

Final Report

Offset Management Plan: Beach Road, Ocean Grange, Victoria (EPBC 2019/8406)

Prepared for

Greenridge Properties Pty Ltd

December 2023



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GLOSSARY

Acronym	Description
CaLP	<i>Catchment and Land Protection Act 1994</i>
CFA	Victorian Country Fire Authority
CMA	Victorian Catchment Management Authority
DAWE	(former) Commonwealth Department of Agriculture, Water and Environment
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment, and Water
DEECA	Victorian Department of Energy, Environmental and Climate Action
DELWP	(former) Victorian Department of Environment, Land, Water and Planning
DEWHA	(former) Commonwealth Department of Environment, Water, Heritage and the Arts
DoE	(former) Commonwealth Department of the Environment
DoEE	(former) Department of the Environment and Energy
DSE	(former) Victorian Department of Sustainability and Environment
DSEWPaC	(former) Commonwealth Department of Sustainability, Environment, Water Population and Communities.
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EVC	Ecological Vegetation Class
FFG Act	<i>Flora and Fauna Guarantee Act 1988</i>
NES	National Environmental Significance
NVIM	Native Vegetation Information Management
OMP	Offset Management Plan
SBB	Southern Brown Bandicoot
TfN	Trust for Nature

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DECLARATION OF ACCURACY

I declare that:

1. To the best of my knowledge, all the information contained in, or accompanying this Management Plan (EPBC 2019/8406): Offset Management Plan: 40-46 Cyril Beechey Lane, Cranbourne, Victoria) is complete, current and correct.
2. I am duly authorised to sign this declaration on behalf of the approval holder.
3. I am aware that:
 - a. Section 490 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence for an approval holder to provide information in response to an approval condition where the person is reckless as to whether the information is false or misleading.
 - b. Section 491 of the EPBC Act makes it an offence for a person to provide information or documents to specified persons who are known by the person to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth) where the person knows the information or document is false or misleading.
 - c. The above offences are punishable on conviction by imprisonment, a fine or both.


Signed

Jackie Briffa - Development Manager

Full name (please print)

Greenridge Properties Pty Ltd

Organisation (please print)

20/12/2023

Date

EXECUTIVE SUMMARY

Introduction

Ecology and Heritage Partners Pty Ltd was engaged by Greenridge Properties Pty Ltd to prepare an Offset Management Plan (OMP) to compensate for impacts associated with the proposed residential development located at 40-46 Cyril Beechey Lane, Cranbourne, Victoria (EPBC 2019/8406).

The intention of this OMP is to detail the offset strategy to mitigate the loss of 3.143 hectares of Southern Brown Bandicoot *Isodon obesulus obesulus* habitat at the development site, by outlining management actions for the protection of 10 hectares of Southern Brown Bandicoot habitat at a site located at Ocean Grange, Victoria. The OMP has been written in consultation with the landowner of the offset site and is intended to be implemented by the landowner. The landowner's name has been removed from this document during the public comment period to protect their privacy.

Proposed Offset Site

The third-party offset site (offset site) is within a property located at Beach Road, Ocean Grange, Victoria, approximately 240 kilometres east of the impact site. The broader land parcel is bound by Beach Road to the south and the Gippsland Lakes Coastal Park to the north. The broader property supports 386 hectares of remnant coast woodland and saltmarshes on two titles. The offset site includes 10 hectares of a total 39.7 hectares of Coast Banksia Woodland Ecological Vegetation Class (EVC), with a vegetation condition score of 91/100. Native vegetation present within the offset will provide at least 50-80% habitat cover generally consisting of a dense cover of species such as Spiny-headed Mat-rush *Lomandra longifolia* subsp. *longifolia* and Austral Bracken *Pteridium esculentum*, with a variety of native herbs and graminoids. The proposed offset site has a habitat quality of 8/10 for Southern Brown Bandicoot. All offset sites within the property are proposed to be managed for offset and conservation purposes.

10 hectares of Southern Brown Bandicoot habitat will be protected on-title through a Trust for Nature Covenant, in accordance with the *Victorian Conservation Trust Act 1972*.

Management Actions

The offset site will be managed for the purpose of conservation and will involve protection of the Southern Brown Bandicoot habitat, through the control of pest animals and environmental weeds and general maintenance of the character and quality of the native vegetation, consistent with its historic context. The landholder will adopt an adaptive management approach to allow flexibility to respond appropriately and effectively to uncertainties involved in ecological processes. This will ensure that management objectives are being met while allowing for altered circumstances to be included in the management of the offset site.

Any proposed changes to the management actions for the offset site contrary to those specified within this plan must be approved by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) prior to implementation. Any proposed uses or development of the offset site which conflict with the landowner's commitments or maintenance/improvement of the Southern Brown Bandicoot population and habitat are not permitted under this plan.

1 INTRODUCTION

Ecology and Heritage Partners Pty Ltd was engaged by Greenridge Properties Pty Ltd to prepare an Offset Management Plan (OMP) to compensate for impacts associated with the proposed residential development located at 40-46 Cyril Beechey Lane, Cranbourne, Victoria (EPBC 2019/8406).

On May 1, 2019, a referral for the action was submitted for assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2019/8406). The proposed action was declared a “Controlled Action” and is being assessed under Preliminary Documentation, which requires the proponent to prepare and implement an OMP to compensate for the removal of 3.143 hectares of Southern Brown Bandicoot *Isodon obesulus obesulus* habitat.

The intention of this OMP is to detail the ongoing management actions required to protect 10 hectares of Southern Brown Bandicoot habitat at a third-party offset site (offset site) located at Ocean Grange, Victoria, in order to offset the proposed impacts. The OMP has been written in consultation with the landowner of the offset site and is intended to be implemented by the landowner.

The OMP is both strategic and focused on management actions and performance measures (quantitative amounts indicated, where appropriate) in order to address management issues and key threats across the offset site.

2 OBJECTIVES AND CONTEXT OF THE PROJECT

2.1 Impact Site

The impact site, which is identified as the study area within the Preliminary Documentation (Ecology and Heritage Partners 2023) is located at 40-46 Cyril Beechey Lane, Cranbourne, Victoria, approximately 65 kilometres south-east of Melbourne's CBD. The impact site covers approximately 4.048 hectares and is bound by residential properties along Grandeur Court and Grandeur Nature Reserve to the north, private property to the south, Cemetery Road to the east and Cyril Beechey Lane to the west. The study area is generally flat, with no ridges, crests or waterways within or immediately adjacent to the site and consists almost entirely of native vegetation. 39- 45 Cyril Beechey Lane, Cranbourne (immediately west of the study area; not included in this OMP) is basically cleared of native vegetation, and was observed as being used for farming purposes, primarily maintaining stock and horse yards. The original Biodiversity Assessment assessed both properties and 39-45 Cyril Beechey Lane, Cranbourne didn't contain any matters of NES within it.

According to the Victorian Department of Energy, the Environment and Climate Action (DEECA) Native Vegetation Information Management (NVIM) Tool (DEECA 2023), the study area occurs within the Victorian Volcanic Plain bioregion. It is located within the jurisdiction of the Melbourne Water Catchment Management Authority (CMA) and the City of Casey municipality.

The proposed action at the impact site will have a direct impact on 2.991 hectares of Southern Brown Bandicoot habitat within the title boundary of 40-46 Cyril Beechey Lane. An additional 0.152 hectares of Southern Brown Bandicoot habitat occurs outside the title boundary that is contiguous to habitat vegetation within the boundary, which is considered as consequential loss. A 30-metre-wide (0.611-hectare) Fauna Corridor is proposed to be retained within the impact site along its eastern boundary, which contains 0.475 hectares of Southern Brown Bandicoot habitat. The Fauna Corridor vegetation is considered as retained due to the implementation of a Fauna Corridor Management Plan, which seeks to improve the ecological conditions of the corridor for Southern Brown Bandicoot and provide habitat connectivity for the species along Cemetery Road.

In summary, a total of 3.143 hectares of Southern Brown Bandicoot is being impacted, including;

- 2.991 hectares of southern Brown Bandicoot habitat occurs within the title boundary (excluding the Fauna Corridor);
- 0.152 hectares of habitat is being impacted outside the title boundary, considered as consequential loss.

The objectives of this OMP are to offset the loss of the Southern Brown Bandicoot habitat. Southern Brown Bandicoot are listed as Endangered under the EPBC Act.

2.2 Third-party Offset Site

2.2.1 Description of the Third-party Offset Site

The third-party offset site is within a property located at Beach Road, Ocean Grange, Victoria, approximately 240 kilometres east of the impact site (Figure 1). The broader land parcel is bound by Beach Road to the south and the Gippsland Lakes Coastal Park to the north. The proposed offset site is within the southern portion of this land parcel and comprises 10 hectares. All offset sites within the property are proposed to be managed for offset and conservation purposes.

The broader property supports 386 hectares of remnant coast woodland and saltmarshes on two titles. The offset site includes 10 hectares of a total 39.7 hectares of Coast Banksia Woodland Ecological Vegetation Class (EVC). The 10 hectares of Southern Brown Bandicoot habitat outlined in this OMP will be protected on-title through a Trust for Nature Covenant for the area covered by this OMP, with the management actions specified within the covenant alike to those specified within this OMP specific to Southern Brown Bandicoot. The offset site covered by this OMP comprises 10 hectares of Southern Brown Bandicoot habitat. The offset site has been chosen as it meets 100% of the direct offset requirements generated by the vegetation removal at the impact site, and as such, offers considerably less risk in terms of management of the Southern Brown Bandicoot population, and results in a demonstrable benefit in accordance with the Commonwealth's Environmental Offset Policy (DSEWPac 2012a). The site has a moderate population of Southern Brown Bandicoot (AJMIV 2021) confirmed through surveys undertaken following the Survey Guidelines for Australia's Threatened Mammals (DSEWPac 2011). New records have been confirmed through ongoing monitoring during autumn 2021 (Peter Gannon personal communication, 1 June 2021) and thus the site provides protection of important habitat for the species.

According to DEECAs NVIM Tool (DEECA 2023), the offset site occurs within the Gippsland Plain Bioregion. It is located within the jurisdiction of the West Gippsland Catchment Management Authority (CMA) and the Wellington Shire Council municipality.

2.2.2 Tenure Arrangements

The proposed offset site is privately owned and will be protected through a Trust for Nature Covenant under the *Victorian Conservation Trust Act 1972*.

2.2.3 Ecological Condition

The broader property supports remnants of the state significant Coast Banksia Woodland EVC of the Gippsland Plain bioregion (i.e. listed as Vulnerable in Victoria); however, this OMP will focus on matters relevant to the proposed action (Southern Brown Bandicoot). The offset area covered by this OMP comprises 10 hectares of Southern Brown Bandicoot habitat within a contiguous 39.7-hectare patch of Coast Banksia Woodland EVC. The native vegetation present within the offset area is high quality with a Victorian Vegetation Quality Assessment (habitat hectare) score of 91/100 (Appendix 1). Vegetation assessment data for the site was provided by Ecocentric Environmental Consulting. Native vegetation present within the offset will provide at least 50-80% habitat cover generally consisting of a dense cover of species such as Spiny-headed Mat-rush *Lomandra longifolia* subsp. *longifolia* and Austral Bracken *Pteridium esculentum*, with a variety of native herbs and graminoids.

3 RISK ASSESSMENT

An assessment of potential risks associated with the objectives of this plan are outlined within Table 1. Risk assessment and management definitions are provided in Appendix 2. All risks are considered manageable and actions within subsequent sections of this OMP address relevant risks.

L = Likelihood, C = Consequence, RR = Residual Risk

Table 1. Risk assessment and management table for specific offset site (Appendix 2).

Management objective/desired outcome	Event or circumstance	Relevant management actions/measures	Residual risk			Trigger detection and monitoring activity/ies	Feasible/effective corrective actions	Notes
			L	C	RR			
To legally secure approved offset properties for conservation.	Failure to legally secure approved offset site	Engage with expert offset brokers	Unlikely	Moderate	Low	n/a	Engage a consultant	Low risk: the site is currently in the process of being secured with an on-title agreement (Trust for Nature Agreement).
	Legislative reform prejudices proposed tenure arrangements for offset properties.	Monitor DCCEEW, DEECA, LGAs and other legislative bodies on developments to offsets	Rare	High	Low	Newsletters, expert liaison, press releases and direct contact.	Adjust offset calculations accordingly.	
To achieve performance targets and completion criteria for all matter of NES	Landowner-proponent agreements fail to adequately address management commitments in the offset plan	Engage an expert to manage this process. Ensure all impacts are suitably offset.	Unlikely	High	Medium	Quality assurance and monitoring	Revise on-title and/or proponent agreements.	The site will be protected through an on-title Trust for Nature Covenant. TfN and DCCEEW undertake a review of OMP.

Management objective/desired outcome	Event or circumstance	Relevant management actions/measures	Residual risk			Trigger detection and monitoring activity/ies	Feasible/effective corrective actions	Notes
			L	C	RR			
To achieve performance targets and completion criteria for all matters of NES (continued)	Adjacent/regional landowner's land management practices fail to support attainment of offset outcomes.	Liaise with adjacent landholders. Ensure understanding of offset objectives	Unlikely	High	Medium	Adjacent land practices begin to negatively impact offset site.	Take steps to halt negative impacts. Follow up with stakeholder discussions	The adjacent land parcels are within the same broader property boundary, with much of the adjacent land also currently or proposed to be established as an offset. Based on the current land management practices in the region and it is unlikely that any foreseeable land management practices within the vicinity will impact the offset site.

Management objective/desired outcome	Event or circumstance	Relevant management actions/measures	Residual risk			Trigger detection and monitoring activity/ies	Feasible/effective corrective actions	Notes
			L	C	RR			
To achieve performance targets and completion criteria for all matters of NES (continued)	Insufficient funds provided by proponent to implement the plan.	Ensure reputable land holder to implement plan.	Unlikely	High	Medium	Monitoring and/or annual reporting	Review plan for cost efficiencies.	The offset funds provided by the proponent will be deposited in a trust account with TfN. Annual payments over ten years will be reliant on annual reports being provided each year by the land holder and successful implementation of the annual management actions within this OMP. The offset funds will be administered using TfN trust fund which will guarantee that funds are available for the first ten years of management, which will include the most extensive habitat improvement works required.
	Stochastic events (wildfire/drought/flood) prejudice attainment of interim performance targets and/or completion criteria for MNES.	Plan for scheduling delays.	Possible	High	Medium	Monitoring and/or annual reporting	Apply adaptive management to ensure the objectives of the OMP are not compromised.	-

Management objective/desired outcome	Event or circumstance	Relevant management actions/measures	Residual risk			Trigger detection and monitoring activity/ies	Feasible/effective corrective actions	Notes
			L	C	RR			
To achieve performance targets and completion criteria for all matters of NES (continued)	Approved development on/near project/offset prejudicing plan outcomes	Ensure proper stakeholder engagement to prevent poor outcomes.	Unlikely	High	Medium	Advertisement of planning scheme amendments/planning permit applications	Objection to proposed development/liaise with proponent to ensure the proposed development does not compromise the objectives of the OMP.	The offset site is within a rural landscape, as such, there is a low likelihood of development within adjacent properties. The ecological values within the offset site do not rely on habitat values within adjacent land.
To improve the quality of Southern Brown Bandicoot habitat present on the site	Drought	Apply adaptive management to ensure the site is not over-grazed during a post-fire recovery period.	Likely	Moderate	Medium	Drought Event	Apply adaptive management to ensure the site is not over-grazed during a post-fire recovery period.	The Southern Brown Bandicoot offset site sits within 386 hectares of similar vegetation within the property and the broader area. The offset site and adjacent areas have been historically subject to frequent drought and occasional wildfire. As such, the Southern Brown Bandicoot community is likely to survive such an event.
	Wildfire		Likely	Moderate	Medium	Wildfire Event		

Management objective/desired outcome	Event or circumstance	Relevant management actions/measures	Residual risk			Trigger detection and monitoring activity/ies	Feasible/effective corrective actions	Notes
			L	C	RR			
To improve the quality of Southern Brown Bandicoot habitat present on the site (continued)	Uncontrolled grazing	Maintain fences and install temporary fencing, if required (Section 5.6.1)	Unlikely	Moderate	Low	Continual monitoring	Repair permanent fences, and/or install temporary exclusion fences.	No livestock grazing activities currently occur within the offset site. Monitoring and control of deer will be undertaken to ensure grazing pressure by introduced herbivores is appropriately managed (Section 5.6.4).
	Loss of biodiversity due to competition with weeds (see Section 5.2 for performance indicators)	Spot spraying of weeds (Section 5.6.3)	Likely	Moderate	Possible	Annual monitoring	Undertake weed control activities (Section 5.6.3)	The OMP includes actions to reduce weed cover, improving the ecological condition of the site over the ten-year period.
		Annual monitoring to adapt future control works and targets (Section 5.6.4)						
	Loss of biodiversity due to pest animal activity (see Section 5.6.2 for performance indicators)	Deer, cats, foxes and fox dens are controlled (Section 5.6.2)	Likely	Moderate	Possible	Annual monitoring	Undertake pest control activities (Section 5.6.2)	The OMP includes actions to reduce pest animal activity, thereby reducing risk of habitat degradation or predation by introduced species. As a result, the population of Southern Brown Bandicoot is likely to increase and ecological condition of Southern Brown Bandicoot habitat within the site improved.

4 UNAVOIDABLE LOSS AND OFFSET OBLIGATIONS

4.1 Unavoidable Loss

The proposed development at the impact site (40-46 Cyril Beechey Lane) will result in the removal of 3.143 hectares of Southern Brown Bandicoot habitat.

4.2 Offset obligations, user inputs and applying the offset guide

4.2.1 Southern Brown Bandicoot habitat

Based on the EPBC Act offset calculator (DSEWPaC 2012a), the protection and management of 10 hectares of Southern Brown Bandicoot habitat within the proposed offset site as an offset mitigates 105.89% of the impact of the removal of 3.143 hectares of Southern Brown Bandicoot habitat (Table 2) (Appendix 3). As such, approximately 105.89% of the offset requirements will be met through direct offsets which is in accordance with the Commonwealth environmental offset policy (DSEWPaC 2012b).

Table 2. EPBC Act Offset Calculator (Southern Brown Bandicoot).

Offset Criteria	Response
Impact Site	
Impact Location	40-46 Cyril Beechey Lane, Cranbourne
Habitat to be removed	3.143 hectares of Southern Brown Bandicoot habitat
Habitat quality	3.618 hectares in total, including the fauna corridor, with an assigned starting quality of 6/10 <i>Site condition:</i> 2/3, the Southern Brown Bandicoot habitat to be removed is of moderate quality as habitat however the vegetation condition is poor, with a habitat hectares Score of 33 (out of 100). The site has previously been subject to illegal removal of native vegetation which has degraded the quality of native habitat present. The eastern section of the site contains areas of native vegetation representative of four EVCs: Heathy Woodland (EVC 48), Swamp Scrub (EVC 53), Riparian Scrub (EVC 191) and Sedgy Swamp Woodland (EVC 707) all considered to provided habitat for Southern Brown Bandicoot. Areas not supporting remnant native vegetation generally occur within study area and this area consists of a high cover (>80%) of exotic grass and herb species, planted vegetation and weeds. The study area is a disturbed area, dominated by environmental weeds such as Rye-grass <i>Lolium</i> spp., Galenia <i>Galenia pubescens</i> var. <i>pubescens</i>, Ribwort <i>Plantago lanceolata</i>, Couch <i>Cynodon dactylon</i> var. <i>dactylon</i> and Cats Ear <i>Hypochaeris radicata</i>. <i>Site context:</i> 2/3, The study area is located approximately one kilometre north of the Royal Botanic Gardens Cranbourne which contains a known population of Southern Brown Bandicoot. The study area currently provides opportunities for Southern Brown Bandicoot dispersal through vegetated corridors, despite the modified nature of the surrounding area. The residential areas surrounding the study area is likely to reduce the suitability of the study area being used by Southern Brown Bandicoot in the long term.

Offset Criteria	Response
Habitat quality (Continued)	<i>Species stocking rate: 2/4</i>, The site contains a confirmed and known population of Southern Brown Bandicoot. The species was detected on 17 individual occasions at seven of the 15 remote camera stations during targeted surveys across 17 trapping nights between 27 March and 13 April 2018 (Ecology and Heritage Partners 2020). None of the images of Southern Brown Bandicoot recorded during surveys were of multiple animals. Fifteen (15) remote cameras within a site of this size is considered to have reached saturation of survey effort across the site and constitute an intensive targeted survey. No detailed population estimate can be reliably obtained from remote camera surveys given mark-recapture was not undertaken. Given the large number of cameras deployed, evidence of Southern Brown Bandicoot would be expected to be recorded on at least one of the remote cameras on each survey night along with multiple observations of multiple animals, or identifiable individual features to give an indication of abundance in order to justify the highest category of stocking rate (i.e. 4/4). A stocking rate score of 3/4 may have been achieved recording evidence of Southern Brown Bandicoot on at least one of the remote cameras on each survey night along with at least one record of multiple Southern Brown Bandicoots within a camera frame. In the absence of detailed population data, the relatively small size of the site and degraded quality of habitat is also considered to inhibit the total stocking rate of the site given it does not comprise vast areas of high ground cover vegetation capable of supporting a large population of the species. A stocking rate score of 1 would have been achieved by a very low number of observations of the species during targeted surveys (e.g. below 5 across the entire survey period).
Offset Site	
Offset location	Loch Sport Estate, Beach Road, Ocean Grange, Victoria
Risk-related time horizon	20 years. The land will be managed in perpetuity for conservation purposes for Southern Brown Bandicoot.
Time until ecological benefit	10 years. The existing habitat condition is expected to be improved over the 10-year active management schedule detailed in the OMP.
Start area and quality of offset site	10 hectares in total, assigned a starting quality of 8/10. <i>Site condition: 3/3</i>, The offset site comprises 10 hectares of a total 39.7 hectares of Coast Banksia Woodland EVC present on the site. The site supports high quality habitat for Southern Brown Bandicoot. Native vegetation present within the offset will provide at least 50-80% habitat cover generally consisting of a dense cover of species such as Spiny-headed Mat-rush and Austral Bracken, with a variety of native herbs and graminoids. <i>Site Context: 3/3</i>, the site is located within a broader area of 39.7 hectares of Coast Banksia Woodland EVC and 300 hectares of native vegetation including Coastal Saltmarsh EVC. The site is connected to further suitable habitat throughout the Gippsland Lakes Coastal Park. The site is relatively isolated from external impacts that may threaten the offset site such as unauthorised access and comprised a very small population of weeds scattered across the site. <i>Species stocking rate: 2/4</i>, a resident population of Southern Brown Bandicoot was recorded during surveys undertaken in Spring 2020 (AJMJV 2021a). Twelve baited, remote sensing infrared cameras were established within areas of suitable habitat for a six-week period to address the need to have survey periods four-week separation between survey commencement. Southern

Offset Criteria	Response
	Brown Bandicoot were recorded from three remote camera locations across the property (AJMJV 2021a). Ongoing targeted survey through autumn and spring of 2021 were undertaken to build the dataset of Southern Brown Bandicoot records within the broader property. A total of 76 Southern Brown Bandicoot observations have been recorded from 12 baited remote-camera stations (Appendix 3 and Figure 3 of Preliminary Documentation [Ecology and Heritage Partners 2023]) between July 2020 and September 2021. Remote cameras were located adjacent to the proposed 10 hectare offset site within contiguous, good quality habitat for Southern Brown Bandicoot.
Risk of loss without offset	0%. There are currently no formal protection mechanisms that protect the ecological values within the offset site, however additional offset sites are located adjacent to the proposed offset site. In accordance with the Guidance for deriving 'Risk of Loss' estimates, as development of the site would trigger an offset requirement under relevant legislation, the risk of loss without offset is 0% (Liam Clapp. Pers. Comms. 26/06/2023). As the broader offset property is zoned Rural Conservation Zone – Schedule 1 (RCZ1) and covered by and Environmental Significance Overlay (ESO) there are already a variety of protections in place limiting the permitted land used across the property. A significant alteration of the current land use or inappropriate management of introduced species is likely to have a negative impact on the Southern Brown Bandicoot population at the site. A protective covenant provides legal protection, averting this risk of habitat being degraded, depleted or the population within the site being lost.
Future quality without offset	6/10. Without protection as an offset site there is uncertainty about the future condition of the land. Without increased management as an offset, a reduction in quality over time is likely due to continuing weed encroachment and the presence of introduced predators and large herbivores. Loch Sport occurs within the Wellington Local Government Area (LGA) and the annual background rate of loss is 0.34%, accounting to a Risk of Loss over twenty years of 6.85%. Without active management, the site conditions are likely to degrade over time due to a range of factors, including feral predators and herbivores, weed invasion and competition. While development is unlikely to occur as the surrounding areas contains established offset sites and the <i>site context</i> is unlikely to reduce in quality, there is a high risk of both the <i>site condition</i> and <i>species stock rate</i> reducing over time. <i>Site condition: 2/3</i>, There is a very low cover of weeds across the site, largely due to the isolated nature of the offset site. Without ongoing monitoring and increased management of weeds across the site, the presence of weeds within the offset site is likely to increase over time and the habitat structure may be altered from its present state toward a state less preferable for Southern Brown Bandicoot. Additionally, a range of invasive species have been recorded within and adjacent to the offset site, including European Rabbits, European Foxes and Deer. Without active management of feral herbivores, the quality of vegetation will reduce over time due the removal of undergrowth, which Southern Brown Bandicoot rely on for habitat. In addition, invasive species will facilitate the spread of weeds throughout the offset site, reducing the vegetation quality over time. Wills <i>et al.</i> (2023), studied the impact of browsing by non-native invasive Sambar Deer on forest structure. This study found that treatments which excluded deer saw an increase in the cover of understorey trees, ferns and climbers, within the 1-2 metre height class. The vegetation cover-abundance increased 3-4 fold over time in full and partial exclusion plots compared to non-exclusion plots, suggesting that in the absence of effective deer control, commonly browsed understorey trees, shrubs and tree ferns are likely to decrease substantially over the coming decades. Without deer control, the presence of the deer is likely to alter the complex vegetation

Offset Criteria	Response
	structure present within the offset site that currently provides important habitat (i.e. dense cover) for Southern Brown Bandicoot. <i>Site Context:</i> 3/3, the overall context of the site is not likely to change if an offset is not established. The broader property already contains established offset areas for Southern Brown Bandicoot. The site is relatively isolated from external impacts that may threaten the offset site such as unauthorised access and comprised a very small population of weeds scattered across the site. <i>Species stocking rate:</i> 1/4, the species is likely to persist at the site over the short term without an offset however, there are risks to the Southern Brown Bandicoot population associated with not implementing control actions for feral predators and large herbivores. The major threats to Southern Brown Bandicoot are predation by foxes and cats, habitat loss and degradation, and too frequent and extensive burning (TSSC 2016). Feral predators, such as European Foxes, are known to predate on Southern Brown Bandicoot, with evidence suggesting that foxes affect the sex ratio of Southern Brown Bandicoot populations, where female animals being more susceptible to predation than male animals (Dickman 1988b). Studies have shown that on-going fox control reduces predator pressure, indicating that Southern Brown Bandicoot are likely to inhabit new sites with sparser vegetation cover. A study conducted by Dexter and Murray (2009), aimed to determine the impact of fox control on relative abundance of forest mammals in East Gippsland, Victoria. This study undertook active fox control across a four-year period and recorded the abundance of native mammals during this period. Overall, the study determined that active fox control and treatment had a significant effect on the abundances of totals mammals, namely Southern Brown Bandicoot, Long-nosed Potoroo and Common Brushtail Possum. The findings of this study indicated that the abundance of Southern Brown bandicoot was higher at treatment sites than non-treatment sites. The rate of species decline for Southern Brown Bandicoot populations due to introduced predators and herbivores is not well described; however, there is a considerable body of literature which indicates that Southern Brown Bandicoot persistence and population size is negatively influenced by the presence of introduced predators, such as feral foxes, and Southern Brown Bandicoot may suffer heavily from fox predation (Coates and Wright 2003). Lastly, the offset site is adjacent to a residential area (Loch Sport), and during low-tide feral and domestics cats (and other predators) are able to cross the inlet. As it is a residential area, there are no limitations for managing domestic cats within the area, posing further risk to Southern Brown Bandicoot through direct predation. While not a direct impact to Southern Brown Bandicoot populations, introduced herbivores compound this issue due to direct competition for food and habitat, through the removal of undergrowth used for shelter and refuge, making Southern Brown Bandicoot more susceptible to predators. In the absence of on-going protection measures, such as feral predator and herbivore control, Southern Brown Bandicoot populations are likely to reduce over time, resulting in a reduced species stocking rate. Over the proposed 10 years, time until ecological benefit period, the species is at risk of reduced abundance and local extirpation. Without additional management actions targeting maintaining habitat quality and reducing feral predators and introduced herbivores, as outlined within this OMP, the future quality without offset is highly likely to reduce (i.e. to 6/10).
Risk of loss with offset	0%. There is a 0% chance that the Southern Brown Bandicoot population will be lost with the offset being protected and managed in accordance with the OMP placed on-title. There is a low level of risk given the isolated nature of the property and relatively low potential disturbances applicable to the property; however, under current legislative requirements, development induced clearing of the proposed offset site is an allowable activity. Thus, the offset site itself can theoretically be

Offset Criteria	Response
	offset under relevant legislation. Despite this potential the site to be offset, it is highly unlikely as the availability of Southern Brown Bandicoot habitat adjacent to the offset site further consolidates habitat within the property.
Future quality with offset	9/10. There is a high level of confidence that the future quality of the Southern Brown Bandicoot Offset will increase through the active implementation of various actions outlined in the OMP. There is a high likelihood that the management actions provided in the OMP will lead to an increase in the species' habitat quality, site occupancy and population size. Wildfire within the offset site is a potential risk to the future habitat quality at the site. The potential impacts of fire on the quality of habitat available is dependent upon the scale and intensity of a fire event. The likelihood of and intense and widespread fire within this area is considered low given the limited connectivity to larger areas of high fuel load forests and woodlands. However, a fire event with a high intensity or scale could have a significant detrimental impact upon both the Southern Brown Bandicoot population and habitat. The risk of fire within the offset site will be managed to minimise the risk of loss. Due to the commitment of the landowner and investment in the active management of the site these factors provide a high level of confidence that the future quality of the offset will increase (i.e. a score of nine is realistic). The offset site is to be secured and managed for conservation purposes in perpetuity, with implementation of a management plan incorporating weed control, predator and large herbivore control and regular monitoring, aiming to enhance native biodiversity. <i>Site condition:</i> 3/3, Starting level of weeds present at the site are low with two high threat weeds identified in low abundance. Targeted control measures proposed within this OMP will manage both woody and herbaceous weeds to <1% coverage through hand pulling and spot-spraying (Section 5.6.3). Targeted control of introduced predators including Feral Cats <i>Felis catus</i> and Red Fox <i>Vulpes vulpes</i> will reduce the threat of predation for the species. Control of deer on the site aims to reduce the impact of large herbivores on the dense habitat structure required to sustain a healthy population of Southern Brown Bandicoot.
Future quality with offset (continued)	<i>Site Context:</i> 3/3, The overall context of the site is not likely to change if an offset is not established. The broader property already contains established offset areas for Southern Brown Bandicoot. The site is relatively isolated from external impacts that may threaten the offset site such as unauthorised access and comprised a very small population of weeds scattered across the site. <i>Species stocking rate:</i> 3/4, Targeted control of introduced predators including Feral Cats and Red Fox will reduce the threat of predation for the species. Control of deer on the site aims to reduce the impact of large herbivores on the dense habitat structure required to sustain a healthy population of Southern Brown Bandicoot. Ongoing monitoring utilising baited, remote-sensing cameras will be undertaken for the Southern Brown Bandicoot population within the site during years 1, 3, 5 and 10 of the OMP (Section 5.7.1). Maintaining the existing high quality of habitat and native vegetation through the implementation of the OMP will be the primary measure implemented to improve the species stocking rate.
Confidence in result	75%. Confidence in applied scores is moderately high due to careful consideration of the offset site, existing condition and relatively low threat from external impacts, and in consideration of the start and future quality without offset. The confidence in result has been reduced due to the future quality without offset reduction of greater than 2 points, with a start quality of 8/10 and a future quality without offset of 6/10. The site will be protected via a Trust for Nature Covenant under the <i>Victorian Conservation Trust Act 1972</i>. Trust for Nature (TfN) and DCCEEW undertake reviews for all offset sites to ensure the landowner agreements address the management commitments on the plan.

Offset Criteria	Response
% of impact offset off-site	105.89%

5 OFFSET IMPLEMENTATION

5.1 Management Objectives and Strategy

The offset site will be managed for the purposes of conservation and will involve physical protection of the Southern Brown Bandicoot habitat, the control of pest animals and environmental weeds, and general maintenance of the character and quality of the native vegetation, consistent with its historic context.

The offset site will be protected in perpetuity via a Trust for Nature Covenant (Table 3). Security, management and monitoring responsibilities are summarised below (Table 3).

This OMP requires the landowner to manage the offset site in accordance with the requirements detailed herein. This OMP relates solely to the 10 hectares of Southern Brown Bandicoot habitat identified in Figure 1, and includes actions related to the ongoing monitoring and management of these ecological communities.

Table 3. Security and Management Responsibility.

Offset Security and Management Responsibility	
Who is liable/responsible for meeting offset requirements?	Greenridge Properties Pty Ltd
Type of security mechanism	Trust for Nature Covenant
Agreement or Planning Permit Number (ID)	TBC
Date 10-year offset management to commence	When a Trust for Nature Covenant is registered on Title
Date for targets and performance indicators within this management plan to be met	Ten years following commencement of OMP, or otherwise as specified within this plan (whichever occurs first)
Management of site following 10-year anniversary of this plan	Maintain habitat values at, or above, conditions achieved upon 10-year anniversary
Offset site management responsibility (i.e. Landowner, Authority Name)	Landowner
Offset Monitoring Responsibility (i.e. Responsible Authority)	Landowner, DCCEEW and TfN

5.2 Southern Brown Bandicoot

This OMP has been formulated to address several priority actions outlined within the Conservation Advice for the species (DoE 2016):

- Implement control mechanisms for non-native predators (i.e. Red Fox and Feral Cat that minimise adverse impacts upon the bandicoot (e.g. predator exclusion fencing, fox baiting, feral cat control);
- Protect and maintain habitat in all areas where the bandicoot currently occurs;
- Establish corridors between fragmented populations;

- Avoid forestry operations within habitat, and implement forestry practices that minimise impacts on the bandicoot;
- Implement appropriate fire regimes that minimise impacts on the bandicoot, including increasing the extent of long unburnt (mature) vegetation and maintaining dense ground cover;
- Implement Cinnamon Fungus *Phytophthora cinnamomi* control and quarantine measures;
- Manage weeds in a manner that delivers overall benefit to Southern Brown Bandicoot habitat (the control of weeds, such as blackberry, could be detrimental in some areas and a strategic approach should be considered);
- Implement measures to reduce road kills; and,
- Control of feral deer including Sambar Deer *Rusa unicolor* and Hog Deer *Axis porcinus* to prevent habitat degradation by these species.

5.2.1 Existing Threats

The main threats to the offset site include the impacts of introduced herbivores, such as deer and European Rabbits on the vegetation structure and complexity, and of predation by introduced carnivores, including cats and foxes. Other threats include the expansion of the existing high threat weed populations that are present within the surrounding area and weed invasion in general.

This OMP details the prescribed actions and outlines the relevant timing for implementation. These actions will be applied to the entire offset area identified in Figure 1. Maintenance and protection of the offset site will be achieved by:

Maintaining the existing fencing around the boundary of the broader property;

- Weed control through active management;
- Eliminating all woody environmental weeds to < 1 % cover;
- Controlling all weeds to reduce cover (targets are detailed in Section 5.6.3);
- Controlling pest animals, particularly deer, rabbits, cats and foxes; and
- Managing native species understorey diversity and recruitment.

5.2.2 Threats specific to Southern Brown Bandicoot

The below table outlines the key threats to Southern Brown Bandicoot, as identified in the Conservation Advice for the species (DoE 2016) and addresses the management action that will be applied to the offset site to mitigate the threat. Further details regarding each mitigation measure are provided in Section 5.6.

Table 4. Mitigation measures applied to address key threats to Southern Brown Bandicoot identified by the Approved Conservation Advice (DoE 2016).

Key threats to Southern Brown Bandicoot (DoE 2016)	Mitigation measure
Predation by foxes	Monitoring and control of foxes will be carried out across the site (Section 5). Dens will be collapsed, and any artificial harbour removed from the site. A qualified and licenced trapper/shooter will be engaged where necessary to undertake targeted control programs.
Habitat loss and fragmentation	Southern Brown Bandicoot habitat on site will be protected through a Trust for Nature Covenant being placed over the land. The site will be managed in perpetuity for the conservation of the species' habitat. Adjacent area of the same property will also be managed as an offset site for Southern Brown Bandicoot habitat maintaining a larger area of contiguous habitat than is protected by this site alone.
Predation by feral and domestic cats	Monitoring and control of feral and domestic cats will be carried out across the site (Section 5.5.4). A qualified and licenced trapper/shooter will be engaged where necessary to undertake targeted control programs.
Mortalities associated with road traffic	The offset site is not adjacent to any busy roads. The only authorised traffic along Beach road is local traffic and access to the gas pipeline easement located nearby the site.
Too frequent and extensive burning	The likelihood of a severe bushfire is considered low due to the site location on a narrow section of sand dunes. Intentional burning of vegetation on the site will not be undertaken as it can cause direct (i.e. injury and mortality) and indirect (i.e. loss of habitat and increased vulnerability to predation) impacts to Southern Brown Bandicoot at the site.
Habitat change due to livestock and other non-native herbivores	Grazing of livestock will not occur on the property. Fencing between the offset site and neighbouring properties will be monitored and maintained to ensure that livestock are not accessing the offset site. Monitoring and control of deer (especially Sambar and Hog Deer) will be carried out across the site (Section 5.5.4). A qualified and licenced trapper/shooter will be engaged where necessary to undertake targeted control programs.
Displacement by high densities of rabbits	European Rabbits <i>Oryctolagus cuniculus</i> have not been observed within the offset site and are considered unlikely to have an impact on the Southern Brown Bandicoot population. Observations of rabbits incidentally or during annual monitoring will be noted and reported in the annual report. If a rabbit population becomes established within the offset site, the OMP should be reviewed to consider the new threat to the Southern Brown Bandicoot population.
Habitat change due to weed infestation	Herbaceous and woody weeds will be managed within the offset site in line with the requirements of this plan (Section 5). Broad scale weed control will be undertaken with the consideration of the aim to improve habitat for Southern Brown Bandicoot. Adjacent areas of the broader property are also planned to managed as offset sites and thus will be subject to similar requirements for weed control, limiting the potential for invasion.
Habitat change due to Dieback Cinnamon Fungus infestation	The occurrence and potential impacts associated with Cinnamon Fungus on the native vegetation and Southern Brown Bandicoot habitat will be monitored and management actions implemented should this be determined a major threat to the species.

5.3 Compliance with Offset Principles

The EPBC Act Environmental Offsets Policy (DSEWPaC 2012a) outlines a set of principles that a proposed offset must meet in order to be assessed under the referral process. These principles are detailed in Section 6 of the Preliminary Documentation (Ecology and Heritage Partners 2023), along with how the proposed third-party offset site meets these requirements.

5.4 Offset Targets

The EPBC Act Environmental Offsets Policy (DSEWPaC 2012a) provides the details of the offsetting approach for matters of NES; this includes an Offset Assessment Guide and offset calculator.

The Offset Assessment Guide offset calculator has been completed to determine the area of offset required to adequately compensate for the removal of the Southern Brown Bandicoot habitat at the development site. The Offset Assessment Guide offset calculator is provided in Appendix 3, and a justification for the scores given in Section 4.2.1.

5.5 Ongoing Land-use Commitments

The offset site will be managed to ensure the quality of remnant native vegetation and habitat for matters of NES is improved over 10 years. After this period of management, the land will be required to be maintained in the condition achieved as a result of that management, in perpetuity.

From the commencement of the agreement, the Landowner agrees to undertake the following long-term (ongoing) management commitments in perpetuity in the 10 hectares of Southern Brown Bandicoot habitat:

- Retain and manage all native vegetation as directed by this OMP;
- Exclude domestic stock;
- Eliminate all woody weeds < 1 % cover;
- Ensure that weed cover does not increase beyond the current level;
- Monitor for any new and emerging weeds and eliminate to < 1% cover; and,
- Control rabbits.

5.6 Management Actions

Implementation of this OMP is the overall responsibility of the landowners. However, direct management responsibility may be delegated to a designated site manager and/or managing ecologist with annual reports submitted to TfN, DCCEEW and Greenridge Properties Pty Ltd.

Management actions detailed in this OMP will commence from the date the Trust for Nature Covenant is registered on-title. A breakdown of management actions required over the mandatory 10-year active management period is shown below (Table 7). Following the 10-year active management period, the landowner will continue to manage the offset site as specified in this plan, such that:

- By year 10 of management, the weed cover must be improved (i.e. reduced) from levels upon inception of this plan (Section 5.7.3). Following year 10 of this plan, the weeds within the site must be maintained at the improved state achieved at year 10, or ideally improved further;
- Control of high threat weeds to maintain and improve the quality of understorey habitat required for Southern Brown Bandicoot breeding and foraging;
- Managed in perpetuity to ensure it does not increase beyond the level attained at year 10 of management;
- Control of introduced predators, particularly Red Fox and Feral cat; and,
- Control of feral deer including Sambar Deer and Hog Deer to prevent habitat degradation by these species.

Funding for undertaking security, management and monitoring actions prescribed in this OMP has been agreed between the landowner and Greenridge Properties Pty Ltd and will be held by TfN.

Any proposed uses or development of the offset site which conflict with the landowner's commitments are not permitted under this plan. The sensitivities of the offset site must be considered with all management actions and all contractors entering the offset site need to be made aware of its ecological values.

The management and monitoring actions detailed in this OMP have been development in accordance with the following legislations and/or policies:

- EPBC Act;
- FFG Act;
- *Catchment and Land Protection Act 1994* (CaLP Act);
- Commonwealth's Threat Abatement Plan for predation by feral cats (DoE 2015);
- Commonwealth's Threat Abatement Plan for predation by Red Fox (DEWHA 2008); and,
- Approved Conservation Advice for *Isodon obesulus obesulus* (Southern Brown Bandicoot). Canberra: Department of the Environment. Department of Environment (DoE 2016).

Of particular note, habitat degradation/loss and predation by foxes and cats are two of the main demonstrated threats to Southern Brown Bandicoot and its habitat.

This OMP addresses these demonstrated threats by including management actions aimed at reducing the likelihood of fox and cat predation and establishing habitat corridors and connectivity between fragmented populations of the species.

Further, the actions contained in this OMP address several Priority Actions included in the conservation advice (DoE 2016) and will be undertaken to support the recovery of the Southern Brown Bandicoot populations.

5.6.1 Fencing and Access

Currently there is a no perceived risk of inadvertent entry to the site by grazing livestock. The existing gas pipeline easement that transects the property is well fenced with locked gates and signage to prevent access

by vehicles or stock. A Fencing and Gate Plan (Appendix 4) has been prepared by the landowner in consultation with Parks Victoria, Wellington Shire Council and Esso (the entity responsible for the pipeline easement) to further restrict and discourage unauthorised access to the offset site.

As the site is set back from the road and separated by dense Coast Banksia Woodland EVC, unauthorised access to the offset site is highly unlikely. The site provides no access between the existing roadway and gas pipeline easement. The northern end of the property is currently unfenced, and fencing is not currently considered necessary for the establishment of this offset site.

Actions

The following actions are required as part of fencing:

- Establish posts to mark the boundary of the offset site for management and monitoring purposes in accordance with advice from a qualified ecologist and land surveyor;
- Along with relevant stakeholders (i.e. Parks Victoria, Esso and Wellington Shire Council) implement the Fencing and Gate Plan (Appendix 4) to restrict and discourage unauthorised access to the offset site;
- Establish and maintain signage identifying the site as private property;
- Control access and any passive use of the offset site to minimise impacts on native vegetation; and,
- Monitor the site for evidence of unauthorised access.

Performance Indicators

The following performance indicators are required as part of fencing:

- Access to the offset site is appropriately controlled, incidents of unauthorised access are reported to Victoria Police and noted in the corresponding annual management and monitoring report;
- Existing boundary fencing with Lot 10 Beach Road, Ocean Grange is maintained in good condition;
- Posts around the perimeter of the offset site are established for monitoring and management purposes; and,
- All fencing activities and repairs are effectively documented.

Adaptive Management

- Adaptive management should be undertaken over the management of the offset site, including reviewing the need to implement new fencing if persistent incident of unauthorised access occurs.
- Install additional signage around areas that areas of the site subject to regular unauthorised access.

5.6.2 Pest Animals

Objectives

The objective of pest animal management is to control pest animals (e.g. cats, foxes, deers) within the offset site, as required, to minimise negative impacts to Southern Brown Bandicoot populations. The CaLP Act lists

rabbits and foxes as established pest animals and requires that all landowners take reasonable steps to prevent the spread of, and as far as possible eradicate, established pest animals on their land.

Foxes are a threat to native fauna and must be controlled if identified within the offset site. If identified, fox dens will be destroyed through fumigation and hand collapse.

To reduce the likelihood of pest animals inhabiting the offset site on a regular basis, any artificial piles of logs and rocks that may be used as harbour by pest animals will be removed or dispersed. Pest animals will be controlled as detailed in Table 5.

Table 5. Pest animals to be controlled – species, method and timing

Common name	Method	Timing
Feral Cats	Engage qualified and licenced trapper/shooter; ensure Southern Brown Bandicoot are not impacted.	Ongoing
Red Foxes	Remove dens or disperse surface harbour taking care to ensure no impacts to Southern Brown Bandicoot. Engage qualified and licenced trapper/shooter; ensure Southern Brown Bandicoot are not impacted. Investigate the use of Canid Pest-ejectors on the property.	Ongoing
Sambar and Hog Deer	Engage qualified and licenced trapper/shooter; ensure Southern Brown Bandicoot are not impacted. Undertake consultation with neighbouring landowners to achieve a broader landscape approach to the control of deer.	Ongoing
New and emerging pest animals	Monitor and control	Ongoing

Actions

The following actions are required associated with pest animal management:

- Monitor site for evidence of increased incidence of pest animal; and
- Control and seek to locally eliminate pest animals using appropriate control techniques, including poison baits, trapping/shooting.

Performance Indicators

The following performance measures are required as part of pest animal management:

- Any fox dens are controlled immediately following detection;
- Reduction in the abundance of pest animals, as evidenced by reduced number of target pest animals (i.e. cats, foxes and deer) recorded during Southern Brown Bandicoot infrared monitoring programs; and
- All monitoring and management activities are effectively documented.

Adaptive Management

- If pest animal management fails to achieve a reduction, or effectively control cat, fox or deer numbers, observed through remote camera monitoring a review of the current procedures and management measures will be undertaken;
- If impacts to Southern Brown Bandicoot populations or vegetation communities are attributable to an increase in pest animal activities, a review of the current procedures and management measures will be undertaken;
- Review performance of pest animal contractor;
- Increase active monitoring of pest animal activity;
- In the event of a fire on the site that reduces the cover of Southern Brown Bandicoot habitat, pest animal control efforts must be increased in the following months.
- Incorporate additional control measures (i.e. spotlighting and shooting).

5.6.3 Weed Control

Objectives

The objective of weed control within the offset site is to improve the existing quality of the Southern Brown Bandicoot habitat by reducing/minimising future invasion by exotic flora. Two high threat weeds, Ragwort *Senecio jacobea* and Spear Thistle *Cirsium vulgare*, will be the focus of management across the site. This will be achieved through a combination of hand removal and spot spraying. Hand removal of Ragwort is a feasible option as the plants can be easily pulled from the sandy soils present on site. Ragwort flowers will be removed from the site and disposed of responsibly. Spot spraying of Spear Thistle will be undertaken by an ACUP certified contractor that is experienced in working with high quality habitat and familiar with the native flora species typical of Coast Banksia Woodland EVC. Extreme care will be taken to avoid spray-drift and consequent off-target impacts to native flora.

Woody weeds

No woody weeds have been recorded from the site. Incursions of Blackberry *Rubus fruticosus* spp. agg. are expected to be observed over the course of this management plan and potentially beyond due to the presence of the species in nearby road reserves.

Herbaceous weeds

The aim of management is to reduce cover below current levels. Current weed cover within the offset site is estimated at 1%. Weeds listed in Table 6 were found within offset site. These weeds will be controlled and monitored each year to ensure their cover is reduced. Weeds must be treated using methods listed in Table 6 before the plant has flowered and set seed. Indigenous plants must not be impacted during treatment of weeds. Annual weeds within the offset site are not considered to be a significant threat because of the current low coverage throughout the site.

Spot spraying with appropriate herbicide is the main method for reducing weed cover. Spot spraying will be undertaken regularly, particularly in spring and early summer, with a focus on killing weed plants prior to seed set. Spot spraying will be completed in a manner which minimises non-target damage. Spot spraying will not occur during high wind days or in close proximity to threatened flora without protective measures in place (i.e. physical shielding).

Weed control methodology for eradicating graminoid and herbaceous weeds will comprise manual removal and/or targeted spot spraying with an appropriate herbicide. Care must be taken when spraying herbicide to ensure that the poison does not affect native vegetation in the local application area. Weed species must be treated before seed is set, which may involve localised slashing if spot-spraying proves ineffective. A dye will be used in the spray to mark where spraying has been utilised.

The composition and distribution of vegetative cover across the offset site is likely to change over time in response to seasonal conditions or pulse grazing. Therefore, weed cover and species will be continually monitored and management activities adapted to ensure the desired outcomes outlined in this OMP are achieved.

New and emerging herbaceous weeds

Monitoring for new and emerging herbaceous weeds will be conducted throughout the year for the term of the agreement, and any new and emerging weeds eliminated (<1% cover).

Any other significant environmental weeds identified within the broader property during monitoring will also be controlled. The landowners may consult with a qualified ecologist regarding appropriate control techniques for any new or emerging weeds identified within the offset area.

Table 6. Herbaceous weeds to be controlled – method and timing.

Common name	Scientific name	% total cover at inception	Method	Timing
Sweet Vernal-grass	<i>Anthoxanthum odoratum</i>	<1%	Spot spraying patches and monitor for recruitment of EVC appropriate flora	Spring and summer, monthly during the active growing season
Spear Thistle	<i>Cirsium vulgare</i>	1%	Hand-pull small plants (taking care to remove taproot); spot spraying with Grazon Extra	Spring and summer, monthly during the active growing season
Cocksfoot	<i>Dactylis glomerata</i>	<1%	Spot spraying patches and monitor for recruitment of EVC appropriate flora	Spring and summer, monthly during the active growing season
Ragwort	<i>Senecio jacobaea</i>	<1%	Hand-pull small plants (taking care to remove taproot); spot spraying with Grazon Extra	Spring and summer, monthly during the active growing season

Spot Spraying

The application of herbicides is an effective and efficient control technique for a range of woody, herbaceous and grass weeds. The correct use and application of herbicides can provide targeted control of a range of species. However, all herbicides must be used in accordance with the manufacturer's specifications and occupational health and safety policies.

Application methods for herbicides include spot spraying with a knapsack, dabbing of weeds in sensitive areas with a foam-tipped application device, rig spraying with a pump for larger areas, dabbing of cut stumps and injection of woody weeds.

Timing of the interval of spot spraying is dependent upon many factors such as plant age and growth seasons, plant stress levels and climatic factors. All these factors need to be considered when develop methodologies for the application of herbicides to ensure successful outcomes. Surrounding native plants' susceptibility to herbicides and ongoing uses of the treated areas must also be considered when choosing the right herbicide to be used in a weed control program, as some herbicides are residual and may persist within the soil for varying durations.

Actions

The following actions are required as part of weed control:

- Periodic spot spraying of weeds with appropriate herbicide will be undertaken, particularly through spring and early summer as detailed in Table 6;
- Any populations of new and emerging high threat weeds will be treated promptly and eliminated to <1% cover. This will be done in consultation with TfN;
- During weed control, natural regeneration of indigenous flora will be protected from off-target damage;
- Annual monitoring will be undertaken to demonstrate the effectiveness of weed control works and the results are to be used to adapt future control works and targets; and,
- Monitoring for new incursions of high threat woody weeds i.e. Blackberry

Performance Indicators

The following performance indicators are required as part of weed control:

- Eliminate all high threat weeds (<1% cover);
- Maintain absence of woody weeds across the sites (<1% cover);
- Where herbicide application is employed, waterway sensitive products and non-residual herbicides are to be employed;
- No off-target damage to indigenous plants; and,
- No new or high threat weeds establishing within the offset site.

Adaptive Management

Respond to the annual monitoring report and associated recommendations;

- If objectives and performance indicators are not being met:
- Increase frequency of control activities; and
- Raise any significant issues with TfN as soon as they arise.

5.6.4 *Monitoring and Reporting*

This OMP requires the landowner to submit a report annually to TfN and DCCEEW for each year of the 10 years of this OMP, and every year following for the life of the project's approval under the EPBC Act. The reports will include a review of past management works against the performance targets and objectives contained within this OMP. Future management priorities will also be detailed in these reports.

The Landowner will establish three permanent photo-points in the Southern Brown Bandicoot offset site (Figure 1). Photographs taken from these points will be representative of the vegetation and objectives of the OMP (e.g. areas of high threat weed invasion). Photographs will be taken in during annual monitoring surveys each year and be clearly labelled. Each photo will be taken from as near to the same point each year and will use the same direction, trajectory and camera settings as is practicable.

Photographs and Annual Reports are to be submitted to TfN at least two months prior to the anniversary date of the execution of the agreement to allow time for compliance to be assessed before the anniversary date.

The Annual Report addresses progress against the commitments set out in this agreement. Annual Reports must provide enough detail in the form of written comments and supporting evidence that TfN can easily determine the completion of/progress against the commitments for each zone.

A template for annual reporting will be provided by TfN upon registration of the covenant on title. Information to be provided in the reporting form includes:

- A copy of the Management Action Table from the OMP with information on which actions have been completed for year/s of this reporting period;
- A description of the specific monitoring results from surveys undertaken (i.e. Southern Brown Bandicoot surveys);
- Success of weed and pest animal control work;
- Successful management tools (i.e. techniques used to control weed species, protection of new plants, monitoring technique, etc.);
- Any problems or issues experienced (i.e. new infestation of weed species, etc.); and,
- Provide photographs showing evidence of works.

If any agreed management actions or commitments are incomplete or have not been undertaken in the times specified, the landowner is to document the justification and the actions that will be action/s will be undertaken to implement the requirement.

All records/evidence of management actions must be maintained and be submitted to TfN and/or DCCEEW upon request, and any proposed changes to management must be submitted to TfN and/or DCCEEW prior to the changes being undertaken.

5.7 Monitoring and Reporting

Ongoing monitoring is required to determine whether Southern Brown Bandicoot population/s and Southern Brown Bandicoot habitat quality persist and remain viable over time and to ensure that management actions improve habitat.

Site monitoring must include:

- General habitat monitoring by the landholder (or an appointed entity on behalf of the landowner) annually; and,
- Detailed monitoring to be conducted by a qualified ecologist annually for an initial three-year period, and then in years 5 and 10 of this management plan

Further details on the monitoring actions is outlined below.

5.7.1 *Southern Brown Bandicoot population monitoring (Years 1-3, 5 and 10)*

In addition to annual monitoring outlined in Section 5.6, appropriate monitoring of Southern Brown Bandicoot will be undertaken for an initial three-year period, and then in years 5 and 10 of this management plan, or thereafter upon written agreement with the Commonwealth Minister for Environment. If the results indicate a decline in the population size or habitat degradation becomes evident, actions within this management plan will be re-evaluated. If any changes to management are required in the landowners' view, a revised management strategy must be approved by DCCEEW and TfN prior to implementation. Monitoring of Southern Brown Bandicoot habitat must be undertaken by a suitably qualified ecologist(s).

Specific survey procedures will follow approved monitoring guidelines for Southern Brown Bandicoot (DSEWPac 2011b). The following measures will be undertaken as part of population and habitat monitoring for Southern Brown Bandicoot at the offset site:

- Surveys are to be conducted by suitably trained observers;
- As the offset site is contiguous with other conservation areas managed for the same conservation values, monitoring for Southern Brown Bandicoot may be undertaken across the broader area (thereby reducing the survey effort required within each individual conservation/offset site);
- Surveys will require cameras to be deployed for two (2) periods of 14 days. Camera trapping periods will be separated by an interval of one month;
- Surveys will be undertaken at a time which is considered optimum for detecting the species (i.e. March-May);
- At least one survey must be conducted after significant rainfall; and,

- One camera per hectare must be established in locations showing evidence of suitable habitat or recent diggings.

5.7.2 *Photo point monitoring*

The landowner undertakes to establish three permanent photo-points across the offset site (Figure 1). Photographs taken from these points will be representative of the vegetation and objectives of the OMP (e.g. areas of high threat weed invasion). Photographs will be taken during the annual monitoring period annually and clearly labelled. Each photo will be taken from as near to the same point each year and will use the same direction, trajectory and camera settings as is practicable.

Annual monitoring must be undertaken by the landowner (or an appointed entity on behalf of the landowner), and must include an assessment of:

- Photographs taken at established photo-points;
- The extent, severity, trend and presence of current weed species and any new and emerging weed species.
- The extent, severity, trend and presence of pest animal activity;
- Biomass levels, visually assessed across the site;
- Evidence of unpermitted human/stock access; and,
- Any new threats.

The annual monitoring must be undertaken for each year of the ten years of this OMP.

5.7.3 *Detailed vegetation monitoring (Years 1-4, 6, 8 and 10)*

Detailed vegetation monitoring will be conducted by a qualified ecologist for an initial four-year period, and then in years 6, 8 and 10 of this OMP, and will document the following components:

- Overall assessment of the quality and quantity of vegetation and composition of species (i.e. Habitat Hectare Assessment*);
- The extent, severity, trend and presence of current weed species and any new and emerging weed species.

* Department of Sustainability and Environment 2004. *Vegetation quality assessment manual: Guidelines for applying the habitat hectares scoring method*. Version 1.3. Victorian Department of Sustainability and Environment, Melbourne, Victoria

5.7.4 *Reporting*

To demonstrate that the management measures are effective in meeting the environmental outcomes, this OMP requires the landowner to submit a report annually to TfN and DCCEW for each year of the ten years of this OMP.

Photographs and reports are to be submitted at least two (2) months prior to the anniversary date of the execution of the agreement to allow time for compliance to be assessed before the anniversary date.

The report must address progress against the commitments set out in this agreement and any conditions of the EPBC Act referral (EPBC 2019/8406). Reports should provide enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of/progress against the commitments for each zone.

Information to be provided in the progress report includes:

- Detailing actions completed during the reporting period;
- Results of Southern Brown Bandicoot population monitoring;
- Results of vegetation condition assessment (Habitat Hectare Assessment);
- A description of the specific monitoring results from ecological surveys undertaken;
- Results of weed and pest animal control work;
- Successful management tools (i.e. techniques used to control weed species, monitoring technique, etc.);
- Any problems or issues experienced (i.e. new infestation of weed species, etc.);
- Any corrective actions and contingency measures where monitoring indicates that there has been a deterioration in the native vegetation or Southern Brown Bandicoot population;
- Photographs showing evidence of works; and,
- Assessment of whether the site is on track to meet, or meets the conditions under the EPBC referral (EPBC 2019/8048), including an assessment against the EPBC offset gain calculator inputs
- If any agreed management actions or commitments are incomplete or have not been undertaken in the times specified, the landowner is to document the justification and the substituted actions that will be undertaken in order to compensate and ensure the required outcomes are achieved.
- All records/evidence of management actions must be maintained and be submitted to DCCEEW upon request.

5.7.5 *Offset Management Plan Review*

The protection and management of the nominated offset area is for perpetuity. The OMP will be reviewed by a suitably qualified ecologist, in consultation with the landowner, five years from the date of approval. The focus of the review will be to determine its effectiveness in managing the Southern Brown Bandicoot habitat.

The 5-year review of the OMP will be submitted to TfN and DCCEEW for approval prior to any recommendations regarding management of the offset site being implemented.

5.8 Management Actions Table

Management actions proposed to compensate for the loss of native vegetation and habitat under Commonwealth legislation at the offset site are presented in Table 7. The actions constitute the minimum

management requirements for the offset site over the mandatory 10-year management period and are appropriate for the management of Southern Brown Bandicoot habitat.

Table 7. Management actions table.

Year from Commencement	Area	Management Action Description	Timing	Environmental outcome to be achieved
Fencing				
1-10	10 ha of Southern Brown Bandicoot habitat	Maintain existing fencing along boundary with Lot 10 Beach Road, Ocean Grange in good condition. Implement Fencing and Gate plan in accordance with plan provided in Appendix 4. Refer to Section 5.6.1	Ongoing	Maintain fencing to DELWP fencing standards in <i>Management standards for native vegetation offset sites</i> (DELWP 2019).
1-10	10 ha of Southern Brown Bandicoot habitat	If a threat arises erect an additional fence immediately around the entire boundary of the offset site Refer to Section 5.6.1	Immediately on identification of threat	Erect fencing to DELWP fencing standards in <i>Management standards for native vegetation offset sites</i> (DELWP 2019).
1	10 ha of Southern Brown Bandicoot habitat	Establish posts to mark the boundary of the offset site in accordance with advice from a qualified ecologist and land surveyor Refer to Section 5.6.1.	Immediately on approval of Year 1 of management works	Facilitate management and monitoring of the offset site.

Year from Commencement	Area	Management Action Description	Timing	Environmental outcome to be achieved
Woody Weeds				
1-10	10 ha of Southern Brown Bandicoot habitat	Eliminate all new and emerging woody weeds Refer to Section 5.6.3	Ongoing	Eliminate woody weeds (<1% cover)
Herbaceous Weeds				
1-10	10 ha of Southern Brown Bandicoot habitat	Control all herbaceous weeds. Refer to Table 6 for list of herbaceous weeds, their control method and timing of actions Refer to Section 5.6.3.	Refer to Table 6	Eliminate all high threat weeds (<1% cover) Minimise off-target damage (avoid all native plants)
1-10	10 ha of Southern Brown Bandicoot habitat	Eliminate all new & emerging herbaceous weeds Refer to Section 5.6.3	Ongoing.	<1% cover of all new and emerging herbaceous weeds at the end of Year 10
Pest Animals				
1-10	10 ha of Southern Brown Bandicoot habitat	Control cats, foxes and deer. Refer to Table 5 for a list of control methods and timing of actions Refer to Section 5.6.2	Refer to Table 5	No active fox dens to be present; No rubbish/artificial harbour present; Minimal artificial piles of logs and rocks; Maintain quality of understorey habitat suitable for Southern Brown Bandicoot; Reduced number of pest species as evidenced by remote camera observations

Year from Commencement	Area	Management Action Description	Timing	Environmental outcome to be achieved
1-10	10 ha of Southern Brown Bandicoot habitat	Monitor site for evidence of increased incidence of pest animals Refer to Section 5.6.4.	Ongoing	Reduced number of pest species as evidenced by remote camera observations
1-10	10 ha of Southern Brown Bandicoot habitat	Monitor and control all new and emerging pest animals Refer to Section 5.6.2, Section 5.6.4 and Section 5.7.1	Ongoing	Control numbers of any new & emerging pest animals
Detailed Southern Brown Bandicoot population and vegetation monitoring				
1-3, 5 and 10	10 ha of Southern Brown Bandicoot habitat	Southern Brown Bandicoot population monitoring Refer to Section 5.7.1	Autumn of prescribed Southern Brown Bandicoot population monitoring years (1-3, 5 and 10)	Monitoring of Southern Brown Bandicoot population; Maintenance of the Southern Brown Bandicoot population at the site; and Record observations of pest animal activity
1-3, 5 and 10	10 ha of Southern Brown Bandicoot habitat	Southern Brown Bandicoot Habitat assessment Refer to Section 5.7.1	Autumn of prescribed Southern Brown Bandicoot population monitoring years (1-3, 5 and 10) alongside Southern Brown Bandicoot population monitoring	Monitor for changes to quality and structure of habitat available for Southern Brown Bandicoot on site; and Inform ongoing management of the site for Southern Brown Bandicoot habitat

Year from Commencement	Area	Management Action Description	Timing	Environmental outcome to be achieved
1-10	10 ha of Southern Brown Bandicoot habitat	Photo-point monitoring Refer to Section 5.7.2.	Annually, to be submitted with annual Monitoring Report	Annual visual assessment of general changes in site condition

Year from Commencement	Area	Management Action Description	Timing	Environmental outcome to be achieved
Annual reporting				
1-10	10 ha of Southern Brown Bandicoot habitat	Prepare and submit an annual report and photo monitoring to TfN and DCCEEW. Refer to Section 5.6.4 and 5.7.4.	Submit at least 2 months prior to on-title agreement anniversary date.	Annual report is signed, dated and submitted by the Landowner at least 2 months prior to the anniversary date of on-title agreement registration Report provides enough detail in the form of written comments and supporting evidence that an assessor can easily determine the completion of / progress against the commitments for the offset site. Allow for ongoing auditing of the effectiveness of management. Reports will include a review of past management works against the performance targets and objectives contained within this OMP. Future management priorities will also be detailed in these reports. Obligations of the Landowner have been met and the obligations form is signed, dated and submitted with the annual report
5	10 ha of Southern Brown Bandicoot habitat	Review effectiveness of OMP. Refer Section 5.7.5 and 6.1	End of Year 5	If existing OMP is not leading to the ongoing maintenance and improvement of the GSM habitat, a review will be undertaken, and a new management plan prepared for the remaining 5 years of management.

6 CONTINGENCY RESPONSE AND CORRECTIVE ACTIONS

The landholder will use an Adaptive Management Approach to allow the flexibility to respond appropriately and effectively to the uncertainties involved in ecological processes. This will ensure that management objectives are being met while allowing for altered circumstances to be included in the management of the site.

If after year 5 of management, the actions detailed in this OMP are not leading to the ongoing maintenance and improvement of the Southern Brown Bandicoot habitat, a review will be undertaken, and a new management plan prepared for the remaining five years of management.

Any proposed changes to the management contrary to that specified within this plan must be approved by DCCEE and TfN prior to implementation. Any proposed uses or development of the site which conflict with the landowners' commitments or maintenance/improvement of the habitats for matters of NES are not permitted under this plan.

The landholder will use an Adaptive Management Approach to allow the flexibility to respond appropriately and effectively to the uncertainties involved in ecological processes. This will ensure that management objectives are being met while allowing for altered circumstances to be included in the management of the site.

Alternative management measures, as part of an adaptive management approach, may be implemented if:

- The management outcomes outlined within Section 5 are unable to be met based on methods outlined within this plan;
- A new management technique has been identified which is considered to be more effective in meeting the objectives of this OMP, and relevant recovery plans, threat abatement plans, conservation advices and does not increase risk of impacts to Southern Brown Bandicoot communities. A review of the benefits and risks of the proposed management technique must be prepared and submitted to DCCEE and TfN; and,
- The proposed management technique has been approved by DCCEE and TfN.

Where management outcomes outlined within Section 5 have not been met during any monitoring event (Section 5.7) corrective actions must be identified upon submission of the monitoring report.

Where an adaptive management approach has been implemented, the success, or failure, of the approach must be outlined within subsequent monitoring reports. The monitoring report must make recommendations on whether the approach should be continued, or whether subsequent alternative management is recommended.

In the event of a significant detrimental impact within the offset area and/or failing of the OMP, the landowner will promptly notify TfN, the Approval Holder and DCCEE, and in consultation with these parties:

- Develop responsive management plan to address impacts; and,
- Update the OMP and/or review implementation period (i.e. extend if required to address impacts)

6.1 Managing Uncertainty

An assessment of potential risks associate with the objectives of this plan are outlined within Table 2. All risks are considered manageable and actions within subsequent sections of this OMP address relevant risks.

7 EMERGENCY CONTACTS AND PROCEDURES

Should any environmental emergency occur on-site that poses a risk to the objectives of this OMP, the relevant contacts (Table 8) must be notified as soon as possible, and no later than 12 hours following the event. At a minimum, DCCEEW, TfN and the landholder must be notified; Country Fire Authority (CFA) and Victoria Police should be notified if assistance is required from these emergency services (e.g. control of wildfire). Emergency services must be advised of the on-site protections to avoid inadvertent damage to ecological values (e.g. creation of graded earthen fire breaks within the site, which unless absolutely necessary, must be avoided).

Table 8. Emergency contacts.

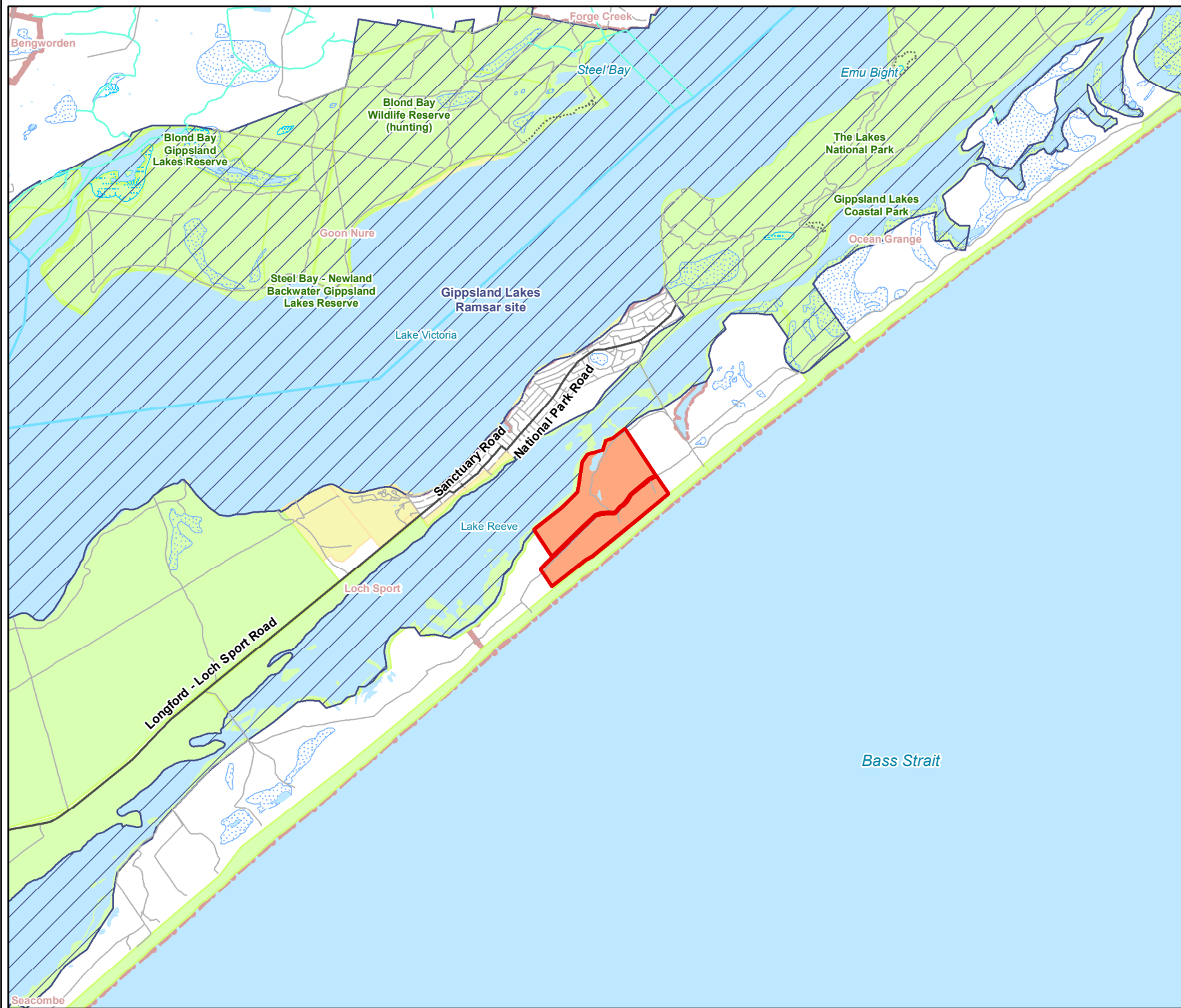
Contact	Role	Telephone
CFA	Bushfire emergency	000
Victoria Police	Various (e.g. unauthorised access)	000
DCCEEW	Offset Monitoring Responsibility	1800 803 772
TfN	Offset Monitoring Responsibility	(03) 8631 5888
	Landholder	

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- DSEWPaC 2012b. Offsets Assessment Guide: For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999* (2 October 2012). Microsoft Excel spreadsheet developed by the Department of Sustainability, Environment, Water, Population and Communities, Canberra.
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- Ecology and Heritage Partners 2023. Preliminary Documentation: 40-46 Cyril Beechey Lane, Cranbourne (EPBC 2019/8406).
- Wills T.J., Retallick R. W. R., Greet J., Bennett A. 2023. Browsing by non-native invasive sambar deer dramatically impacts forest structure, *Forest Ecology and Management*, 543, p. 121153. doi:10.1016/j.foreco.2023.121153.

FIGURES



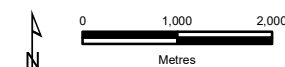
Legend

- Proposed Offset Site
- Major Road
- Minor Road
- Walking Track
- Minor Watercourse
- Major Watercourse
- Permanent Waterbody
- Land Subject to Inundation
- Wetland/Swamp
- Ramsar wetland
- Parks and Reserves
- Crown Land
- Localities



Figure 1

Location of the offset site
Southern Brown Bandicoot
Offset Site at Lots 7, 8 and 9
Beach Road, Ocean Grange



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



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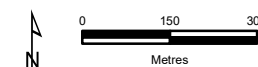
- Offset property boundary
- Proposed Southern Brown Bandicoot offset site (10 ha)
- Current Wetlands
- Ramsar wetland



Figure 2

Southern Brown Bandicoot Offset Area

Lots 7, 8 and 9 Beach Road, Ocean Grange



Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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14434_Fig02_OffsetArea 18/12/2023 melsley

APPENDIX 1 – VEGETATION QUALITY ASSESSMENT SCORES

Benchmark assessment criteria	Maximum score	EPBC offset site score	Justification
Large Old Trees	10	10	Exceeds benchmark for large trees (10 per hectare: eucalyptus spp. 70cm / banksia spp. 50cm)
Canopy cover	5	5	Exceeds benchmark canopy cover (15%)
Understorey	25	25	All lifeforms present / none modified
Lack of weeds	15	11	Low (1%) weed cover; of two high threat species
Recruitment	10	10	All woody species are recruiting well
Organic litter	5	5	Organic litter cover is at 40-60%
Logs	5	5	Large logs are abundant and well in excess of benchmark
Site condition total	75	71	
Patch size	10	8	Patch is over 20ha but disturbed by roadway and pipeline
Neighbourhood	10	8	Neighbourhood predominantly indigenous but disturbed
Distance to core area	5	4	Patch is contiguous with disturbed core area (total offset site exceeds 380 ha)
Landscape condition total	25	20	
HABITAT QUALITY SCORE	100	91	

APPENDIX 2 - RISK ASSESSMENT AND MANAGEMENT DEFINITIONS

Risk framework

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

Likelihood and consequence

Qualitative measure of likelihood (how likely is it that this event/circumstances will occur after management actions have been put in place/are being implemented)	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances
Qualitative measure of consequences (what will be the consequence/result if the issue does occur)	
Minor	Minor risk of failure to achieve the plan's objectives. Results in short term delays to achieving plan objectives, implementing low cost, well characterised corrective actions.

Moderate	Moderate risk of failure to achieve the plan's objectives. Results in short term delays to achieving plan objectives, implementing well characterised, high cost/effort corrective actions.
High	High risk of failure to achieve the plan's objectives. Results in medium-long term delays to achieving plan objectives, implementing uncertain, high cost/effort corrective actions.
Major	The plan's objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies.
Critical	The plan's objectives are unable to be achieved, with no evidenced mitigation strategies.

APPENDIX 3 - EPBC OFFSET CALCULATOR

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Southern Brown Bandicoot
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	1.2%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source	
Ecological communities						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
Threatened species habitat						
Area of habitat	Yes	Southern Brown Bandicoot habitat	Area	3.143	Hectares	Field mapping
			Quality	6	Scale 0-10	
			Total quantum of impact	1.89	Adjusted hectares	
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact	Units	Information source	
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Threatened species						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g. Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator																					
Offset calculator	Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source	
	Ecological Communities																				
	Area of community	No				Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss (%) without offset		Risk of loss (%) with offset									
						Time until ecological benefit		Start quality (scale of 0-10)		Future quality without offset (scale of 0-10)		Future quality with offset (scale of 0-10)									
	Threatened species habitat																				
	Area of habitat	Yes	1.89	Adjusted hectares	10 ha at off-site offset	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	10	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%		75%	0.00	0.00				
						Time until ecological benefit	10	Start quality (scale of 0-10)	8	Future quality without offset (scale of 0-10)	6	Future quality with offset (scale of 0-10)	9	3.00	75%	2.25	2.00				
	Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start value		Future value without offset		Future value with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source	
Number of features e.g. Nest hollows, habitat trees	No																				
Condition of habitat Change in habitat condition, but no change in extent	No																				
Threatened species																					
Birth rate e.g. Change in nest success	No																				
Mortality rate e.g. Change in number of road kills per year	No																				
Number of individuals e.g. Individual plants/animals	No																				

Summary								
Summary	Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
						Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
	Birth rate	0				\$0.00		\$0.00
	Mortality rate	0				\$0.00		\$0.00
	Number of individuals	0				\$0.00		\$0.00
	Number of features	0				\$0.00		\$0.00
	Condition of habitat	0				\$0.00		\$0.00
	Area of habitat	1.88598	2.00	105.89%	Yes	\$0.00	N/A	\$0.00
	Area of community	0				\$0.00		\$0.00
							\$0.00	\$0.00

APPENDIX 4 – APPROVED FENCING AND GATE PLAN

Map 1. Proposed Fences and Gates
Wellington Shire



Legend

Subject Site

Parcels

Contours (10m)

Fences and Gates

Existing public fence and gate across easement

Public proposed fence and gate across easement



Details

Date: 11/06/2021

Version: 1

Aerial photography from ESRI World Imagery.

Base map data Copyright © The State of Victoria.



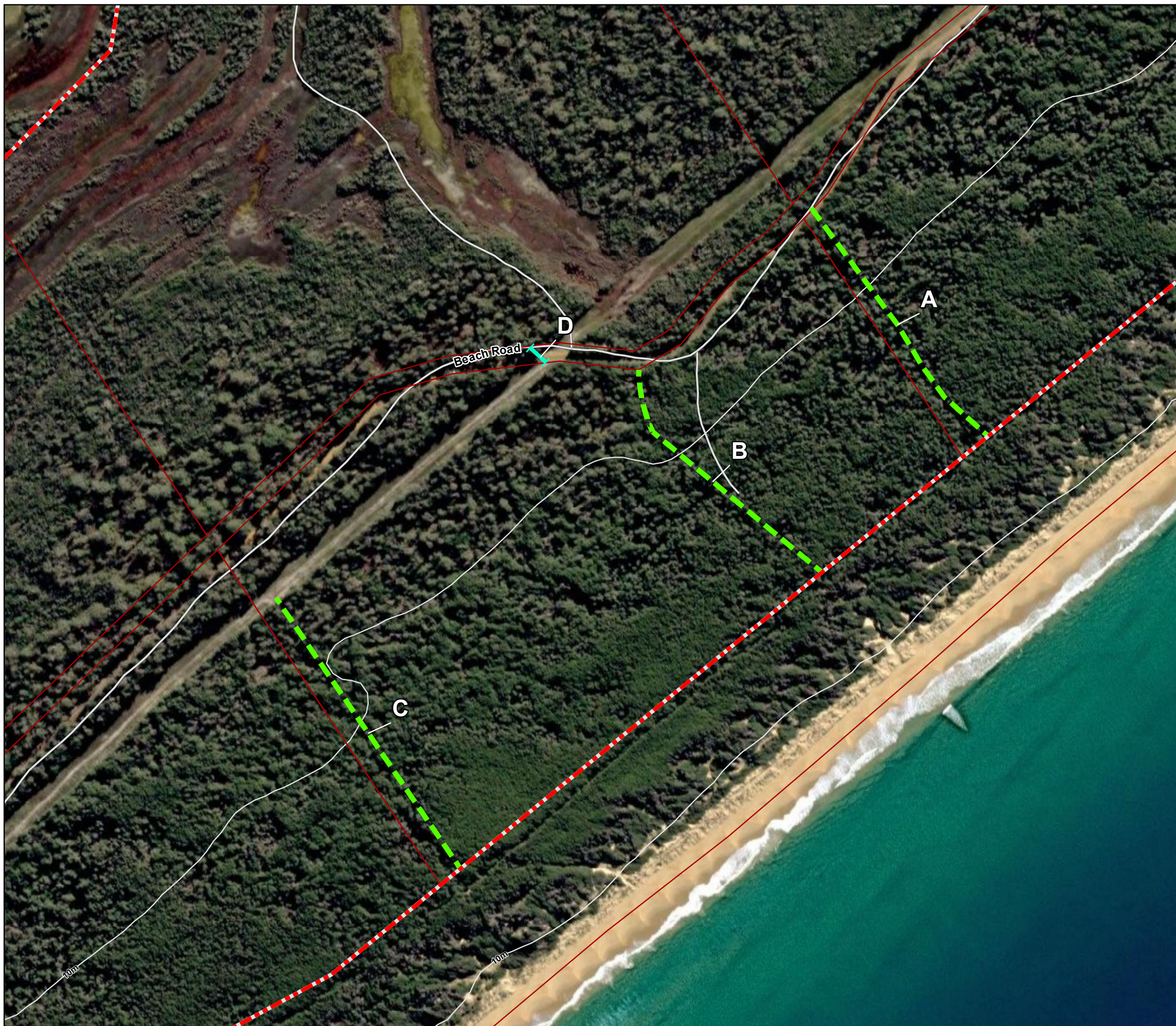
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Disclaimer

Practical Ecology bears no responsibility for the accuracy and completeness of this information and any decisions or actions taken on the basis of the map. While information appears accurate at publication, nature and circumstances are constantly changing.

Map 1. Proposed Fences and Gates
Wellington Shire



Legend

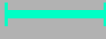
 Subject Site

 Parcels

 Contours (10m)

Fences and Gates

 Fenced private tracks

 Private proposed fence and gate across easement



Details

Date: 11/06/2021

Version: 1

Aerial photography from ESRI World Imagery.

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0 50 100 m

Scale 1:4,000 (Page size A3)

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