter-tussock space, weed covers and fuel load (type, amount and flammability).

The results of both monitoring methods will inform biomass reduction actions, including the type of actions that may be required (e.g. ecological burning or slashing), where these actions will take place and when.

3.7.5 Natural Temperate Grassland condition monitoring

The condition of Natural Temperate Grassland within the offset site will be monitored in three ways:

- Annual point intercept transects conducted by a suitably qualified person (ecologist).
- VQAs completed by a suitably qualified person (ecologist) appointed by APAM in Years 0, 1, 2, 4, 8 and 10 and in intervening years if monitoring suggests that progress towards the performance and completion criteria is not being made.
- Annual photo points collected during point intercept monitoring by the suitably qualified person (ecologist) appointed by APAM.

Point intercept transects

Condition monitoring will include the collection of point intercept data from 13 transects, spread across the current Natural Temperate Grassland patches (11 transects) and future Natural Temperate Grassland patches (2 transects). Transects have been positioned by stratified random sampling to capture a range of site attributes. The locations of transect have been mapped to at least 5-metre accuracy using a GPS. Data will be collected annually in summer. The exact timing of data collection may vary due to seasonal conditions (e.g. seasonal conditions for baseline monitoring in January 2024 were more similar to typical early summer conditions than mid-summer). The precise method for point intercept transect monitoring is outlined in the baseline monitoring report (Biosis 2024).

Point intercept transects provide a rapid, simple and objective method of collecting quantitative data on the condition of native vegetation and progress towards achieving this OMP's performance and completion criteria. The frequency at which different species and substrates are recorded along a transect provides an indication of the cover of different weeds, litter and biomass in general. It allows quantitative data of the condition of the Natural Temperate Grassland to be documented in a representative sample of the offset site.

Estimating cover with point intercepts is less subjective than simple visual estimates, which means that the data are less biased by an individual observer and more suited to vegetation monitoring for detection of change. This means that the data will be more accurate and the estimates of change over time more reliable. Assessing on a continuous scale as opposed to broad categories (as is the case for the widely used Braun-Blanquet or Domin scales) also increases the resolution of the data so that relatively smaller changes can be detected.

Periodic vegetation quality assessments

The condition of the Natural Temperate Grassland was assessed in January 2024 (Biosis 2024) with a VQA using the habitat hectares methodology (DSE 2004). All patches of grassland that were classified as current or future Natural Temperate Grassland were scored using this methodology. The habitat hectares methodology can be subjective and is generally poor at detecting small scale changes. Nevertheless, it forms part of the metric used by the EPBC Act Offsets Assessment Guide (DSEWPaC 2012b), it is a useful indication of the overall quality of habitat present and incorporates local and landscape scale habitat features that other assessment methods do not.

A VQA of the Natural Temperate Grassland within the offset site will be conducted periodically in summer using the habitat hectares methodology (DSE 2004) and compared with the results of baseline monitoring. VQAs will be completed by a suitably qualified person (ecologist) appointed by APAM in Years 1, 2, 4, 8 and 10 and in intervening years if monitoring suggests that progress towards the performance and completion criteria is not being made. The VQAs must include a review of the mapped extent of Natural Temperate Grassland, so that a value for adjusted hectares can be calculated.

Unlike point intercept transect monitoring, the periodic VQAs will provide a holistic (albeit somewhat more subjective) landscape-scale view of the condition of the Natural Temperate Grassland. The VQAs will assist in determining whether conservation gains are being realised and will inform adaptive management actions (particularly as they are timed to coincide with periodic audits of the offset site).

Photo points

Natural Temperate Grassland condition monitoring will include images collected annually in a consistent manner from the start and end of each monitoring transect by the suitably qualified person (ecologist) appointed by APAM undertaking the transect monitoring. Additional photo points will be collected by the landowner e.g. at the location of a particular management issue, such as rabbit warrens or weed infestations, which would otherwise not be captured by the transect photo points. Photo points will allow for qualitative visual assessment of general vegetation condition and change at the offset site.

3.8 Reporting

This OMP requires the landowner to submit a report annually for each year of the 10 years of the management plan and thereafter at the reasonable request by TfN. These landowner reports must also be submitted to APAM. Once the offset is formally established by covenant registration and TfN stewardship commences (refer to Table 3), reporting will occur annually with reports submitted 2 months before the end of each offset management year.

The annual report will address progress against the commitments set out in this OMP. Annual reports will be prepared by the landowner and the suitably qualified person (ecologist) appointed by APAM who undertakes the annual monitoring. The landowner's reports will follow standard TfN reporting requirements, to include details of management actions, observations on the abundance of weeds and pest animals, and their photo points. The ecologist's reports, which must be appended or attached to the landowner's report for the same year, will include interpretation of Natural Temperate Grassland monitoring data and comparison with results from previous years.

Annual reports will provide enough detail in the form of written comments and supporting evidence that an auditor can easily determine the completion of or progress against the management commitments for the offset site. Annual reports will include:

- Details of management actions, including on-ground works, undertaken within the reporting period. This information is provided by the landowner or by the land manager appointed by the landowner.
- Results of monitoring activities, including management of access, existing weeds, new and emerging weeds, and the presence and impact of pest animals. These results are provided by input from both the landowner and the ecologist who undertakes the annual monitoring.
- Site photographs from photo monitoring points. These photos are collected at a consistent time of the year by the ecologist who undertakes the annual monitoring.
- Data and interpretation of transect monitoring. These data are collected at a consistent time of the year by the ecologist who undertakes the annual monitoring.
- Details of compliance or non-compliance with the schedule of management actions (Table 6). This information is provided by the landowner or by the land manager appointed by the landowner.
- Details of compliance or non-compliance with performance/completion criteria. This assessment is provided by the ecologist who undertakes the annual monitoring.
- Details of any incidents or new and emerging management issues, with recommendations for corrective action and plan review. This assessment is provided by input from both the landowner and the ecologist who undertakes the annual monitoring.

3.9 Auditing

APAM is responsible for auditing the implementation and effectiveness of this OMP. Audits will be conducted by an independent ecologist at the following stages:

- At the end of Year 1. This is to ensure that initial management actions are conducted to the satisfaction of APAM and DCCEEW, including ensuring initial management actions have commenced. Information in relation to any independent audit of the site for the end of Year 1 must be provided to DCCEEW within an appropriate timeframe.
- At the end of Year 4. This will involve a review of annual monitoring and management reports up to this time, as well as an independent assessment of the extent and condition of Natural Temperate Grassland within the offset site.
- At the end of Year 8 (as per the Year 4 audit).
- At the end of Year 10 i.e. following the completion of the 10-year management period. This is to be a final audit of the implementation and effectiveness of the OMP.

It should be noted that TfN's annual review of monitoring reports for the offset site will also provide an auditing function. TfN will undertake site inspections four times over the initial 10-year offset period. Additional site visits may be requested by the landowner.

The timing of scheduled audits is detailed in Table 8. Additional audits may be triggered as a result of a plan review (Section 3.10) or following an environmental incident resulting in significant change to site conditions, as identified in the risk assessment (Table 7).

3.10 Plan review

This plan includes an adaptive management framework, where management actions may be triggered by events occurring within the offset site, by the results of monitoring activities or at the reasonable request of the landowner or APAM (e.g. due to a major fire or prolonged drought period as described in Table 7).

If a plan review is triggered and changes to management actions outside the scope of this OMP are proposed, the revised OMP must be approved by the landowner, TfN, APAM and DCCEEW prior to implementation.

Where seasonal conditions influence management action on offset site, flexibility for timing of management action may be appropriate and TfN advice will be sought. Any future adaptive management changes will be incorporated into the OMP and an updated version of the OMP will be supplied to DCCEEW and TfN.

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

The review could involve changes to:

- Specific details of offset site management methods or timing.
- Monitoring methodology.
- Schedules of monitoring, reporting and auditing.
- Performance and completion criteria.

4 Schedule of management actions, risks, monitoring and reporting

This section provides a schedule of management actions for the offset area (Table 6), provides an assessment of the risk of failing to achieve desired outcomes (Table 7) and specifies how this relates to the monitoring (Table 8) and reporting (Table 9) program. The risk assessment presented in Table 7 uses the risk framework from the DoEE EMP Guidelines (DCCEEW 2024). The likelihood and consequence classification is summarised in Appendix 1.

Table 6 Schedule of management actions

Year	Objective	Timing and frequency of activity	Standard to be achieved (performance/completion criteria)	Related monitoring activity
Year 1 and ongoing	**1. Exclude unauthorised activities** Ensure the offset site is appropriately fenced and signed in accordance with Section 3.5.1 and Section 3.5.2.	Start within 1 month of OMP commencement, with regular maintenance checks.	• By the end of Year 1, ongoing exclusion of commercial agricultural practices, except as permitted by the OMP. • By the end of Year 1, ongoing exclusion of other inappropriate land uses that conflict with the conservation objectives of the offset site (e.g. recreational activities).	Refer to Section 3.7.1 and Item 1 of Table 8
Year 1 and ongoing	**2. Eliminate all woody weeds within the offset area** Manage woody weeds in accordance with Section 3.5.3 and the adaptive weed management strategy outlined in Section 3.5.5.	Start within 3 months of OMP commencement. Continue at least twice yearly in the active growth season(s).	• There must be no mature woody weeds present within the Natural Temperate Grassland by the end of Year 1 (and annually thereafter). A mature plant is one that can flower and therefore potentially set seed. • Woody weed recruits within the Natural Temperate Grassland must be controlled within 12 months of observation and not permitted to set seed. • Woody weeds within the Natural Temperate Grassland must be eliminated (reduced to <1% cover) by the end of Year 10.	Refer to Section 3.7.2 and Item 2 of Table 8

Year	Objective	Timing and frequency of activity	Standard to be achieved (performance/completion criteria)	Related monitoring activity
Year 1 and ongoing	**3. Control all herbaceous weeds within the offset area** Manage herbaceous weeds in accordance with Section 3.5.4 and the adaptive weed management strategy outlined in Section 3.5.5.	Start within 3 months of OMP commencement. Continue annually in spring, summer and autumn, particularly following ecological burning.	• The total cover of all herbaceous weeds (including low threat and high threat weeds) within the Natural Temperate Grassland must be less than baseline levels by Year 4 (and annually thereafter) and <50% at the end of Year 10. • The cover of low threat herbaceous weeds within the Natural Temperate Grassland must be <25% at the end of Year 10. • The cover of high threat broad-leaved weeds within the Natural Temperate Grassland must be <10% at the end of Year 10. • The cover of high threat perennial tussock grass weeds within the Natural Temperate Grassland must be <50% at the end of Year 10. • The cover of high threat perennial mat-forming grassy weeds (grasses/rushes) within the Natural Temperate Grassland must be <5% at the end of Year 10.	Refer to Section 3.7.2 and Item 2 of Table 8
Year 1 and ongoing	**4. Monitor and eliminate new and emerging weeds** Eliminate new and emerging weeds in accordance with Section 3.5.3, Section 3.5.4 and the adaptive weed management strategy outlined in Section 3.5.5.	Annually in connection with site walkovers, at least twice yearly (spring and autumn).	• New and emerging weeds must be eliminated (reduced to <1% cover) from the offset site by the end of Year 10. Refer to Section 3.2.3 of this OMP.	Refer to Section 3.7.2 and Item 2 of Table 8

Year	Objective	Timing and frequency of activity	Standard to be achieved (performance/completion criteria)	Related monitoring activity
Year 1 and ongoing	**5. Monitor and control all pest animals (existing, new and emerging)** Manage pest animals in accordance with Section 3.5.6.	Spotlight surveys accompanied by shooting and baiting at least twice yearly (spring and autumn). Site walkovers at least twice yearly (spring and autumn) with follow-up burrow/warren/den destruction within 1 month.	• Signs of pest animal activity (i.e. scats) must be absent or scarce along monitoring transects from Year 1 onwards. Signs of pest animal activity are considered scarce when not readily visible i.e. much searching is required. • There must be negligible (<1% cover) surface disturbance caused by pest animal species within the offset site by the end of Year 10. • There must be no active rabbit warrens or fox dens within the offset site by the end of Year 10.	Refer to Section 3.7.3 and Item 3 of Table 8
Year 1 and ongoing	**6. Monitor and control all new and emerging pest animals** Manage pest animals in accordance with Section 3.5.6.	Spotlight surveys accompanied by shooting and baiting at least twice yearly (spring and autumn). Site walkovers at least twice yearly (spring and autumn) with follow-up burrow/warren/den destruction within 1 month.	• New and emerging pest animals must be controlled within the offset site such that there is negligible impact from these species at the end of Year 10. Refer to Section 3.2.3 of this OMP.	Refer to Section 3.7.3 and Item 3 of Table 8
Year 1 and ongoing	**7. Control biomass accumulation** Manage biomass in accordance with Section 3.5.7.	Ecological burning in spring and/or autumn (depending on location, weed covers and seasonal conditions).	• Ground cover biomass accumulation must be controlled such that the cover of inter-tussock space (bare ground, bryophytes, lichens and soil crust) is greater than 20% but no more than 40% (>20% and ≤40%) by Year 4 (and annually thereafter).	Refer to Section 3.7.4 and Item 4 of Table 8
Year 0 and ongoing	**8. Prepare and submit an annual report**	Baseline monitoring report before offset management commences. Annual management reports 2 months before the end of the offset management year.	• Annual progress reports must be provided to APAM and TfN and provide enough detail that an auditor can easily determine the completion of or progress towards the performance and completion criteria of this OMP.	Refer to Section 3.8 and Table 9

Table 7 Risk assessment of management actions/objectives

Event or circumstance	Likelihood	Consequence	Risk level	Triggers	Contingencies	Monitoring
Incompatible land uses and damage to vegetation.	Unlikely	Minor	Low	Incompatible uses and/or impacts identified in offset site.	Upgrade fencing and/or gates and consider increased signage.	Item 1 of Table 8
Weed proliferation.	Possible	Moderate	Medium	Weed covers exceed baseline levels in any given year or otherwise do not meet performance or completion criteria.	More intensive weed control and monitoring effort (e.g. increased frequency), particularly post-fire, according to adaptive weed management strategy. Minimise off-target damage (avoid all native plants) from herbicide use.	Items 2 and 5 of Table 8
Common or abundant pest animal activity and/or impacts (e.g. surface disturbance).	Possible	Moderate	Medium	Pest animal activity and impacts do not meet performance or completion criteria.	More intensive pest animal control and monitoring effort (e.g. increased frequency). Upgrade fencing to resist entry by relevant pest animals. Implement additional control beyond the offset site e.g. across the broader property.	Item 3 of Table 8
Extent and/or condition of Natural Temperate Grassland decreases.	Possible	Moderate	Medium	Monitoring shows a decrease in the adjusted hectares (extent x quality) of Natural Temperate Grassland across the offset site.	Investigate causes and increase management effort accordingly e.g. increased burning and follow-up weed control in response to increased weed cover.	Item 5 of Table 8
Stochastic events e.g. droughts, floods, fire and/or climate change	Possible	Moderate	Medium	Impacts of stochastic events observed within offset area e.g. decline diversity and abundance of native flora.	Assist and enhance natural regeneration after event e.g. by elevated levels of weed control and revegetation works if required. Review OMP.	Items 2, 3, 4 and 5 of Table 8

Table 8 Monitoring schedule

Item	Monitoring activity	Parameters measured	Survey/monitoring guidelines	Where	When	Responsibility
1	Land use monitoring	Condition of fences, gates and signage. Signs of unauthorised entry to offset site.	Site walkover. Observations during management and monitoring activities. Refer to Section 3.7.1 for details.	Entire offset area	Once yearly e.g. during other site walkovers.	Landowner
2	Weed monitoring	Covers of all weed categories. Locations of high threat weeds and new/emerging weeds. Growth cycle (i.e. timing of flowering) of high threat weeds.	Site walkovers to be conducted to identify weed infestations and timing of flowering. High threat weed infestations to be mapped using GPS. Covers determined by point intercept transects. Refer to Section 3.7.2 for details.	Entire offset area	At least twice yearly in spring and autumn by the landowner and once annually by APAM.	Landowner / APAM
3	Pest animal monitoring	Presence of pest animals or signs of activity e.g. scats, diggings, browsing or grazing.	Site walkovers and spotlight surveys (and incidentally during other site inspections). Locations of warrens, burrows or dens to be mapped using GPS. Refer to Section 3.7.3 for details.	Entire offset area	At least twice yearly in spring and autumn.	Landowner
4	Biomass monitoring	Inter-tussock space, weed covers and fuel load (type, amount and flammability).	Site walkovers with visual inspections of inter-tussock space, weed covers and fuel load (type, amount and flammability). Refer to Section 3.7.4 for details.	Entire offset area	At least twice yearly in spring and autumn by the landowner and once annually by APAM.	Landowner / APAM

Item	Monitoring activity	Parameters measured	Survey/monitoring guidelines	Where	When	Responsibility
5	Natural Temperate Grassland condition monitoring	Quantitative data: • Cover of weeds, pest animal activity and biomass. • Extent of Natural Temperate Grassland. • Habitat hectares (condition) score. Qualitative data: • Notes on overall condition. • Photos.	Quantitative data: • Covers estimated annually from point intercept transects. • Natural Temperate Grassland extent and habitat hectares score determined periodically by Vegetation Quality Assessment (VQA). Qualitative data: • Site walkovers to inspect overall Natural Temperate Grassland condition. • Images collected from point intercept transect photo points and locations of particular management issues. Refer to Section 3.7.5 for details	Current and future Natural Temperate Grassland patches	Once yearly in summer for point intercept transects. Summer of Years 1, 2, 4, 8 and 10 for VQA. At least twice yearly in spring and autumn for site walkovers.	Landowner / APAM

Table 9 Reporting schedule

Type of report	Responsibility	Timing	Report recipient
Annual report (Section 3.8): • Summarises management actions completed within the offset area (Section 3.5) and results of offset site monitoring activities (Section 3.7). • Follows standard TfN reporting requirements. • Must be accompanied by a report by the suitably qualified person (ecologist) appointed by APAM who has undertaken the annual Natural Temperate Grassland condition monitoring for the same year.	Landowner	Annual report to be submitted 2 months before the end of the offset management year.	APAM TfN DCCEEW
Audit report (Section 3.9).	APAM	End of Years 1, 4, 8 and 10.	DCCEEW
Review of offset management plan (Section 3.10).	Landowner and APAM	Immediately after a significant uncontrolled environmental event causing widespread impact to Natural Temperate Grassland within the offset site e.g. drought, flood or fire.	DCCEEW TfN

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Appendices

Appendix 1 Risk framework

This risk framework has been reproduced from the Environmental Management Plan Guidelines (DCCEEW 2024).

Risk rating

		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/issue will occur after management actions have been put in place or 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 consequence	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 2 Natural Temperate Grassland condition thresholds

The following table summarises condition thresholds for Natural Temperate Grassland as defined in the listing advice for the threatened ecological community (TSSC 2008).

Criteria	Condition thresholds	Method used to test patch against threshold
Location	With limited exceptions, the grassland patch must be associated with Quaternary basalt soils within the Victorian Volcanic Plain bioregion.	The position of the grassland patch relative to modelled geological and bioregional boundaries was reviewed. Surface soil texture observations are made during vegetation mapping on site.
Perennial native flora cover	Native flora must make up ≥50% of total vegetation cover, excluding introduced annuals, within the grassland patch.	The percentage cover of native flora within each grassland patch is estimated with reference to cover charts.
Dominant grass genera	Grasses in the genera *Themeda*, *Rytidosperma*, *Austrostipa* and/or *Poa* make up ≥50% of total native species cover.	The percentage cover of the four key native grass genera within each grassland patch is estimated with reference to cover charts.
Weediness	For grassland patches where *Themeda*, *Rytidosperma*, *Austrostipa* and/or *Poa* are the dominant native genera, one of the following thresholds must be met: • *Themeda*, *Rytidosperma*, *Austrostipa* and/or *Poa* must also make up ≥50% of total perennial tussock cover or • Perennial non-grass weeds must be <30% of total vegetation cover.	The percentage cover of the four key native grass genera and perennial non-grass weeds within each grassland patch is estimated with reference to cover charts.
Native forb cover	For grassland patches where *Themeda*, *Rytidosperma*, *Austrostipa* and/or *Poa* are not the dominant native species, native forbs must make up ≥50% of total vegetation cover during spring-summer (September to February).	The percentage cover of native forbs within each grassland patch is estimated with reference to cover charts.
Patch size	For a native vegetation remnant ≤1 ha, the grassland patch must be ≥0.05 ha and the crown cover of shrubs/trees >1 m tall must be ≤5%. For a native vegetation remnant >1 ha, the grassland patch must be ≥0.5 ha and there must be <2 mature trees per ha.	Contiguous native vegetation remnants and grassland patches are mapped to determine size and areas. Minor physical barriers are aggregated based on ecological function (e.g. fauna movement prospects, seed/genetic dispersal, water and nutrient cycling, recruitment and regeneration). Mature trees are counted and the crown cover of shrubs/trees >1 m estimated with the assistance of recent aerial imagery, where required.

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