



# Replacement of Uphill Line, Blaxland and Wentworth (Duplex) T-bars, Perisher Valley

# Statement of Environmental Effects

Statement of Environmental Effects prepared by: Tanya Bishop Environmental Manager Perisher Blue Pty Ltd

Version 1.0

November 2021

1	Intr	oduction	4
	1.1	Project Background	4
	1.2	Objectives of the Project	4
2	PR	OJECT DESCRIPTION	5
	2.1	Project Overview	5
	2.2	Project Detail	5
	2.2.1	Site Access & Disturbance Corridor	5
	2.2.2	Equipment & Machinery	6
	2.2.3	Works Program	6
	2.2.4	Site Restoration and Rehabilitation	6
3	En	vironmental Assessment	7
	3.1	General site suitability and constraints	7
	3.2	Ecological Impacts	7
	3.3	General impacts on aquatic ecosystems	7
	3.4	Aboriginal cultural heritage	7
	3.5	European cultural heritage	7
	3.6	Geotechnical Considerations	8
	3.7	Soil impacts	8
	3.8	Visual impacts and aesthetics	8
	3.9	Social and economic impacts	8
	3.10	Effects on ski resort operation	8
	3.11	Noise and vibration	8
	3.12	Waste management	8
	3.13	Energy use and conservation	8
	3.14	Construction impacts	8
4	Sta	tutory Assessment Requirements	9
	4.1 2007	State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts 9	s)
	4.2	NSW Water Management Act 2000 1	2
	4.3	Environmental Planning and Assessment Act 1979 1	2
	4.4	Biodiversity Conservation Act 2016 1	3
	4.5	Environment Protection and Biodiversity Conservation Act 1999 1	3
5	Cor	nclusion 1	5
A	ppendi	x A - Project Maps	

Appendix B -	Site Photos
Appendix C -	Biodiversity Development Assessment Report
Appendix D -	Archaeological Due Diligence
Appendix E -	Site Environmental Management & Rehabilitation Plan

#### **1** INTRODUCTION

#### 1.1 Project Background

This report presents a statement of environmental effects (SEE) for a proposal by Perisher Blue Pty Limited (Perisher) to replace the Uphill Line of the Blaxland and Wentworth T-bars ("The Duplex T-bar"), Centre Valley, Perisher Ski Resort. The Uphill Line acts as the lift's safety circuit. Proposed works include replacement of the entire Uphill Line, due to the existing cable not having enough wires to enable the lift to comply with the latest safety standards.

The new Uphill Line will follow the same alignment as the existing uphill line for most of the project, with some deviations to avoid impact to sensitive vegetation.

The location of the proposal is within the Centre Valley resort area, as shown in *Appendix A* - *Project Maps*.

#### **1.2 Objectives of the Project**

The objective of the proposal is to replace the entire Uphill Line of the Duplex T-bar and replace it with a complete and reliable circuit, while causing minimal impact to the surrounding environment. The opportunity will also be taken to install additional conduits in the same trench for future provisions such as race timing cables and replacement phone lines.

## **2 PROJECT DESCRIPTION**

#### 2.1 Project Overview

Broadly, this proposal involves the following:

- Site preparation and installation of environmental controls;
- Site access from the established Centre Valley Access Track above (see, *Appendix A* and *Appendix B* Photo 1);
- Trenching from the Bullwheel on the uphill side of the Centre Valley Access Track, connecting via a lateral to the Top Hut, and continuing downhill for the entire length of the T-bar (see, *Appendix A* and *Appendix B* Photo 3);
- Trenching of a lateral conduit line to Tower 6 of the Perisher Quad Express to allow linking of the Express derail system with the Duplex T-bar safety circuit *Appendix B* Photo 4;
- Installation of electrical pits at lateral connections and at each tower;
- Progressive placement of conduit in trench;
- Progressive reinstatement of access track, sod replacement and stabilisation;
- Installation and connection of the Uphill Line;
- Egress from the established Leichhardt Access Track below (Appendix B Photo 8);
- Site stabilisation & rehabilitation, as required.

#### 2.2 Project Detail

#### 2.2.1 Site Access & Disturbance Corridor

Access to the works area will be via the formed Centre Valley Access Track above the site, or the formed Leichhardt Access track below the site, depending on need. These tracks are shown in *Appendix A* - and *Appendix B*.

The excavator will access the site from the top and work down the project site. Trenching will follow the original uphill line alignment, from the bullwheel to the top lift hut via a lateral, then directly under the lift from Tower 7 to Tower 2. Between Towers 2 and 1 the route will deviate from the original alignment to avoid impacts to sensitive vegetation.

Trench dimensions will be 300mm wide x 500mm deep, with 3 x 50mm conduits and 1 x 150mm conduits to be installed in the trench, allowing easy repairs of any future faults without excavation. A cross-section of the proposed trench is shown below.



The excavator will exit the site via the formed Leichhardt Access Track below the Project Site.

Proposed construction corridor widths are as follows:

• Trenching corridor, 4.5m wide

Other project vehicles will be limited to previously disturbed areas to avoid or minimise impacts on native vegetation. Staff will walk to site where needed to avoid impacts on native vegetation.

#### 2.2.2 Equipment & Machinery

Trenching will be conducted using a small rubber-tracked 6-tonne excavator, to minimise damage to vegetation.

No other heavy machinery is required on site.

Rock removal is not expected, given the trench is following the original disturbed cable alignment.

#### 2.2.3 Works Program

Trenching works are expected to be carried out over a 5-day period, with works carried out during the summer season.

Site stabilisation and rehabilitation will extend beyond this period, as required.

#### 2.2.4 Site Restoration and Rehabilitation

To minimise impacts on vegetation, a small rubber-tracked excavator will be used for the proposed trenching works. The Centre Valley Access Track will be reinstated to a its previous trafficable surface after trenching. In vegetated areas, sod replacement will be carried out for the full length of the project, with topsoil and vegetation replaced on top of the trench once conduit is installed.

Depending on the area of disturbance, the project will be rehabilitated as described in Appendix E – Site Environmental Management & Rehabilitation Plan.

## **3 ENVIRONMENTAL ASSESSMENT**

#### 3.1 General site suitability and constraints

The Duplex T-bar is a highly utilised lift in Centre Valley, acting as a return skier area and progressive terrain for skiers venturing beyond Front Valley. The required upgrade of the Uphill Line to suit current safety standards means these works are necessary. Some impacts to biodiversity are expected, as addressed in *Section 3.2*.

#### 3.2 Ecological Impacts

As shown on *Appendix A* – *Figure 2*, part of the project area is in an area identified as having high biodiversity value on the Biodiversity Values Map (*Biodiversity Conservation Act, 2016*).

An assessment of ecological impacts has been carried out by an expert consultant, see Appendix C – Biodiversity Development Assessment Report (BDAR).

This BDAR determined that the proposed development has been located to take advantage of existing disturbed areas and minimise the required disturbance. Two Plant Community Types and two threatened species (*Mastacomys fuscus, Ranunculus anemoneus*) require payment of offset credits under the Scheme. The BDAR utilises a Future Vegetation Integrity score of "0", despite the proposed rehabilitation outlined herein.

The project has been designed to avoid impacts on Perisher Wallaby Grass, *Rytidosperma* vickeryae.

#### 3.3 General impacts on aquatic ecosystems

The trenching works at the lower-most end of the project are within 40m from Perisher Creek, therefore within a riparian zone. A Controlled Activity Approval will be required for the works under the Water Management Act.

#### 3.4 Aboriginal cultural heritage

As shown on *Appendix A* – *Figure 2*, a small length of trenching at the top of the Project Site is within an area identified as having potential archaeological significance.

An assessment of potential archaeological impacts has been included in *Appendix D* - *Archaeological Due Diligence*. In summary, an AHIP application is not necessary for the proposed works. Proceed with caution. If any Aboriginal objects are found, stop work and notify DPIE. If human remains are found, stop work, secure the site and notify the NSW Police and DPIE.

#### 3.5 European cultural heritage

The proposed works will have no impact on European cultural heritage.

#### 3.6 Geotechnical Considerations

Given that excavations are proposed to a maximum of 500mm, there is no need for further Geotechnical Assessment of this project.

#### 3.7 Soil impacts

Erosion impacts will be managed with appropriate controls, as outlined in *Appendix* E - *Site Environmental Management* & *Rehabilitation Plan.* 

#### 3.8 Visual impacts and aesthetics

The proposed works will have short-term visual impacts, relating to construction disturbance. The site will be sod-replaced, stabilised and revegetated; hence visual impacts will be temporary only.

#### 3.9 Social and economic impacts

The proposed works will have positive social and economic impacts, as they will result in the ongoing safe operation of the highly utilised Duplex T-bar.

#### 3.10 Effects on ski resort operation

The proposed works will have positive impacts on ski resort operation, as they will result in the ongoing safe operation of the highly utilised Duplex T-bar.

Works are to be carried out during the non-operational summer season.

#### 3.11 Noise and vibration

Localised noise and air impacts will result from construction vehicles however these will be temporary only. There will be no ongoing impacts on noise and air quality from the proposed works.

#### 3.12 Waste management

The project will have no impacts on waste management.

#### 3.13 Energy use and conservation

There will be no impacts on energy consumption from the proposal.

#### 3.14 Construction impacts

Construction impacts including erosion, noise, air and waste are addressed in previous sections and *Appendix* E - *Site Environmental Management & Rehabilitation Plan*.

## **4** STATUTORY ASSESSMENT REQUIREMENTS

# 4.1 State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007

Clauses 14 -16 of the State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007 list the factors which need to be considered by the consent authority when determining a development application. As the proposed works do not involve the erection of a building or a subdivision, the factors included in Clauses 15 and 16 are not considered relevant for these works and are therefore not included in this assessment. The factors listed in Clause 14 are included in *Table 4.1*, together with a summary assessment of each of these factors.

Table 4.1 – Factors which must be considered by the consent authority when determining a development application under the State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007.

Factor	Impacts / Comments	
(a) the aim and objectives of this Policy, as se	et out in clause 2,	
(1) The aim of this Policy is to protect and enhance the natural environment of the alpine resorts, in the context of Kosciuszko National Park, by ensuring that development in those resorts is managed in a way that has regard to the principles of ecologically sustainable development (including the conservation and restoration of ecological processes, natural systems and biodiversity).	The proposed works are taking place within the Resort boundary, in the same alignment as previous trenching in this area. Measures have been implemented to minimise impacts on biodiversity. The works are minor in scale and will not result in significant impacts on the natural environment.	
<ul> <li>(2) The objectives of this Policy are as follows:</li> <li>(a) to encourage the carrying out of a range of development in the alpine resorts (including the provision of services, facilities and infrastructure, and economic and recreational activities) that do not result in adverse environmental, social or economic impacts on the natural or cultural environment of land to which this Policy applies,</li> </ul>	a) The proposed development will maintain resort facilities and infrastructure, while having minimal impacts on the natural environment.	
(b) to put in place planning controls that contribute to and facilitate the carrying out of ski resort development in Kosciuszko National Park that is ecologically sustainable in recognition of the fact that	b) Perisher encourages open discussion and transparency to ensure effective controls are in place to achieve ecologically sustainable development.	

this development is of State and regional significance,	c) All environmental risks are adequately
(c) to minimise the risk to the community of exposure to environmental hazards, particularly geotechnical hazards, bush fire and flooding, by generally requiring development consent on land to which this Policy applies.	assessed under the approval process for this project.
(b) the extent to which the development will achieve an appropriate balance between the conservation of the natural environment and any measures to mitigate environmental hazards (including geotechnical hazards, bushfires and flooding),	This proposal results in no impacts on measures to mitigate environmental hazards such as geotechnical, bushfire and flooding.
(c) having regard to the nature and scale of the development proposed, the impacts of the development (including the cumulative impacts of development) on the following:	
(i) the capacity of existing transport to cater for peak days and the suitability of access to the alpine resorts to accommodate the development,	The proposal will have no impact on traffic or access.
(ii) the capacity of the reticulated effluent management system of the land to which this Policy applies to cater for peak loads generated by the development,	The proposal will have no impact on effluent management.
(iii) the capacity of existing waste disposal facilities or transfer facilities to cater for peak loads generated by the development,	The proposal will have no impact on waste disposal.
(iv) the capacity of any existing water supply to cater for peak loads generated by the development,	The proposal will have no impact on peak load demand for water supply.
(d) any statement of environmental effects required to accompany the development application for the development,	This document
(e) if the consent authority is of the opinion that the development would significantly alter the character of the alpine resort - an analysis of the existing character of the site and immediate surroundings to assist in understanding how the development will relate to the alpine resort,	The proposal will not alter the character of the alpine resort.

(f) the Geotechnical Policy – Kosciuszko Alpine <i>Resorts</i> (2003, Department of Infrastructure, Planning and Natural Resources) and any measures proposed to address any geotechnical issues arising in relation to the development,	No geotechnical assessment is required.
(g) if earthworks or excavation works are proposed – any sedimentation and erosion control measures proposed to mitigate any adverse impacts associated with those works,	Sedimentation and Erosion control measures are outlined in <i>Appendix</i> E - <i>Site</i> <i>Environmental Management</i> & <i>Rehabilitation</i> <i>Plan</i> .
(h) if stormwater drainage works are proposed – any measures proposed to mitigate any adverse impacts associated with those works,	No stormwater drainage works are proposed.
(i) any visual impact of the proposed development, particularly when viewed from the Main Range,	Visual impacts will be negligible.
(j) the extent to which the development may be connected with a significant increase in activities, outside of the ski season, in the alpine resort in which the development is proposed to be carried out,	There are no connections to activities outside the ski season.
(k) if the development involves the installation of ski lifting facilities and a development control plan does not apply to the alpine resort:	The proposal does not involve the installation of new ski lifting facilities.
(i) the capacity of existing infrastructure facilities, and	
(ii) any adverse impact of the development on access to, from, or in the alpine resort,	
(I) if the development is proposed to be carried out in the Perisher Range Alpine Resort:	The proposal is generally consistent with the goals of the Perisher Master Plans.
(i) the document entitled <i>Perisher Range</i> <i>Resorts Master Plan</i> , as current at the commencement of this Policy, that is deposited in the head office of the Department, and	
(ii) the document entitled <i>Perisher Blue Ski</i> <i>Resort Ski Slope Master Plan</i> , as current at the commencement of this Policy, that is deposited in the head office of the	

Department,	
<ul><li>(m) if the development is proposed to be carried out on land in a riparian corridor:</li><li>(i) the long-term management goals for riparian land (see below), and</li></ul>	The proposed works fall within 40m of Perisher Creek hence a Controlled Activity Approval will be required.
(ii) whether measures should be adopted in the carrying out of the development to assist with meeting those goals.	
(2) The long-term management goals for riparian land are as follows:	The proposed works fall within 40m of Perisher Creek hence a Controlled Activity
(a) to maximise the protection of terrestrial and aquatic habitats of native flora and fauna to ensure the provision of linkages, where possible, between such habitats on that land,	Approval will be required. Impacts on biodiversity have been addressed in <i>Appendix C – Biodiversity</i> <i>Development Assessment Report.</i>
(b) to ensure that the integrity of areas of conservation value and terrestrial and aquatic habitats of native flora and native fauna is maintained,	
(c) to minimise soil erosion and enhance the stability of the banks of watercourses where the banks have been degraded, the watercourses have been channelised, pipes have been laid and the like has occurred.	

#### 4.2 NSW Water Management Act 2000.

The proposed works fall 40m from of the banks of Perisher Creek, therefore will require a controlled activity approval from the Department of Planning, Industry and Environment NSW *Water Management Act* 2000.

#### 4.3 Environmental Planning and Assessment Act 1979

Section 4.15 (1) of the *Environmental Planning and Assessment Act* lists the matters which must be taken into consideration by the consent authority when determining a development application. *Table 4.2* lists these matters and provides a summary assessment of each of these matters including, where appropriate, a cross reference to the relevant sections in this report.

Table 4.2 - Environmental Planning and Assessment Act checklist

Matter	Impacts / comments
(a) the provisions of any environmental planning instrument (including drafts), development control plans, planning agreements and the regulations	See Section 4
(b) the likely impacts of the development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality	See Section 3
(c) the suitability of the site for the development	See Section 3
(d) any submissions made in accordance with this Act or the regulations	N/A
(e) the public interest	The assessment addresses the aims and objectives of the SEPP (Kosciuszko National Park - Alpine Resorts) 2007 and therefore is deemed to be in the public interest.

#### 4.4 Biodiversity Conservation Act 2016

As shown on *Appendix A – Figure 2*, part of the project area is in an area identified as having high biodiversity value on the Biodiversity Values Map (*Biodiversity Conservation Act, 2016*).

An assessment of ecological impacts has been carried out by an expert consultant, see *Appendix C – Biodiversity Development Assessment Report* (BDAR).

#### 4.5 Environment Protection and Biodiversity Conservation Act 1999

The factors which need to be considered under the Commonwealth *Environment Protection and Biodiversity Conservation Act (EPBC Act)* are listed in *Table 4.3* together with an assessment of each of these factors. None of these factors are considered to result in impacts which would be considered significant under the guidelines applying to the *EPBC Act*.

Factor	Impacts / comments
Matters of National Environmental Significance	
Any environmental impact on a World Heritage Property?	No impact
Any environmental impact on a National Heritage Place?	No impact on the Australian Alps National Heritage Place.
Any environmental impact on wetlands of international importance?	No impact
Any environmental impact on Commonwealth listed species or ecological communities?	No impact
Any environmental impact on Commonwealth listed migratory species?	No impact
Does any part of the proposal involve a nuclear action?	No nuclear action
Any environmental impact on a Commonwealth Marine Area?	No impact
Impact on great Barrier Reef Marine Park?	No impact
Impact on Commonwealth land?	No impact
Impact on the environment, from action taken by the Commonwealth?	No impact
Commonwealth heritage places outside of Australian jurisdiction?	No impact

 Table 4.3 – Environment Protection and Biodiversity Conservation Act checklist

## 5 CONCLUSION

The proposed replacement of the Blaxland and Wentworth (Duplex) T-bar Uphill Line in Centre Valley will ensure the reliable and safe operation of these highly utilised lifts in Perisher Valley.

Construction vehicles, techniques and disturbance corridors have been chosen to minimise impacts on the environment. Biodiversity legislation will offset unavoidable impacts to biodiversity in this area, and the site will be stabilised and rehabilitated, as described.

A controlled activity approval will be needed for works in proximity to waterways, and an archaeological assessment shows the project can proceed with caution.

Appendix A - Project Maps

# Figure 1 - Project Location, Regional Setting





## Figure 2 - Project Location - Local Setting



## **APPENDIX B – SITE PHOTOS**

Photos of the Project Site are shown below, with the indicative trench alignment and laterals shown in red.



Photo 1 – Looking uphill, view to Wentworth T-bar Bullwheel, Top Hut, and Centre Valley Access Track



Photo 2 – Looking Uphill, view towards Towers 6 and 7 and Top Hut



Photo 3 – Looking downhill, view of Duplex T-Bar Uphill Line Project Site



Photo 4 – Looking downhill, view towards Tower 6



Photo 5 – Looking downhill, view towards Tower 5



Photo 6 – Looking downhill, view towards Tower 4m with Lateral to Tower 6 Quad Express



Photo 7 - Looking downhill, view towards Tower 2 and Leichhardt Access Track (note: bridge across Perisher Creek no longer in place)



Photo 8 – Looking downhill, view of Tower 1, Bottom Hut and Leichhardt Access Track (note: bridge across Perisher Creek no longer in place)

## Appendix C - Biodiversity Development Assessment Report

# Replacement of Uphill Line, Blaxland and Wentworth Tbars, Perisher Ski Resort Biodiversity Development Assessment Report

Perisher Blue Pty Ltd





#### **DOCUMENT TRACKING**

Project Name	Replacement of Uphill Line, Blaxland and Wentworth T-bars, Perisher Ski Resort
Project Number	18394
Project Manager	Ryan Smithers
Accredited Assessor Certification	Ryan Setter
Prepared by	Ryan Smithers
Reviewed by	Frank Lemckert
Approved by	Ryan Smithers
Status	Final
Version Number	2
Last saved on	25 November 2021

This report should be cited as 'Eco Logical Australia 2021. *Replacement of Uphill Line, Blaxland and Wentworth T-bars, Perisher Ski Resort*. Prepared for Perisher Blue Pty Ltd.'

#### ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Perisher Blue Pty Ltd

#### Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and Perisher Blue Pty Ltd. The scope of services was defined in consultation with Perisher Blue Pty Ltd, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information. Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Template 2.8.1

#### **Executive Summary**

Eco Logical Australia Pty Ltd was engaged by Perisher Blue Pty Ltd to prepare a BDAR for the proposed replacement of the existing "uphill line" which services the Blaxland and Wentworth T-bars in the Centre Valley area of Perisher Ski Resort.

Some of the native vegetation within the development site is mapped on the Biodiversity Values map. This report has been prepared to meet the requirements of the Biodiversity Assessment Method 2020 established under Section 6.7 of the NSW *Biodiversity Conservation Act 2016* (BC Act).

The development footprint is approximately 0.25 ha in size. The proposed development has been located to take advantage of existing disturbed areas and minimize the required disturbance. As a result, it is anticipated that the proposal will involve the further modification of only 0.16 ha of native vegetation.

The development footprint supports two Plant Community Types (PCT) PCT 637 Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion and PCT 643 Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion. Both are considered to be in moderate condition within the development footprint. PCT 637 is considered to comprise the *Montane Peatland and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions* endangered ecological community (EEC) (hereafter referred to as the Montane Peatland and Swamps) which is listed on the BC Act. It also comprises the *Alpine Sphagnum Bogs and Associated Fens* EEC (hereafter referred to as the Alpine Sphagnum Bogs and Associated Fens) which is listed as an EEC on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Targeted surveys within the development site and immediate surrounds identified one threatened fauna species, *Mastacomys fuscus* (Broad-toothed Rat), as occurring within the development site. A number of other threatened fauna species are known to occur in adjoining habitats and/or have the potential to occur within the development site, such as *Petroica phoenicea* (Flame Robin). Despite targeted surveys, no evidence of *Liopholis guthega* (Guthega Skink) was detected within the development site or immediate surrounds. The development site was found to support an estimated ten individuals of the threatened plant, *Ranunculus anemoneus* (Anemone Buttercup). The endangered *Rytidosperma vickeryae* (Perisher Wallaby Grass) was detected at two locations within the proposed works and the proposal design was subsequently altered to avoid these locations and any impacts on the species.

This BDAR outlines the measures taken to avoid, minimise and mitigate impacts to the vegetation and habitats present within the development footprint during the design, construction and operation of the development. The residual unavoidable impacts of the proposed development were calculated in accordance with the BAM by utilising the Biodiversity Assessment Method Credit Calculator. A total of three ecosystem credits and 24 species credits are required to offset the unavoidable impacts to the vegetation and habitats present within the development footprint.

Serious and Irreversible Impact (SAII) values have been considered as part of this assessment. The proposal will not result in any SAII.

Following consideration of the administrative guidelines for determining significance under the EPBC Act, it is concluded that the proposal is unlikely to have a significant impact on Matters of National Environmental Significance (MNES) or Commonwealth land, and a referral to the Commonwealth Environment Minister is therefore not recommended.

## Contents

1. Introduction	1
1.1. General description of the development site	1
1.2. Brief description of the proposal	1
1.3. Development site footprint	1
1.4. Sources of information used	5
1.5. Legislative context	5
2. Landscape features	9
3. Native Vegetation	.10
3.1. Survey Effort	.10
3.2. Native vegetation extent within the development site	.10
3.3. Plant Community Types present	.10
3.3.1. Plant Community Type selection justification	. 10
3.4. Threatened Ecological Communities	.11
3.5. Vegetation integrity assessment	.11
3.5.1 Vegetation zones	11
3.5.2. Patch size	. 11
3.5.3. Assessing vegetation integrity	. 11
3.6. Use of local data	.15
	.10
4. Threatened species	.19
4.1. Ecosystem credit species	.19
4.2. Species credit species	.19
4.2.1. Identification of species credit species	. 19
4.2.2. Candidate species requiring further assessment	. 19
4.2.3. Assessment of habitat constraints and vagrant species	. 21
4.3. Targeted surveys	.21
4.3.1. Species credit species included in the assessment	. 23
A A Identification of prescribed additional biodiversity impact entities	22
Identified for prescribed doubter bloarersity impact entities	.25
5. Avoiding and Minimising Impacts on Biodiversity Values	.25
5.1. Locating a project to avoid and minimise impacts on biodiversity values	.25
5.1.1. Direct and indirect impacts	. 25
5.1.2. Prescribed biodiversity impacts	. 25
5.2. Designing a project to avoid and minimise impacts on biodiversity values	.25
5.2.1. Direct and indirect impacts	. 25
5.2.2. Prescribed biodiversity impacts	. 25
6. Assessment of Impacts	.26
6.1. Direct impacts	.26

6.2. Change in vegetation integrity	26
6.3. Indirect impacts	26
6.4. Prescribed biodiversity impacts	26
6.5. Mitigating and managing direct and indirect impacts	30
6.6. Mitigating prescribed impacts	30
6.7. Adaptive management strategy	30
7. Impact summary	33
7.1. Serious and Irreversible Impacts (SAII)	33
7.2. Impacts requiring offsets	33
7.3. Impacts not requiring offsets	33
7.4. Areas not requiring assessment	33
7.5. Credit summary	36
8. Consistency with legislation and policy	37
8.1. Commonwealth Environment Protection and Biodiversity Conservation Act 1999	37
9. Recommendations	38
10. Conclusion	39
11. Bibliography	40

## List of Figures

Figure 1: Location map	6
Figure 2: Site map	7
Figure 3: The proposal (as identified in the SEE)	8
Figure 4: Plant Community Types	16
Figure 5: Vegetation Zones and Plots	17
Figure 6: Threatened ecological communities	
Figure 7: Species polygons	24
Figure 8: Indirect impact zones	27
Figure 9: Impacts requiring offset	34
Figure 10: Impacts not requiring offset	35

## List of Tables

Table 1: Legislative context
Table 2: Landscape features9
Table 3: Full-floristic PCT identification plots10
Table 4: Plant Community Types10
Table 5: Potential PCTs11
Table 6: Threatened Ecological Communities11
Table 7: Vegetation zones and vegetation integrity survey plots collected on the development site12
Table 8: Zone 1 PCT 637 Moderate Condition13
Table 9: Zone 2 PCT 643 Moderate Condition14
Table 10: Vegetation integrity scores15
Table 11: Predicted ecosystem credit species         19
Table 12: Candidate species credit species
Table 13: Justification for exclusion of candidate species credit species21
Table 14: Targeted surveys22
Table 15: Weather conditions
Table 16: Survey effort
Table 17: Species credit species included in the assessment23
Table 18: Direct impacts to native vegetation    26
Table 19: Direct impacts on threatened species and threatened species habitat26
Table 20: Change in vegetation integrity    26
Table 21: Indirect impacts
Table 22: Measures proposed to mitigate and manage impacts31
Table 23: Impacts to native vegetation that require offsets         33
Table 24: Impacts on threatened species and threatened species habitat that require offsets
Table 25: Ecosystem credits required36
Table 26: Species credit summary
Table 27: Species recorded in the plots and incidentally elsewhere within the development site or
immediate surrounds45
Table 28: Plot location data         48
Table 29: Vegetation integrity data (composition)         48
Table 30: Vegetation integrity data (Structure)         48
Table 31: Vegetation integrity data (Function)         48

## Abbreviations

Abbreviation	Description
BAM	Biodiversity Assessment Method
BAMC	Biodiversity Assessment Method Credit Calculator
BC Act	NSW Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
CEEC	Critically Endangered Ecological Community
DAWE	Commonwealth Department of Agriculture, Water and the Environment
DPIE	NSW Department of Planning, Industry and Environment
EEC	Endangered Ecological Community
ELA	Eco Logical Australia Pty Ltd
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
FM Act	NSW Fisheries Management Act 1994
GIS	Geographic Information System
GPS	Global Positioning System
IBRA	Interim Biogeographic Regionalisation for Australia
LGA	Local Government Area
NSW	New South Wales
NOW	NSW Office of Water
РСТ	Plant Community Type
SEPP	State Environmental Planning Policy
TEC	Threatened Ecological Community
VIS	Vegetation Information System

## 1. Introduction

This Biodiversity Development Assessment Report (BDAR) has been prepared by Ryan Smithers, an Accredited Person (BAAS17061) to apply the Biodiversity Assessment Method (BAM) under the NSW *Biodiversity Conservation Act 2016* (BC Act). All credit calculations have been undertaken using the BAM Calculator (BAMC) version 2020 in case number 28278. Consistent with the BAM, the streamlined (small area) assessment module has been used for this assessment.

Definitions of terminology used throughout this report are presented in Appendix A.

#### 1.1. General description of the development site

The development site comprises existing ski slopes and remnant native vegetation in the Centre Valley area of Perisher Ski Resort. Parts of the development site are already heavily modified in association with existing ski slopes and associated infrastructure.

This report includes two base maps, the Location map (Figure 1) and the Site map (Figure 2).

#### 1.2. Brief description of the proposal

The proposed development comprises the replacement of the existing "uphill line" which services the Blaxland and Wentworth T-bars (the "Duplex T-bar"). The uphill line acts as the safety circuit for the T-bar. The existing uphill line is old and not consistent with contemporary safety standards. The proposed new line will follow the alignment and disturbance corridor associated with the existing uphill line, with deviations in the lower parts to avoid two small patches of *Rytidosperma vickeryae* (Perisher Wallaby Grass), which were detected during the assessment for this report.

The proposed works will be undertaken with a small rubber-tracked 6-tonne excavator to minimise disturbance. The excavator will access the site from the top, off the existing Centre Valley access road, and do a single downhill pass of the project site. Egress will be via the existing Leichhardt access road at the bottom of the T-bars.

The proposed works will result in a disturbance footprint up to 4.5 m wide. The trench will be 300 mm wide by 500 mm deep with three 50 mm conduits and one 150 mm conduit for easy repairs of any future faults without the need for excavation.

The proposed works are expected to be completed over a five-day period and to affect 0.16 ha of native vegetation, much of which is already disturbed. The works will include the progressive reinstatement of excavated material using the sod replacement technique and post construction rehabilitation.

The proposal is further identified in Figure 3 and Photo 1 - Photo 6. The proposal is further described in the Statement of Environmental Effects (SEE) which has been prepared (Perisher Blue 2021).

#### 1.3. Development site footprint

It is anticipated that the proposed development will result in the further disturbance of 0.16 ha of native vegetation, parts of which are already heavily modified. Approximately 0.09 ha of existing roads and exotic grassland will also be disturbed in association with the proposed works.

The development site footprint is identified in Figure 2.



Photo 1: The replacement line will follow the alignment of the existing uphill line, with the exception of a deviation near the bottom to avoid two patches of Perisher Wallaby Grass.



Photo 2: The lateral to the lift operators hut near the top of the development site will traverse exotic grassland.



Photo 3: The proposed works will be largely in already disturbed vegetation. The abundance of Sphagnum moss, as evidenced by the light colouring beneath the T-bar, is a result of the removal of bog shrubs associated with previous excavations, including for the original installation of the uphill line.



Photo 4: The alignment will be modified to avoid two patches of Perisher Wallaby Grass that are growing in disturbed bog beneath the T-bar.



Photo 5: The lower patch of Perisher Wallaby Grass as indicated by the pink flagging tape. The site is heavily disturbed.



Photo 6: The lowest parts of the development site support exotic grassland.

#### 1.4. Sources of information used

The following data sources were reviewed as part of this report:

- BioNet Vegetation Classification
- BioNet Atlas Database
- Threatened Biodiversity Data Collection
- Additional GIS datasets including cadastre, contours, imagery and drainage.

#### 1.5. Legislative context

Legislation relevant to the development site is outlined in Table 1.

#### Table 1: Legislative context

Name	Relevance to the project	Report Section		
Commonwealth				
Environment Protection and Biodiversity Conservation Act 1999	Matters of national Environmental Significance (MNES) have been identified on or near the development site. This report assesses impacts to MNES and concludes that the development is unlikely to have a significant impact on MNES.	Appendix D		
State				
Environmental Planning and Assessment Act 1979	The proposed development requires consent and is to be assessed under Part 4 of the EP&A Act. The EP&A Act places a duty on the determining authority to adequately address a range of environmental matters including the maintenance of biodiversity and the likely impact to threatened species, populations and communities.	-		
Biodiversity Conservation Act 2016	The proposed development involves clearing of vegetation identified as high conservation value on the Biodiversity Values Land Map and thus requires submission of a Biodiversity Development Assessment Report.	-		
Environmental Planning Instruments				
SEPP Alpine Resorts - Kosciuszko National Park—Alpine Resorts	State Environmental Planning Policy (Kosciuszko National Park—Alpine Resorts) 2007 (SEPP 73) identified the Minister for Planning as the determining authority for development within the NSW Alpine Resorts. SEPP 73 requires the Minister for Planning to refer for comment any development application in the Alpine Resorts to the Director General of the NSW Department of Planning, Industry and Environment (DPIE).	-		
Snowy River Shire Local Environment Plan 2013	The subject site is zoned E1 National Parks and Nature Reserves under the Snowy River Shire Local Environment Plan 2013.	-		



#### Figure 1: Location map


#### Figure 2: Site map



Figure 3: The proposal (as identified in the SEE)

# 2. Landscape features

The site-based method was applied for this assessment. As such, the assessment area is the 1,500 m buffer surrounding the outside edge of the development footprint.

The landscape features considered for this assessment are presented in Table 2, Figure 1 and Figure 2.

#### Table 2: Landscape features

Landscape feature	Development Site	Assessment Area	Data source
IBRA Region(s)	Australian Alps	Australian Alps	Interim Biogeographic Regionalisation for Australia, Version 7
IBRA subregion(s)	Snowy Mountains	Snowy Mountains	Interim Biogeographic Regionalisation for Australia, Version 7
Rivers and streams	Minor unmapped watercourses that are tributaries of Perisher Creek.	Minor unmapped watercourses that are tributaries of Perisher Creek.	NSW LPI Waterway mapping
Estuaries and wetlands	No	No	NSW directory of important wetlands
Connectivity of different areas of habitat	The development site is connected to vast areas of native vegetation.	No	Aerial imagery
Geological features of significance and soil hazard features	The rock outcropping in the development site is very typical of the locality and not of any particular geological significance.	No	Site observation
Areas of Outstanding Biodiversity Value	No	No	Register of Declared Areas of Outstanding Biodiversity Value (DPIE 2020)
NSW (Mitchell) Landscapes	Main Range Subalpine	-	NSW (Mitchell) Landscapes - version 3.1 (DPIE 2016)
Percent (%) native vegetation extent	95	There are no substantial differences between the mapped vegetation extent and the aerial imagery	Calculated using aerial imagery and ArcGIS software

# 3. Native Vegetation

## 3.1. Survey Effort

Vegetation survey was undertaken within the development site by Ryan Smithers on 10 March 2021.

A total of two full-floristic vegetation plots were surveyed to identify Plant Community Types (PCTs) and Threatened Ecological Communities (TECs) on the development site (Table 3). A total of two vegetation integrity survey plots were undertaken on the development site to assess the composition, structure and function components of each vegetation zone in accordance with the BAM.

All field data collected at full-floristic and vegetation integrity plots is included in Appendix B and Appendix C.

# PCT IDPCT NameNumber of plots surveyed637Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern1Highlands Bioregion and Australian Alps Bioregion1643Alpine shrubland on scree, blockstreams and rocky sites of high altitude<br/>areas of Kosciuszko National Park, Australian Alps Bioregion1

## Table 3: Full-floristic PCT identification plots

## 3.2. Native vegetation extent within the development site

There are no substantial differences between the extent of native vegetation within the development site as identified in recent aerial imagery and that identified during the vegetation survey.

## 3.3. Plant Community Types present

Two PCTs were identified within the development site as shown in Table 3. Further detail with respect to the PCTs identified within the development site is presented in Table 4, and their distribution identified in Figure 4.

## Table 4: Plant Community Types

PCT ID	PCT Name	Vegetation Class	Vegetation Formation	Area within the development site (ha)	Percent cleared
637	Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	Alpine Bogs and Fens	Alpine Complex	0.09	5
643	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Alpine Heaths	Alpine Complex	0.07	0

#### 3.3.1. Plant Community Type selection justification

In determining the PCTs for the development site, various attributes were considered in combination to assign vegetation to the best fit PCT. Attributes included dominant species in each stratum and relative abundance, community composition, soils and landscape position. Reference was made to the PCT descriptions in the BioNet Vegetation Classification. There are only a small number of PCTs in the alpine and sub-alpine so there are very few PCT options, as shown in Table 5.

#### Table 5: Potential PCTs

Selected PCT ID	PCT Name	Other PCT options
637	Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	-
643	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	645

## 3.4. Threatened Ecological Communities

PCT 637 is considered to comprise the *Montane Peatland and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions* endangered ecological community (EEC) (hereafter referred to as the Montane Peatland and Swamps), which is listed on the BC Act. It also comprises the *Alpine Sphagnum Bogs and Associated Fens* EEC (hereafter referred to as the Alpine Sphagnum Bogs and Associated Fens) which is listed on the EPBC Act, as identified in Table 6 and Figure 6.

#### **Table 6: Threatened Ecological Communities**

PCT ID		BC Act		EPBC Act					
	Listing status	Name	Area (ha)	Listing status	Name	Area (ha)			
637	Endangered	Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	0.09	Endangered	Alpine Sphagnum Bogs and Associated Fens	0.09			

#### 3.5. Vegetation integrity assessment

#### 3.5.1. Vegetation zones

Two vegetation zones were identified within the development site based on the broad condition states of PCT 637 and 643, as shown in Figure 5. A total of two vegetation integrity survey plots were collected on the development site, which is consistent with the BAM (Table 7). Descriptions of vegetation zones are provided in Table 8 and Table 9.

#### 3.5.2. Patch size

Patch size was calculated using available vegetation mapping for all patches of intact native vegetation on and adjoining the development site. Patch size was assigned to one of four classes (<5 ha, 5-24 ha, 25-100 ha or  $\geq$ 100 ha). A patch size  $\geq$ 100 ha was determined for the development site.

#### 3.5.3. Assessing vegetation integrity

A vegetation integrity assessment using the BAM Calculator (BAMC) was undertaken and the results are outlined in Table 10.

Vegetation Zone	PCT ID	PCT Name	Condition	Area (ha)	Patch Size	Vegetation Integrity Survey Plots required	Vegetation Integrity Survey Plots collected
1	637	Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	Moderate	0.07	101	1	1
2	643	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Moderate	0.09	101	1	1
			Total	0.16	101	2	2

#### Table 7: Vegetation zones and vegetation integrity survey plots collected on the development site

637 - Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion						
Vegetation formation	Alpine Complex					
Vegetation Class	Alpine Bogs and Fens					
Conservation status	Well conserved. Listed as a TEC on the impacts of climate change, the impacts	BC Act or EPBC Act presumably of brumbies of hydroelectric sc	as it is considered vulnerable to the hemes.			
Description	This community is common in the locality. It is poorly described by the current PCTs and associated benchmarks which don't well describe the variety of vegetation communities covered by PCT 637 and the variation in composition and structure values within excellent condition or "benchmark" occurrences of Alpine Bog, Fen and Wet Heath.					
Characteristic canopy trees	It is characteristically treeless although occasional individuals of <i>Eucalyptus niphophila</i> may occur around rocks or other micro-habitats that improve drainage.					
Characteristic mid-storey	Baeckea spp.					
Characteristic groundcovers	Empodisma minus, Richea continentis, Sphagnum sp., Stylidium graminifolium, Carex gaudichaudiana, Carpha nivicola, Astelia psychrocharis, Aciphylla simplicifolia, Oreobolus distichus, Carex echinata, Cotula alpina, Ranunculus gunnianus, Ranunculus graniticola, Celmisia spp., Poa costiniana, Trisetum spicatum, Rytidosperma nivicola, Deyeuxia crassiuscula, Luzula modesta, Chionochloa frigida.					
Mean native richness	26					
Exotic species / HTW cover	Achillea millefolium, Agrostis capillaris,	<i>Festuca rubra</i> subsp. <i>rubra</i>				
Condition	Moderate					
Variation and disturbance	The zone is impacted by the historic dis disturbances.	sturbance associated with the ex	xisting uphill line and other			
No. sites sampled	1					
Threatened flora species	Perisher Wallaby Grass and Ranunculus	<i>anemoneus</i> (Anemone Butterc	up)			
Fauna habitats	Limited. Minor shelter and foraging resources for reptiles, amphibians and mammals such as the Broad- toothed Rat.					
Composition	Structure	Function	Vegetation Integrity Score			



Australian Alps Bioregion						
Vegetation formation	Alpine Complex					
Vegetation Class	Alpine Heaths					
Conservation status	Widespread and well conserved. Not lis	ted as a TEC on the BC Act or EF	PBC Act			
Description	This community is common in the locality but highly variable. It is poorly described by the current PCTs and associated benchmarks which don't well describe the variety of vegetation communities covered by PCT 643 and the variation in composition and structure values within "benchmark" occurrences.					
Characteristic canopy trees	It is characteristically treeless although occasional individuals of <i>Eucalyptus niphophila</i> may occur.					
Characteristic mid-storey	Grevillea australis, Ozothamnus cupressoides, Prostanthera cuneata, Nematolepis ovatifolia, Ozothamnus secundiflorus, Ozothamnus alpinus, Olearia phlogopappa, Orites lancifolius, Oxylobium ellipticum, Podocarpus lawrencei.					
Characteristic groundcovers	Acaena novae-zelandiae, Asperula gunnii, Carex breviculmis, Lycopodium fastigiatum, Pimelea alpina, Poa fawcettiae, Polystichum proliferum, Senecio gunnii.					
Mean native richness	27					
Exotic species / HTW cover	Acetosella vulgaris, Achillea millefolium	, Agrostis capillaris, Festuca rub	ra subsp. rubra			
Condition	Moderate condition					
Variation and disturbance	The community is in moderate condition within the development site with varying degrees of weediness as a result of historic disturbances.					
No. sites sampled	1					
Threatened flora species	Anemone Buttercup					
Fauna habitats	Habitat for the Guthega Skink and Broa	d-toothed Rat.				
Composition	Structure	Function	Vegetation Integrity Score			
55.6	48	-	51.7			

#### Table 9: Zone 2 PCT 643 Moderate Condition



Veg Zone	PCT ID	Condition	Area (ha)	Composition Condition Score	Structure Condition Score	Function Condition Score	Presence of Hollow bearing trees	Current vegetation integrity score
1	637	Moderate	0.09	80.8	37.6	-	No	55.1
2	643	Moderate	0.07	55.6	48	-	No	51.7

#### Table 10: Vegetation integrity scores

## 3.6. Use of local data

Use of local data instead of benchmark integrity scores is not proposed.



#### Figure 4: Plant Community Types



#### Figure 5: Vegetation Zones and Plots



#### Figure 6: Threatened ecological communities

# 4. Threatened species

## 4.1. Ecosystem credit species

Ecosystem credit species predicted to occur within the development site are generated by the BAMC following the input of VI data and the PCTs identified within Chapter 3. Ecosystem credit species predicted to occur at the development site, their associated habitat constraints, geographic limitations and sensitivity to gain class are included in Table 11.

Species	Common Name	Habitat Constraints	Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status
Artamus cyanopterus cyanopterus	Dusky Woodswallow	-	-	Moderate	Vulnerable	Not Listed
Hieraaetus morphnoides (Foraging)	Little Eagle	-	-	Moderate	Vulnerable	Not Listed
Hirundapus caudacutus	White-throated Needletail	-	-	High	Not Listed	Vulnerable
Pachycephala olivacea	Olive Whistler	-	-	Moderate	Vulnerable	Not Listed

## 4.2. Species credit species

## 4.2.1. Identification of species credit species

Species credit species that require further assessment within the development site (i.e. candidate species), their associated habitat constraints, geographic limitations and sensitivity to gain class are included in Table 12. Three additional species credit species were added as candidate species, *Liopholis guthega* (Guthega Skink), *Mastacomys fuscus* (Broad-toothed Rat) and Anemone Buttercup, as they are well known from the Centre Valley area.

## 4.2.2. Candidate species requiring further assessment

Five species credit species required further assessment following site survey to assess the condition of the development site and the presence of microhabitats; Guthega Skink, Broad-toothed Rat, *Euphrasia scabra* (Rough Eyebright), Perisher Wallaby-grass and Anemone Buttercup.

Species	Common Name	Habitat Constraints	Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status
Rough Eyebright	Euphrasia scabra	-	-	High	Endangered	Not Listed
Guthega Skink	Liopholis guthega	Granite substrate and decomposing granite soils Rocky areas including sub- surface boulders	-	High	Endangered	Endangered
Broad-toothed Rat	Mastacomys fuscus	-	-	High	Vulnerable	Vulnerable
Smoky Mouse	Pseudomys fumeus	-	-	High	Critically Endangered	Endangered
Northern Corroboree Frog	Pseudophryne pengilleyi	-	above 700 m asl	Moderate	Critically Endangered	Critically Endangered
Blue-tongued Greenhood	Pterostylis oreophila	-	-	High	Critically Endangered	Critically Endangered
Perisher Wallaby-grass	Rytidosperma vickeryae	-	-	High	Endangered	Not Listed
Anemone Buttercup	Ranunculus anemoneus	Treeless vegetation above 1000 m in altitude	Above 1400 m	High	Vulnerable	Vulnerable

#### Table 12: Candidate species credit species

## 4.2.3. Assessment of habitat constraints and vagrant species

Justification for the exclusion of other candidate species credit species is provided in Table 13.

Species	Common Name	NSW listing status	EPBC Listing status	Sensitivity to gain class	Justification for exclusion of species
Rough Eyebright	Euphrasia scabra	Endangered	Not Listed	High	The species was not detected within the development site or immediate surrounds despite targeted surveys.
Guthega Skink	Liopholis guthega	Endangered	Endangered	High	The species was not detected within the development site despite three sessions of targeted survey.
Smoky Mouse	Pseudomys fumeus	Critically Endangered	Endangered	High	There are no recent records of Smoky Mouse in the locality or evidence of a local population despite considerable survey effort in the locality in recent decades. The species has recently been detected in the northern parts of Kosciuszko National Park in Mountain Gum – Snow Gum forests. It is considered highly unlikely that the species would occur within the development site given its small size, the rarity of the Smoky Mouse and the nature of the habitats there.
Northern Corroboree Frog	Pseudophryne pengilleyi	Critically Endangered	Critically Endangered	Moderate	The Northern Corroboree Frog does not occur within the locality, being limited to the northern parts of the Snowy Mountains and Brindabella Range.
Blue- tongued Greenhood	Pterostylis oreophila	Critically Endangered	Critically Endangered	High	In NSW the Blue-tongued Greenhood is known from a few small populations within Kosciuszko National Park and a population of about 40 plants (possibly now extinct) in Bago State Forest and adjoining Crown Leases south of Tumut. It is considered highly unlikely that it would occur in the marginal potential habitat within the development site and has not been recorded in the locality despite extensive flora surveys over many decades.
Perisher Wallaby- grass	Rytidosperma vickeryae	Endangered	Not Listed	High	The species was detected within the development site during targeted surveys and the development has been designed to avoid the locations where the species occurs.

## 4.3. Targeted surveys

The streamlined assessment method only requires targeted surveys for candidate SAII species. The development site does not provide suitable habitat for some of the candidate species credit species that are candidate SAII species; Northern Corroboree Frog, Smoky Mouse and Blue-tongued Greenhood. However, there is potential habitat for Perisher Wallaby Grass and the Rough Eyebright. Surveys were undertaken for these species. Targeted surveys were also undertaken for the Guthega Skink as it is well known from the Centre Valley area and to ensure the proposed development avoids and minimises impacts as far as is possible.

Targeted surveys for relevant threatened species known from locality were undertaken within the development site and immediate surrounds on the dates outlined in Table 14. Weather conditions during the targeted surveys are outlined in Table 15 and survey effort is outlined in Table 16.

#### Table 14: Targeted surveys

Date	Surveyors	Target species
10 March 2021	Ryan Smithers	Guthega Skink, Broad-toothed Rat, Perisher Wallaby Grass, Rough Eyebright, and Anemone Buttercup
29 March 2021	Ryan Smithers	Guthega Skink, Broad-toothed Rat, Perisher Wallaby Grass, Rough Eyebright, and Anemone Buttercup

#### Table 15: Weather conditions

Date	Rainfall (mm)	Minimum temperature 0 <sup>c</sup>	Maximum temperature 0 <sup>c</sup>
10 March 2021	-	8	15
29 March 2021	-	11	12

#### Table 16: Survey effort

Method	Habitat (ha)	Stratification units	Total effort	Target species
Target Searches	Approx. 1 ha	Suitable habitats within and immediately surrounding the development site	4.25 person hours	Guthega Skink and Broad-toothed Rat
Targeted threatened flora searches	Approx. 1 ha	Suitable habitats within and immediately surrounding the development site	2 person hours	Perisher Wallaby Grass, Rough Eyebright, and Anemone Buttercup

The targeted surveys resulted in the detection of three species credit species; the Broad-toothed Rat, Perisher Wallaby Grass and Anemone Buttercup. The characteristic scats of the Broad-toothed Rat were scattered in low densities throughout the development site and surrounds, as they are in suitable habitats throughout much of the locality. The Anemone Buttercup was detected in the central parts of the development site. The number of Anemone Buttercup individuals within the development site was estimated as ten.

Perisher Wallaby Grass was detected in two locations in the lower parts of the development site. A total of 12 plants were estimated to be present in disturbed bog beneath the T-bar. The design of the proposal and the location of the development site was adjusted to ensure that the patches of Perisher Wallaby Grass will not be affected.

The Guthega Skink was not detected within the development site or immediate surrounds despite three sessions (on two separate days) of targeted survey. The Guthega Skink is known from approximately 100 m to the south of the development site however it is considered unlikely that the species would occur within the development site. This is because the species was not detected on the development site, despite targeted surveys for this assessment, and the generally unsuitable or marginal nature of the habitats within the development site, given the dominance of wet habitats and the level of disturbance.

Following completion of field surveys, the species credit species included in the assessment are outlined in Table 17.

Species	Common Name	Species presence	Geographic limitations	Habitat (ha) / count	Biodiversity Risk Weighting
Broad-toothed Rat	Mastacomys fuscus	Yes	-	0.16 ha	2
Anemone Buttercup	Ranunculus anemoneus	Yes	Other Treeless vegetation above 1000 m in altitude Above 1400 m	10 individuals	2

#### Table 17: Species credit species included in the assessment

#### 4.3.1. Species credit species included in the assessment

Two species credit species, the Broad-toothed Rat and Anemone Buttercup, have been included in the assessment as the proposed development will impact on habitat for these species. A species polygon for the Broad-toothed Rat is included as Figure 7. The location of the Perisher Wallaby Grass and Anemone Buttercup within and immediately adjacent to the development site, and historic records of the Guthega Skink, are also shown in Figure 7.

## 4.4. Identification of prescribed additional biodiversity impact entities

The proposed development does not include any prescribed additional biodiversity impact entities.



#### Figure 7: Species polygons

# 5. Avoiding and Minimising Impacts on Biodiversity Values

## 5.1. Locating a project to avoid and minimise impacts on biodiversity values

## 5.1.1. Direct and indirect impacts

The proposal has been designed to avoid and minimise direct and indirect impacts. In particular, this has involved:

- Locating the proposed works in disturbed areas.
- Minimising the disturbance footprint associated with construction by utilising a small excavator.
- Changing the location of the alignment to avoid known locations of Perisher Wallaby Grass.
- Planning construction access and egress to avoid and minimise impacts on vegetation and fauna habitats.
- Marking the extent of the development site prior to the commencement of works, such that the disturbance footprint will not extend beyond the proposed footprint.
- Marking the locations of Perisher Wallaby Grass prior to the commencement of works and buffering them from the proposed works by a minimum of 5 m to ensure they are not impacted.
- Using low impact construction methods such as sod replacement.
- Undertaking post construction rehabilitation.

## 5.1.2. Prescribed biodiversity impacts

The proposal does not involve any prescribed biodiversity impacts.

## 5.2. Designing a project to avoid and minimise impacts on biodiversity values

## 5.2.1. Direct and indirect impacts

The proposal has been designed to avoid and minimise direct and indirect impacts on biodiversity values as described in Section 5.1.1.

## 5.2.2. Prescribed biodiversity impacts

Prescribed biodiversity impacts have been avoided and minimised by incorporating the design features identified in Section 5.1.1.

# 6. Assessment of Impacts

## 6.1. Direct impacts

The direct impacts of the development on:

- Native vegetation are outlined in Table 18.
- Threatened species and threatened species habitat is outlined in Table 19.
- Prescribed biodiversity impacts is outlined in Section 6.4.

#### Table 18: Direct impacts to native vegetation

PCT ID	PCT Name	BC Act listing	EPBC Act listing	Direct impact (ha)
637	Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	Endangered	Endangered	0.09
643	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Not listed	Not Listed	0.07

#### Table 19: Direct impacts on threatened species and threatened species habitat

Species	Common Name	Direct impact number of individuals / habitat (ha)	BC Act listing status	EPBC Act Listing status
Mastacomys fuscus	Broad-toothed Rat	0.16 ha	Vulnerable	Vulnerable
Ranunculus anemoneus	Anemone Buttercup	10 individuals	Vulnerable	Vulnerable

## 6.2. Change in vegetation integrity

The change in vegetation integrity as a result of the development is outlined in Table 20.

Table 20: Change in vegetation integri
--

Veg Zone	PCT ID	Condition	Area (ha)	Current vegetation integrity score	Future vegetation integrity score	Change in vegetation integrity
1	637	Moderate	0.09	55.1	0	-55.1
2	643	Moderate	0.07	51.7	0	-51.7

## 6.3. Indirect impacts

The indirect impacts of the development are outlined in Table 21. Given the nature of the proposed development, and the proposed mitigation measures, indirect impacts are only anticipated to extend a maximum of 2 m into vegetation surrounding the proposed development site. Indirect impact zones are shown on Figure 8.

## 6.4. Prescribed biodiversity impacts

The proposal does not involve any prescribed biodiversity impact.



#### Figure 8: Indirect impact zones

#### Table 21: Indirect impacts

Indirect impact	Project phase	Nature	Extent	Frequency	Duration	Timing
Sedimentation and contaminated and/or nutrient rich run-off	Construction and post construction	Minor potential for sedimentation during and immediately post- construction. However, the proposed sediment control measures have been effective during the many other similar developments that have been undertaken within the alpine resorts in recent years.	Minor	During and after any heavy rainfall	12 month maximum	Intermittently during and post construction phase
Noise, dust or light spill	Construction	Minor during construction.	Minor	Intermittently during construction phase	During construction	Intermittently during construction phase
Inadvertent impacts on adjacent habitat or vegetation	Construction	Minor. The construction methods used at Perisher have been effective at preventing impacts on adjacent vegetation during the many other similar developments that have been undertaken in recent years.	Minor	Not expected but possible	During construction	Not expected
Transport of weeds and pathogens from the site to adjacent vegetation	Construction	Not expected. The development site includes and abuts areas that are already heavily modified and which support weeds which are common within the Perisher Resort area and elsewhere within the NSW Alps. The proposal will include post construction rehabilitation and weed control.	Not expected	Not expected but possible	Not expected	Not expected
Vehicle strike	Construction	Minor. It is considered unlikely that the proposal will include vehicle strike impacts. Vehicles will be travelling at very slow speeds within the development site and the noise and vibration associated with vehicle movements is expected to deter any fauna within or adjoining the development site from the path of any vehicles.	Not expected	Not expected but possible	During construction	Not expected
Trampling of threatened flora species	Construction	Minor. There are no threatened flora species within the development site.	Minor	Not expected	During construction	Not expected
Rubbish dumping	Construction	Not expected. Construction materials will be removed from the site regularly and no rubbish will be dumped or otherwise left to pollute the surrounding environment.	Not expected	Not expected	Not expected	Not expected
Wood collection	Construction	Not expected.	Not expected	Not expected	Not expected	Not expected

Indirect impact	Project phase	Nature	Extent	Frequency	Duration	Timing
Bush rock removal and disturbance	Construction	Minor. A relatively small amount of rock will be removed as part of the development. No additional indirect impacts are expected.	Minor	Intermittently during construction phase	During construction	Intermittently during construction phase
Increase in predatory species populations	Construction and post construction	Not expected. The proposed development occurs on the edge of an already disturbed area and will not increase the populations of predatory species such as foxes and cats.	Not expected	Not expected	Not expected	Not expected
Increase in pest animal populations	Construction and post construction	Not expected.	Not expected	Not expected	Not expected	Not expected
Increased risk of fire	Construction	Minor potential for increased risk of fire during construction.	Minor	Intermittently during construction phase	During construction	Intermittently during construction phase
Disturbance to specialist breeding and foraging habitat, e.g. beach nesting for shorebirds	Construction and post construction	Not expected as none are known to be present.	Not expected	Not expected	Not expected	Not expected

## 6.5. Mitigating and managing direct and indirect impacts

Measures proposed to mitigate and manage impacts at the development site before, during and after construction are outlined in Table 22.

## 6.6. Mitigating prescribed impacts

The development does not have any prescribed biodiversity impacts.

## 6.7. Adaptive management strategy

This section is required for those impacts that are infrequent, cumulative or difficult to predict. Impacts associated with the proposed development have been considered extensively and addressed in Section 5 and Section 6. Further consideration of infrequent, cumulative or difficult to predict impacts is not considered to be necessary.

#### Table 22: Measures proposed to mitigate and manage impacts

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Displacement of resident fauna	Low	Low	None proposed.	NA	NA	NA
Timing works to avoid critical life cycle events such as breeding or nursing	Low	Low	None proposed.	NA	NA	NA
Instigating clearing protocols including pre- clearing surveys, daily surveys and staged clearing, the presence of a trained ecologist or licensed wildlife handler during clearing events	Medium	Low	The location of the Perisher Wallaby Grass patches are to be marked prior to construction. The Perisher Wallaby Grass patches are buffered from the proposed works by a minimum of 5 m.	The Perisher Wallaby Grass locations are clearing marked and avoided and buffered from the proposed works.	Prior to construction	Perisher
Clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; for example, removal of native vegetation by chainsaw, rather than heavy machinery, is preferable in situations where partial clearing is proposed	Medium	Low	Identify with paint and/or flagging tape the alignment of the excavation, prior to construction.	Risk of disturbance beyond proposed disturbance corridor is reduced.	Prior to construction	Perisher
Sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment	Medium	Low	Sediment control measures as necessary such as fencing and hay bales.	Risk of sedimentation of water quality impacts substantially reduced.	During and post- construction	Perisher
Noise barriers or daily/seasonal timing of construction and operational activities to reduce impacts of noise	Low	Low	Restrict work to daylight hours.	Noise impacts mitigated.	During construction	Perisher
Light shields or daily/seasonal timing of construction and operational activities to reduce impacts of light spill	Low	Low	Restrict work to daylight hours.	Light impacts mitigated.	During construction	Perisher
Adaptive dust monitoring programs to control air quality	Low	Low	None proposed.	NA	NA	NA
Programming construction activities to avoid impacts; for example, timing construction activities for when migratory species are absent from the site, or when particular species known	Low	Low	None proposed.	NA	NA	NA

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
to or likely to use the habitat on the site are not breeding or nesting						
Temporary fencing to protect significant environmental features such as riparian zones	Low	Low	The location of the Perisher Wallaby Grass patches are to be marked prior to construction. The Perisher Wallaby Grass patches are buffered from the proposed works by a minimum of 5 m.	The Perisher Wallaby Grass locations are clearing marked and avoided and buffered from the proposed works.	Prior to and during construction	Perisher
Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas	Medium	Low	Any machinery or vehicles involved with the proposed works that are not owned by Perisher will be washed down to remove all soil and vegetative matter before entering the site to limit spread of weeds and disease such as <i>Phytophthora cinnamomi</i> .	Risk of weed or pathogen spread substantially reduced.	Prior to and during construction	Perisher
Staff training and site briefing to communicate environmental features to be protected and measures to be implemented	Medium	Low	Brief all workers as to limit of disturbance footprint and other environmental safeguards, particularly the buffer to the Perisher Wallaby Grass patches.	Risk of disturbance beyond proposed disturbance corridor is reduced.	Prior to and during construction as necessary	Perisher
Making provision for the ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on or adjacent to the development footprint	Medium	Low	Post construction rehabilitation consistent with standard Perisher rehabilitation strategies.	Post construction vegetation within the development footprint with high medium-term recovery potential.	Immediately post construction	Perisher
Monitoring	Low	Low	None proposed.	NA	NA	NA

# 7. Impact summary

Following implementation of the BAM and the BAMC, the following impacts have been determined.

## 7.1. Serious and Irreversible Impacts (SAII)

The development does not have any Serious and Irreversible Impacts (SAII).

## 7.2. Impacts requiring offsets

The impacts of the development requiring offset for native vegetation are outlined in Table 23 and shown on Figure 9. The impacts of the development requiring offset for species credit species and their habitats are outlined in Table 24 and on Figure 9.

Vegetation Zone	РСТ ID	PCT Name	Vegetation Class	Vegetation Formation	Direct impact (ha)
1	637	Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	Alpine Bogs and Fens	Alpine Complex	0.09
2	643	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Alpine Heaths	Alpine Complex	0.07

Table 23: Impacts to native vegetation that require offsets

#### Table 24: Impacts on threatened species and threatened species habitat that require offsets

Species	Common Name	Direct impact number of individuals / habitat (ha)	BC Act listing status	EPBC Act Listing status
Mastacomys fuscus	Broad-toothed Rat	0.16 ha	Vulnerable	Vulnerable
Ranunculus anemoneus	Anemone Buttercup	10 individuals	Vulnerable	Vulnerable

## 7.3. Impacts not requiring offsets

All the impacts of the development on native vegetation and on the Broad-toothed Rat and Anemone Buttercup require offsets. The impacts of the proposed development on non-native vegetation do not require offsets. Those impacts that do not require offsets area shown in Figure 10.

## 7.4. Areas not requiring assessment

No parts of the proposed development do not require assessment.



#### Figure 9: Impacts requiring offset



#### Figure 10: Impacts not requiring offset

## 7.5. Credit summary

The number of ecosystem credits required for the development are outlined in Table 25.

The number of species credits required for the development are outlined in Table 26. At the time of writing, a problem with the BAMC did not enable the Anemone Buttercup to be added as a candidate species in the streamlined assessment module. As such, the credits required for the impacts on the Anemone Buttercup could not be calculated. Discussions with the DPIE Alpine Resorts Team determined that the Anemone Buttercup credit requirement will be calculated once the BAMC problem has been resolved.

A biodiversity credit report is included in Appendix F.

Vegetation Zone	PCT ID	PCT Name	Condition	Credit Class	Direct impact (ha)	Credits required
1	637	Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	Moderate	Alpine Bogs and Fens	0.09	3
2	643	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Moderate	Alpine Heaths	007	1

#### Table 26: Species credit summary

Species	Common Name	Direct impact number of individuals / habitat (ha)	Credits required	
Mastacomys fuscus	Broad-toothed Rat	0.16 ha	4	
Ranunculus anemoneus	Anemone Buttercup	10 individuals	20	

# 8. Consistency with legislation and policy

## 8.1. Commonwealth Environment Protection and Biodiversity Conservation Act 1999

An impact assessment under the EPBC Act was undertaken on MNES known to occur within the development footprint or immediate surrounds or with potential to occur there. These MNES were:

- Alpine She-oak Skink
- Guthega Skink
- Broad-toothed Rat
- Anemone Buttercup
- Alpine Sphagnum Bogs and Associated Fens.

The outcome of this assessment was that it is highly unlikely that the development would significantly impact on those MNES assessed (Appendix D).

A referral to the Commonwealth under the EPBC Act is not recommended.

# 9. Recommendations

To further ameliorate the potential impacts of the proposed development and to improve environmental outcomes, the following recommendations for impact mitigation and amelioration are suggested as modifications to the proposal and/or as conditions of consent.

• The mitigation measures identified in Table 22 should be incorporated into the proposal.

# 10. Conclusion

Eco Logical Australia Pty Ltd was engaged by Perisher Blue Pty Ltd to prepare a BDAR for the proposed replacement of the existing "uphill line" which services the Blaxland and Wentworth T-bars in the Centre Valley area of Perisher Ski Resort.

This report has been prepared to meet the requirements of the BAM 2020 established under Section 6.7 of the BC Act.

This BDAR outlines the measures taken to avoid, minimise and mitigate impacts to the vegetation and habitats present within the development footprint during the design, construction and operation of the development. The residual unavoidable impacts of the proposed development were calculated in accordance with the BAM by utilising the BAMC. The BAMC calculated that a total of three ecosystem credits and 24 species credits are required to offset the unavoidable impacts to the vegetation and fauna habitats present within the development footprint.

SAII values have been considered as part of this assessment. The proposal will not result in any SAII.

Following consideration of the administrative guidelines for determining significance under the EPBC Act, it is concluded that the proposal is unlikely to have a significant impact on MNES or Commonwealth land, and a referral to the Commonwealth Environment Minister is therefore not recommended.

## 11. Bibliography

Cogger, H.G. 1996. Reptiles and Amphibians of Australia. Reed Books, Sydney

Costermans, L. 1994. *Native Trees and Shrubs of South-Eastern Australia*. Lansdowne Publishing, Sydney.

Costins, C., Gray, M., Totterdell, C., and Wimbush, D. 2000. *Kosciuszko Alpine Flora*. CSIO Publishing, Victoria.

Cropper, S.C. 1993. *Management of Endangered Plants*. CSIRO Publishing, Melbourne.

Department of Environment. 2013. Significant Impact Guidelines 1.1 - Matters of National Environmental Significance. Australian Government, Canberra.

Department of Environment, Land, Water and Planning. 2016. *National Recovery Plan for the Mountain Pygmy-possum Burramys parvus*. Australian Government, Canberra.

Ecology Australia. 2002. Kosciuszko Resorts Vegetation Assessment. A report for Planning NSW.

Gellie, N.J.H. 2006. Native vegetation of the southern forests: South-east Highlands, Australian Alps, South-west Slopes and South-east Corner bioregions. *Cunninghamia 9, 219-254*.

Green, K. 2002. Selective predation on the broad-toothed rat, *Mastacomys fuscus* (Rodentia: Muridae), by the introduced red fox, *Vulpes vulpes* (Carnivora: Canidae), in the Snowy Mountains, Australia. *Austral Ecology 27, 353–359*.

NGH Environmental 2007. *Rehabilitation Guidelines for the Resort Areas of Kosciuszko National Park*. A report for Parks and Wildlife Division. Department of Environment and Climate Change NSW.

McDougall, K.L. & Walsh, N.G. 2007. Treeless vegetation of the Australian Alps. Cunninghamia 10, 1-57.

NSW Department of Environment and Conservation (DEC). 2006. Kosciuszko National Park Plan of Management.

NSW National Parks and Wildlife Service 2001a. *Approved Recovery Plan for the Threatened Alpine Flora Anemone Buttercup (Ranunculus anemoneus), Feldmark Grass (Erythranthera pumila), Raleigh Sedge (Carex raleighii) & Shining Cudweed (Euchiton nitidulus).* NSW NPWS, Hurstville NSW.

NSW National Parks and Wildlife Service. 2001b. *Approved Recovery Plan for the Southern Corroboree Frog Pseudophryne corroboree*. NSW National Parks and Wildlife Service Hurstville.

NSW National Parks and Wildlife Service. 2002. *Approved Recovery Plan for the Mountain Pygmy Possum Burramys parvus*. NSW National Parks and Wildlife Service Hurstville.

NSW Office of Environment and Heritage (OEH). 2018. Perisher Wallaby Grass (Rytidosperma vickeryae) Kosciuszko National Park 2017. NSW Office of Environment and Heritage Sydney.

NSW Scientific Committee. 2005. Final Determination to list Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australia Alps area as an endangered ecological community.

Perisher Blue. 2021. Statement of Environmental Effects - Replacement of Uphill Line, Blaxland and Wentworth T-bars, Perisher Valley.

Sato, C.F., Wood, J.T., Schroder, M., Green, K., Michael, D.R. and Lindenmayer, D. B. 2013. The impacts of ski resorts on reptiles: a natural experiment. *Animal Conservation. Doi: 10.111/acv.12095*.

Sato C.F., Wood J.T., Schroder M., Green, K., Michael, D.R., Osborne, W.S. and Lindenmayer, D.B. 2014. An experiment to test key hypotheses of the drivers of reptile distribution in subalpine ski resorts. *Journal of Applied Ecology 51, 13-22.* 

Sato, C.F., Schroder, M., Green, K., Michael, D.R., Osborne, W.S. and Lindenmayer, D.B. 2014. Managing ski resorts to improve biodiversity conservation: Australian reptiles as a case study. *Ecological Management and Restoration* 15(2).

Strahan, R. 1995. *The Australian Museum Complete Book of Australian Mammals*, Cornstalk Publishing, Sydney.

Threatened Species Scientific Committee. 2009. Listing Advice for the Alpine Sphagnum Bogs and Associated Fens Endangered Ecological Community.

# Appendix A - Definitions

The following terminology has been used throughout this report for the purposes of describing the impacts of the proposal in the context of a biodiversity assessment in accordance with the NSW Biodiversity Assessment Method 2020. This terminology may or may not align with other technical documents associated with the proposed development.

Terminology	Definition
Biodiversity credit report	The report produced by the Credit Calculator that sets out the number and class of biodiversity credits required to offset the remaining adverse impacts on biodiversity values at a development site, or on land to be biodiversity certified, or that sets out the number and class of biodiversity credits that are created at a biodiversity stewardship site.
BioNet Atlas	The BioNet Atlas (formerly known as the NSW Wildlife Atlas) is the OEH database of flora and fauna records. The Atlas contains records of plants, mammals, birds, reptiles, amphibians, some fungi, some invertebrates (such as insects and snails) and some fish.
Broad condition state	Areas of the same PCT that are in relatively homogenous condition. Broad condition is used for stratifying areas of the same PCT into a vegetation zone for the purpose of determining the vegetation integrity score.
Connectivity	The measure of the degree to which an area(s) of native vegetation is linked with other areas of vegetation.
Credit Calculator	The computer program that provides decision support to assessors and proponents by applying the BAM, and which calculates the number and class of biodiversity credits required to offset the impacts of a development or created at a biodiversity stewardship site.
Development	Has the same meaning as development at section 4 of the EP&A Act, or an activity in Part 5 of the EP&A Act. It also includes development as defined in section 115T of the EP&A Act.
Development footprint	The area of land that is directly impacted on by a proposed development, including access roads, and areas used to store construction materials.
Development site	An area of land that is subject to a proposed development that is under the EP&A Act.
Ecosystem credits	A measurement of the value of EECs, Critically Endangered Ecological Communities (CEEC) and threatened species habitat for species that can be reliably predicted to occur with a PCT. Ecosystem credits measure the loss in biodiversity values at a development site and the gain in biodiversity values at a biodiversity stewardship site.
Extent of occurrence (EOO)	Measures the spatial spread of a taxon to determine the degree to which risks from threatening factors could impact an entire population, and is not intended to be an estimate of the amount of occupied or potential habitat.
High threat exotic plant cover	Plant cover composed of vascular plants not native to Australia that if not controlled will invade and outcompete native plant species.
Hollow bearing tree	A living or dead tree that has at least one hollow. A tree is considered to contain a hollow if: (a) the entrance can be seen; (b) the minimum entrance width is at least 5 cm; (c) the hollow appears to have depth (i.e. you cannot see solid wood beyond the entrance); (d) the hollow is at least 1 m above the ground. Trees must be examined from all angles.
Important wetland	A wetland that is listed in the Directory of Important Wetlands of Australia (DIWA) and SEPP 14 Coastal Wetlands.
Linear shaped development	Development that is generally narrow in width and extends across the landscape for a distance greater than 3.5 kilometres in length.
Local population	The population that occurs in the study area. In cases where multiple populations occur in the study area or a population occupies part of the study area, impacts on each subpopulation must be assessed separately.
Local wetland	Any wetland that is not identified as an important wetland (refer to definition of Important wetland).
Terminology	Definition
--	--
NSW (Mitchell) landscape	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000.
Multiple fragmentation impact development	Developments such as wind farms and coal seam gas extraction that require multiple extraction points (wells) or turbines and a network of associated development including roads, tracks, gathering systems/flow lines, transmission lines.
Operational Manual	The Operational Manual published from time to time by DPIE, which is a guide to assist assessors when using the BAM.
Patch size	An area of intact native vegetation that: a) occurs on the development site or biodiversity stewardship site, and b) includes native vegetation that has a gap of less than 100 m from the next area of native vegetation (or $\leq$ 30 m for non-woody ecosystems). Patch size may extend onto adjoining land that is not part of the development site or stewardship site.
Proponent	A person who intends to apply for consent to carry out development or for approval for an activity.
Reference sites	The relatively unmodified sites that are assessed to obtain local benchmark information when benchmarks in the Vegetation Benchmarks Database are too broad or otherwise incorrect for the PCT and/or local situation. Benchmarks can also be obtained from published sources.
Regeneration	The proportion of over-storey species characteristic of the PCT that are naturally regenerating and have a diameter at breast height <5 cm within a vegetation zone.
Residual impact	An impact on biodiversity values after all reasonable measures have been taken to avoid, minimise or mitigate the impacts of development. Under the BAM, an offset requirement is determined for the remaining impacts on biodiversity values.
Retirement of credits	The purchase and retirement of biodiversity credits from an already-established biobank site or a biodiversity stewardship agreement.
Riparian buffer	Riparian buffers applied to water bodies in accordance with the BAM.
Sensitive biodiversity values land map	Development within an area identified on the map requires assessment using the BAM.
Site attributes	The matters assessed to determine vegetation integrity. They include: native plant species richness, native over-storey cover, native mid-storey cover, native ground cover (grasses), native ground cover (shrubs), native ground cover (other), exotic plant cover (as a percentage of total ground and mid-storey cover), number of trees with hollows, proportion of over-storey species occurring as regeneration, and total length of fallen logs.
Site-based development	A development other than a linear shaped development, or a multiple fragmentation impact development
Species credits	The class of biodiversity credits created or required for the impact on threatened species that cannot be reliably predicted to use an area of land based on habitat surrogates. Species that require species credits are listed in the Threatened Biodiversity Data Collection.
Subject land	Is land to which the BAM is applied in Stage 1 to assess the biodiversity values of the land. It includes land that may be a development site, clearing site, proposed for biodiversity certification or land that is proposed for a biodiversity stewardship agreement.
Threatened Biodiversity Data Collection	Part of the BioNet database, published by DPIE and accessible from the BioNet website.
Threatened species	Critically Endangered, Endangered or Vulnerable threatened species as defined by Schedule 1 of the BC Act, or any additional threatened species listed under Part 13 of the EPBC Act as Critically Endangered, Endangered or Vulnerable.

Terminology	Definition
Vegetation Benchmarks Database	A database of benchmarks for vegetation classes and some PCTs. The Vegetation Benchmarks Database is published by OEH and is part of the BioNet Vegetation Classification.
Vegetation zone	A relatively homogenous area of native vegetation on a development site, land to be biodiversity certified or a biodiversity stewardship site that is the same PCT and broad condition state.
Wetland	An area of land that is wet by surface water or ground water, or both, for long enough periods that the plants and animals in it are adapted to, and depend on, moist conditions for at least part of their life cycle. Wetlands may exhibit wet and dry phases and may be wet permanently, cyclically or intermittently with fresh, brackish or saline water.
Woody native vegetation	Native vegetation that contains an over-storey and/or mid-storey that predominantly consists of trees and/or shrubs.

## Appendix B - Vegetation Floristic Plot Data

Table 27: Species recorded in the plots and incidentally elsewhere within the development site or immediate surrounds.

Family	Species	Common Name	Listing	ROTAP	Exotic	High	Growth Form Group	Plot 1			Plot 2		
			Status			Threat Weed		જ		ce	ø		ce Ce
								Stratum Layer	Cover	Abundan	Stratum Layer	Cover	Abundan
Rosaceae	Acaena sp.	Sheep's Burr	-	-	-	-	Forb (FG)	g	0.5	50	g	0.2	10
Polygonaceae	Acetosella vulgaris	Sheep Sorrel	-	-	Yes	Yes		-	-	-	g	0.5	500
Asteraceae	Achillea millefolium	Yarrow	-	-	Yes	Yes		g	0.1	1	g	0.1	20
Apiaceae	Aciphylla simplicifolia	Mountain Aciphyll	-	-	-	-	Forb (FG)	g	0.1	50	-	-	-
Poaceae	Agrostis capillaris	Browntop Bent	-	-	Yes	Yes		g	0.1	20	g	0.3	500
Rubiaceae	Asperula gunnii	Mountain Woodruff	-	-	-	-	Forb (FG)	-	-	-	g	0.2	100
Myrtaceae	Baeckea gunniana	Alpine Baeckea	-	-	-	-	Shrub (SG)	m	25	100	-	-	-
Orchidaceae	Caladenia alpina	-	-	-	-	-	Forb (FG)	g	0.1	5	-	-	-
Cyperaceae	Carex breviculmis	-	-	-	-	-	Grass & grasslike (GG)	-	-	-	g	0.2	100
Cyperaceae	Carex gaudichaudiana	-	-	-	-	-	Grass & grasslike (GG)	g	1	500	-	-	-
Cyperaceae	Carex jackiana	-	-	-	-	-	Grass & grasslike (GG)	g	1	1000	-	-	-
Cyperaceae	Carpha nivicola	-	-	-	-	-	Grass & grasslike (GG)	g	0.1	20	-	-	-
Asteraceae	Celmisia costiniana	-	-	-	-	-	Forb (FG)	g	0.2	50	-	-	-
Asteraceae	Coronidium scorpioides	Button Everlasting	-	-	-	-	Forb (FG)	g	0.1	10	-	-	-
Asteraceae	Craspedia sp.	Billy Buttons	-	-	-	-	Forb (FG)	g	0.1	2	g	1	500
Restionaceae	Empodisma minus	-	-	-	-	-	Grass & grasslike (GG)	g	50	500	-	-	-
Ericaceae	Epacris paludosa	Swamp Heath	-	-	-	-	Shrub (SG)	m	15	100	-	-	-
Onagraceae	<i>Epilobium</i> sp.	-	-	-	-	-	Forb (FG)	-	-	-	g	0.1	5
Myrtaceae	Eucalyptus niphophila	-	-	-	-	-	Tree (TG)	-	-	-	g	0.1	1

Family	Species	Common Name	Listing Status	ROTAP	Exotic	High Threat Weed	Growth Form Group		Plot 1		Plot 2		
			Status					ઝ		e	ø		ce
								Stratum Layer	Cover	Abundan	Stratum Layer	Cover	Abundan
Orobanchaceae	Euphrasia collina subsp. diversicolor	-	-	-	-	-	Forb (FG)	-	-	-	g	0.2	20
Poaceae	Festuca rubra subsp. rubra	Red Fescue	-	-	Yes	-		g	0.1	5	-	-	-
Haloragaceae	Gonocarpus micranthus subsp. micranthus	-	-	-	-	-	Forb (FG)	g	0.1	10	-	-	-
Proteaceae	Grevillea australis	Alpine Grevillea	-	-	-	-	Shrub (SG)	m	0.1	1	m	1	10
Fabaceae (Faboideae)	Hovea montana	-	-	-	-	-	Shrub (SG)	-	-	-	g	0.3	10
Asteraceae	Hypochaeris radicata	Catsear	-	-	Yes	-		g	0.1	5	g	0.2	100
Juncaceae	Juncus antarcticus	Cushion Rush	-	-	-	-	Grass & grasslike (GG)	g	0.1	20	-	-	-
Juncaceae	Juncus falcatus	-	-	-	-	-	Grass & grasslike (GG)	g	0.2	100	-	-	-
Lycopodiaceae	Lycopodium fastigiatum	Mountain Clubmoss	-	-	-	-	Fern (EG)	-	-	-	g	1	100
Violaceae	Melicytus dentatus	Tree Violet	-	-	-	-	Shrub (SG)	-	-	-	g	0.1	5
Rutaceae	Nematolepis ovatifolia	-	-	-	-	-	Shrub (SG)	-	-	-	m	1	5
Asteraceae	Olearia phlogopappa	-	-	-	-	-	Shrub (SG)	g	0.1	20	g	8	100
Cyperaceae	Oreobolus distichus	-	-	-	-	-	Grass & grasslike (GG)	g	0.2	500	-	-	-
Apiaceae	Oreomyrrhis eriopoda	Australian Carraway	-	-	-	-	Forb (FG)	g	0.1	50	-	-	-
Proteaceae	Orites lancifolius	Alpine Orites	-	-	-	-	Shrub (SG)	-	-	-	m	25	10
Fabaceae (Faboideae)	Oxylobium ellipticum	Common Shaggy Pea	-	-	-	-	Shrub (SG)	g	2	100	g	0.5	10
Asteraceae	Ozothamnus alpinus	Alpine Everlasting	-	-	-	-	Shrub (SG)	-	-	-	m	0.1	1
Asteraceae	Ozothamnus cupressoides	-	-	-	-	-	Shrub (SG)	g	0.1	5	-	-	-
Asteraceae	Ozothamnus secundiflorus	Cascade Everlasting	-	-	-	-	Shrub (SG)	-	-	-	m	10	20

Family	Species	Common Name	Listing	ROTAP	Exotic	High	Growth Form Group	Plot 1			Plot 2		
			Status			Threat Weed		જ		e	ø		e
								Stratum Layer	Cover	Abundan	Stratum Layer	Cover	Abundan
Thymelaeaceae	Pimelea alpina	-	-	-	-	-	Shrub (SG)	-	-	-	g	0.1	1
Thymelaeaceae	Pimelea axiflora subsp. alpina	-	-	-	-	-	Shrub (SG)	-	-	-	m	1	20
Thymelaeaceae	Pimelea ligustrina subsp. ciliata	-	-	-	-	-	Shrub (SG)	-	-	-	g	0.1	2
Plantaginaceae	Plantago euryphylla	-	-	-	-	-	Forb (FG)	-	-	-	g	0.1	20
Poaceae	Poa costiniana	Bog Snowgrass	-	-	-	-	Grass & grasslike (GG)	g	0.5	100	-	-	-
Poaceae	Poa fawcettiae	Smooth Blue Snowgrass	-	-	-	-	Grass & grasslike (GG)	-	-	-	g	10	100 0
Dryopteridaceae	Polystichum proliferum	Mother Shield Fern	-	-	-	-	Fern (EG)	-	-	-	g	0.1	2
Lamiaceae	Prostanthera cuneata	Alpine Mint-bush	-	-	-	-	Shrub (SG)	-	-	-	m	20	100
Ranunculaceae	Ranunculus dissectifolius	-	-	2RCa	-	-	Forb (FG)	g	0.1	1	-	-	-
Ranunculaceae	Ranunculus graniticola	Granite Buttercup	-	-	-	-	Forb (FG)	-	-	-	g	0.1	5
Ericaceae	Richea continentis	Candle Heath	-	-	-	-	Shrub (SG)	g	3	50	-	-	-
Asteraceae	Senecio gunnii	-	-	-	-	-	Forb (FG)	-	-	-	g	0.2	10
Sphagnaceae	Sphagnum sp.	-	-	-	-	-		g	65	500	-	-	-
Stylidiaceae	Stylidium graminifolium	Grass Triggerplant	-	-	-	-	Forb (FG)	g	0.1	50	-	-	-
Asteraceae	Taraxacum officinale	Dandelion	-	-	Yes	-		g	0.1	5	-	-	-
Poaceae	Trisetum spicatum	Bristle Grass	-	-	-	-	Grass & grasslike (GG)	g	0.1	20	-	-	-
Violaceae	Viola betonicifolia	Native Violet	-	-	-	-	Forb (FG)	-	-	-	g	0.1	20

# Appendix C - Vegetation Integrity Plot Data

Plot no.	РСТ	Condition	Easting	Northing	Bearing
1	637	Moderate	625948	5970311	230
2	643	Moderate	625860	5970397	40

#### Table 28: Plot location data

#### Table 29: Vegetation integrity data (composition)

Composition (number of species)								
Plot	Tree	Shrub	Grass	Forb	Fern	Other		
1	0	7	9	10	0	0		
2	1	13	2	9	2	0		

#### Table 30: Vegetation integrity data (Structure)

Structure (Total cover)									
Plot	Tree	Shrub	Grass	Forb	Fern	Other			
1	0.0	45.3	53.2	1.5	0.0	0.0			
2	0.1	67.2	10.2	2.2	1.1	0.0			

#### Table 31: Vegetation integrity data (Function)

	Function										
Plot	Large Trees	Hollow trees	Litter Cover	Length Fallen Logs	Tree Stem 5-9	Tree Stem 10-1 9	Tree Stem 20-29	Tree Stem 30-49	Tree Stem 50-79	Tree Regen	High Threat Weed Cover
1	0	0	60	0	0	0	0	0	0	0	0.2
2	0	0	62	0	0	0	0	0	0	0	0.9

# Appendix D - EPBC Act Significant Impact Criteria

The EPBC Act Administrative Guidelines on Significance (DoE 2013) set out 'Significant Impact Criteria' that are to be used to assist in determining whether a proposed action is likely to have a significant impact on Matters of National Environmental Significance. Matters listed under the EPBC Act as being of national environmental significance include:

- Listed threatened species and ecological communities
- Listed migratory species
- Wetlands of International Importance
- The Commonwealth marine environment
- World Heritage properties
- National Heritage places
- Nuclear actions
- Great Barrier Reef.

Specific 'Significant Impact Criteria' are provided for each Matter of National Environmental Significance except for threatened species and ecological communities in which case separate criteria are provided for species listed as endangered and vulnerable under the EPBC Act.

The Commonwealth listed entities which are known or considered to have the potential to occur within the study area are the:

- Alpine She-oak Skink
- Guthega Skink
- Broad-toothed Rat
- Anemone Buttercup
- Alpine Sphagnum Bogs and Associated Fens.

The relevant Significant Impact Criteria have been applied to determine the significance of impacts associated with the proposal.

Matters to be considered	Impact
Any environmental impact on a World Heritage Property or National Heritage Places	No. The proposed action does not impact on a World Heritage Property or a National Heritage Place - (listed natural: Australian Alpine National Parks and Reserves; nominated historic: Snowy Mountains Scheme NSW).
Any environmental impact on Wetlands of International Importance	No. The proposal will not affect any part of a wetland of international importance.
	Yes. The development site does provide potential habitat for the following Commonwealth listed endangered entities; Alpine She-oak Skink and Guthega Skink The significant impact criteria for endangered species are discussed below:
Any impact on Commonwealth Listed Critically Endangered or Endangered Species;	a. lead to a long-term decrease in the size a population of a species, The Guthega Skink has not been detected within the development site or immediate surrounds and the proposed works will be at least 100 m from the nearest known Guthega Skink burrow, which occurs to the south of the development site. The proposed action will only affect a small amount of marginal potential habitat for the species in the context of the extent of potential habitat within the Centre Valley area. The targeted surveys undertaken for this assessment suggest that the species does not utilise the potential habitat within the development site.

The impacts associated with the proposed action will not result in the removal of any of the dense groundrovers the Apline She-calk Skink is associated with. As such, the habitats within of any Apline She-cak Skink individuals as the disturbances associated with the proposed action. It is considered highly unlikely that the proposed works are likely to temporarily deter any individuals from the locations where works are being undertaken. Under these circumstances, it is considered highly unlikely that the proposed action will lead to a long-term decrease in the size of the Guthega Skink or Alpine She-cak Skink populations. b. reduce the area of occupancy of the species The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the cortect of the extern of similar habitats in the Cortex (16 externed of excupancy of the local populations of the Alpine She-cak Sikin or Guthega Sikin, or affect their ability to access habitats within or beyond the development site. Under these circumstances, the proposed avorks will not affect any key habitat resources for the Alpine She-cak Sikin or Guthega Sikin, or affect their ability to access habitats within or beyond the development site. Under these circumstances, the proposed works will not affect any key habitat resources for the Alpine She-cak Sikin or Guthega Sikin, into access habitats within or beyond the development site. Under these circumstances, the proposed works will not affect any key habitat resources for the Alpine She-cak Sikin or Guthega Sikin, into are populations. diversely affect habitat critical to the survival of a species. No adversely affect habitat critical to t	Matters to be considered	Impact
Under these circumstances, it is considered highly unlikely that the proposed action will lead to a long-term decrease in the size of the Guthega Skink or Alpine She-oak Skink populations. b. reduce the area of accupancy of the species The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site. Under these circumstances, the proposed action is highly unlikely to reduce the area of occupancy of the local population into two or more populations The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink, or affect their ability to access habitats within or beyond the development site. Under these circumstances, the proposed action will not fragment an existing population of the Alpine She-oak Skink or Guthega Skink into two or more populations. d. adversely affect habitat critical to the survival of a species No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink and two accur within the Perisher Resort area. Alpine She-oak Skink and Bundega Skink kontinue to occur within the Perisher Resort area. Alpine She-oak Skink and Guthega Skink kontinue to occur within the Perisher Resort Area despite a long history of similar and more extensive disturbances. e. disrupt the breeding cycle of a population It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. Howevere, any lo		The impacts associated with the proposed action will not result in the removal of any of the dense groundcovers the Alpine She-oak Skink is associated with. As such, the habitats within the study area will continue to available to the species after the completion of the proposed action. It is considered highly unlikely that the proposed works would result in injury or death of any Alpine She-oak Skink individuals as the disturbances associated with the proposed works are likely to temporarily deter any individuals from the locations where works are being undertaken.
<ul> <li>b. reduce the area of occupancy of the species</li> <li>The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site.</li> <li>Under these circumstances, the proposed action is highly unlikely to reduce the area of occupancy of the local population into two or more populations</li> <li>The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site.</li> <li>Under these circumstances, the proposed action will not fragment an existing population of the Alpine She-oak Skink or Guthega Skink into two or more populations.</li> <li>d. adversely affect habitat critical to the survival of a species</li> <li>No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink and Guthega Skink continue to occur within the Perisher Resort Area. Alpine She-oak Skink or Guthega Skink continue to occur within the Perisher Resort Area despite a long history of similar and more extensive disturbances.</li> <li>e. disrupt the breeding cycle of a population</li> <li>It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to be limited to the development site. Jone area, alpine Jone and y a species</li> <li>i. disrupt the breeding cycle of a popu</li></ul>		Under these circumstances, it is considered highly unlikely that the proposed action will lead to a long-term decrease in the size of the Guthega Skink or Alpine She-oak Skink populations.
The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitates in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site. Under these circumstances, the proposed action is highly unlikely to reduce the area of occupancy of the local populations of the Alpine She-oak Skink or Guthega Skink. c. fragment an existing population into two or more populations The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site. Under these circumstances, the proposed action will not fragment an existing population of the Alpine She-oak Skink or Guthega Skink. Into two or more populations. d. adversely affect habitat critical to the survival of a species No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink an Guthega Skink continue to occur within the Perisher Resort Area despite a long history of similar and more extensive disturbances. e. disrupt the breeding cycle of a population It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to the there available to the species in the locality and so breeding can proceed as normal in the other available areas. It is considered highly unlikely that the Guthega Skink would breed within the development site, which represents only a very small propor		b. reduce the area of occupancy of the species
Under these circumstances, the proposed action is highly unlikely to reduce the area of occupancy of the local populations of the Alpine She-oak Skink or Guthega Skink. c. fragment an existing population into two or more populations The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site. Under these circumstances, the proposed action will not fragment an existing population of the Alpine She-oak Skink or Guthega Skink. There are thousands of the survival of the Alpine She-oak Skink or Guthega Skink. There are thousands of hectares of similar habitats in the alpine and subalpine zones of the Australian alps, including elsewhere within the Perisher Resort Area despite a long history of similar and more extensive disturbances. e. disrupt the breeding cycle of a population It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to be limited to the development site, which represents only a very small proportion of the potential habitat available to the species in the locality and so breeding can proceed as normal in the other available areas. It is considered highly unlikely that the Guthega Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species thre. Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink or Guthega Skink or Guthega Skink continue to accer within the development site given the absence of burrows and the generally marginal		The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site.
<ul> <li>c. fragment an existing population into two or more populations</li> <li>The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site.</li> <li>Under these circumstances, the proposed action will not fragment an existing population of the Alpine She-oak Skink or Guthega Skink into two or more populations.</li> <li>d. adversely affect habitat critical to the survival of a species</li> <li>No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink. There are thousands of hectares of similar habitats in the alpine and subalpine zones of the Australian alps, including elsewhere within the Perisher Resort area. Alpine She-oak Skink an Guthega Skink continue to occur within the Perisher Resort area. Alpine She-oak Skink an Guthega Skink continue to occur within the development site. However, any local population</li> <li>It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of thes species is highly unlikely to be limited to the development site, which represents only a very small proportion of the potential habitat available to the species in the locality and so breeding can proceed as normal in the other available to the species of purpusation of the Alpine Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species there.</li> <li>Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink.</li> <li>f. modify</li></ul>		Under these circumstances, the proposed action is highly unlikely to reduce the area of occupancy of the local populations of the Alpine She-oak Skink or Guthega Skink.
The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site. Under these circumstances, the proposed action will not fragment an existing population of the Alpine She-oak Skink or Guthega Skink into two or more populations. d. adversely affect habitat critical to the survival of a species No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink. There are thousands of hectares of similar habitats in the alpine and subalpine zones of the Australian alps, including elsewhere within the Perisher Resort area. Alpine She-oak Skink an Guthega Skink continue to occur within the Perisher Resort Area despite a long history of similar and more extensive disturbances. e. disrupt the breeding cycle of a population It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to be limited to the development site, which represents only a very small proportion of the potential habitat available to the species in the locality and so breeding can proceed as normal in the other available areas. It is considered highly unlikely that the Guthega Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species there. Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink.		c. fragment an existing population into two or more populations
Under these circumstances, the proposed action will not fragment an existing population of the Alpine She-oak Skink or Guthega Skink into two or more populations. d. adversely affect habitat critical to the survival of a species No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink. There are thousands of hectares of similar habitats in the alpine and subalpine zones of the Australian alps, including elsewhere within the Perisher Resort area. Alpine She-oak Skink an Guthega Skink continue to occur within the Perisher Resort Area despite a long history of similar and more extensive disturbances. e. disrupt the breeding cycle of a population It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to be limited to the development site, which represents only a very small proportion of the potential habitat available to the species in the locality and so breeding can proceed as normal in the other available areas. It is considered highly unlikely that the Guthega Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species there. Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink.		The proposed action will be limited to the disturbance of 0.16 ha of native vegetation which is a small amount of habitat in the context of the extent of similar habitats in the Centre Valley area and in the locality generally. The proposed works will not affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site.
<ul> <li>d. adversely affect habitat critical to the survival of a species</li> <li>No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink. There are thousands of hectares of similar habitats in the alpine and subalpine zones of the Australian alps, including elsewhere within the Perisher Resort area. Alpine She-oak Skink an Guthega Skink continue to occur within the Perisher Resort Area despite a long history of similar and more extensive disturbances.</li> <li>e. disrupt the breeding cycle of a population</li> <li>It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to be limited to the development site, which represents only a very small proportion of the potential habitat available to the species in the locality and so breeding can proceed as normal in the other available areas.</li> <li>It is considered highly unlikely that the Guthega Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species there.</li> <li>Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink.</li> <li>f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</li> </ul>		Under these circumstances, the proposed action will not fragment an existing population of the Alpine She-oak Skink or Guthega Skink into two or more populations.
No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink. There are thousands of hectares of similar habitats in the alpine and subalpine zones of the Australian alps, including elsewhere within the Perisher Resort area. Alpine She-oak Skink an Guthega Skink continue to occur within the Perisher Resort Area despite a long history of similar and more extensive disturbances. e. disrupt the breeding cycle of a population It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to be limited to the development site, which represents only a very small proportion of the potential habitat available to the species in the locality and so breeding can proceed as normal in the other available areas. It is considered highly unlikely that the Guthega Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species there. Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink. f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline		d, adversely affect habitat critical to the survival of a species
e. disrupt the breeding cycle of a population It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to be limited to the development site, which represents only a very small proportion of the potential habitat available to the species in the locality and so breeding can proceed as normal in the other available areas. It is considered highly unlikely that the Guthega Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species there. Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink. f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline		No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink. There are thousands of hectares of similar habitats in the alpine and subalpine zones of the Australian alps, including elsewhere within the Perisher Resort area. Alpine She-oak Skink an Guthega Skink continue to occur within the Perisher Resort Area despite a long history of similar and more extensive disturbances.
It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to be limited to the development site, which represents only a very small proportion of the potential habitat available to the species in the locality and so breeding can proceed as normal in the other available areas. It is considered highly unlikely that the Guthega Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species there. Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink. f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline		e. disrupt the breeding cycle of a population
It is considered highly unlikely that the Guthega Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species there. Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink. f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline		It is possible although unlikely that the Alpine She-oak Skink may breed within the development site. However, any local population of these species is highly unlikely to be limited to the development site, which represents only a very small proportion of the potential habitat available to the species in the locality and so breeding can proceed as normal in the other available areas.
Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink. f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline		It is considered highly unlikely that the Guthega Skink would breed within the development site given the absence of burrows and the generally marginal nature of the potential habitat for the species there.
f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline		Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink.
		f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

Matters to be considered	Impact
	The proposed action will modify a very small area of marginal potential habitat for the Alpine She-oak Skink and Guthega Skink, but this area is unlikely to be important to the species in the context of the extent of potential habitat in the locality.
	Under these circumstances it is highly unlikely that the proposed action would modify- destroy- remove or isolate or decrease the availability or quality of habitat to the extent that the Alpine She-oak Skink or Guthega Skink is likely to decline.
	g. result in invasive species that are harmful to an endangered species becoming established in the endangered or critically endangered species' habitat
	The proposed action is unlikely to result in invasive species that are harmful becoming established in potential habitat of the Alpine She-oak Skink or Guthega Skink. Species such as cats or foxes are already present in the landscape and are subject to control programs within the resort.
	h. introduce disease that may cause the species to decline
	The proposed action is unlikely to introduce disease that may cause the Alpine She-oak Skink or Guthega Skink to decline.
	i. interfere substantially with the recovery of the species.
	As the proposed action is not considered to decrease or fragment any existing populations the recovery of the Alpine She-oak Skink and Guthega Skink is unlikely to be adversely impacted.
	Yes. The study area provides known habitat for two Commonwealth listed vulnerable species: the Broad-toothed Rat and the Anemone Buttercup.
Any impact on Commonwealth Listed Vulnerable Species;	The significant impact criteria in terms of the vulnerable species are discussed below: a. lead to a long-term decrease in the size of an important population of a species. Whilst the proposed action will affect some known Broad-toothed Rat habitat, it will affect only a very small amount (0.16 ha) of the potential habitat for the species in the immediate area. As such, the proposed works are unlikely to adversely affect a significant proportion of the home range of one or more Broad-toothed Rat individuals and will not result in habitat fragmentation which could isolate individuals or a population of the Broad-toothed Rat. The noise and vibration associated with the proposed works is likely to temporarily deter any Broad-toothed Rat individuals that may be near the affected areas. As such, it is unlikely that any individuals would be killed during the implementation of the proposed action. The Anemone Buttercup has recovered well from the brink of extinction since the cessation of grazing in the NSW alpine areas and is now locally common throughout the main range. The local population of the species is likely to comprise many thousands of plants. The species is common in the Centre Valley area and elsewhere throughout the Perisher Resort Area. Under these circumstances the proposed action will not lead to a long-term decrease in the size of an important population of the Broad-toothed Rat or the Anemone Buttercup. b. reduce the area of occupancy of an important population It is highly likely that the Broad-toothed Rat will continue to occur within the development site after the implementation of the proposed action. The species continues to be locally common in the Perisher Resort Area where there have been many similar and larger developments over many decades. As such, the proposed action is highly unlikely to reduce the area of occupancy of the Broad-toothed Rat. The proposed action will reduce the area of occupancy of the Anemone Buttercup by a very small amount, approximately 0.5 m <sup></sup>

Matters to be considered	Impact
	The proposed action will not fragment an existing important population of either the Broad- toothed Rat or the Anemone Buttercup into two or more populations. Both species' populations extend beyond the development site and the Perisher Resort Area.
	d. adversely affect habitat critical to the survival of a species No habitat within the development site is considered to be critical to the survival of the Broad- toothed Rat or the Anemone Buttercup.
	e. disrupt the breeding cycle of an important population The proposed action and affected area is too small to disrupt the breeding cycle of a population of the Broad-toothed Rat or the Anemone Buttercup.
	f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
	The proposed action will not modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the Broad-toothed Rat or the Anemone Buttercup is likely to decline as the habitat to be affected is very small in the context of the available habitat within the Perisher Resort Area and the proposal will not cause any additional fragmentation of habitat or barriers to movement.
	g. result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat
	The proposed action will not result in invasive species that are harmful becoming established in habitat for the Broad-toothed Rat or the Anemone Buttercup. Invasive species, including foxes and cats, are already present.
	h. introduce disease that may cause the species to decline
	The proposed action is unlikely to introduce disease that may cause the Broad-toothed Rat or Anemone Buttercup to decline.
	i. interferes substantially with the recovery of the species.
	Whilst there have been documented declines in some Broad-toothed Rat populations within the Snowy Mountains, these declines have been attributed to factors such as major bushfire events and early snow thaws and not impacts of the nature of those proposed. The local population of the Broad-toothed Rat appears to continue to be relatively large on the basis of the abundance of the species scat throughout the Thredbo Resort Area, including within the village, and in areas that have been subject to the sorts of activities proposed. As such, it is considered highly unlikely that proposed action will substantially interfere with the recovery of the Broad-toothed Rat.
	The Anemone Buttercup has recovered well from the brink of extinction since the cessation of grazing in the NSW alpine areas and is now locally common throughout the main range. The local population of the species is likely to comprise many thousands of plants.
Any impact on a Commonwealth Endangered	Yes: The Alpine Sphagnum Bogs and Associated Fens endangered ecological community occurs within the development site.
Ecological Community	The significant impact criteria in terms of endangered ecological communities are discussed below:
	a. reduce the extent of an ecological community
	The proposal is expected to result in the further modification of approximately 900 m <sup>2</sup> of Alpine of already disturbed Sphagnum Bogs and Associated Fens EEC. The local occurrence of the community is estimated to be at least 100 ha in extent in association with Perisher Creek and Rock Creek.

Matters to be considered	Impact
	b. fragment or increase fragmentation of an ecological community, for example by clearing
	vegetation for roads or transmission lines;
	The proposal will not fragment the Alpine Sphagnum Bogs and Associated Fens EEC as it will affect a small area on the margins of a very large local occurrence.
	c. adversely affect habitat critical to the survival of an ecological community
	The local occurrence of the Alpine Sphagnum Bogs and Associated Fens EEC is estimated to be at least 100 ha in extent in association with Perisher Creek and Rock Creek. In this context, the habitat for the community within the development site is not considered to be critical to its survival.
	d. modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns
	The proposal has been designed so as to not modify or destroy the abiotic factors necessary for the survival of the Alpine Sphagnum Bogs and Associated Fens EEC. On the contrary, the proposal has been designed to mitigate against any potential impacts on surface or subsurface hydrology, primarily through the use of the sod replacement technique. The Alpine Sphagnum Bogs and Associated Fens EEC within the development site has been disturbed before by trenching for the existing uphill line and has recovered well. It is expected that a similar recovery will occur post construction of the proposed action although it is acknowledged that the recovery is likely to take several decades.
	e. cause a substantial change in the species composition of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting.
	The development site does not support a unique assemblage of characteristic flora species of the Alpine Sphagnum Bogs and Associated Fens EEC that does not occur elsewhere within the local occurrence. Similarly, the fauna assemblage inhabiting the development site is likely to be distributed throughout the local occurrence and contiguous vegetation. Fauna species such as invertebrates, amphibians, reptiles, birds, and mammals utilising foraging substrates within the development site would not be restricted to the areas affected by the action proposed and would be highly likely to continue to utilise habitats in the remainder of the local occurrence.
	f. cause a substantial reduction in the quality or integrity of an ecological community, including, but not limited to:
	-assisting invasive species, that area harmful to the listed ecological community, to become established, or
	-causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants in the ecological community which kill or inhibit the growth of species in the ecological community
	The proposed action includes appropriate safeguards to limit the potential for invasive plants or pathogens to encroach upon the Alpine Sphagnum Bogs and Associated Fens EEC. It will also include safeguards which limit the potential for any chemicals or pollutants to enter the Alpine Sphagnum Bogs and Associated Fens EEC in association with the action proposed.
	g. interfere with the recovery of an ecological community
	The Alpine Sphagnum Bogs and Associated Fens EEC has recovered well since the cessation of grazing in the NSW alps and is one of the most common vegetation communities in alpine and subalpine habitats, and one of the best conserved vegetation communities in Australia. It has

The proposed action will not reduce the extent of the Alpine Sphagnum Bogs and Associated Fens EEC, will not interfere with any wider recovery of the community, which is only potentially

also recovered well since the 2003 wildfires.

Matters to be considered	Impact
	threatened by impacts associated with climate change, the re-introduction of grazing, horse and pig impacts or adverse fire regimes.
Any environmental impact on Commonwealth Listed Migratory Species;	No. The proposed action will not have any adverse impacts on any listed migratory species.
Does any part of the Proposal involve a Nuclear Action;	No. The project does not include a Nuclear Action.
Any environmental impact on a Commonwealth Marine Area;	No. There are no Commonwealth Marine Areas within the study area.
In addition- any direct or indirect impact on Commonwealth lands	No. The project does not directly or indirectly affect Commonwealth land.

Appendix E - Staff CVs



### CURRICULUM VITAE

## **Ryan Smithers**

SENIOR ECOLOGIST

#### QUALIFICATIONS

BEnvSc (Land Resources Management)- University of Wollongong with 1st Class Honours 1995. Accredited BBAM- FBA- and BAM Assessor Alpine Ecology Course Australian Alpine Institute and La Trobe University Senior First Aid- St. Johns Ambulance.

Ryan brings to ELA more than 20 years' experience in natural resource management (21 years as a consultant- and 3 years with Sydney Catchment Authority as a Catchment Protection Officer). He has extensive practical experience in flora and fauna surveying- fire-fighting- planning and land management throughout southern NSW and has undertaken numerous flora and fauna surveys-biodiversity plans- environmental impact assessments- vegetation management plans- fire management plans and weed management plans.

Ryan has extensive experience in general and targeted fauna surveys using a diverse range of survey techniques. Ryan has undertaken many flora and fauna surveys on the NSW south coast-southern tablelands and in the Australian Alps- and in other parts of Australia including in the Northern Territory.

Ryan is an accredited Biobanking (BBAM)- Framework for Biodiversity Assessment (FBA) and Biodiversity Assessment Method (BAM) assessor and has undertaken may surveys using BBAM-BAM and DPIE Vegetation Survey Standard or very similar methodologies. Ryan project managed ELAs contributions to the Full-floristic Vegetation Survey and Condition Assessment for the Southeast Highlands and Australian Alps of the Upper Murrumbidgee Catchment and South-east Corner Biometric Benchmark projects which involved the collection of more than 250 plots.

Ryan has particular ecological expertise in the NSW southern tablelands and Alps- gained from 15 years of survey and assessment across the Alps- including many assessments within the Charlotte Pass- Thredbo and Perisher Ski Resorts- and assessments on the Monaro including around Jindabyne.

Ryan has undertaken assessments in the region for a broad range of clients including NSW NPWS, Local Land Services, Biodiversity Conservation Trust, Kosciuszko Thredbo, Vail Resorts and Charlotte Pass Ski Resort.

#### RELEVANT PROJECT EXPERIENCE

Monaro and Werriwa Snow Gum Woodland and Grasslands Conservation Tender Monaro Grasslands Conservation Tender Kosi Walk Realignment Review of Environmental Factors Diggings Campground Upgrade Review of Environmental Factors Mount Perisher Chairlift Biodiversity Development Assessment Report Merritt's Gondola Biodiversity Development Assessment Report Corin Forest Ski Slope Assessment Montane Peatlands Strategic Action Plan Perisher Guthega Skink Targeted Surveys Numerous Mountain Bike Ecological Assessments at Thredbo Leichardt Chairlift Ecological Assessment Thredbo Masterplan Ecological Assessment Guthega Quad Chair Flora and Fauna Assessment Thredbo Chairlift Constraints Analysis Friday Flat Ecological Assessment Sponar's Traverse Flora and Fauna Assessment Lobs Hole Review of Environmental Factors Lake Wallace Flora and Fauna Assessment for Cooma Monaro Shire at Nimmitabel Numerous Impact Assessments in alpine and sub-alpine environments for OEH- Vail- Kosciuszko-Thredbo and Charlotte Pass Ski Resorts Boco Rock Wind Farm Ecological Assessment and Offsets Analysis South-east Highlands and Australian Alps of the Upper Murrumbidgee Catchment Full Floristic Survey and Condition Assessment South-east Corner Biometric Benchmark Project Queanbeyan Biodiversity Study Mount Jerrabomberra Ecological Assessment Eurobodalla Bio-certification Project Jervis Bay Biodiversity Assessment Broulee and South Moruya Biocertification Project North Moruya Biodiversity Study Eurobodalla Vegetation Mapping Validation Eurobodalla Biodiversity Study for future Urban Expansion Lands Merimbula STP Upgrade Terrestrial Ecological Assessment Cobowra LALC Lands Biobanking Assessment Upper Lachlan Shire Biodiversity Planning Framework Parkes- Cabonne- Bland- Upper Lachlan and Temora Shires Biodiversity Assessment and NRM Projects Old Comma Road deviation Species Impact Statement Flora and Fauna Assessment Edwin Lane Parkway Extension Ecological Studies – Proposed Googong township Tarrawonga Biobanking Assessment – Boggabri Katherine to Gove Pipeline – Mitchell Ranges fauna surveys Darwin regional flora and fauna survey RAAF Darwin- defence establishment Berrimah and Shoal Bay receiving station.

# Appendix F - Biodiversity credit report



## **Proposal Details**

Assessment Id	Proposal Name	BAM data last updated *
00028277/BAAS17061/21/00028278	Blaxland and Wentworth T-bars	24/11/2021
Assessor Name Ryan Smithers	Assessor Number BAAS17061	BAM Data version * 50
Proponent Names	Report Created 25/11/2021	BAM Case Status Finalised
Assessment Revision 2	Assessment Type Part 4 Developments (Small Area)	Date Finalised 25/11/2021
BOS entry trigger* DiscBOS Threshold: Biodiversity Values MapBAM	laimer: BAM data last updated may indicate either complete or calculator database. BAM calculator database may not be comp	partial update of the letely aligned with Bionet.

## Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		
Species		
Nil		

Additional Information for Approval

Assessment Id

Proposal Name

00028277/BAAS17061/21/00028278

Blaxland and Wentworth T-bars

Page 1 of 4



PCTs With Customized Benchmarks

PCT	
No Changes	
Predicted Threatened Species Not On Site	

Name No Changes

### Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
637-Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	0.1	0	2	2
643-Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Not a TEC	0.1	0	1	1

637-Alpine and sub-alpine	Like-for-like credit retirement options					
peatlands, damp herbfields	Name of offset trading	Trading group	Zone	HBT	Credits	IBRA region
Highlands Bioregion and	group					
Australian Alps Bioregion						

Assessment Id

Proposal Name

00028277/BAAS17061/21/00028278

Blaxland and Wentworth T-bars

Page 2 of 4



	Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions This includes PCT's: 518, 607, 637, 665, 681, 766, 788, 939, 1188, 1200, 1256, 1270, 1287, 1298, 1743, 1744, 1745		637_Moderate	No	2	Snowy Mountains, Bondo, Monaro, Murrumbateman, Snowy Mountains and South East Coastal Ranges. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
643-Alpine shrubland on	Like-for-like credit retire	ement options				
scree, blockstreams and rocky sites of high altitude areas of	Class	Trading group	Zone	НВТ	Credits	IBRA region
Kosciuszko National Park, Australian Alps Bioregion	Alpine Heaths This includes PCT's: 643	Alpine Heaths <50%	643_Moderate	No	1	Snowy Mountains, Bondo, Monaro, Murrumbateman, Snowy Mountains and South East Coastal Ranges. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Assessment Id

Proposal Name



643-Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion

## Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Mastacomys fuscus / Broad-toothed Rat	637_Moderate, 643_Moderate	0.2	4.00
Ranunculus anemoneus / Anemone Buttercup	637_Moderate	10.0	20.00

<b>Credit Retirement Options</b>	Like-for-like credit retirement options		
Mastacomys fuscus / Broad-toothed Rat	Spp	IBRA subregion	
	Mastacomys fuscus / Broad-toothed Rat	Any in NSW	
Ranunculus anemoneus / Anemone Buttercup	Spp	IBRA subregion	
	Ranunculus anemoneus / Anemone Buttercup	Any in NSW	

Assessment Id

Proposal Name

00028277/BAAS17061/21/00028278

Blaxland and Wentworth T-bars

Page 4 of 4





1300 646 131 www.ecoaus.com.au

## **APPENDIX D - Archaeological Due Diligence**

Project Name: Replacement of Uphill Line, Blaxland and Wentworth T-bars

The due diligence assessment below is taken from the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, DECCW 2010. The assessment was undertaken by Tanya Bishop, Perisher Environmental Manager, September 2021.

## **1** Generic Due Diligence Process

1. Will the activity disturb the ground surface or any culturally modified trees?

YES, disturbance to ground surface.

- 2. Are there any:
  - a. relevant confirmed site records or other associated landscape feature information on AHIMS? and/or
  - b. any other sources of information of which a person is already aware? and/or
  - c. landscape features that are likely to indicate presence of Aboriginal objects?

Is the proposed development:

- Located within 200m of water? No
- Located within a sand dune system? No
- Located on a ridge top, ridge line or headland? No
- Located within 20m of a cave, rock shelter? No

And, is on land that is not disturbed land? No

NO, trenching within areas mapped as potential archaeological sensitivity are contained to areas previously trenched and disturbed. An AHIMS basic search resulted in no Aboriginal sites or Aboriginal places in proximity of the top of the project site.

<u>CONCLUSION</u> - AHIP application not necessary. Proceed with caution. If any Aboriginal objects are found, stop work and notify DECCW. If human remains are found, stop work, secure the site and notify the NSW Police and DECCW.



Perisher Blue Pty Limited

Date: 03 September 2021

Attention: Tanya Bishop Email: tanya.bishop@perisher.com.au Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -36.4, 148.4 - Lat, Long To : -36.4, 148.4, conducted by Tanya Bishop on 03 September 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0 Aboriginal sites are recorded in or near the above location.
0 Aboriginal places have been declared in or near the above location. \*

### If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

### Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

# **APPENDIX E – Site Environmental Management & Rehabilitation Plan**

PROJECT & EMERGENCY CONTACTS					
Project Name	Replacement of Uphill Line, Blaxland and				
	Wentworth T-bars (The Duplex)				
Perisher Project Manager	Andrew Kennedy – 02 6459 4402				
Perisher Operations	Mountain Office - 02 6459 4408				
Perisher Environmental Manager	Tanya Bishop – 02 6459 4504				
Emergency	000				
DPIE	Pete Whiting - 02 6450 5543				
EPA	131 555				

PRIOR TO CO	ONSTRUCTIO	Ν			
Induction	• All project staff to be made aware of disturbance footprint and environmental safeguards prior to works commencing, particularly avoiding Perisher Wallaby Grass				
Access	<ul> <li>Site works to be limited to dry periods, to minimise soil disturbance</li> <li>Fence off all approved construction areas and access corridors</li> <li>Machinery from offsite to be cleaned prior to accessing site</li> <li>All access to site via the formed Centre Valley access track, Leichhardt Access Track, or disturbed tracks across Front Valley where required (see, SEMP Figure 1).</li> </ul>				
Flora & Fauna	<ul> <li>Areas of Perisher Wallaby Grass to be clearly marked and buffered from proposed works (5m)</li> <li>Construction corridor to avoid impacts to Ranunculus anemoneus, where feasible</li> </ul>				
Storage	• All equipment to be stored in areas of exotic grass only. No storage of equipment or machinery under trees or on native vegetation. Example of staging areas shown on SEMP Figure 1.				
Disturbance to Soil	Sedimentation and erosion controls to be installed in areas likely to experience soil loss into the surrounding environment				
DURING CON	ISTRUCTION				
Disturbance to Soil		on control, the combined use of straw bale filters and fencing are to be used			
	<ul> <li>Phonuse shaw bale liners in areas of sensitive vegetation to minimise extent of excavation / disturbance</li> </ul>				
Department of Planning and Environment					
nument		Perisher Blue Pty Lto			
proved Application No DA 21/18673		Replacement of Uphill Line, Blaxland and Wentworth T-bars			
nted on the 17 March 2022		Perisher Valley Resort Area			
ed Mark Brown		Site Environmental Management & Rehabilitation Plan v1.0 NOV 2 <sup>-</sup>			
≘tNo 2 of	4				

<ul> <li>Erosion and sedimentation controls shall be monitored &amp; maintained daily and immediately following a rainfall event</li> </ul>					
<ul> <li>Maintain fencing to avoid impacts to Perisher Wallaby Grass</li> <li>No unapproved removal or disturbance of native vegetation</li> <li>Refuel away from areas of native vegetation</li> <li>No storage of material beneath the canopy of trees or on native vegetation</li> <li>Any excavations left open overnight will be left such that any fauna are able to escape easily</li> </ul>					
<ul> <li>Spill kits shall be readily accessible</li> <li>Spills of any liquids shall be controlled and cleaned up immediately</li> <li>No maintenance other than emergency repairs shall be undertaken on site.</li> </ul>					
<ul> <li>Limit work to approved hours only (daylight)</li> </ul>					
All litter and waste to be contained and removed from site regularly					
FOLLOWING CONSTRUCTION					
<ul> <li>All disturbance to be stabilised immediately as works cease in an area</li> <li>Revegetation to be carried out as soon as practical following works</li> <li>Mulch disturbed areas with straw, with brush-matting if possible to stabilise</li> </ul>					
Control weeds annually, or as required in the area					
All erosion and sedimentation controls to be removed from site once ground has stabilised					

REHABILITATION PLAN					
Project Area	Existing	Rehabilitation Methods			
	Environment				
Centre Valley	Access Track	- Reinstate to trafficable access track			
Access Track					
Heavily Disturbed Vegetation – Exotic Grassland (as shown on Figure 2)	Disturbed, exotic grassland	- Sod replace trench			
		- Seed with Chewings fescue			
		- Mulch with straw			
		- Assess need for further stabilisation /			
		rehabilitation			
		- Monitor site stability and drainage			
		<ul> <li>Monitor &amp; manage weed incursions annually, or as required</li> </ul>			

PCT 643 (see	Dry heath	- Sod replace trench
Figure 2)		- Seed with <i>Poa fawcettiae</i>
		- Mulch with straw
		<ul> <li>Assess need for further stabilisation / rehabilitation (species include Poa fawcettiae, Grevillea australis, Ozothamnus alpinus)</li> </ul>
		- Monitor site stability and drainage
		<ul> <li>Monitor &amp; manage weed incursions annually, or as required</li> </ul>
PCT 637 (see	Wet heath	- Sod replace trench
Figure 2)		- Seed with Poa costiniana (wet)
		- Mulch with straw
		<ul> <li>Assess need for further stabilisation / rehabilitation (species include Carex sp, Baeckea gunnii, Poa costiniana)</li> </ul>
		- Monitor site stability and drainage
		<ul> <li>Monitor &amp; manage weed incursions annually, or as required</li> </ul>

# Figure 1 - Site Environmental Management Plan Wentworth T-bar Uphill Line Replacement

![](_page_98_Picture_1.jpeg)

#### Figure 2 – Project Rehabilitation Areas

(Figure taken from Project BDAR Report, Appendix C)

![](_page_99_Figure_2.jpeg)