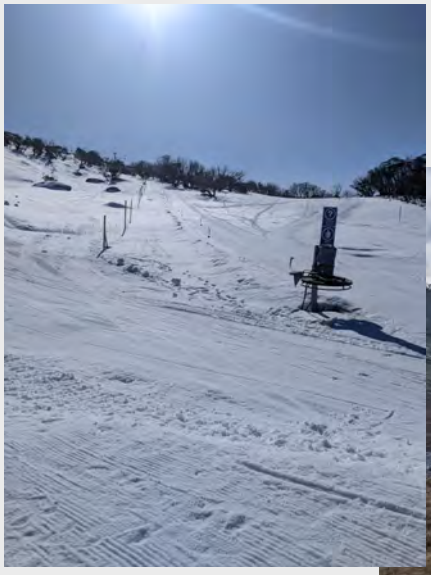
STATEMENT OF ENVIRONMENTAL EFFECTS

REPLACEMENT OF THE HOME ROPE TOW &
INSTALLATION OF THE LEICHHARDT J-BAR & ASSOCIATED WORKS
PERISHER SKI RESORT
KOSCIUSZKO NATIONAL PARK



Prepared for
Perisher Ski Resort

JULY 2022
Project: 09-22

STATEMENT OF ENVIRONMENTAL EFFECTS

REPLACEMENT OF THE HOME ROPE TOW & INSTALLATION OF THE LEICHHARDT J-BAR & ASSOCIATED WORKS PERISHER SKI RESORT KOSCIUSZKO NATIONAL PARK

This report has been prepared by:

Ivan Pasalich
Principal
Dabyne Planning Pty Ltd

JULY 2022

Project: 09-22

CONTENTS

EXECUTIVE SUMMARY

Dabyne Planning Pty Ltd has been engaged by Perisher Blue Pty Ltd (Perisher), the operator of the Perisher Ski Resort, to prepare a Statement of Environmental Effects (SEE) to accompany a Development Application (DA) to the NSW Department of Planning and Environment (DPE).

The DA is for the replacement of the Home Rope Tow lift with a new J-bar lift plus associated works. The proposed lift is located at the base of the Leichhardt Chairlift and extends 318m in a northerly direction towards the Lawson T-bar, within the Centre Valley area of the Perisher Ski Resort.

The existing rope tow lift is proposed to be replaced with a J-bar lift to provide improved guest experience as rope tow lifts are known to be difficult to use, particularly for beginners and snowboarders and are considered outdated lifting technology.

The replacement lift will increase the lift capacity, which is required when the Leichhardt Chairlift is either on wind hold or during peak visitation periods. The replacement lift is also planned for the additional skier circulation traffic expected from the approved Mount Perisher Six-Seater Chairlift.

The design capacity of the new lift is 792 persons/hr compared with the current design capacity of the rope tow at 250 persons/hr, an increase of over 216% in lifting design capacity.

The alignment of the new lift has been altered from the current rope tow lift due to the new Leichhardt Chairlift bottom station and queuing, which requires a lower location for loading. To achieve a better fall line for skiers and snowboarders traversing towards Front Valley, the unload is required to be located higher than the current rope tow unload.

The replacement lift will provide another suitable beginner lift and beginner terrain with increased ski slope capacity by way of removal of the rope tow, rocks, and removal of trees already predominantly impacted by dieback.

To minimise impacts on the environment, the proposed lift has been subject to an extensive preliminary operational, planning and environmental analysis. This has included engaging Eco Logical Australia to provide ecological advice with respect to limiting impacts on the bog vegetation.

As a result, the preferred lift alignment has been amended in response to minimising environmental impacts, with the top station moved to the south, closer to the crest and trees associated with the drier native vegetation. The proposed bottom station has been located within a previously disturbed area adjacent to the Leichhardt Chairlift bottom station.

The replacement lift will require an up-hill safety line (a communications cable that connects the bottom and top stations and each tower). Due to the extreme weather conditions within the area and adjacent snowmaking operations, the only viable method is to install the cable underground to prevent icing.

To minimise impacts on the environment, the up-hill safety line together with a new electricity cable will be installed by way of under boring between the bottom station and tower 3. This avoids trenching through the most sensitive bog vegetation located within the lower slopes of the lift alignment. Between tower 3 and the top station bullwheel, the cables are proposed to be installed within a conventional trench within the less sensitive (drier) native vegetation, however this has been designed to be co-located with the construction access corridor to minimise overall disturbance.

Construction access to the lift will be achieved by way of an existing construction road to the Leichhardt Chairlift bottom station. The upper part of the lift (tower 3 to top station) will be accessed from an existing vehicle access track and a new construction access track.

In accordance with the Biodiversity Conservation Act, 2016 (BC Act, 2016), the subject site is mapped as comprising high biodiversity values. Accordingly, the removal of native vegetation associated with the development will trigger the Biodiversity Offsets Scheme (BOS) under the BC Act, 2016.

Consequently, a Biodiversity Development Assessment Report (BDAR) has been prepared by Ryan Smithers, Senior Ecologist with Eco Logical Australia who is an Accredited Person under the BC Act, 2016. The BDAR outlines the measures taken to avoid, minimise and mitigate impacts to the vegetation and habitats present within the development site during the design, construction and operation of the development. The residual unavoidable impacts of the proposed development were calculated in accordance with the Biodiversity Assessment Method (BAM) by utilising the Biodiversity Assessment Method Credit Calculator (BAMC). The BAMC calculated that a total of two (2) ecosystem credits and five (5) species credits are required to offset the unavoidable impacts to the vegetation and habitat present within the development site.

Payment of the offset credits will be made to the Biodiversity Conservation Fund (BCF) prior to works commencing.

A detailed description of the proposal is provided in Section 4 of the report.

The SEE has concluded that the proposed development will allow for the existing rope tow lift to be replaced with a J-bar lift in a similar location, designed to minimise impacts on the environment whilst improving the guest experience and operational outcomes for the lift and resort.

1. INTRODUCTION

1.1 Purpose of the Report

This report presents a Statement of Environmental Effects (SEE) for a proposal by Perisher, for the replacement of the Home Rope Tow lift with a new J-bar lift plus associated works.

The purpose of this SEE is to

- describe the land to which the DA relates;
- describe the form of the proposed works;
- define the statutory planning framework within which the DA is to be assessed and determined; and
- assess the proposed development against the matters for consideration listed under Section 4.15(1) of the Environmental Planning and Assessment Act, 1979 (EP&A Act, 1979).

1.2 Justification for the Proposal

The Perisher Blue Ski Resort Ski Slope Master Plan (PSSMP) was developed by Perisher over seven (7) years and contains proposals for the ski slope areas of Perisher, Smiggin Holes, Blue Cow, Guthega and the Link Management Unit of Kosciuszko National Park. The plan was required by the Kosciuszko National Park Plan of Management at the time, which set out the required contents of a ski slope plan and the process for it to be adopted.

The PSSMP was adopted by the NSW Government in 2002 and covers the Perisher Valley Precinct (Precinct 1 - Chapter 6) which includes the areas known as Front Valley and Centre Valley.

The PSSMP identified that the replacement of the Home Rope Tow to a T-bar would play an important role for the return of skiers from Mount Perisher to Front Valley,

The existing rope tow is recognised as difficult to ride due to the use of a thin wire rope, its length and the unload area being too small and constrained by trees. The unload is also low on the slope, hampering the ability for skiers and snowboarders to traverse over to Lawson T-bar.

Since 2002, Perisher has continually reviewed and prioritised the developments proposed by the PSSMP since its adoption having regard to the relevant operational, guest service and environmental factors.

Between 2007 and 2009, Perisher undertook an extensive snowmaking infrastructure program which included the installation of automated snowmaking on Mount Perisher and Happy Valley.

In 2010, the Happy Valley T-bar bottom station was extended and relocated further down the hill, so that it could be utilised by more skiers and snowboarders from Mount Perisher.

In 2019, the Leichhardt T-bar was replaced with the Leichhardt Chairlift, a four-person (quad) fixed grip chair on the same alignment, together with snowmaking improvements between Happy Valley T-bar and the base of the new chairlift.

This has assisted with reduced queuing at the Happy Valley T-bar, particularly attributed to Ski School groups which can now utilise the Leichhardt Chairlift.

The Leichhardt Chairlift also provided a lift replacement which better matched its current ski slope capacity with lift capacity and assisted in providing improved access to popular freestyle facilities, including the current Leichhardt terrain park. The chairlift together with improved snowmaking requires less natural snow, allowing it to open earlier and remain open later in the season.

In September 2021, development consent was granted for a detachable six seat chairlift that replaces two older fixed grip chairlifts on Mount Perisher.

All these improvements have been undertaken to improve visitor experiences and the operation of the resort and in particularly to accommodate improved skier circulation between Mount Perisher and Front Valley.

The proposed replacement of the Home Rope Tow lift with a J-bar lift will provide the resort and its customers a large range of benefits, including:

- Replacement of a rope tow lift with a J-bar lift that is easier and safer to use.
- Increased lift capacity by 216% (250 people per hour to 792 people per hour) to better match the current ski slope capacity and reduce queuing times.
- Improved alignment for the lift with a lower loading area and higher unload area.
- Greater beginner terrain serviced by an additional suitable beginner lift by way of removal of trees and rocks.
- Improved ski slope capacity by removing a rope tow lift that prevents crossing the lift track.
- Alternate lifting option back to Front Valley, necessary if the Leichhardt Chairlift is on wind hold and/or during peak visitation periods.
- Ease congestion on other lifts in the precinct.

Overall, the development would represent additional capital investment by the ski resort operator into modernising the lifting infrastructure and improving efficiency, leading to overall improved visitor experiences.

1.3 Objectives of the Proposal

The primary objectives of the proposal have been defined by the five main planning goals that have driven the development of the PSSMP which reflect both operational goals and environmental considerations as follows*:*

- ***Integration:*** *the efficient integration of what were originally four separate resorts.*
- ***Modernisation:*** *replacement of outdated lifts and equipment and the upgrading of other facilities to meet current expectations of safety and convenience.*
- ***Expansion:*** *provision of additional lifts, trails and other facilities to make efficient use of the areas identified in the PoM for alpine skiing and provide skiers of all skill levels with a range of opportunities.*
- ***Enhancement of the visitor experience:*** *creating a safe and attractive environment in all seasons.*
- ***Environmental sustainability:*** *implementation of skiing improvements in a way which maintains or enhances the essential natural processes within the environment of the resort.*

Factors affecting the quality of the visitor experience include:

- *ease of access into and out of the resort;*
- *ease and efficiency of circulation within the resort for pedestrians and skiers;*
- *number, capacity and diversity of lifts and trail systems;*
- *extent and quality of snow;*
- *adequacy of public facilities;*
- *public safety;*
- *pricing regime; and*
- *ambience and character of the resort.*

Ease and efficiency of circulation, adequacy of public facilities, lift and trail capacity and public safety are largely determined by the PSSMP, which can also significantly influence the ambience and character of the resort.

The proposed development has been guided by these five primary objectives and sets out to achieve the following:

Increased lift capacity: The proposed development would result in an increase to the current lift capacity by 216%.

Increase slope capacity: The proposed development will allow for the removal of the existing rope tow, including associated rocks and trees. This will result in a small increase to the ski slope capacity. Ski slope capacity is determined by the area of skiable snow available.

The removal of the rope tow also allows for the lift corridor to be traversed, providing better use of the fall line for skiing and snowboarding.

Improved ease of use: The replacement of the rope tow with a J-bar lift will result in the improved ease of use of the lift which is faster and less difficult to use.

Rope tow lifts are difficult to use, particularly for beginners and snowboarders.

Improved performance: The replacement of the rope tow with a J-bar lift provides an improved alternate lift when the Leichhardt Chairlift is on wind hold and/or during peak visitation periods. This provides for improved skier circulation back to Front Valley.

Modernisation of infrastructure: The installation of a new J-bar lift will allow for an old rope tow lift to be removed. Rope tow lifts have been ongoingly replaced across the resort as they are considered outdated lifting technology.

Improved visitor experiences: Ultimately the proposed development will provide a better experience for resort guests by modernising the lifting infrastructure and reducing lift queue times and improving skier/boarder safety and enjoyment.

2. THE LOCALITY AND SITE

2.1 The Locality

The subject site is located within the Perisher Valley precinct of the Perisher Ski Resort, which is located within the Perisher Range Resorts in South-Eastern NSW as illustrated in figure 1 below:

Figure 1: Location of the Perisher Range in context with South-Eastern NSW
(Source: Perisher Range Resorts Master Plan)

The Perisher Range Resorts is located within the southern part of the Kosciuszko National Park.

A map of Kosciuszko National Park is provided in figure 2 below.

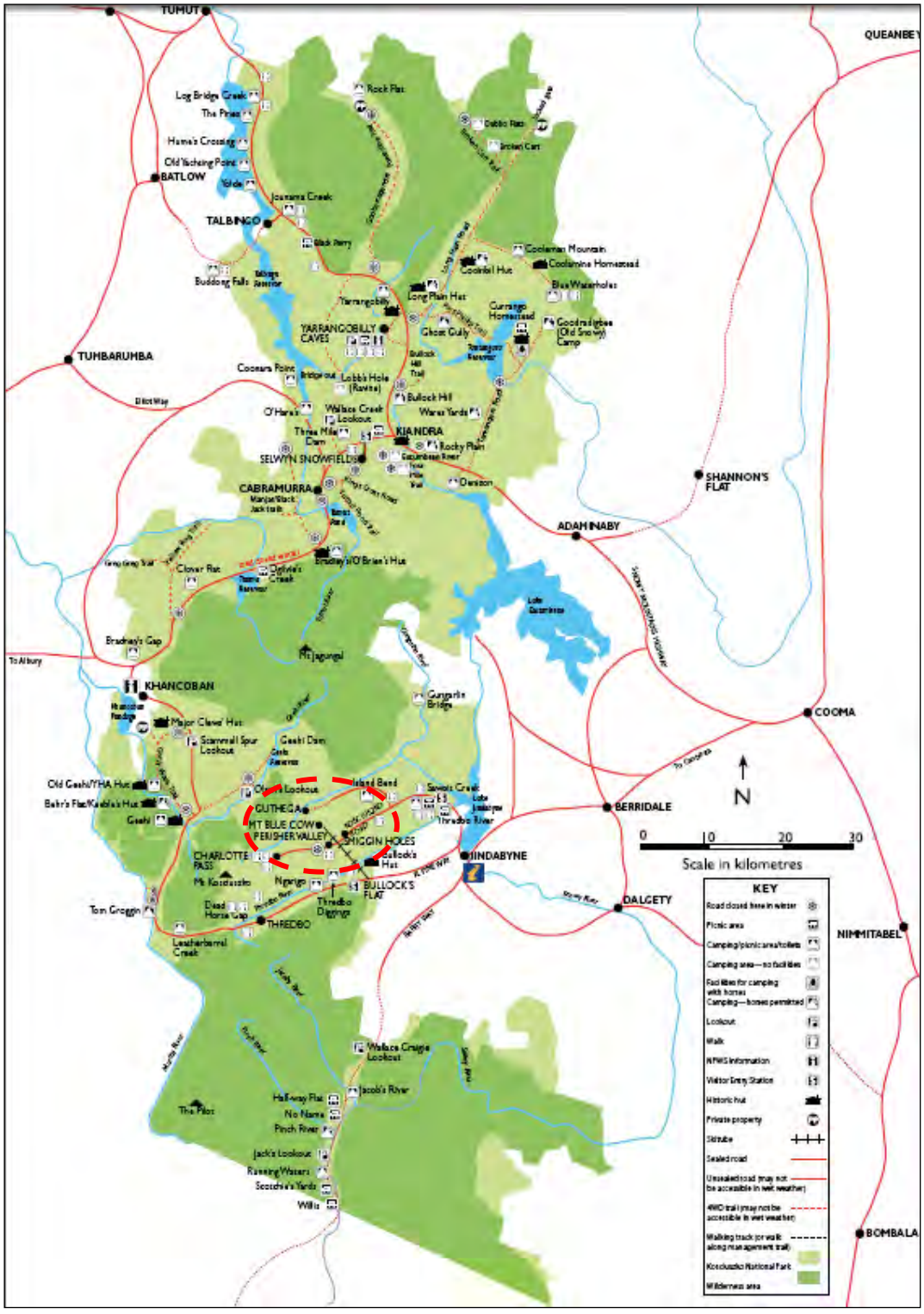


Figure 2: Location of Perisher Valley in context with Kosciuszko National Park (Source: NPWS KNP 2011 Guide)

The Perisher Valley Precinct is located approximately 35kms from Jindabyne. Vehicle access to the resort is achieved via Kosciuszko Road, while access is also achieved via the Skitube from Bullocks Flat.

The location of the Perisher Valley is illustrated in context with the regional locality in figure 3 below:

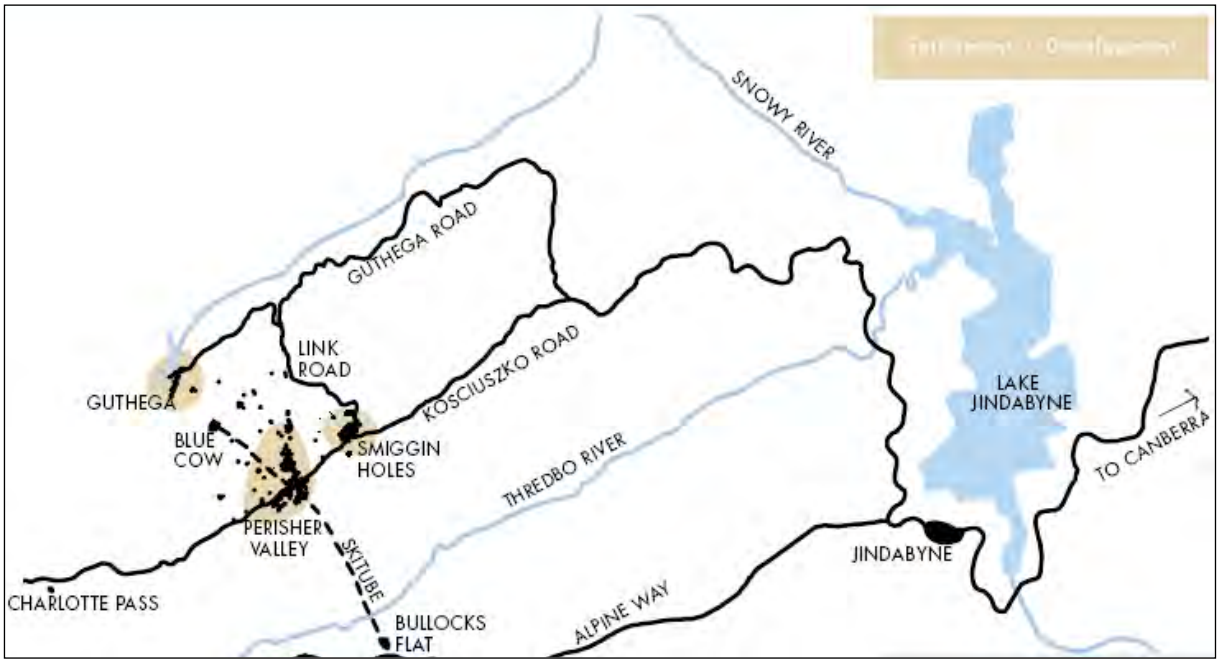


Figure 3: Location of Perisher Valley in context with the Region
(Source: Perisher Range Resorts Master Plan)

2.2 The Perisher Valley Precinct

The Perisher Valley Precinct includes both Front Valley and Centre Valley and forms the 'gateway' onto the slopes of the Perisher Ski Resort for most resort visitors.

The Perisher Valley Precinct is accessed either via vehicle from Kosciuszko Road, by the Skitube Railway from either Bullocks Flat or Blue Cow.

A topographical map of the Precinct in relation to the Perisher Range Resorts is provided in figure 4 below.

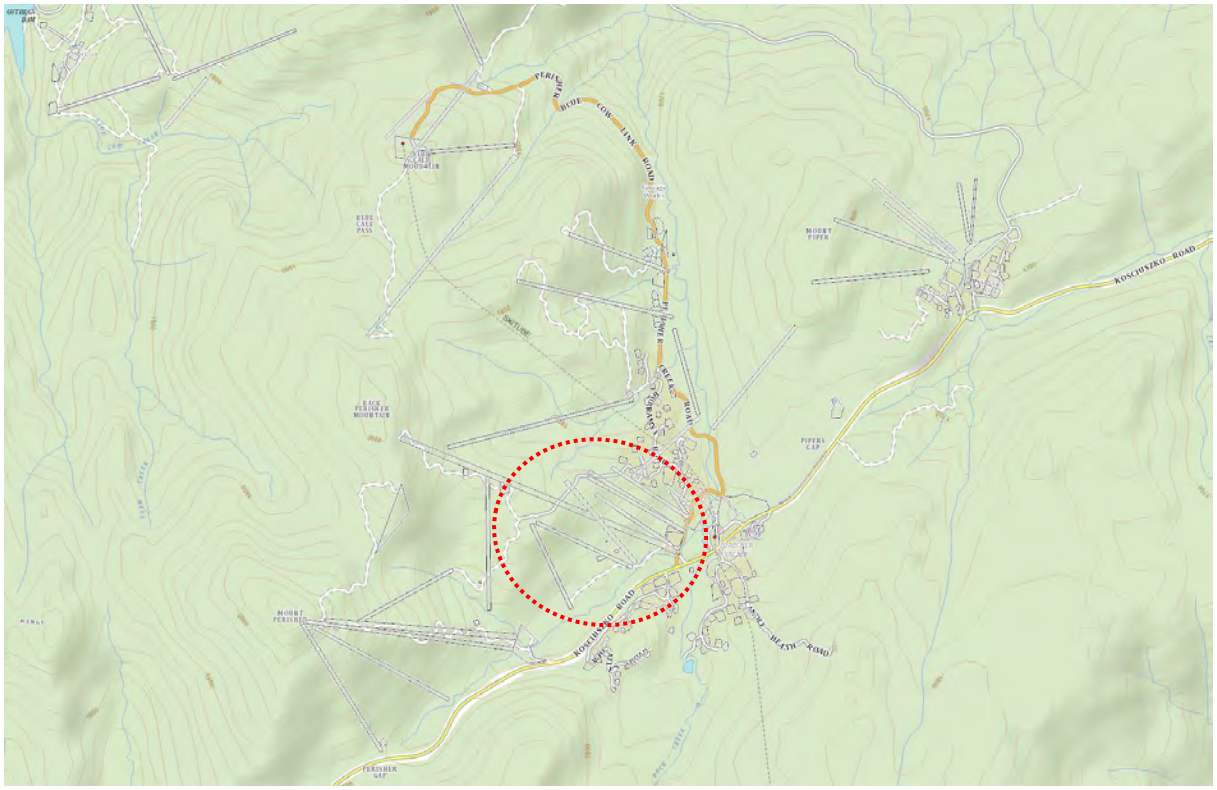


Figure 4: Location of the Perisher Valley Precinct in context with the Perisher Range Resorts

The Perisher Valley Precinct is located within the Perisher Valley Smiggin Holes Management Unit identified in the former Kosciuszko National Park Plan of Management (1982) and illustrated in the PSSMP in figure 5 below:

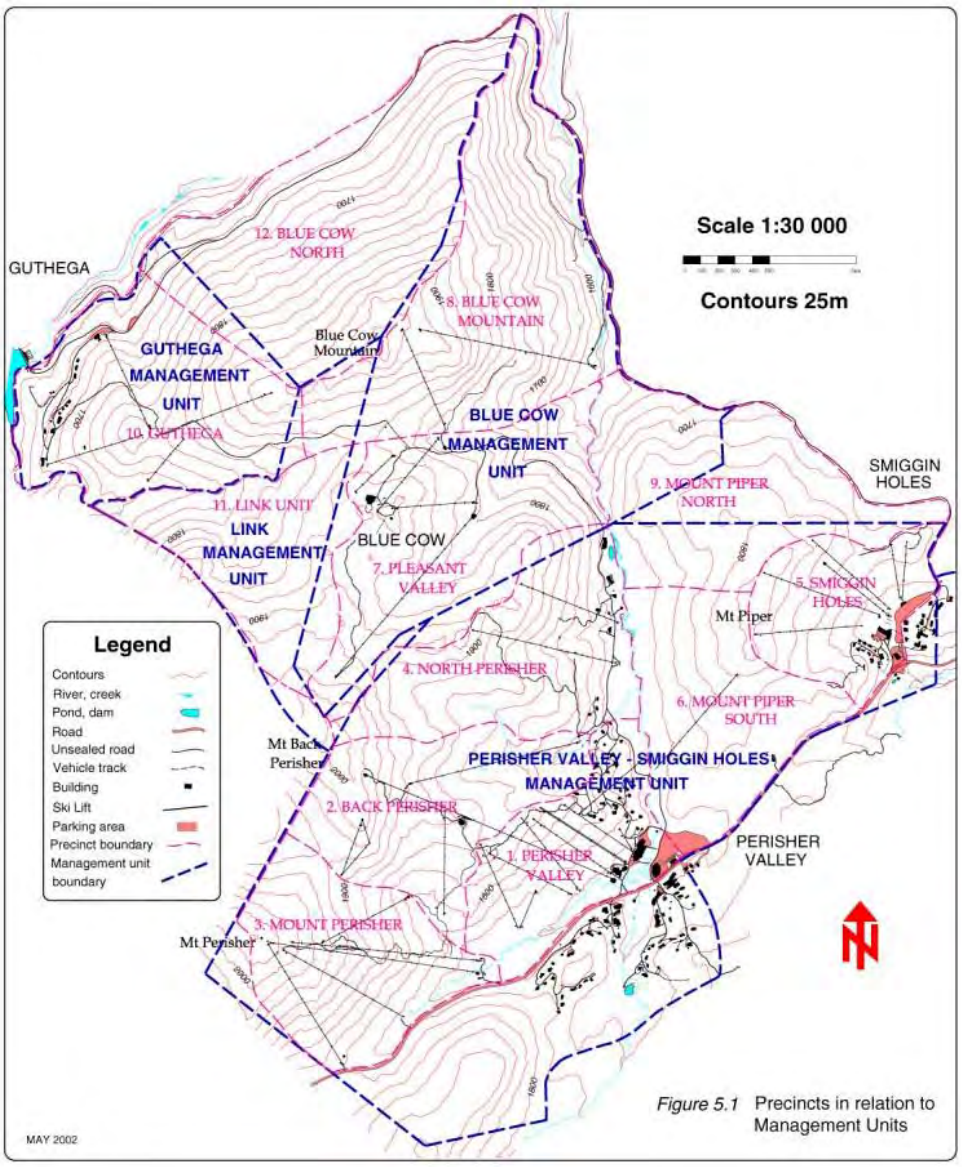


Figure 5: Management Unit Map for the Perisher Ski Resort
(Source: PSSMP)

Under the current Kosciuszko National Park Plan of Management (2006), all the resort precincts sit within the one Perisher Range Management Unit.

2.3 The Site

The subject site is located within Centre Valley area of the Perisher Ski Resort, between the Leichhardt Chairlift and Lawson T-bar, north of the Perisher Creek.

An aerial map of the site is provided in figure 6 with the subject site highlighted.

Figure 6: Location of the subject site in context with the resort

The site is located between an altitude of 1728m (AHD) and 1755m (AHD) and located north of Perisher Creek, as, shown in figure 7 below.

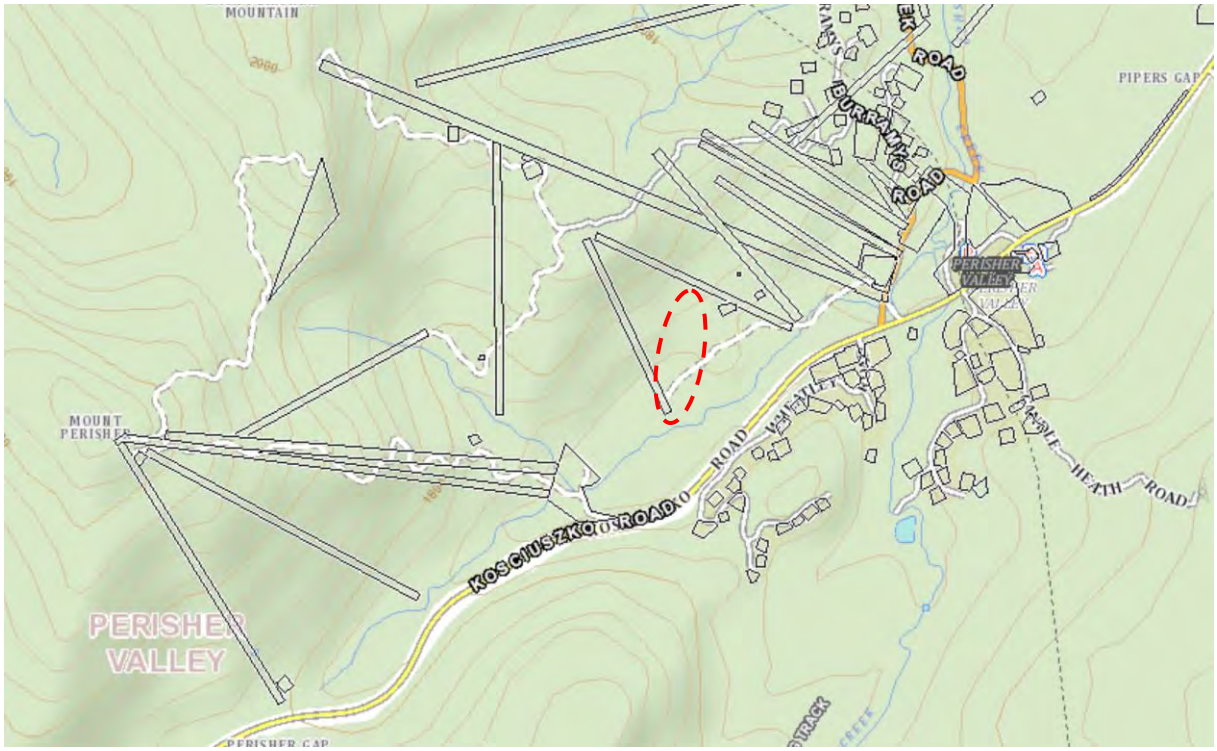


Figure 7: Topographic map of the subject site in context with the resort

An aerial map is provided in figure 8 below, however given the age of the aerial imagery publicly available, the Leichhardt Chairlift and the construction access road are not included.

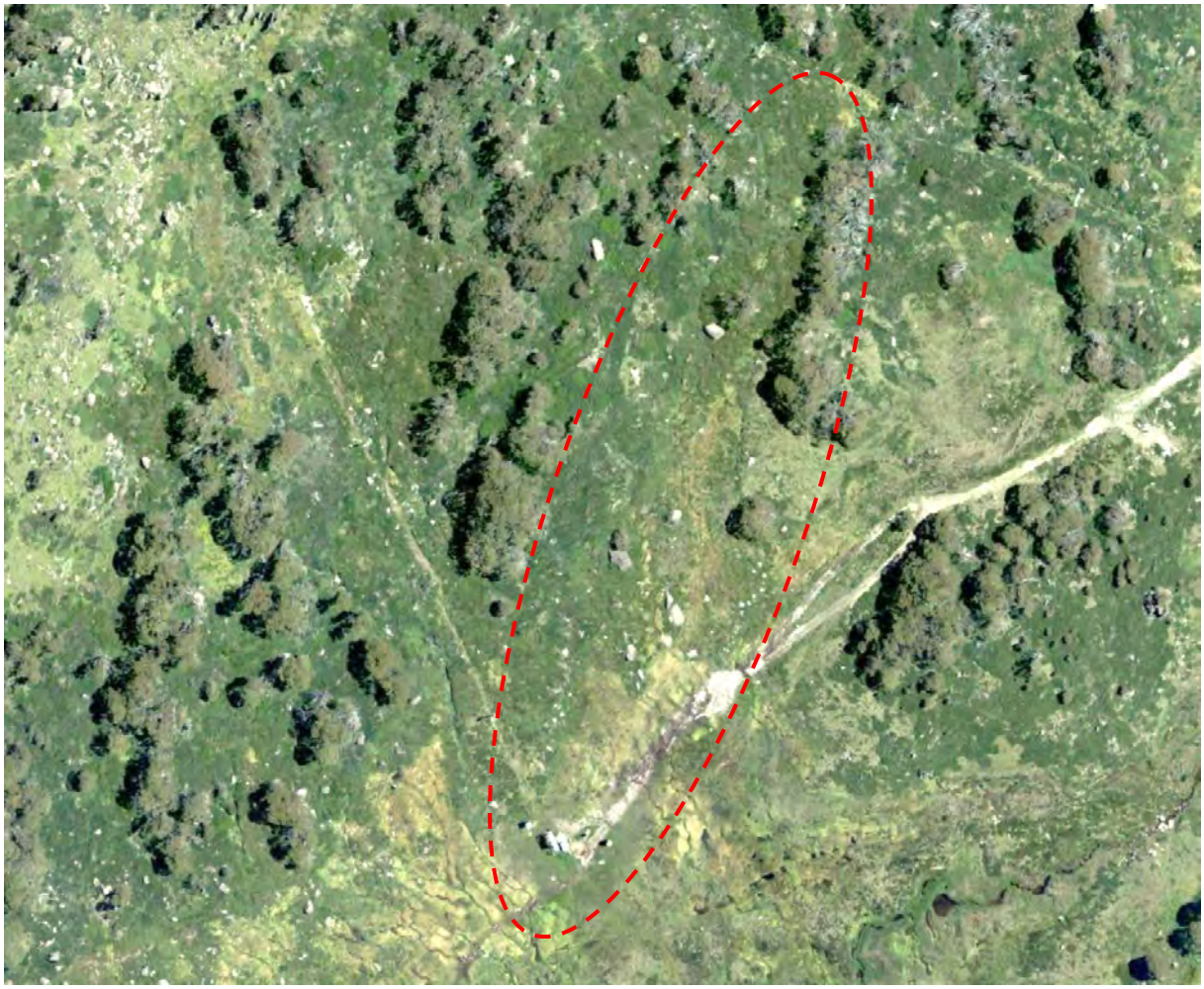


Figure 8: Aerial map of the site

Therefore, an aerial drone survey was undertaken in part to produce a current aerial image with greater resolution and accuracy for the site and project.

An extract of the aerial drone survey illustrates the site with the recent construction of both the Leichhardt Chairlift and the access road and its associated disturbance.

Figure 9: Aerial drone image and survey of the site

The image also shows the location of Perisher Creek with a 40m setbackdistance included. This demonstrates that the proposed works are not located within 40m of the watercourse.

Regarding the location of the lift in context with the operations of the resort, the location of the lift is shown by the current Home Rope Tow as provided in figure 10 below.

Figure 10: Perisher ski trail map with the Home Rope Tow identified

3. SITE ANALSIS PROCESS

3.1 Preliminary Site Assessment

The proposed development has been subject to an extensive preliminary operational, planning and environmental analysis.

This included an extensive operational analysis by Perisher management to determine an appropriate alignment and location for the top and bottom stations.

Following this, Dabyne Planning and Eco Logical Australia were engaged to undertake a preliminary site assessment with input from Doppelmayr Australia.

This included a walkover of the entire lift alignment and review of concept lift replacement plans.

The preliminary analysis also includes a site walkover and discussion of the proposal with both DPE and National Parks and Wildlife Service (NPWS) staff.

As a result of the preliminary analysis undertaken, the preferred lift alignment has been amended in response to minimising environmental impacts, with the top station moved to the south, closer to the crest and trees associated with the drier native vegetation. The proposed bottom station has been located within a previously disturbed area adjacent to the Leichhardt Chairlift bottom station.

An extract of the original preferred lift alignment and profile plan is provided below.

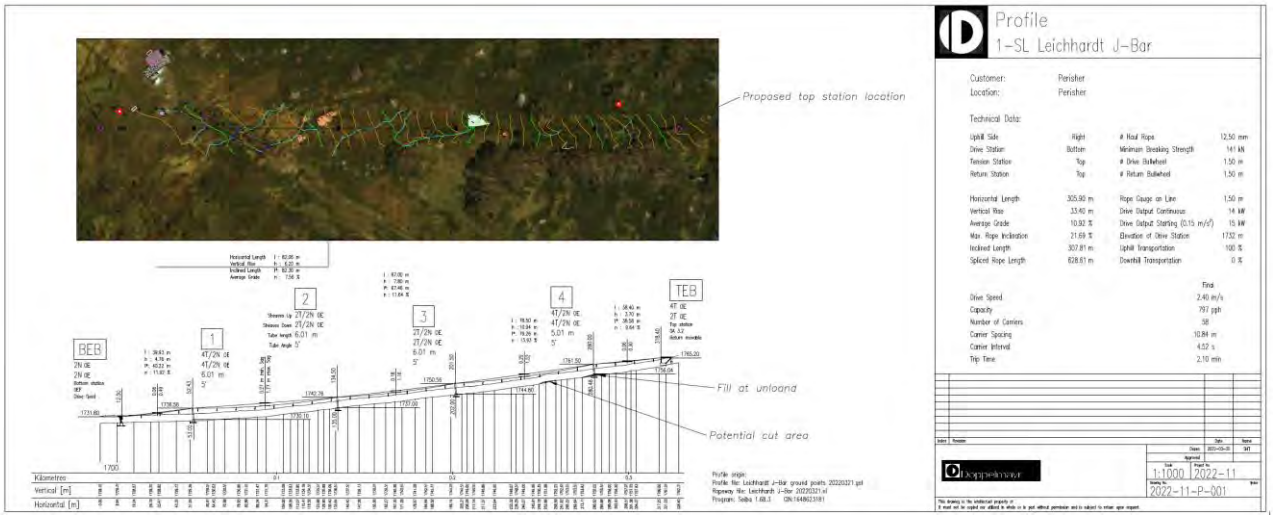


Figure 11: Original preferred lift alignment and profile plan

By moving the top station to the south by approximately 10m, each disturbance corridor to towers 3,4 and the top station was shortened, thereby reducing the disturbance of the bog vegetation in between.

The new lift alignment places these towers and top station on the edge of the drier vegetation, which will reduce impacts on the bog vegetation. This is shown in figure 12 below.

Figure 12: Original preferred lift alignment (black) and proposed modified lift alignment (yellow)

The new alignment also alleviates the need to remove the large boulder located between towers 3 & 4 and removes the need for fill associated with the unload area.

The photos below show the original preferred alignment which was surveyed and pegged with the proposed modified alignment, which was subsequently surveyed and pegged.

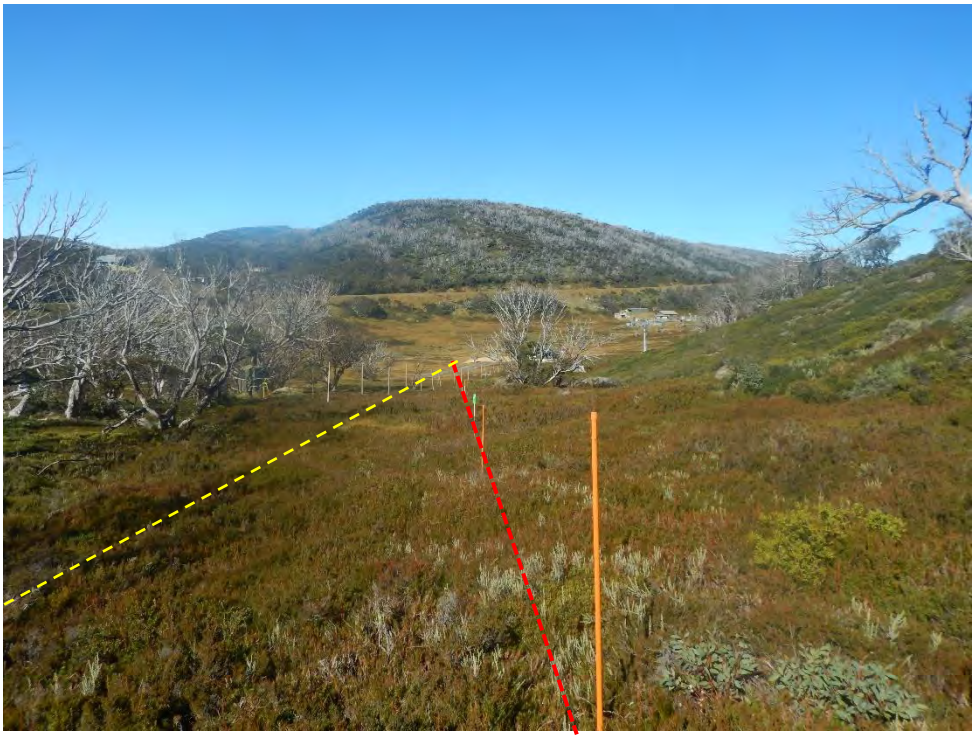


Figure 13: Original preferred alignment (red) with the proposed modified alignment (yellow)

Figure 14: Original preferred alignment (red) with the proposed modified alignment (yellow)

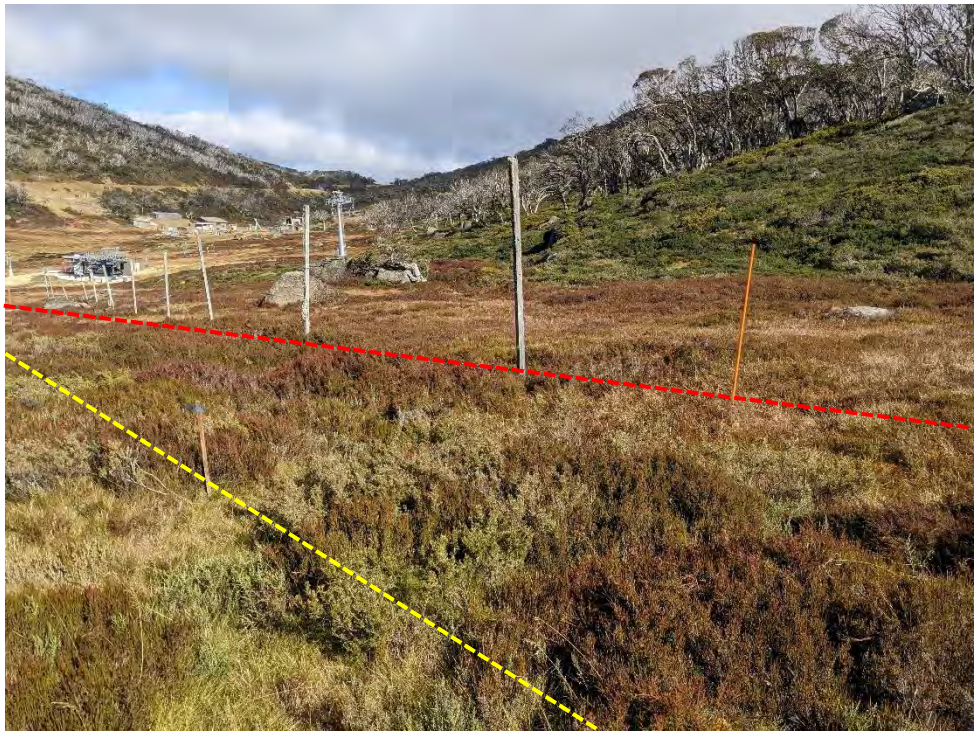


Figure 15: Original preferred alignment (red) with the proposed modified alignment (yellow)

3.2 Perisher Blue Ski Slope Master Plan (PSSMP)

The PSSMP identified that the existing Home Rope Tow be replaced with a T-bar lift with a similar alignment, except that the top station be located lower and further south on a more north-east/south-west alignment as identified in figure 16 below:

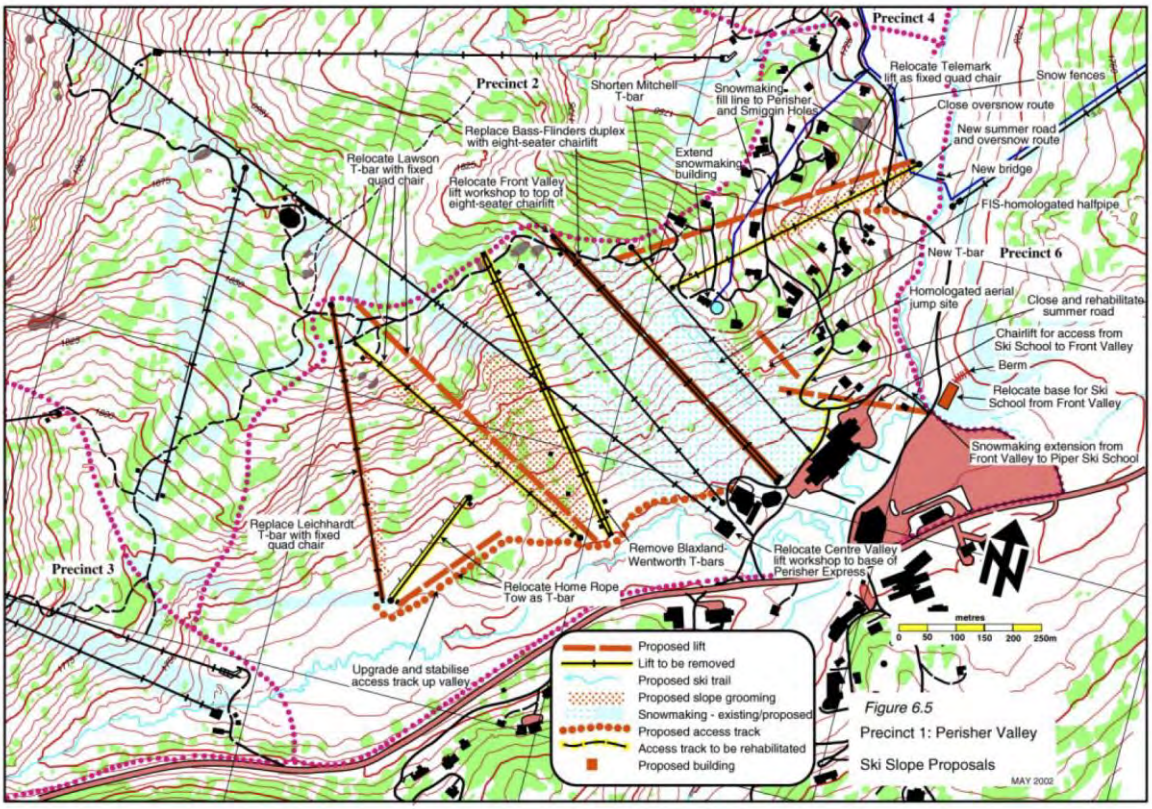


Figure 16: Ski Slope Proposals for the Perisher Valley Precinct with the replacement lift shown (Source: PSSMP)

The environmental characteristics of the Precinct were mapped in the PSSMP and are provided in figure 17 below:

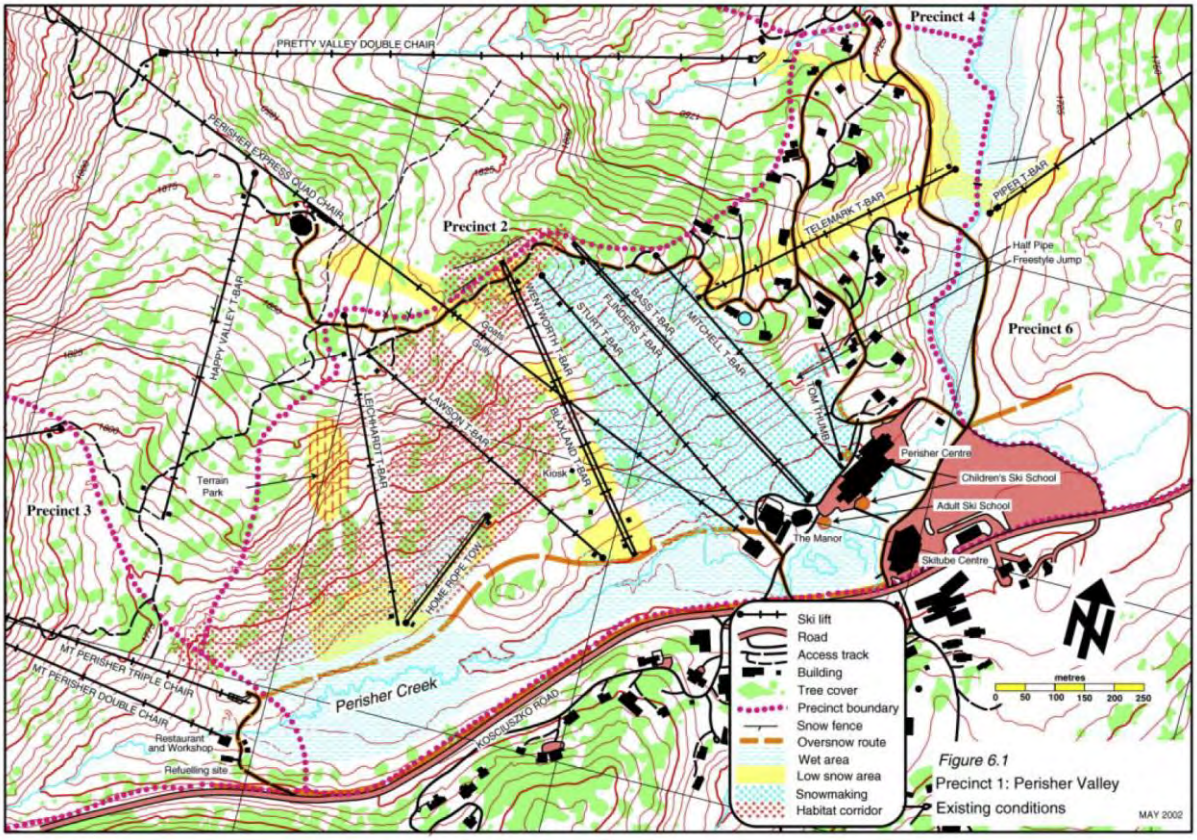


Figure 17: Existing conditions map for the Perisher Valley Precinct (source: PSSMP)

The PSSMP alignment was reviewed and determined not suitable for the lift replacement due to the new access road location and the Leichhardt Chairlift bottom station and queuing area.

The PSSMP alignment would result in the bottom section of the lift traversing a larger area of bog vegetation before it crosses the access road. The top station would be located about 12m vertically lower than the proposed top station. This would not provide sufficient fall for skiers and snowboarders to access the lifts to the north.

Other environmental factors that were mapped and considered included the Aboriginal Archaeological sensitivity mapping that was undertaken as part of a predictive model undertaken by Navin Officer for Connell Wagner as illustrated in figure 18 below.

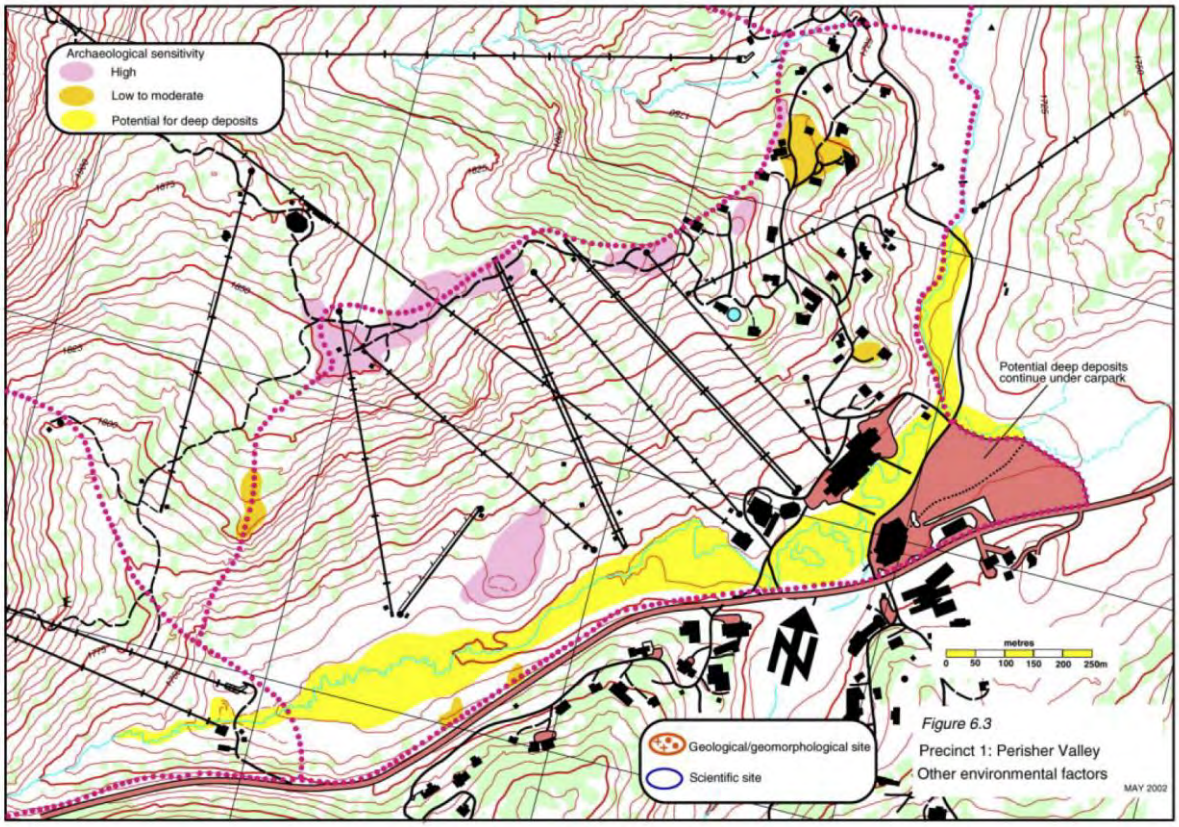


Figure 18: Other environmental factors map for the Perisher Valley Precinct (Source: PSSMP)

The mapping shows that an area of high sensitivity is located where the top station under the PSSMP alignment would be located.

To minimise potential impacts on Aboriginal heritage values, the alignment of the lift has been located further north on a similar alignment as the current Home Rope Tow, avoiding any area of low to moderate and high sensitivity.

With regard to the selection of a J-bar over a T-bar as originally outlined in the PSSMP, Perisher has chosen a J-bar as this will provide sufficient capacity, is better suited for beginners and lower intermediate riders than T-bar's, has a marginally smaller footprint and can recycle parts of the existing Cow Pastures J-bar lift it has in storage.

4. PROJECT DESCRIPTION

4.1 Project Components

Lift Type:

The current rope tow lift provides an uphill capacity of approximately 250 people per hour. A photo of the current Home Rope Tow lift is provided below.

Figure 19: Current Home Rope Tow lift

The proposed J-bar lift is more efficient and faster with an uphill capacity of approximately 792 people per hour.

The proposed J-bar lift will utilise the recycled components from the Cow Pastures J-bar which was removed in 2013 when it was replaced by the Freedom Chairlift at Guthega. The existing bottom and top stations will be utilised with new towers.

A photo of the Cow Pastures J-bar at Guthega before it was removed is provided below.

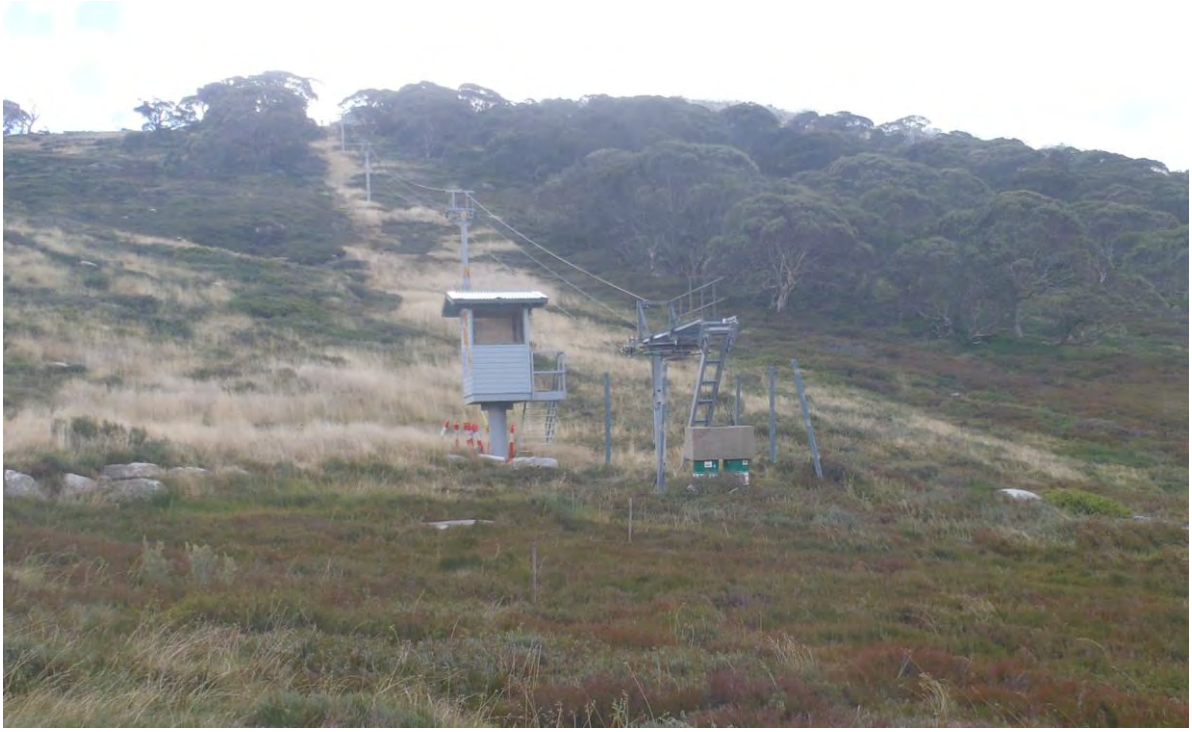


Figure 20: Previous Cow Pastures J-bar, Guthega

Lift Alignment & Profile:

The lift alignment is determined by the location of the top and bottom stations.

The proposed lift will have a lower load position from the current rope tow, located further south and to the east to provide adequate space to access the lift from the west (Mount Perisher direction) below the queuing and RFID gate for the Leichhardt Chairlift This also allows for improved and larger queuing area for the replacement lift.

The proposed lift will have a higher top station with a higher unload point, slightly located further north when compared to the current rope tow.

This allows for a larger milling area and better fall line for skiers and snowboarders to traverse across to the lifts to the north.

The proposed alignment will result in the lift having a horizontal length of 302.45m and inclined length of 304.3m with a vertical rise of 33.3m.

The lift is designed for a maximum speed of 2.4 metres per second (m/s) with an uphill capacity of 792 people per hour and 57 J-bars (carriers). The total trip time would be just over 2 minutes.

Bottom Station:

Bottom Station Bullwheel:

The bottom station bullwheel as illustrated below is located within disturbed land, immediately adjacent to the highly disturbed area associated with the Leichhardt Chairlift construction and subsequent electricity upgrades.

Figure 21: Bottom station load (yellow) and bullwheel (orange) locations

This location was selected as it sits lower than then current rope tow loading area and also lower than the Leichhardt Chairlift queuing area and RFID gate.

Bottom Station Lift Operators Hut:

The bottom station lift operators hut for the rope tow, shown above in figure 21, will be re-used and relocated closer to the proposed bottom station, located wholly within a highly disturbed area.

Top Station:

Top Station Bullwheel & Unload:

The top station bullwheel is determined by the positioning of the unload, to allow for sufficient space for J-bars to retract before going around the bullwheel.

The top station unload location has been selected where it sits just above the current rope tow unload, providing a larger milling space (by way of tree and rock removal) and improved fall line for skiers and snowboarders traversing to the lifts to the north.

Figure 22: Top station bullwheel position

Figure 23: Top station offload position

Top Station Lift Operators Hut:

The existing lift operators hut for the current rope tow top station will be re-used and relocated closer to the new lift offload position.

Lift Towers:

The proposed J-bar lift includes four (4) lift towers.

Proposed towers 1-3 will each be 7.5m in height, whilst proposed tower 4 will be 6.5m in height.

Each of the towers are located within mostly undisturbed areas, with the tower location dictated by the alignment of the lift and the spacing required between each tower, with a surface lift having limited scope for reducing the number of towers or where they are located.

Detailed structural design for the footings and lift will be undertaken at the Construction Certificate stage subject to development consent being issued.

Construction access to the tower sites is detailed in the Site Environmental Management Plan and the DA plans and has been designed to utilise the existing access road and tracks, where possible.

A photo of each tower location is provided in Appendix A.

Removal of rope tow lift:

The removal of the rope tow lift is simple, as the rope tow haul rope, bullwheel and pulley can all be dismantled. The only ground works include a concrete footing at the bottom and top, which can be removed if necessary.

The entire lift can be directly removed from the previously disturbed access road and track.

The components of the lift and structures that can be re-used and recycled such as the haul rope, bullwheels and pulleys will be stored.

Communications Cabling (Up-hill Safety Line):

The replacement lift will require an up-hill safety line (a communications cable that connects the bottom and top stations and each tower). Due to the extreme weather conditions within the area and adjacent snowmaking operations, the only viable method is to install the cable underground to prevent icing.

To minimise impacts on the environment, the up-hill safety line together with a new electricity cable will be installed by way of under boring between the bottom station and tower 3. This avoids trenching through the most sensitive bog vegetation located within the lower slopes of the lift alignment. Between tower 3 and the top station bullwheel, the cables are proposed to be installed within a conventional trench within the less sensitive (drier) native vegetation, however this has been designed to be co-located with the construction access corridor to minimise overall disturbance.

Electricity:

The bottom station will connect to underground power already available at the Leichhardt Chairlift bottom station.

Electricity is required to be provided to the top station and lift hut, which will be installed underground within the same services corridor as the Up-hill safety line.

This will include being under bored between the bottom station and tower 3 and then being trenched between tower 3 and the top station.

RFID Gate:

As part of the ongoing installation of Radio Frequency Identification Data (RFID) gates throughout the resort, the proposed lift will have an RFID gate installed at the bottom station.

The gate will include an access reader as shown in figure 24 below.

The concept of this system is to capture each RFID ski pass as it goes past which means skiers and boarders can access the ski lifts without having to put a ticket into a reader or handle a ski pass. Using RFID tags embedded in lift tickets or season passes allows an access gate to automatically confirm a ticket's authenticity and swing open to admit an authorised skier.

Figure 24. Example of Skidata's Freemotion Open gate model - designed for rapid detection of RFID lift tickets and activation of its single-arm turnstile.

The gate system to be used will be a gantry type which will include a single footing and mast with the access reader hanging from an arm.

Optical fibre will also need to be installed with the new gate. Connection to the base of the Leichhardt Chairlift is already provided and therefore can be directly connected into the new lift gate.

The proposed gate will be gantry mounted and includes a single footing with a single mast that can be lowered or raised depending on the depth of the snow base. The mast pivots into position during operation and can be swung out of position to allow grooming operations around the lift base. An arm is attached to the mast holding the required access readers.

The gate is proposed to be located directly adjacent to the bottom station bullwheel.

Rock Removal and/or Reduction Works - Traditional:

As part of the installation of the lift, construction access and widening of the milling area and associated ski run, the project requires the removal and/or reduction of rocks as outlined in the DA plans, with supplementary photos provided in Appendix A.

The rocks accessed by the construction access will be removed by way of traditional excavator removal and/or drill and blast method, with blasting mats used to control the flyrock.

Rock Removal and/or Reduction Works - Oversnow:

The rock removal works undertaken where no existing or proposed construction access is provided, will be undertaken on snow, during the latter parts of the ski season (during mid to late September) where machines will access each rock over snow, therefore significantly limiting any impacts on native flora and fauna.

These rocks are shown in the DA plans, with supplementary photos provided in Appendix A.

No earthworks are therefore proposed as part of these works and therefore the existing heath and associated bog vegetation located adjacent to the rocks can be retained.

The methodology has been revised over the last couple of projects whereby Perisher have found that some rocks are more easily removed in full, when they are not embedded. In this circumstance the impacts from removing a rock in full are reduced as no drilling or blasting is required and the rock can be more easily transported along the snow.

When this occurs, it is proposed to place the rock in a natural depression on the leeward side of other rocks or trees or remove the rock completely.

Where a hole is left as a result of removing the rock in full, Perisher proposes to either cart in fragmented rock (i.e., football size) from the Smiggins stockpile site or used rock fragments won from the project.

Otherwise, where a rock cannot be removed, Perisher will employ its long standing practice of utilising the snow to cover the rock blast as a mat, which both reduces and controls blast fragments. Rock fragments will be strategically placed in hollows on the leeward side of trees and rocks.

This methodology has been successfully employed by Perisher previously, including Blaxland T-bar rock removal (DA 9132), Sun Valley (DA 7557), Pipeline ski run at Guthega (DA 6661), Home Rope Tow rock removal works (DA 084-08-2009) and at the bottom of Happy Valley (DA 062-09-2010).

During summer, Perisher staff come back through the site and remove small excess fragments that were buried in the snow so as not to damage adjoining heath and upland bog.

As a result, they end up providing additional faunal habitat and previous projects have demonstrated that the heath will quickly grow around the rock fragment areas.

The Home Rope Tow rock removal works demonstrate the benefits of this methodology, with the native vegetation regenerating in and around the rock fragments with no distinguishable disturbance around the site.

Figure 25: Rock reduction works undertaken previously within the subject site

The proposed rock removal/reduction works are scheduled to be undertaken in spring between mid to late September when the ski run/lift can be closed whilst there is sufficient snow to provide access to the rocks and be utilised during blasting.

Tree removal works:

The tree removal works will be undertaken in conjunction with the rock reduction/removal works where these are grouped together, or individually.

Where the trees are not able to be allowed to re-grow as they would obstruct the operation of the lift or associated ski slope, the trees will be cut to ground level and poisoned to prevent re-growth.

The remaining trees that can be allowed to re-grow will be cut to the base and allowed to propagate.

The location of the tree removal is shown in the DA Plans provided and supplementary photos provided in Appendix A.

The timber cut from the trees will either be removed and chipped or where practical, cut into manageable pieces and will be manually collected and stacked off the ski run, within the heath, unless directed otherwise.

Rock filling of minor drainage depression:

Around the base of a large rock (between towers 3 & 4), the construction access track traverses a depression and that includes minor drainage.

Figure 26: Minor drainage depression to be filled with rock fragments

To minimise impacts on this depression from the proposed construction access, excess rock from the rock reduction works will be used to fill the depression, as has been undertaken elsewhere in the resort. This will ensure drainage is not impeded, whilst not requiring the installation of culverts or pipes for the construction access.

4.2 General Construction

Construction Timeframe:

The replacement lift is expected to take approximately 2 months to complete, with construction to commence in January 2023 and be completed by May 2023 with the lift to commence operations in June 2023.

Construction Access:

Construction access is detailed in the DA Plans and Site Environmental Management Plan with the access designed to utilise existing roads, tracks and disturbed areas where possible.

Construction Staging Areas:

One primary staging area and one secondary staging area are proposed to be used for the development.

The primary staging area where the bulk of the equipment to be removed and installed will be temporarily stored in the main Perisher car park, which has been previously used for staging for other projects including the Village Eight and Leichhardt chairlifts.

This area will be fenced off for storage of the lift components (e.g., existing lift components to be removed plus new lift top and bottom stations, towers, tower heads, sheave assemblies etc.). The existing road through the car park will not be obstructed to ensure that access through the car park to North Perisher is not restricted.

The secondary staging area is located within the previously disturbed area around the Leichhardt Chairlift bottom station. This is where temporary storage of materials and construction vehicle parking will be located.

This area has been identified by way of the construction footprint shown on the Construction Management Plan and addressed in the SEMP.

A small additional area suitable for construction vehicle parking is allocated in the parking bay provided on the northern side of the construction access road.

Waste Management:

Waste generated from the proposed development will principally comprise of the general construction waste (e.g., concrete form work, excess steel), domestic waste (e.g. litter) and parts of the existing lifts (e.g. concrete footings) which will not be re-used. Waste will be reused or recycled where possible.

Further waste management details are included in the SEMP.

5. KEY MATTERS FOR CONSIDERATION

5.1 Biodiversity

In accordance with the Biodiversity Values Map under the BC Act, 2016, the subject site is located within an area currently mapped as comprising high biodiversity value.

Consequently, the BOS is triggered and a BDAR has been prepared by Ryan Smithers, Senior Ecologist with Eco Logical Australia and an Accredited Person.

The BDAR outlines the measures taken to avoid, minimise and mitigate impacts to the vegetation and habitats present within the development site during the design, construction and operation of the development.

These measures have included:

- Take advantage of existing disturbed areas where possible.
- Re-align the lift to further avoid sensitive bog vegetation.
- Utilise under boring machine technology to avoid trenching sensitive bog vegetation.
- Use construction access methodologies to further minimise impacts (i.e. use of rubber mats; co-locate access and trenching; and remove rocks by oversnow where there is no formal access).
- Rehabilitate using sod replacement techniques where suitable.
- Undertake site environmental management measures as outlined in the SEMP.

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 two (2) ecosystem credits and five (5) species credits are required to offset the unavoidable impacts to the vegetation and habitat present within the development site.

As a result of payment to the BCF for these offset credits, the physical implementation of offsets within the resort is not required. Furthermore, payment of these offset credits is an alternative to the retirement of biodiversity credits in accordance with Division 6 of the BC Act, 2016.

Serious and irreversible impacts values were also considered as part of the assessment under the BDAR, and the report concluded that the proposal will not result in any serious and irreversible impacts.

A copy of the BDAR is provided in Appendix B.

5.2 Visual Impacts

The proposed development involves removal of the existing rope tow and replacement with a J-bar that includes bottom and top station bullwheels and four (4) new towers, each between 6.5m and 7.5m in height. The existing lift huts will be relocated.

The development does not include any enclosed buildings or structures that would dominate the local natural or built environment.

The new lift is located immediately adjacent to an existing lift, in a locality that includes multiple lifts and ski related infrastructure.

The new lift is not visible from the Main Range and is not located within a highly visible location.

Overall, the visual impacts generated by the replacement lift is expected to be minimal and acceptable in context of its location within an alpine resort.

5.3 Aboriginal Cultural Heritage

The identification and mapping of known and potential area of Aboriginal cultural heritage values was undertaken by Navin Officer Heritage Consultants as part of the Perisher Range Resorts Environmental Study, undertaken in 2000 by Connell Wagner.

The study included a predictive model that mapped the zones of Archeological Sensitivity as provided below in figure 27.

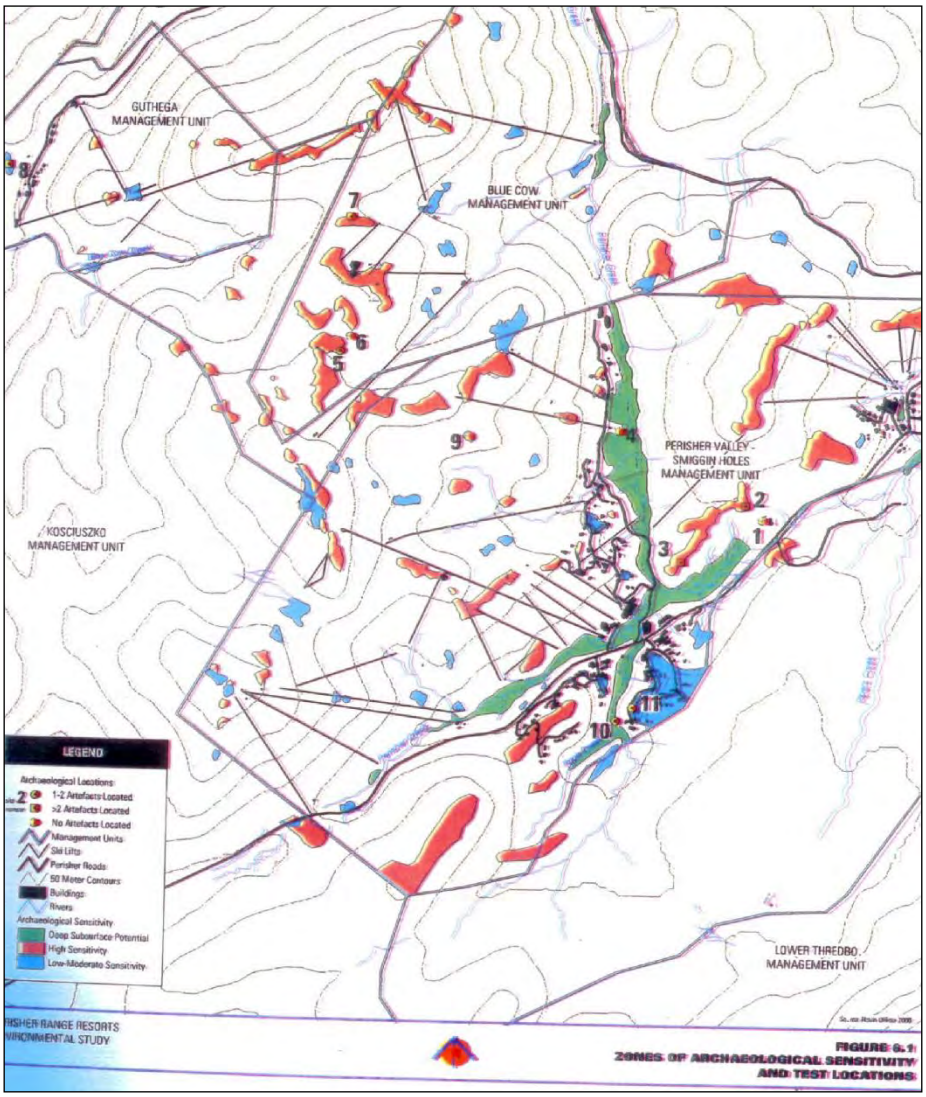


Figure 27: Zones of Archeological Sensitivity
(Source: Perisher Range Resorts Environmental Study, Connell Wagner, 2000)

Based on the above map, the proposed works are not located within any identified areas of low-moderate sensitivity, high sensitivity or deep subsurface potential as shown above. The below extract of the 'Other Environmental Factors Map' for the Perisher Valley Precinct as identified in the PSSMP provides a better scale and resolution. This map is based on the predictive model undertaken by Navin Officer for Connell Wagner.

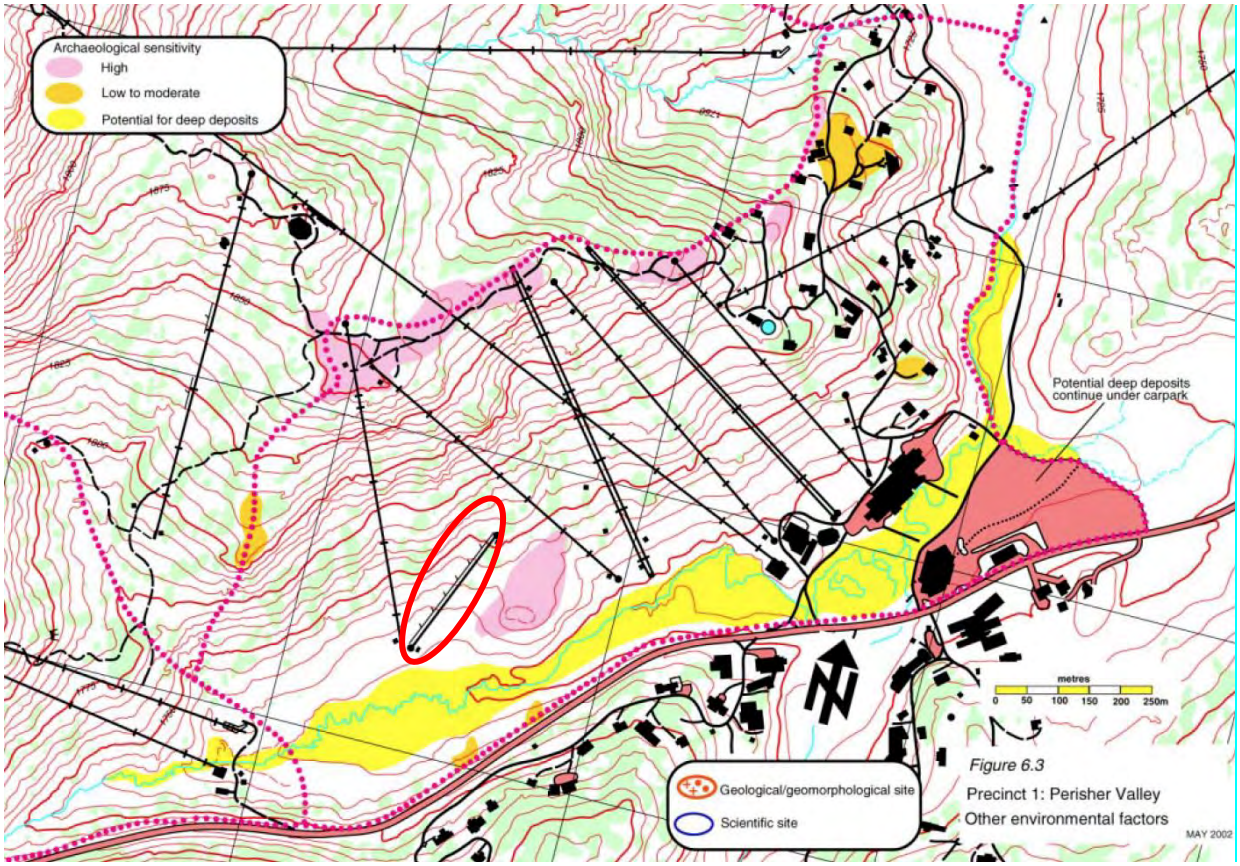


Figure 28: Other environmental factors map for the Perisher Valley Precinct (Source: PSSMP)

In regard to the Due Diligence Code of Practice, DECCW 2010, the generic due diligence process has been followed and documented below.

Step 1. Will the activity disturb the ground surface?

Comment:

The proposed development will result in disturbance of the ground surface.

Step 2. Step 2a. Search the AHIMS database and use any other sources of information of which you are already aware.

Comment:

This search has been undertaken and provided in Appendix C. The search has identified that no Aboriginal sites or places have been recorded within the subject site and buffer area.

Step 2b. Activities in areas where landscape features indicate the presence of Aboriginal objects?

Comment:

As discussed above, Navin Officer Heritage Consultants undertook an Aboriginal Cultural Heritage Study for the Perisher Range Resorts Area in 2000 that formed part of the Perisher Range Resorts Environmental Study (undertaken in 2000 by Connell Wagner).

This study included a predictive model based on the results from a program of subsurface testing across selected landform variables.

Based on this work, four zones of archeological sensitivity were identified, including areas of high archeological sensitivity, areas of low to moderate archeological sensitivity, areas with potential for deep subsurface archeological deposits and areas of no or negligible potential.

The requirement for further surface archeological survey was therefore determined to be low within landscape features that comprised of moderate to high slope gradients and areas of poorly drainage ground, as well as grassland and herbfields on treeless frost hollow floor or areas with predominant or closed heath vegetation.

In accordance with Step 2a of the Code, the Navin Officer 2000 study is a form of 'other sources of information', which is to be considered.

This study provides a much greater level of detail and certainty with regard to identifying specific landscape features within the Perisher Range Resorts that indicate the likely presence of Aboriginal objects (and includes mapping) than what is offered under the generic features listed under the code.

Accordingly, this study has been used to determine the appropriate site specific landscape features that indicate the likely existence of Aboriginal objects.

As the proposed works will be located outside of the areas identified as potential for either low to moderate archaeological sensitivity or high archaeological sensitivity, further archaeological assessment is therefore not warranted.

Therefore, after completing steps 2a and 2b, it is reasonable to conclude that there are no known Aboriginal objects or a low probability of objects occurring in the area of the proposed activity, the development can therefore proceed with caution without applying for an AHIP.

This fulfils all reasonable steps in undertaking a due diligence assessment.

In the unlikely event that Aboriginal items are uncovered during excavation, all work shall cease at that location and the relevant authorities shall be notified.

5.4 Geotechnical Engineering

A comprehensive Geotechnical Risk Assessment of the proposed development has been undertaken. The report was prepared in accordance with the requirements of the Department of Planning Geotechnical Policy for Kosciuszko Alpine Resorts (2003) and the Australian Geomechanics Society *'Practice Note Guidelines for Landslide Risk Management'*.

The report including the *Form 1 - Declaration and certification made by geotechnical engineer or engineering geologist in a geotechnical report'* is provided in full with the DA separately.

6. ENVIRONMENTAL AND PLANNING LEGISLATION

6.1 NSW Environmental Planning and Assessment Act, 1979

6.1.1 Section 4.15 EP&A Act, 1979 – Matters for Consideration

SECTION 4.15(1)(a)(i) – ENVIRONMENTAL PLANNING INSTRUMENTS

The only applicable Environmental Planning Instrument to the proposed development and site is State Environmental Planning Policy (Precincts – Regional) 2021 (SEPP Regional Precincts 2021). The relevant clauses contained within SEPP Regional Precincts and Chapter 4 Kosciuszko National Park and alpine resorts are addressed below:

Section 4.9 - Land Use Table:

The land use table for the Perisher Range Alpine Resort specifies that 'Lifting facilities' is a land use permitted with consent. The proposed development is for the purpose of replacing an existing rope tow lift with a J-bar lift with associated works and therefore the development is permissible with consent.

Section 4.12 - Matters for consideration:

Matter for Consideration	Response
S.4.12 (1) In determining a development application that relates to land to which this Chapter applies, the consent authority must take into consideration any of the following matters that are of relevance to the proposed development—	
(a) the aim and objectives of this Chapter, as set out in section 4.1,	*The proposed development is considered to be consistent with the aims and objectives of the Policy as the development will be providing replacement ski lifting infrastructure with environmental impacts having been minimised.* *These impacts will be further mitigated through the implementation of the Site Environmental Management Plan.* *The proposed development is expected to generate positive social and economic impacts.*
(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, bush fires and flooding),	*The proposed development does not require any measures to mitigate environmental hazards that would impact on the conservation of the natural environment.*

(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, (ii) the capacity of the reticulated effluent management system of the land to which this Chapter applies to cater for peak loads generated by the development, (iii) the capacity of existing waste disposal facilities or transfer facilities to cater for peak loads generated by the development, (iv) the capacity of any existing water supply to cater for peak loads generated by the development,	*The proposed lift is not intended to create additional peak demand that is greater than peak demand created by favourable snow and weather events that occur from time to time.* *The development will result in the uphill capacity of the lift being marginally increased, however the development is not intended to increase the peak capacity of the resort, nor is it likely to.* *The peak visitation capacity of the resort is generally governed by three factors. These being the capacity of resort day car parking, the number of beds in the resort and the capacity of the Skitube for day visitors. The development will not lead to capacity issues having regard to any of these factors with resort uphill lift capacity only increasing by a very small margin.* *As such the development is unlikely to impact the capacity of existing transport to cater for peak days.*
(d) any statement of environmental effects required to accompany the development application for the development,	*This Statement of Environmental Effects satisfies this sub-clause.*
(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 proposed lift will replace an existing lift within a ski resort. The proposed J-bar lift will be situated amongst other ski resort related infrastructure including ski runs, ski lifts and buildings.* *The proposed lift would therefore not significantly alter the character of the alpine resort.*
(f) the Geotechnical Policy—Kosciuszko Alpine Resorts (2003, Department of Infrastructure, Planning and Natural Resources) and any measures proposed to address any geotechnical issues arising in relation to the development	*A Form 1 Certificate has been prepared by a Geotech Engineer and will be provided separately with the DA.*
(g) if earthworks or excavation works are proposed—any sedimentation and erosion control measures proposed to mitigate any adverse impacts associated with those works,	*Excavation works are required for the development. Sedimentation and erosion control measures as outlined in the SEMP provided separately, will mitigate any adverse impacts associated with such works.*

(h) if stormwater drainage works are proposed—any measures proposed to mitigate any adverse impacts associated with those works,	*The proposed lift does not generate any stormwater drainage works.*
(i) any visual impact of the proposed development, particularly when viewed from the Main Range,	*The visual impacts have been considered and addressed under 5.2 above.* *The development is not visible from the main range due to its location.*
(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,	*The proposed replacement lift is only intended to be utilised during the ski season and will therefore, not increase activities outside of 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: (i) the capacity of existing infrastructure facilities, and (ii) any adverse impact of the development on access to, from or in the alpine resort,	*The capacity of existing infrastructure has been generally addressed above under (c). Existing infrastructure including electricity supply is sufficient for the proposed development.* *There are no known likely impacts of the development on access to, or from or in the alpine resort.*
(l) if the development is proposed to be carried out in Perisher Range Alpine Resort: (i) the document entitled Perisher Range Resorts Master Plan, as current at the commencement of this Policy, that is deposited in the head office of the Department, and (ii) the document entitled Perisher Blue Ski Resort Ski Slope Master Plan, as current at the commencement of this Policy, that is deposited in the head office of the Department,	*The Perisher Blue Ski Resort Ski Slope Master Plan (PSSMP) applies to the site and proposed development.* *As discussed in Section 3 of the report, the proposed development is generally consistent with the PSSMP as it will result in increased lift and slope capacity; improved ease of use, improved performance, modernisation of infrastructure and improved visitor experiences.*
(m) if the development is proposed to be carried out on land in a riparian corridor: (i) the long term management goals for riparian land, and (ii) whether measures should be adopted in the carrying out of the development to assist in meeting those goals.	*The proposed development does not include any works within 40m of Perisher Creek, and therefore will not impact upon its riparian corridor.*
(2) The long term management goals for riparian land are as follows:	

(a) to maximise the protection of terrestrial and aquatic habitats of native flora and native fauna and ensure the provision of linkages, where possible, between such habitats on that land.	*Not applicable.*
(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.	
(3) A reference in this clause to land in a riparian corridor is a reference to land identified as being in such a corridor on a map referred to in section 4.4.	

SECTION 4.15(1)(a)(ii) – DRAFT ENVIRONMENTAL PLANNING INSTRUMENTS

There are no draft Environmental Planning Instruments that are applicable to the site or proposed development.

SECTION 4.15(1)(a)(iii) – DEVELOPMENT CONTROL PLANS

There are no Development Control Plans applicable to the Kosciuszko Alpine Resorts under SEPP Regional Precincts 2021.

SECTION 4.15(1)(a)(iiia) – PLANNING AGREEMENTS

There are no Planning Agreements applicable to the SEPP Regional Precincts 2021.

SECTION 4.15(1)(a)(iv) – REGULATIONS

The development application has been made in accordance with the requirements contained in the Environmental Planning and Assessment Regulations 2021.

In accordance with Clause 36(2) of the same regulations, a consent authority may not request additional information in relation to building work if the information is required to accompany an application for a construction certificate.

This is to ensure that the consent authority does not oblige the applicant to provide construction details up-front where the applicant may prefer to test the waters first and delay applying for a construction certificate until, or if, development consent is granted.

SECTION 4.15(1)(a)(v) – COASTAL MANAGEMENT ZONE

The proposed development and site is not located within any coastal zone management plan (within the meaning of the Coastal Protection Act, 1979).

SECTION 4.15(1)(b) – LIKELY IMPACTS

Natural Environment:

Impacts on the natural environment and in particular biodiversity has been assessed as part of the BDAR provided in Appendix B.

This assessment determined that the proposal will not result in severe and irreversible impacts and includes mitigation measures as well as payment of credits to offset the unavoidable impacts to the vegetation and habitat present within the development site.

Along with the payment of offset credits and the mitigation measures outlined in the BDAR and SEMP with a summary provided above in Section 5.1, the likely impacts on the natural environment have been mitigated.

Built Environment:

The impacts on the built environment are expected to be minimal as the proposal is for the replacement of an existing lift within a ski resort.

Social and Economic impacts in the locality:

The social and economic impacts from the development are expected to be positive as the development will result in existing lifting infrastructure being replaced with new lifting infrastructure, providing an improved guest experience.

Furthermore, the construction and employment generated will add to the overall positive economic impacts generated by the development with construction jobs being created.

SECTION 4.15(1)(c) – SUITABILITY OF THE SITE

The site is currently occupied by a rope tow lift. The proposal will replace the existing rope tow with a J-bar lift in a similar alignment.

The subject site is therefore considered suitable for the proposed development.

SECTION 4.15(1)(d) –SUBMISSIONS

The proposed lift replacement and associated works are located more than 50m from the closest tourist accommodation building and therefore cannot be publicly notified or advertised under the Departments Community Participation Plan, 2019.

In accordance with Table 1, no public exhibition will be undertaken for proposals where a site is located more than 50m away from a tourist accommodation building.

Accordingly, there is no lawful requirment allowing for public exhibition for the proposed development.

SECTION 4.15(1)(e) – THE PUBLIC INTEREST

The above assessment has demonstrated that the proposal satisfies the objectives and relevant clauses prescribed under SEPP Regional Precincts 2021.

Consequently, the proposed development is considered to be within the public interest.

6.2 NSW National Parks and Wildlife Act, 1974

The NSW National Parks and Wildlife Act, 1974 (NPW Act, 1974) governs the establishment, preservation and management of national parks, historic sites and certain other areas. The NPW Act also provides the basis for the legal protection of Aboriginal sites within NSW.

As detailed in Section 5 of the SEE, the proposed development will result in acceptable impacts, which will ensure the development is consistent with the provisions of the NPW Act, 1974.

6.3 NSW Biodiversity Conservation Act, 2016

The proposed development is located within areas currently mapped as comprising high biodiversity value and therefore the BOS is triggered under the BC Act, 2016.

As identified in Section 5.1 above, a total of two (2) ecosystem credits and five (5) species credits are required to offset the unavoidable impacts to the vegetation and habitat present within the development site. Therefore, payment to the BCF for these offset credits is required.

As a result of payment to the BCF for these offset credits, the physical implementation of offsets within the resort is not required. Furthermore, payment of these offset credits is an alternative to the retirement of biodiversity credits in accordance with Division 6 of the BC Act, 2016.

The BDAR fulfils the obligations under the BC Act, 2016 and is provided in Appendix B.

6.4 Commonwealth Environment Protection and Biodiversity Act, 1999

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act, 1999) provides for the protection of the environment, especially matters of national environmental significance (NES). Under the EPBC Act, 1999 a person must not take an action that has, will have, or is likely to have a significant impact on any of the matters of NES without approval from the Australian Government Environment Minister or the Minister's delegate.

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act, 1999:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Wetlands of international importance (sections 16 and 17B)
- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A)
- Protection of the environment from nuclear actions (sections 21 and 22A)
- Commonwealth marine environment (sections 23 and 24A)
- Great Barrier Reef Marine Park (sections 24B and 24C)
- The environment, if the action involves Commonwealth land (sections 26 and 27A), including:
    - actions that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside Commonwealth land);
    - actions taken on Commonwealth land that may have a significant impact on the environment generally;
- The environment, if the action is taken by the Commonwealth (section 28)
- Commonwealth Heritage places outside the Australian jurisdiction (sections 27B and 27C)

A search of the matters of national environmental significance database for Perisher was undertaken and identified that two of the above matters are relevant to the proposed development as addressed below.

National Heritage Listing

Under the EPBC Act, 1999, the 'Australian Alps National Parks and Reserves – Kosciuszko National Park' was included on the National Heritage List on the 7 November 2008. The Alps were listed for their outstanding natural and cultural heritage significance to the nation.

Under the EPBC Act, 1999 a referral must be made for actions that are likely to have a significant impact on a National Heritage Place, such as the Australian Alps.

To determine whether an action is likely to have a significant impact, the significant impact criteria provided in the Commonwealth Department of Environment and Heritage 'EPBC Act Policy Statement 1.1: Significant Impact Guidelines for Matters of National Environmental Significance, May 2006' applies.

The Guidelines state that an action is likely to have a significant impact on the National Heritage values of a National Heritage place if there is a real chance or possibility that it will cause:

- one or more of the National Heritage values to be lost;
- one or more of the National Heritage values to be degraded or damaged; or
- one or more of the National Heritage values to be notably altered, modified, obscured or diminished.

An assessment of impact against the National Heritage List Criteria and the National Heritage values of the Australian Alps has been undertaken and provided in the following table below:

National Heritage Assessment Table

Criterion	Impact on Values
(a) the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history	*The Australian Alps National Parks (AANP) is listed under this criterion for its glacial and periglacial features; fossils; karst areas; biological heritage; moth feasting; transhumant grazing; scientific research; water harvesting; and recreation.* *The proposed development would not conflict with any of the above values of the AANP.* *Importantly, the proposed development would enhance one of key values in regard to recreation, which is described below:* *'The AANP has outstanding heritage value for the longevity and diversity of its recreational use. Snow sports commenced in Kiandra in 1861 with the establishment of the Kiandra Snowshoe Club and expanded from an ad hoc activity by enthusiasts to a multi-million dollar snow sport and tourism industry characterised by the groomed ski slopes, ski lift infrastructure and substantial village resorts'.* *The proposed replacement lift and associated infrastructure will enhance the ski slope and infrastructure within the resort and represents a direct improvement to the visitor experience to the resort, whilst representing an economic investment in the resort and industry.*
(b) the place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history	*The Australian Alps is listed under this criterion for its landscape and topography; glacial and periglacial features; fossils; alpine and sub-alpine systems; and eucalypt flora communities.* *The proposed development would generate minimal impacts on the overall landscape of the Australian Alps and would not conflict with any of the above heritage values.*
(c) the place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history	*Not Applicable.*

(d) the place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of: (i) a class of Australia's natural or cultural places, or (ii) a class of Australia's natural or cultural environments	*The Australian Alps are listed for the North-East Kosciuszko Landscape values.* *The subject site is located within the Perisher Ski Resort and is not located within the North-Eastern area of Kosciuszko National Park.*
(e) the place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group	*The Australian Alps are listed under this criterion for their powerful, spectacular and distinctive landscape that is highly valued by the community.* *These aesthetic characteristics include the KNP main range for its mountain vistas, panoramas, snow covered crests, slopes and valleys, alpine streams and rivers and lakes.* *The proposed development would not directly impact on any of these heritage values.*
(f) the place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period	*Not Applicable.*
g) the place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	*The Australian Alps have a special association with the Australian community because of their unique landscapes, the possibility of experiencing remoteness and as the only opportunity for broad-scale snow recreation in Australia. The AANP is widely recognised by Australians as the 'high country' and many community groups have a special association with the AANP for social and cultural reasons.* *The proposed development will result in a replacement lift being installed within a ski resort and therefore would not impact on the above values.*
(h) the place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history	*The place is listed under this criterion for its association with the life or works of prominent people such as Baron Ferdinand Von Mueller, Eugen Von Guerard, writers 'Banjo' Patterson, Elyne Mitchell and David Campbell.* *The proposed development would not have any impact on the life or works of people with importance to the AANP.*
(i) the place has outstanding heritage value to the nation because of the place's importance as part of Indigenous tradition.	*Not Applicable.*

The above assessment has concluded that the proposed development will not have a significant impact on the values of the Australian Alps National Park.

Listed threatened species and communities:

An assessment of the impact of the proposed development on all listed threatened species and communities has been undertaken and provided in the Biodiversity Development Assessment Report in Appendix B.

The assessment has concluded that the proposal is unlikely to have a significant impact on matters of National Environmental Significance or Commonwealth land, and a referral to the Commonwealth Environment Minister is not necessary.

7. CONCLUSION

The replacement of the Home Rope Tow lift with a J-bar lift plus associated works will provide an improved guest experience as rope tow lifts are known to be difficult to use, particularly for beginners and snowboarders and are considered outdated lifting technology.

The replacement lift will increase the lift capacity, which is required when the Leichhardt Chairlift is either on wind hold or during peak visitation periods. The replacement lift is also planned for the additional skier circulation traffic expected from the approved Mount Perisher Six-Seater Chairlift.

The alignment of the new lift responds to the recent construction of the Leichhardt Chairlift bottom station and its operational needs. To achieve a better fall line for skiers and snowboarders traversing towards Front Valley, the unload is required to be located higher than the current rope tow.

The replacement lift will provide another suitable beginner lift and beginner terrain with increased ski slope capacity by way of removal of the rope tow, rocks, and removal of trees already predominantly impacted by dieback.

To minimise impacts on the environment, the proposed lift has been subject to an extensive preliminary operational, planning and environmental analysis. This has included engaging Eco Logical Australia to provide ecological advice with respect to limiting impacts on the bog vegetation.

As a result, the preferred lift alignment has been amended in response to minimising environmental impacts, with the top station moved to the south, closer to the crest and trees associated with the drier native vegetation. The proposed bottom station has been located within a previously disturbed area adjacent to the Leichhardt Chairlift bottom station.

To ensure that all the environmental and associated legislation is complied with and fulfilled, the proposed development has been considered with regard Section 4.15 of the NSW Environmental Planning and Assessment Act, 1979, NSW Biodiversity Conservation Act, 2016, Commonwealth Biodiversity Conservation Act, 1999, and SEPP Regional Precincts, 2021.

The proposal has been found to be consistent with the above legislation and relevant Environmental Planning Instrument, as detailed in this SEE.

Consistent with the PSSMP, the proposed development will result in increased lift and slope capacity; improved ease of use, improved performance, modernisation of infrastructure and improved visitor experiences.

Overall, the development would represent additional capital investment into the resort by modernising the lifting infrastructure and improving efficiency and operations of the lift and lead to overall improved visitor experiences. This can be achieved whilst minimising impacts on the natural environment including biodiversity, Aboriginal heritage & visual amenity.

APPENDIX A

PHOTOGRAPHS

Figure 1: Proposed bottom station bullwheel and load

Figure 2: Leichhardt Chairlift bottom station area adjacent

Figure 3: Leichhardt Chairlift

Figure 4: View uphill along the proposed lift alignment

Figure 5: Proposed tower 1

Figure 6: Proposed tower 2

Figure 7: Proposed tower 2 and temporary construction access corridor down to the road

Figure 8: Rock to be removed (traditional)

Figure 9: Rock (oversnow) and tree to be removed

Figure 10: Rock (oversnow) to be removed

Figure 11: Proposed tower 3

Figure 12: Construction access corridor to tower 3

Figure 13: Trees to be removed

Figure 14: Trees to be removed

Figure 15: Tree and rock group to be removed for construction access

Figure 16: Trees to be removed

Figure 17: Rock to be removed

Figure 18: Rope tow assembly to be removed, lift hut to be relocated

Figure 19: Trees and rock to be removed

Figure 20: Rock (oversnow) to be removed

Figure 21: Tree and rocks to be removed

Figure 22: Trees to be removed

Figure 23: Trees to be removed

Figure 24: Proposed tower 4

Figure 25: Trees to be removed

Figure 26: Trees to be removed

Figure 27: Tree to be removed

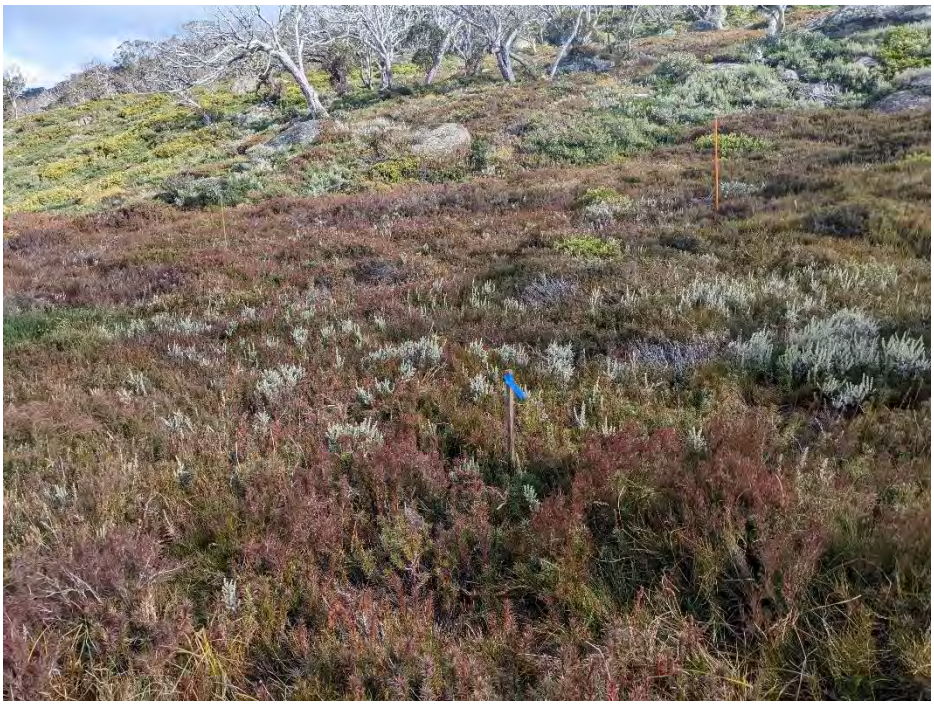


Figure 28: Proposed top station bullwheel

APPENDIX B

BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT

Leichhardt J-Bar, Perisher Ski Resort
Biodiversity Development Assessment Report

Perisher Blue Pty Ltd

ecological AUSTRALIA
A TETRA TECH COMPANY

1300 646 131
www.ecoaus.com.au

DOCUMENT TRACKING

Project Name	Leichhardt J-Bar, Perisher Ski Resort
Project Number	2028
Project Manager	Ryan Smithers
Accredited Assessor Certification	
Prepared by	Ryan Smithers
Reviewed by	Frank Lemckert
Approved by	Ryan Smithers
Status	**Final**
Version Number	**3**
Last saved on	**2 August 2022**

This report should be cited as 'Eco Logical Australia 2021. *Leichhardt J-Bar, 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

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 Home Rope Tow lift with a new J-bar lift and associated works in the Centre Valley area of Perisher Ski Resort.

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). Some of the native vegetation within the development site is mapped on the Biodiversity Values map.

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 removal or further modification of only 0.06 ha of native vegetation.

The development footprint supports three Plant Community Types: (PCT) PCT 637 Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion; PCT 645 Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, 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. 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) and *Cyclodomorphus praealtus* (Alpine She-oak Skink). Despite targeted surveys, no evidence of *Liopholis guthega* (Guthega Skink) was detected within the development site or immediate surrounds. The endangered *Rytidosperma vickeryae* (Perisher Wallaby Grass) was detected near the proposed bottom station and the proposal design was subsequently altered to avoid this location 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 two ecosystem credits and three 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

List of Figures

List of Tables

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
PCT	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 33734. 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 (i.e. access roads), however the majority of the development site comprises relatively undisturbed native vegetation.

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 Home Rope Tow lift with a new J-bar lift and associated works. The replacement of the existing lift will be easier to use and will substantially increase lifting capacity. The alignment of the new lift has been altered from the current rope tow to improve operational outcomes and to avoid and minimise environmental impacts. Following initial analysis, the alignment of the lift was altered with the top station moved approximately 10 m further south, closer to the drier, less sensitive vegetation, to avoid and minimise impacts.

The proposed works that do not include trenching will be undertaken with a small rubber-tracked 6-tonne excavator to minimise disturbance where access across sensitive vegetation communities, such as bog, is required. Rubber mats will also be used where machinery access across bog is necessary. The primary construction access will be via the existing Leichhardt access road and the existing access track to the Home Rope Tow offload. Rock removal that cannot be undertaken from the existing or proposed construction access, will be undertaken over-snow.

To minimise impacts the underground up-hill safety line and new electricity cable will be installed by way of under-boring between the bottom station and Tower 3. This avoids trenching through bog. Between Tower 3 and top station bullwheel, the cables will be installed through trenching in the less sensitive drier vegetation and has been co-located with the proposed construction access. The proposed works will result in a disturbance footprint up to 3.5 m wide for the construction access tracks. The footprint for the Bottom Station and Top Station will each be 8 m by 5 m. The lift tower footprints will be 4 m by 4 m, with the exception on Tower 1 which will be 3 m by 3 m, being located adjacent to the existing Leichhardt access road.

The proposed works are expected to be completed over a two month period and to affect 0.06 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 exception being a wheeled vehicle track to be retained between Tower 3 and the Top Station.

The proposal is further identified in Figure 3 and Photo 1 – Photo 6. Figure 4 shows the original proposed lift alignment and the revised alignment. The proposal is further described in the Statement of Environmental Effects (SEE) which has been prepared (Dabyne Planning 2022).

1.3. Development site footprint

It is anticipated that the proposed development will result in the further disturbance of 0.06 ha of native vegetation, parts of which are already heavily modified.

The development site footprint is identified in Figure 2.

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		
Precincts - Regional SEPP 2021	State Environmental Planning Policy (Precincts—Regional) 2021 (Precincts-Regional SEPP) facilitates a planning framework for Special Activation Precincts (Precinct/s) in regional NSW, streamlining planning processes and guiding the delivery of the precincts. Chapter 4 Kosciuszko National Park and Alpine Resorts (SEPP Precincts-Regional 2021) identifies the Minister for Planning as the determining authority for development within the NSW Alpine Resorts. Precincts-Regional SEPP 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 Environment and Climate Change (DECC).	-
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.	-

Photo 1: The proposed lift alignment from the Bottom Station. The location of Tower 1 was modified to avoid a patch of Perisher Wallaby Grass.

Photo 2: The proposed Top Station, which was relocated to reduce impacts.

Photo 3: Construction access to the top station will be located in a well-drained area, avoiding the bog and wet heath along the lift alignment. The communications and electricity cables and safety line will be installed beneath the construction access (through trenching) to minimise impacts. The heavily dieback effected trees along the construction access will be removed with any basal suckering either retained or in some instances poisoned.

Photo 4: The construction access will utilise the existing access track to the Home Rope Tow offload.

Photo 5: Temporary construction access using a rubber mat to minimise impacts on vegetation will provide access from the Leichhardt access road to the proposed Tower 2.

Photo 6: The heavily dieback effected trees identified above will be removed. Any regrowth that may occur will either be poisoned or left to regrow as identified in Figure 3.

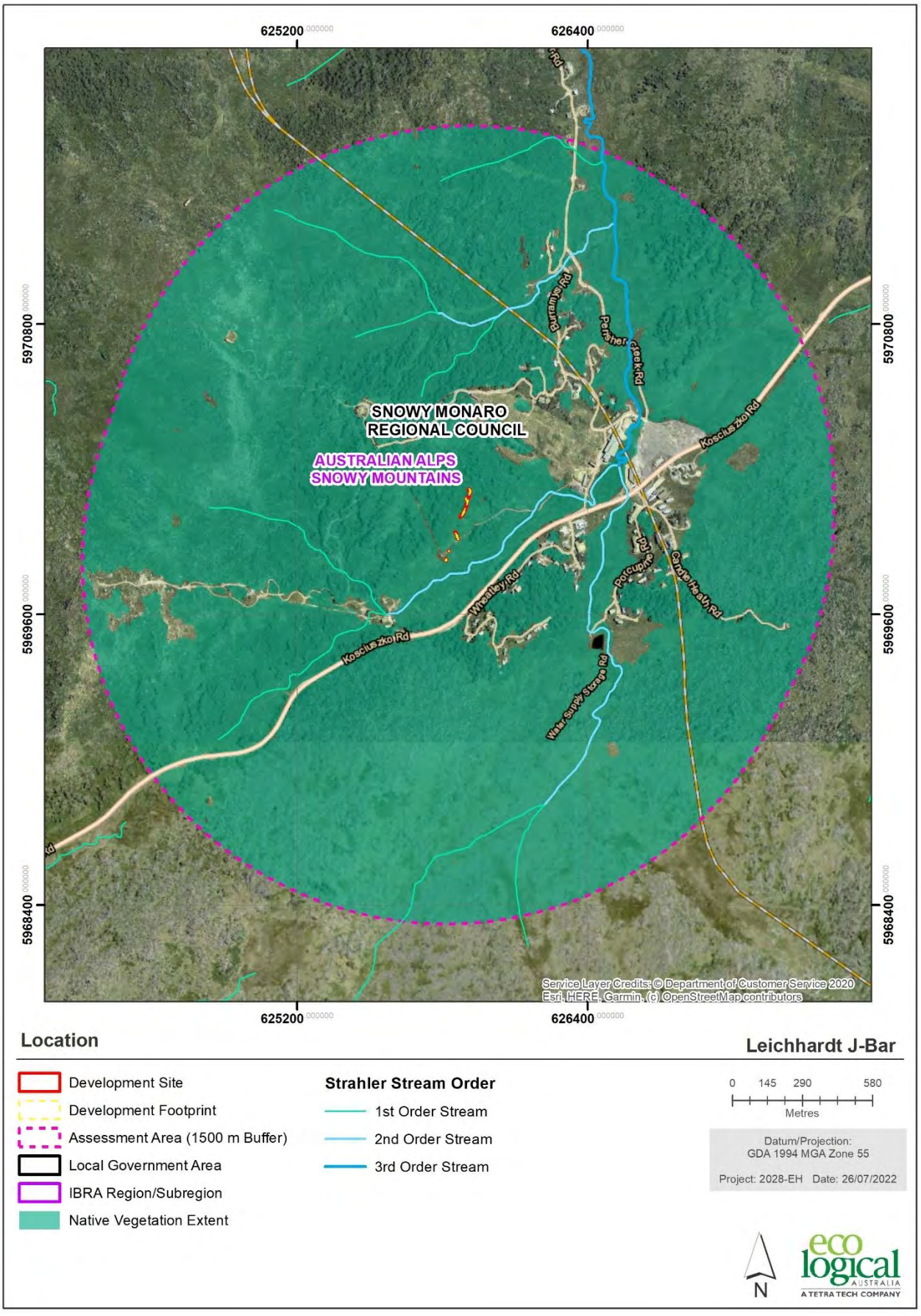


Figure 1: Location map

Figure 2: Site map

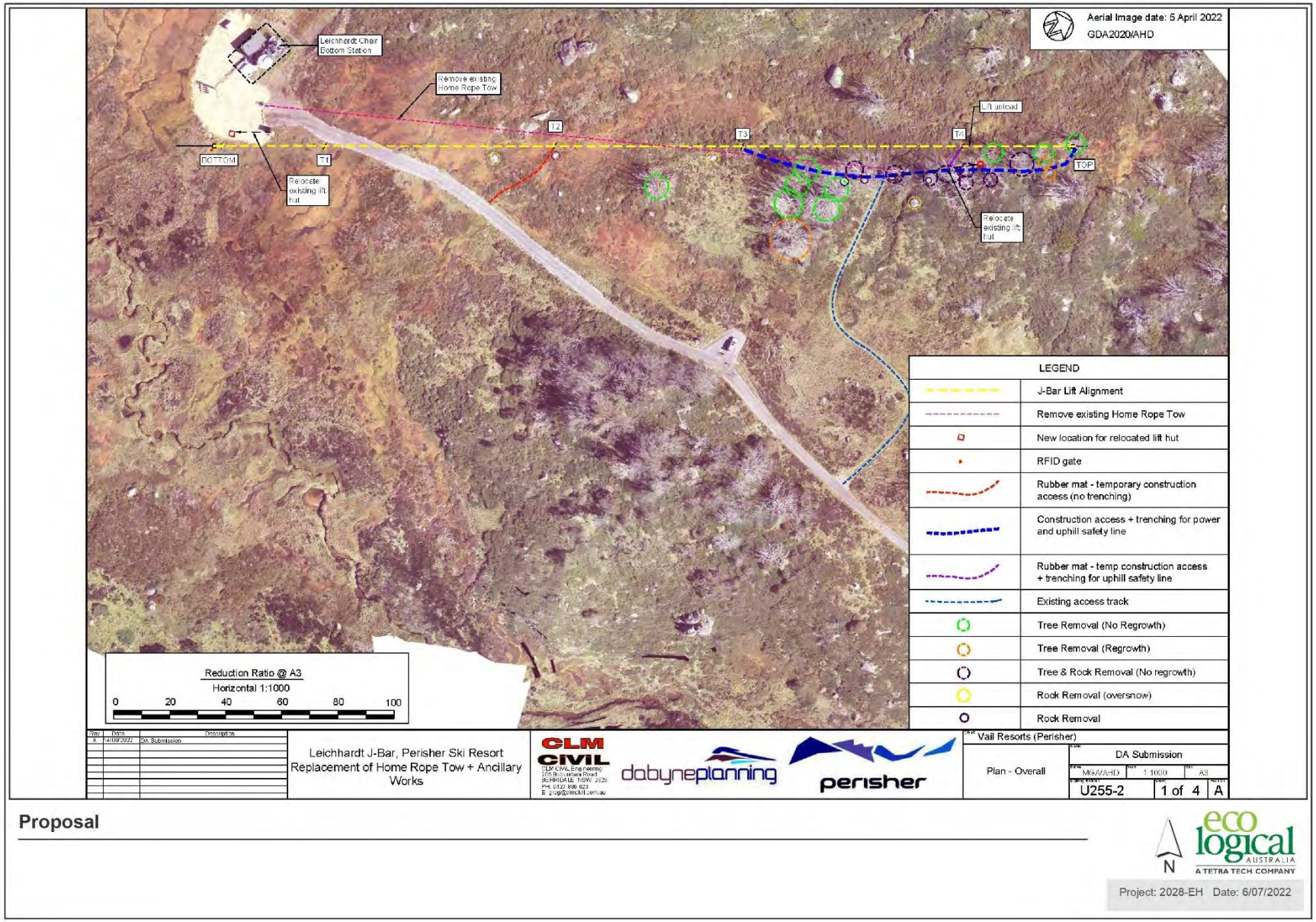


Figure 3: The proposal (as identified in the SEE)

Figure 4: The original proposed alignment (black line) and the revised alignment (yellow dash)

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	90	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 21 March and 24 April 2022.

A total of three 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 three 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.

Table 3: Full-floristic PCT identification plots

PCT ID	PCT Name	Number of plots surveyed
637	Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	1
645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	1
643	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	1

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

Four PCTs were identified within the development site or immediate surrounds 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 5.

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	0.02	5
645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Grassy Woodlands	Subalpine Woodlands	0.04	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	0.004	0
641	Alpine grassland/herbfield and open heathlands in Kosciuszko National Park, Australian Alps Bioregion	Alpine Herbfields	Alpine Complex	0	5

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	-
645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	-
643	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	-
641	Alpine grassland/herbfield and open heathlands in Kosciuszko National Park, Australian Alps Bioregion	-

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 7.

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	0.02	Endangered	Alpine Sphagnum Bogs and Associated Fens	0.02

3.5. Vegetation integrity assessment

3.5.1. Vegetation zones

Four vegetation zones were identified within the development site or immediate surrounds based on the broad condition states of PCT 637, 645, 643 and 641, as shown in Figure 6. Only three of the zones occur within the development site, and subsequently a total of three 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 Tables 8-11Table 8.

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 ≥100 ha). A patch size ≥100 ha was determined for the development site.

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

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	Good	0.02	>101	1	1
2	645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Good	0.04	>101	1	1
3	643	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Good	0.004	>101	1	1
4	641	Alpine grassland/herbfield and open heathlands in Kosciuszko National Park, Australian Alps Bioregion	Good	0	>101	0	0
			Total	0.064	101	3	3

Table 8: Zone 1 PCT 637 Good Condition

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 BC Act or EPBC Act presumably as it is considered vulnerable to the impacts of climate change, the impacts of brumbies of hydroelectric schemes.
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. Within the development site this zone includes Bog, Fen and Wet Heath.
Characteristic canopy trees	It is characteristically treeless although occasional individuals of *Eucalyptus niphophila* 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	36
Exotic species / HTW cover	*Acetosella vulgaris*, *Agrostis capillaris*, *Festuca rubra* subsp. *rubra.*
Condition	Moderate
Variation and disturbance	The zone is impacted by the historic disturbance associated with the existing rope tow and other disturbances.
No. sites sampled	1
Threatened flora species	Perisher Wallaby Grass .
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
90.9	17.7	-	40.2

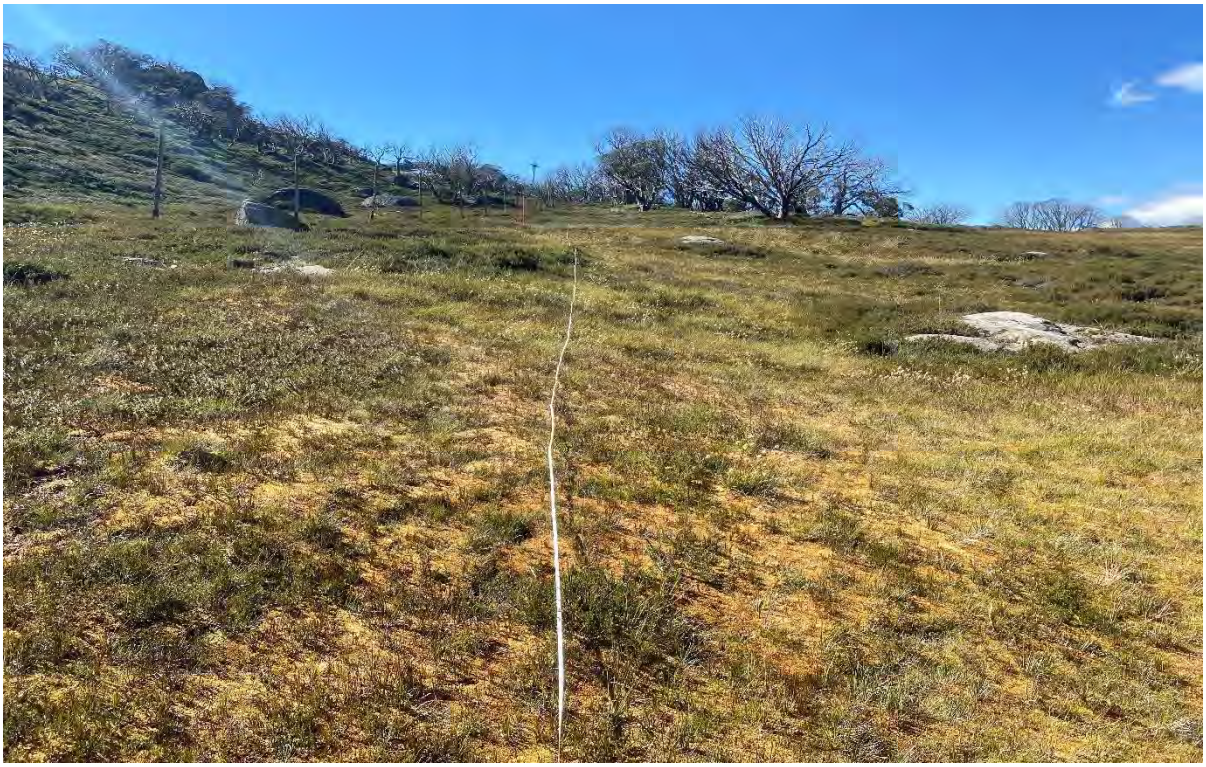


Table 9: Zone 2 PCT 645 Moderate Condition

645 - Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion			
Vegetation formation	Grassy Woodlands		
Vegetation Class	Subalpine Woodlands		
Conservation status	Widespread and well conserved. Not listed as a TEC on the BC Act or EPBC 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 645 and the variation in composition and structure values within "benchmark" occurrences.		
Characteristic canopy trees	*Eucalyptus niphophila*.		
Characteristic mid-storey	*Grevillea australis, Ozothamnus cupressoides*, *Prostanthera cuneata, Nematolepis ovatifolia, Ozothamnus secundiflorus, Ozothamnus alpinus, Olearia phlogopappa, Orites lancifolius, Oxylobium ellipticum.*		
Characteristic groundcovers	*Acaena novae-zelandiae, Asperula gunnii, Carex breviculmis, Lycopodium fastigiatum, Pimelea alpina, Poa fawcettiae, Polystichum proliferum, Senecio gunnii.*		
Mean native richness	25		
Exotic species / HTW cover	*Acetosella vulgaris*		
Condition	Moderate condition		
Variation and disturbance	The community is in moderate condition within the development site and surrounds, as it has been impacted heavily in recent years by eucalypt dieback.		
No. sites sampled	1		
Threatened flora species	-		
Fauna habitats	Broad-toothed Rat, Alpine She-oak Skink and Flame Robin.		
Composition	**Structure**	**Function**	**Vegetation Integrity Score**
61.3	41.9	50.2	50.5

Table 10: Zone 3 PCT 643 Good Condition

643 - Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion			
Vegetation formation	Alpine Complex		
Vegetation Class	Alpine Heaths		
Conservation status	Widespread and well conserved. Not listed as a TEC on the BC Act or EPBC 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 *Eucalyptus niphophila* 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	29		
Exotic species / HTW cover	*Acetosella vulgaris, Agrostis capillaris, Festuca rubra subsp. rubra*		
Condition	Good condition		
Variation and disturbance	The community is in good condition within the development site.		
No. sites sampled	1		
Threatened flora species	-		
Fauna habitats	Broad-toothed Rat, Alpine She-oak Skink and Flame Robin.		
Composition	**Structure**	**Function**	**Vegetation Integrity Score**
69	61.2	-	65

Table 11: Zone 4 PCT 641 Good Condition

641 - Alpine grassland/herbfield and open heathlands in Kosciuszko National Park, Australian Alps Bioregion			
Vegetation formation	Alpine Complex		
Vegetation Class	Alpine Herbfields		
Conservation status	Widespread and well conserved. Not listed as a TEC on the BC Act or EPBC 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 641 and the variation in composition and structure values within "benchmark" occurrences.		
Characteristic canopy trees	It is characteristically treeless although occasional individuals of *Eucalyptus niphophila* may occur.		
Characteristic mid-storey	*Grevillea australis, Nematolepis ovatifolia, Ozothamnus secundiflorus, Olearia phlogopappa, Oxylobium ellipticum, Melicytus dentatus.*		
Characteristic groundcovers	*Epacris gunni, Pimelea alpina, Celmisia costiniana, Craspedia spp., Euphrasia collina* subsp. *diversicolor, Microseris lanceolata, Erigeron bellidioides, Lycopodium fastigiatum, Oreomyrrhis eriopoda, Poa* spp.		
Mean native richness	-		
Exotic species / HTW cover	*Acetosella vulgaris*		
Condition	Good condition		
Variation and disturbance	The community is quite variable surrounding the development site, ranging between open heath and sod tussock grassland, but overwhelmingly in good condition.		
No. sites sampled	Not sampled as it does not occur within the development site		
Threatened flora species	-		
Fauna habitats	Broad-toothed Rat, Alpine She-oak Skink and Flame Robin.		
Composition	**Structure**	**Function**	**Vegetation Integrity Score**
-	-	NA	-

3.5.3. Assessing vegetation integrity

A vegetation integrity assessment using the BAM Calculator (BAMC) was undertaken and the results are outlined in Table 12.

Table 12: Vegetation integrity scores

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	0.02	90.9	17.7	-	No	40.2
2	645	Moderate	0.04	61.3	41.9	50.2	Yes	50.5
3	643	Good	0.004	69	61.2	-	No	65
4	641	Good	0	NA	NA	NA	No	-

3.6. Use of local data

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

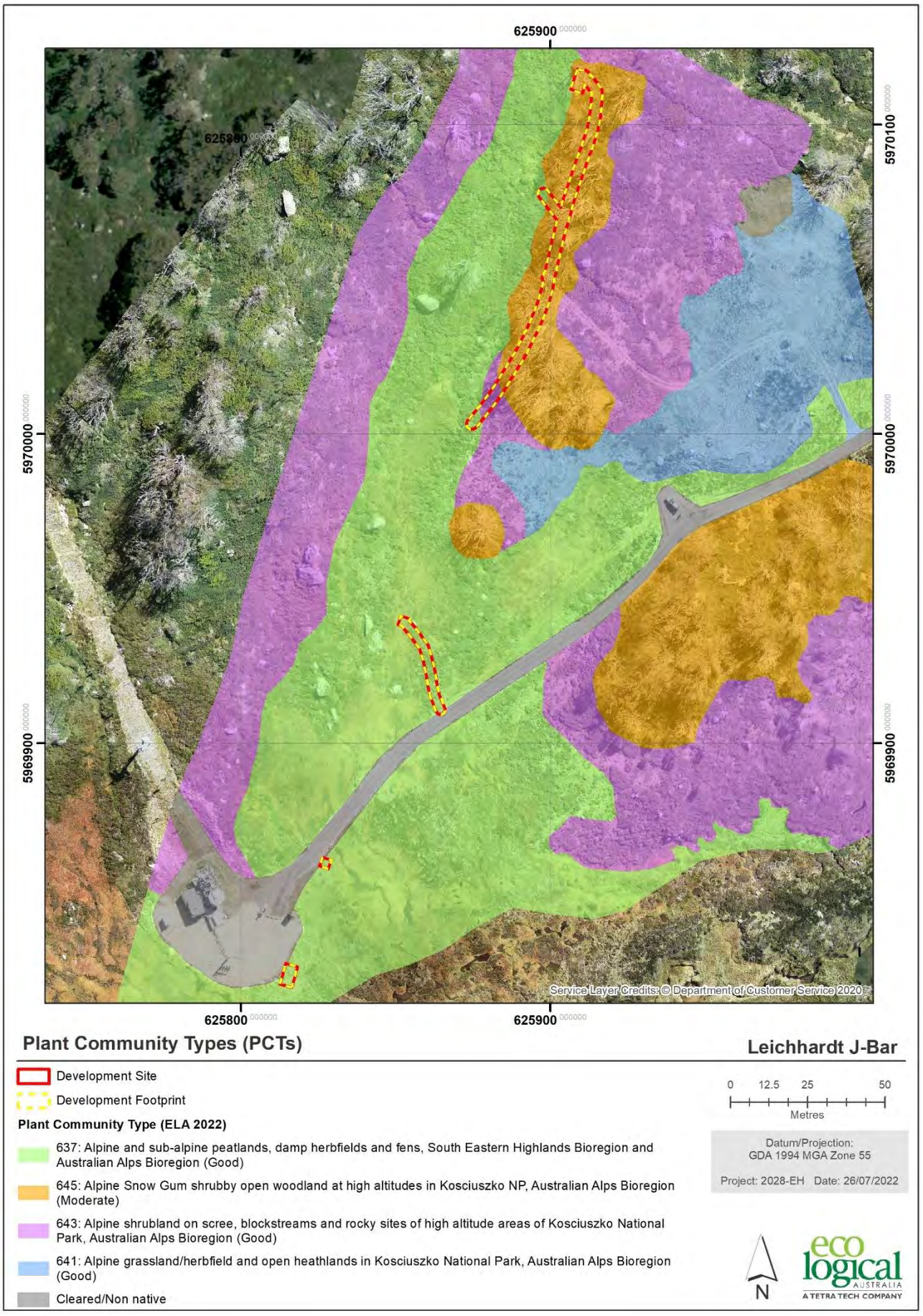


Figure 5: Plant Community Types

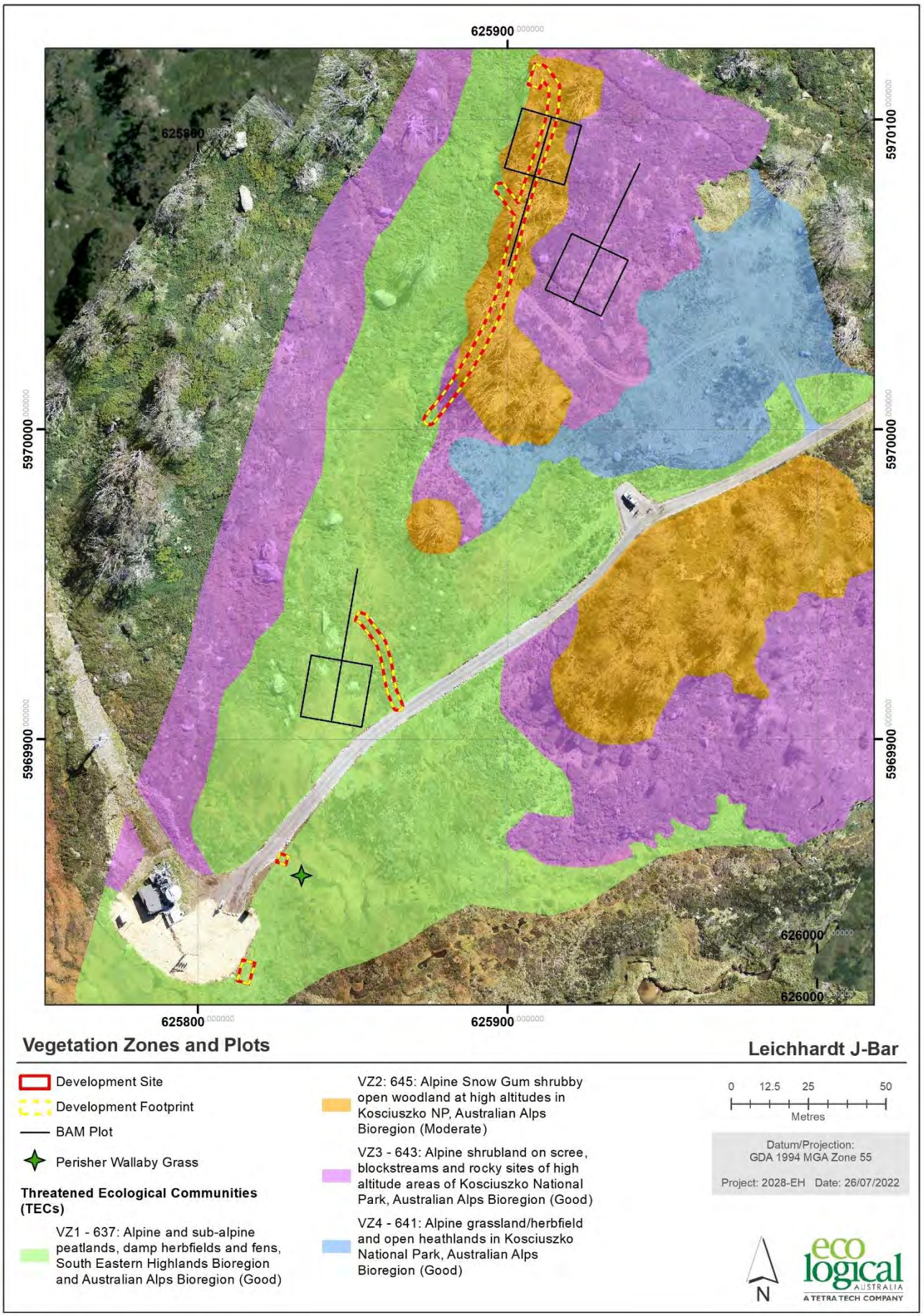


Figure 6: Vegetation Zones and Plots

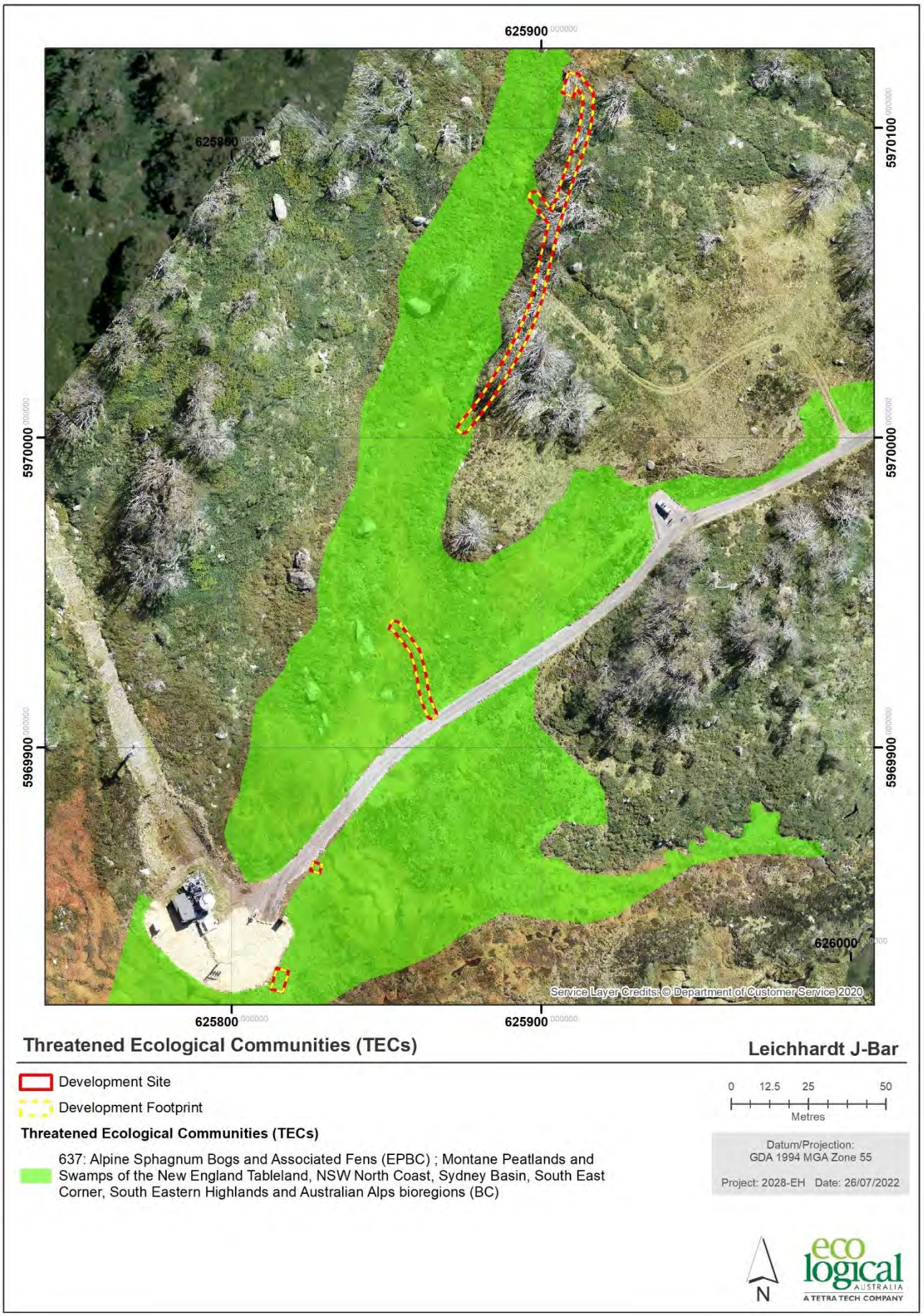


Figure 7: Threatened ecological communities

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 13.

Table 13: Predicted ecosystem credit species

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
Callocephalon fimbriatum (Foraging)	Gang-gang Cockatoo	-	-	Moderate	Vulnerable	Endangered
Daphoenositta chrysoptera	Varied Sittella	-	-	Moderate	Vulnerable	Not Listed
Falsistrellus tasmaniensis	Eastern False Pipistrelle	-	-	High	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
Petroica boodang	Scarlet Robin	-	-	Moderate	Vulnerable	Not Listed
Petroica phoenicea	Flame Robin	-	-	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 14. Four additional species credit species were added as candidate species, *Liopholis guthega* (Guthega Skink), *Mastacomys fuscus* (Broad-toothed Rat), *Cyclodomorphus praealtus* (Alpine She-oak Skink), and *Ranunculus anemoneus* (Anemone Buttercup), as they are well known from the Centre Valley area or similar habitats nearby.

4.2.2. Candidate species requiring further assessment

Six 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, Alpine She-oak Skink and Anemone Buttercup.

Table 14: Candidate species credit species

Species	Common Name	Habitat Constraints	Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status
Alpine She-oak Skink	*Cyclodomorphus praealtus*	-	-	High	Endangered	Endangered
Rough Eyebright	*Euphrasia scabra*	Other Montane bogs or within 50 m	-	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
Southern Corroboree Frog	*Pseudophryne corroboree*	NA/Swamps Within 200 m of high montane and sub-alpine bog or ephemeral pool environments	above 1000 m elevation	Very High	Critically Endangered	Critically 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*	Other Small flats on the edges of creeks and rivers, on small gravel bars and in sphagnum mounds or within 20 of waterbodies Alpine bogs or within 20 m	-	High	Endangered	Not Listed
Anemone Buttercup	*Ranunculus anemoneus*	Treeless vegetation above 1000 m in altitude	Above 1400 m	High	Vulnerable	Vulnerable

4.2.3. Assessment of habitat constraints and vagrant species

Justification for the exclusion of candidate species credit species is provided in Table 15.

Table 15: Justification for exclusion of candidate species credit species

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.
Southern Corroboree Frog	*Pseudophryne corroboree*	Critically Endangered	Critically Endangered	Very High	The Southern Corroboree Frog is limited to sphagnum bogs of the northern Snowy Mountains, in a strip from the Maragle Range in the northwest, through Mt Jagungal to Smiggin Holes in the south. Its range is entirely within Kosciuszko National Park. This species is all but extinct in the wild. It is no longer present at its former southern limit at Smiggin Holes. It is considered highly unlikely that it would occur within the development site and it was not detected there opportunistically.
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 grows in wet shady sites along creeks and soaks under Mountain Tea-tree. 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, Southern Corroboree Frog and Blue-tongued Greenhood. However, there is potential habitat for the Guthega Skink, Broad-toothed Rat, Perisher Wallaby Grass, Rough Eyebright and Anemone Buttercup, all of which, with the exception of the Rough Eyebright, are well known from the Centre Valley area.

Targeted surveys for relevant threatened species known from locality were undertaken within the development site and immediate surrounds on the dates outlined in Table 16.

Weather conditions during the targeted surveys are outlined in Table 17 and survey effort is outlined in Table 18.

Table 16: Targeted surveys

Date	Surveyors	Target species
21 March 2022	Ryan Smithers	Guthega Skink, Broad-toothed Rat, Perisher Wallaby Grass, Rough Eyebright, and Anemone Buttercup
22 March 2022	Ryan Smithers	Guthega Skink, Broad-toothed Rat, Perisher Wallaby Grass, Rough Eyebright, and Anemone Buttercup

Table 17: Weather conditions

Date	Rainfall (mm)	Minimum temperature 0^C	Maximum temperature 0^C
21 March 2022	-	10	15
22 March 2022	-	14	15

Table 18: 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 person hours	Guthega Skink and Broad-toothed Rat
Targeted threatened flora searches	Approx. 1 ha	Suitable habitats within and immediately surrounding the development site	4 person hours	Perisher Wallaby Grass, Rough Eyebright, and Anemone Buttercup

The targeted surveys resulted in the detection of two species credit species; the Broad-toothed Rat and Perisher Wallaby Grass. 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.

Perisher Wallaby Grass was detected in one location in the lower parts of the development site, as shown in Figure 6, Photo 1 and Photo 7. A total of eight plants were estimated to be present in one small patch (approximately 30 cm x 30 cm) in disturbed bog to the east of the Leichhardt Chairlift access road. The design of the proposal and the location of the development site was adjusted to ensure that the patch of Perisher Wallaby Grass will not be affected. The proposed works will be kept away from the plants by a minimum of 2.5 m by exclusion fencing.

The Guthega Skink was not detected within the development site or immediate surrounds despite two sessions (on two separate days) of targeted survey. The Guthega Skink is known from multiple records within the Centre Valley area, however it is considered unlikely that the species would occur within the development site given the generally unsuitable or marginal nature of the habitats within the development site. The development site is dominated by wet habitats or grasslands, which do not provide preferred habitat for the Guthega Skink. Better quality habitat for the Guthega Skink occurs immediately upslope of the development site, as shown in Photo 8.

The Alpine She-oak Skink has been assumed to be present within the drier parts of the development site given its cryptic nature and the presence of suitable habitat.

Following completion of field surveys, the species credit species included in the assessment are outlined in Table 19.

Table 19: Species credit species included in the assessment

Species	Common Name	Species presence	Geographic limitations	Habitat (ha) / count	Biodiversity Risk Weighting
Alpine She-oak Skink	*Cyclodomorphus praealtus*	Assumed	-	0.04 ha	2
Broad-toothed Rat	*Mastacomys fuscus*	Yes	-	0.06 ha	2

4.3.1. Species credit species included in the assessment

Two species credit species, the Alpine She-oak Skink and Broad-toothed Rat, have been included in the assessment as the proposed development will impact on known or potential habitat for these species. A species polygon for the Alpine She-oak Skink and Broad-toothed Rat is included as Figure 8. The location of the Perisher Wallaby Grass immediately adjacent to the development site, is also shown in Figure 8.

4.4. Identification of prescribed additional biodiversity impact entities

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

Photo 7: Eight Perisher Wallaby Grass plants were detected just to the east of the proposed Tower 1.

Photo 8: The dry shrubby habitats with embedded rock on the slopes immediately to the west of the development site provide superior habitat for the Guthega Skink.

Figure 8: 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 where possible.
- Minimising the disturbance footprint associated with construction by utilising a small excavator.
- Minimising the disturbance footprint associated with construction by utilising under-boring where the safety line and electricity cabling traverses bog.
- Minimising the disturbance footprint associated with construction by co-locating the safety line and electricity cabling with construction access.
- Moving the Top Station approximately 10 m to the south, so that the access to each tower is shortened and located closer to the drier, less sensitive vegetation.
- Changing the location of the alignment to avoid known locations of Perisher Wallaby Grass and to minimise impacts on endangered ecological communities.
- 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.
- Fencing off the location of the Perisher Wallaby Grass prior to the commencement of works and buffering them from the proposed works by a minimum of 2.5 m to ensure they are not impacted.
- Using low impact construction methods such as sod replacement and over-snow rock removal where rocks cannot be accessed from the existing or proposed access roads/tracks.
- Undertaking post construction rehabilitation.

5.1.2. Prescribed biodiversity impacts

The proposal involves the following prescribed biodiversity impacts:

- The removal or reduction of a small amount of rock outcropping.
- The removal of some dead tree trunks and limbs.

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 20.
- Threatened species and threatened species habitat is outlined in Table 21.
- Prescribed biodiversity impacts is outlined in Section 6.4.

Note, consistent with the streamlined assessment method, the impacts on native vegetation, with the exception of TECs, have been grouped into the dominant PCT within the development site, PCT 645.

Table 20: 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	0.02
645	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Not listed	Not Listed	0.04

Table 21: 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
Cyclodomorphus praealtus	Alpine She-oak Skink	0.04 ha	Endangered	Endangered
Mastacomys fuscus	Broad-toothed Rat	0.06 ha	Vulnerable	Vulnerable

6.2. Change in vegetation integrity

The change in vegetation integrity as a result of the development is outlined in Table 22.

Table 22: Change in vegetation integrity

Veg Zone	PCT ID	Condition	Area (ha)	Current vegetation integrity score	Future vegetation integrity score	Change in vegetation integrity
1	637	Good	0.02	40.2	0	-40.2
2	645	Moderate	0.04	50.5	0	-50.5

6.3. Indirect impacts

The indirect impacts of the development are outlined in Table 23. 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 9.

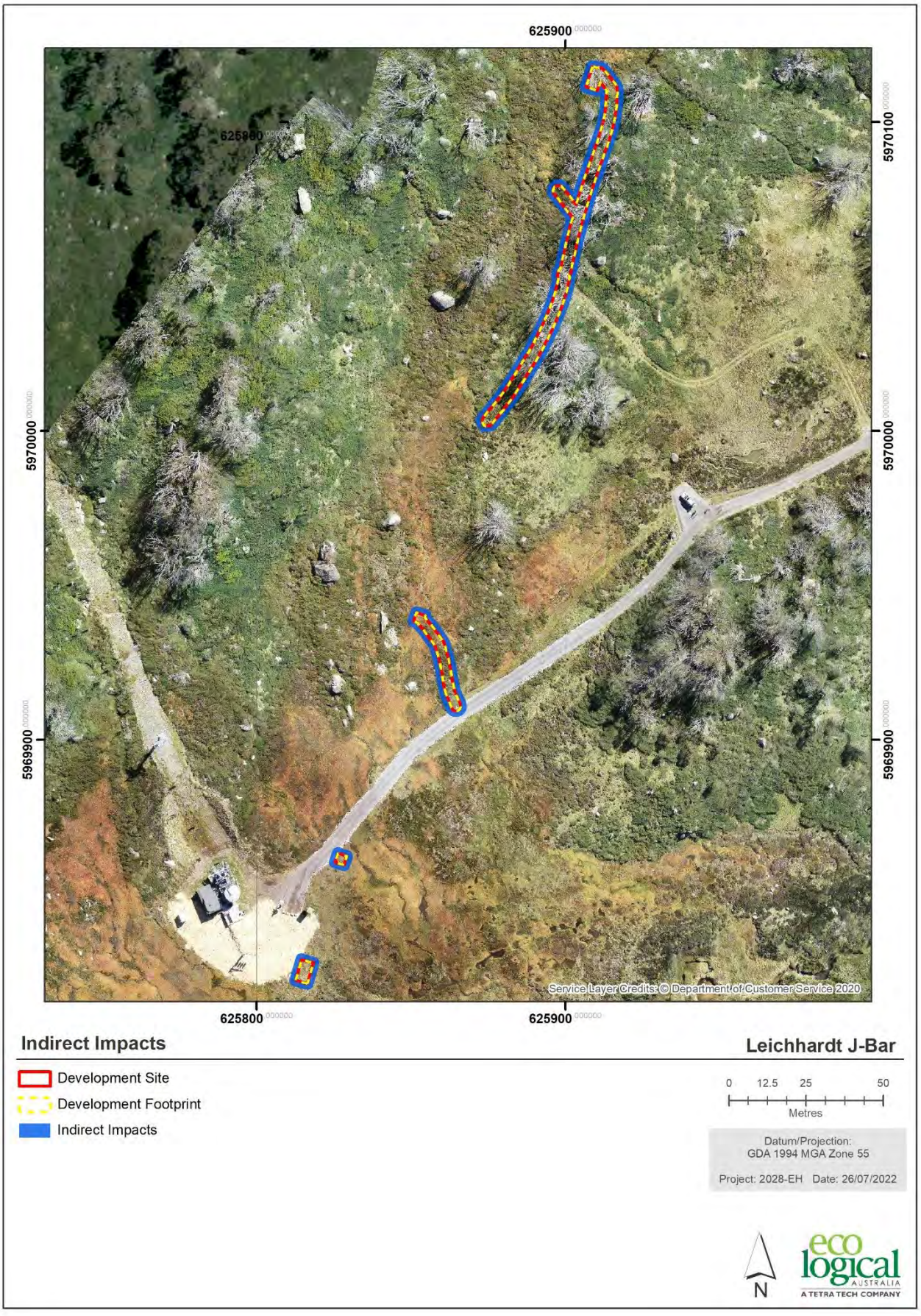


Figure 9: Indirect impact zones

Table 23: 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. It is considered unlikely that any threatened flora species adjacent to the development site will be affected. Measures have been incorporated to avoid and protect known threatened flora occurrences adjacent to 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

6.4. Prescribed biodiversity impacts

The proposal involves the following prescribed biodiversity impacts:

- The removal or reduction of a small amount of rock outcropping.
- The removal of some dead tree trunks and limbs.

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 24.

6.6. Mitigating prescribed impacts

The development will involve very minor prescribed biodiversity impacts associated with the removal of a small amount of outcropping rock and subsurface rock associated with the proposed excavation and the removal of some dead tree trunks and limbs.

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 24: 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 patch is to be fenced off prior to construction. The Perisher Wallaby Grass patch is to be buffered from the proposed works by a minimum of 2.5 m. The proposed excavations are to be undertaken using the sod replacement technique, except for a wheeled vehicle track that will be retained between Tower 3 and Top Station. Any trenches that are left open overnight are to have planks of wood or the like placed in them to enable fauna to exit the trench. Open trenches are to be inspected in the morning for fauna and any fauna that are trapped are to be released into adjacent areas.	The Perisher Wallaby Grass location is fenced off and buffered from the proposed works. Vegetation impacts mitigated by use of the sod replacement technique. Impacts on fauna mitigated.	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 proposed works prior to construction. Fence off the Perisher Wallaby Grass location as “no go” area.	Risk of disturbance beyond proposed disturbance footprint 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

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
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 to or likely to use the habitat on the site are not breeding or nesting	Low	Low	None proposed.	NA	NA	NA
Temporary fencing to protect significant environmental features such as riparian zones	Low	Low	The location of the Perisher Wallaby Grass is to be fenced off prior to construction and identified as a “no go” area. The Perisher Wallaby Grass patch is buffered from the proposed works by a minimum of 2.5 m.	The Perisher Wallaby Grass location is fenced off 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 will be washed down to remove all soil and vegetative matter before entering the site to limit spread of weeds and disease such as *Phytophthora cinnamomi.*	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 patch.	Risk of disturbance beyond proposed disturbance corridor is reduced.	Prior to and during construction as necessary	Perisher

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
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 25 and shown on Figure 10. The impacts of the development requiring offset for species credit species and their habitats are outlined in Table 26 and on Figure 10.

Table 25: Impacts to native vegetation that require offsets

Vegetation Zone	PCT 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	0.02
2	645	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Alpine Heaths	Alpine Complex	0.04

Table 26: 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
Cyclodomorphus praealtus	Alpine She-oak Skink	0.04 ha	Endangered	Endangered
Mastacomys fuscus	Broad-toothed Rat	0.06 ha	Vulnerable	Vulnerable

7.3. Impacts not requiring offsets

All the impacts of the development on native vegetation and on the Alpine She-oak Skink and Broad-toothed Rat require offsets. The impacts of the proposed development on non-native vegetation do not require offsets.

7.4. Areas not requiring assessment

No parts of the proposed development do not require assessment.

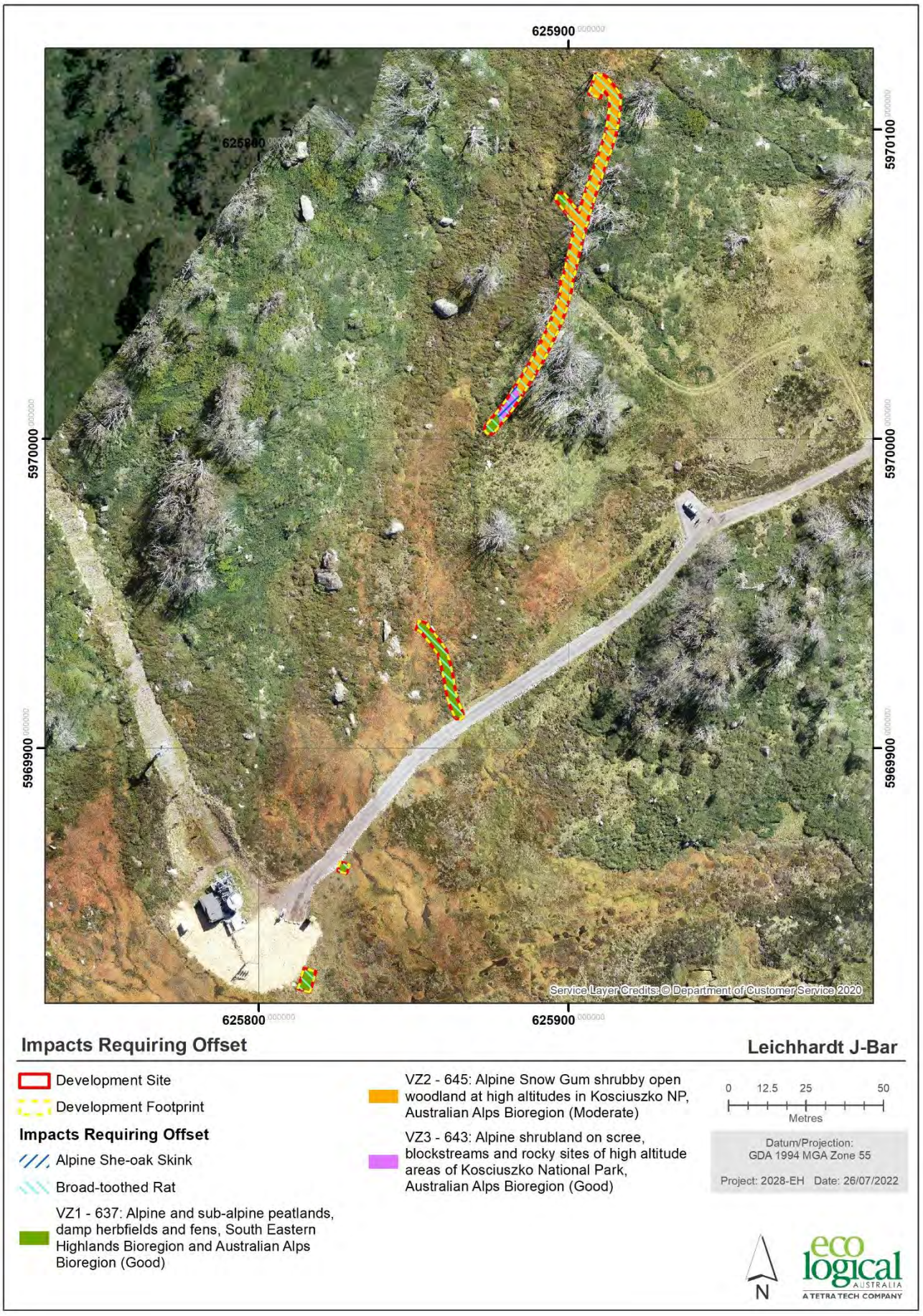


Figure 10: Impacts requiring offset

7.5. Credit summary

The number of ecosystem credits required for the development are outlined in Table 27.

The number of species credits required for the development are outlined in Table 28.

A biodiversity credit report is included in Appendix F.

Table 27: Ecosystem credits required

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	0.02	1
2	645	Alpine shrubland on scree, blockstreams and rocky sites of high altitude areas of Kosciuszko National Park, Australian Alps Bioregion	Moderate	Alpine Heaths	0.04	1

Table 28: Species credit summary

Species	Common Name	Direct impact number of individuals / habitat (ha)	Credits required
Cyclodomorphus praealtus	Alpine She-oak Skink	0.04 ha	1
Mastacomys fuscus	Broad-toothed Rat	0.06 ha	2

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
- 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 24 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 Home Rope Tow lift with a new J-bar lift and associated works 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 two ecosystem credits and three 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.

Dabyne Planning. 2022. *Statement of Environmental Effects – Leichhardt J-bar, Perisher Valley*.

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*.

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 ≤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 site secured by 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 29: Species recorded in the plots and incidentally elsewhere within the development site or immediate surrounds.

Family	Species	Common Name	Listing Status	Exotic	High Threat Weed	Growth Form Group	Plot 1			Plot 2			Plot 3		
							Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance
Rosaceae	*Acaena* sp.	Sheep's Burr	-			Forb (FG)	g	0.1	1	g	0.1	1	g	0.2	5
Polygonaceae	*Acetosella vulgaris*	Sheep Sorrel	-	Yes	Yes		g	0.1	1	g	0.1	5	g	0.1	100
Asteraceae	*Achillea millefolium*	Yarrow	-	Yes	Yes		0	0	0	0	0	0	g	0.1	10
Apiaceae	*Aciphylla simplicifolia*	Mountain Aciphyll	-			Forb (FG)	g	0.1	10	g	0.1	2	0	0	0
Poaceae	*Agrostis capillaris*	Browntop Bent	-	Yes	Yes		g	0.1	5	0	0	0	0	0	0
Rubiaceae	*Asperula gunnii*	Mountain Woodruff	-			Forb (FG)	g	0.1	1	g	0.1	20	g	0.1	20
Asteliaceae	*Astelia psychrocharis*	-	-			Forb (FG)	g	0.2	10	0	0	0	0	0	0
Myrtaceae	*Baeckea gunniana*	Alpine Baeckea	-			Shrub (SG)	g	15	500	0	0	0	0	0	0
Cyperaceae	*Carex breviculmis*	-	-			Grass & grasslike (GG)	g	0.1	1	g	0.1	10	g	3	500
Cyperaceae	*Carex echinata*	Star Sedge	-			Grass & grasslike (GG)	g	5	1000	0	0	0	0	0	0
Cyperaceae	*Carex gaudichaudiana*	-	-			Grass & grasslike (GG)	g	10	1000	0	0	0	g	0.2	100
Cyperaceae	*Carpha nivicola*	-	-			Grass & grasslike (GG)	g	2	100	0	0	0	0	0	0
Asteraceae	*Celmisia costiniana*	-	-			Forb (FG)	g	0.2	50	g	0.2	50	0	0	0
Asteraceae	*Coronidium scorpioides*	Button Everlasting	-			Forb (FG)	0	0	0	g	0.1	2	0	0	0
Asteraceae	*Craspedia jamesii*	-	-			Forb (FG)	0	0	0	0	0	0	g	0.3	100
Asteraceae	*Craspedia* sp.	Billy Buttons	-			Forb (FG)	g	0.1	5	0	0	0	0	0	0
Poaceae	*Deyeuxia crassiuscula*	-	-			Grass & grasslike (GG)	g	0.1	5	0	0	0	0	0	0

Family	Species	Common Name	Listing Status	Exotic	High Threat Weed	Growth Form Group	Plot 1			Plot 2			Plot 3		
							Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance
Restionaceae	*Empodisma minus*	-	-			Grass & grasslike (GG)	g	15	1000	g	2	100	g	0.1	20
Ericaceae	*Epacris glacialis*	-	-			Shrub (SG)	g	0.5	50	0	0	0	0	0	0
Ericaceae	*Epacris microphylla*	Coral Heath	-			Shrub (SG)	g	0.1	1	0	0	0	0	0	0
Ericaceae	*Epacris paludosa*	Swamp Heath	-			Shrub (SG)	g	15	500	0	0	0	m	0.1	1
Ericaceae	*Epacris petrophila*	Snow Heath	-			Shrub (SG)	g	2	100	0	0	0	0	0	0
Onagraceae	*Epilobium gunnianum*	Gunn's Willow-herb	-			Forb (FG)	g	0.1	20	0	0	0	m	0.3	20
Asteraceae	*Erigeron bellidioides*	-	-			Forb (FG)	0	0	0	0	0	0	0	0	0
Myrtaceae	*Eucalyptus niphophila*	-	-			Tree (TG)	0	0	0	u	8	10	u	0.3	7
Orobanchaceae	*Euphrasia collina* subsp. *diversicolor*	-	-			Forb (FG)	0	0	0	0	0	0	g	0.3	50
Orobanchaceae	*Euphrasia collina* subsp. *glacialis*	-	-			Forb (FG)	g	0.3	50	0	0	0	0	0	0
Poaceae	*Festuca rubra* subsp. rubra	Red Fescue	-	Yes			g	0.1	5	0	0	0	0	0	0
Geraniaceae	*Geranium potentilloides* var. *potentilloides*	-	-			Forb (FG)	0	0	0	0	0	0	0	0	0
Haloragaceae	*Gonocarpus micranthus* subsp. *micranthus*	-	-			Forb (FG)	g	0.1	5	0	0	0	0	0	0
Proteaceae	*Grevillea australis*	Alpine Grevillea	-			Shrub (SG)	0	0	0	0	0	0	u	4	50
Fabaceae (Faboideae)	*Hovea montana*	-	-			Shrub (SG)	0	0	0	g	5	100	g	5	100
Asteraceae	*Hypochaeris radicata*	Catsear	-	Yes			0	0	0	0	0	0	g	0.1	10
Cyperaceae	*Isolepis aucklandica*	-	-			Grass & grasslike (GG)	g	0.3	500	0	0	0	0	0	0

Family	Species	Common Name	Listing Status	Exotic	High Threat Weed	Growth Form Group	Plot 1			Plot 2			Plot 3		
							Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance
Juncaceae	*Juncus falcatus*	-	-			Grass & grasslike (GG)	g	0.3	500	0	0	0	0	0	0
Poaceae	*Lachnagrostis meionectes*	-	-			Grass & grasslike (GG)	0	0	0	0	0	0	0	0	0
Juncaceae	*Luzula modesta*	-	-			Grass & grasslike (GG)	g	0.2	100	0	0	0	0	0	0
Juncaceae	*Luzula novae-cambriae*	-	-			Grass & grasslike (GG)	0	0	0	g	0.1	10	g	0.1	20
Lycopodiaceae	*Lycopodium fastigiatum*	Mountain Clubmoss	-			Fern (EG)	g	0.2	50	g	0.1	10	g	0.3	50
Rutaceae	*Nematolepis ovatifolia*	-	-			Shrub (SG)	0	0	0	m	0.1	1	u	8	50
Asteraceae	*Olearia spp.*	-	-			Shrub (SG)	0	0	0	m	5	100	u	3	100
Cyperaceae	*Oreobolus distichus*	-	-			Grass & grasslike (GG)	g	1	500	0	0	0	0	0	0
Apiaceae	*Oreomyrrhis ciliata*	Bog Carraway	-			Forb (FG)	g	0.2	100	0	0	0	0	0	0
Apiaceae	*Oreomyrrhis eriopoda*	Australian Carraway	-			Forb (FG)	0	0	0	0	0	0	g	0.2	50
Proteaceae	*Orites lancifolius*	Alpine Orites	-			Shrub (SG)	0	0	0	0	0	0	u	2	5
Apiaceae	*Oschatzia cuneifolia*	Wedge Oschatzia	-			Forb (FG)	g	0.1	50	0	0	0	0	0	0
Fabaceae (Faboideae)	*Oxylobium ellipticum*	Common Shaggy Pea	-			Shrub (SG)	0	0	0	m	5	100	0	0	0
Asteraceae	*Ozothamnus alpinus*	Alpine Everlasting	-			Shrub (SG)	0	0	0	m	2	20	0	0	0
Asteraceae	*Ozothamnus cupressoides*	-	-			Shrub (SG)	g	0.3	20	g	0.1	5	u	1	20
Asteraceae	*Ozothamnus secundiflorus*	Cascade Everlasting	-			Shrub (SG)	g	0.1	1	m	0.5	2	0	0	0
Thymelaeaceae	*Pimelea alpina*	-	-			Shrub (SG)	0	0	0	g	0.1	5	g	0.5	50
Thymelaeaceae	*Pimelea ligustrina* subsp. *ciliata*	-	-			Shrub (SG)	0	0	0	m	1	50	u	3	20

Family	Species	Common Name	Listing Status	Exotic	High Threat Weed	Growth Form Group	Plot 1			Plot 2			Plot 3		
							Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance
Poaceae	*Poa costiniana*	Bog Snowgrass	-			Grass & grasslike (GG)	g	0.5	100	0	0	0	0	0	0
Poaceae	*Poa ensiformis*	Purple-sheathed Tussock-grass	-			Grass & grasslike (GG)	0	0	0	g	2	500	0	0	0
Poaceae	*Poa fawcettiae*	Smooth Blue Snowgrass	-			Grass & grasslike (GG)	0	0	0	g	8	2000	g	45	2000
Asteraceae	*Podolepis robusta*	Mountain Lettuce	-			Forb (FG)	0	0	0	0	0	0	0	0	0
Dryopteridaceae	*Polystichum proliferum*	Mother Shield Fern	-			Fern (EG)	0	0	0	0	0	0	0	0	0
Orchidaceae	*Prasophyllum alpestre*	-	-			Forb (FG)	0	0	0	0	0	0	0	0	0
Lamiaceae	*Prostanthera cuneata*	Alpine Mint-bush	-			Shrub (SG)	0	0	0	m	60	500	u	20	100
Ranunculaceae	*Ranunculus dissectifolius*	-	-			Forb (FG)	g	0.1	2	0	0	0	0	0	0
Ranunculaceae	*Ranunculus graniticola*	Granite Buttercup	-			Forb (FG)	0	0	0	0	0	0	g	0.2	20
Ericaceae	*Richea continentis*	Candle Heath	-			Shrub (SG)	g	5	100	g	0.1	1	g	0.2	2
Poaceae	*Rytidosperma nivicola*	-	-			Grass & grasslike (GG)	g	0.1	10	0	0	0	0	0	0
Poaceae	*Rytidosperma nudiflorum*	-	-			Grass & grasslike (GG)	g	0.1	10	0	0	0	0	0	0
Caryophyllaceae	*Scleranthus biflorus*	Two-flowered Knawel	-			Forb (FG)	g	0.1	1	0	0	0	0	0	0
Asteraceae	*Senecio gunnii*	-	-			Forb (FG)	0	0	0	0	0	0	g	0.3	50
Asteraceae	*Senecio pinnatifolius* var. *alpinus*	-	-			Forb (FG)	0	0	0	0	0	0	g	0.1	5
Sphagnaceae	*Sphagnum* sp.	-	-				g	55	1000	0	0	0	0	0	0
Stylidiaceae	*Stylidium graminifolium*	Grass Triggerplant	-			Forb (FG)	g	1	500	g	0.1	3	0	0	0

Family	Species	Common Name	Listing Status	Exotic	High Threat Weed	Growth Form Group	Plot 1			Plot 2			Plot 3		
							Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance	Stratum & Layer	Cover	Abundance
Winteraceae	*Tasmannia xerophila* subsp. *xerophila*	Alpine Pepperbush	-			Shrub (SG)	0	0	0	m	0.2	2	0	0	0
Poaceae	*Trisetum spicatum*	Bristle Grass	-			Grass & grasslike (GG)	0	0	0	0	0	0	g	0.1	20
Violaceae	*Viola betonicifolia*	Native Violet	-			Forb (FG)	0	0	0	0	0	0	g	0.1	10

Appendix C - Vegetation Integrity Plot Data

Table 30: Plot location data

Plot no.	PCT	Condition	Easting	Northing	Bearing
1	637	Good	625844	5969909	0
2	645	Moderate	625917	5970036	172
3	643	Good	625932	5970019	0

Table 31: Vegetation integrity data (composition)

Composition (number of species)						
Plot	Tree	Shrub	Grass	Forb	Fern	Other
1	0	8	13	14	1	0
2	1	12	5	6	1	0
3	1	11	6	10	1	0

Table 32: Vegetation integrity data (Structure)

Structure (Total cover)						
Plot	Tree	Shrub	Grass	Forb	Fern	Other
1	0	38	34.7	2.8	0.2	0
2	8	79.1	12.2	0.7	0.1	0
3	0.3	46.8	48.5	2.1	0.3	0

Table 33: 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	1.6	0	0	0	0	0	0	0	0.2
2	0	1	15	58	1	1	1	1	0	1	0.1
3	0	0	18	0	0	0	0	0	0	1	0.2

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
- 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.
Any impact on Commonwealth Listed Critically Endangered or Endangered Species;	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: 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 50 m from the nearest known Guthega Skink burrow, which occurs to the west 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 groundcovers the Alpine She-oak Skink is associated with. As such, the habitats within

Matters to be considered	Impact
	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. 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 occupancy of the species The proposed action will be limited to the disturbance of less than 0.1 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 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 less than 0.1 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 and 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 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.

Matters to be considered	Impact
	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.
Any impact on Commonwealth Listed Vulnerable Species;	Yes. The study area provides known habitat for one Commonwealth listed vulnerable species: the Broad-toothed Rat. 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 (less than 0.1 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. 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. 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. c. fragment an existing important population into two or more populations The proposed action will not fragment an existing important population of the Broad-toothed Rat into two or more populations. The specie' population extends 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. e. disrupt the breeding cycle of an important population

Matters to be considered	Impact
	The proposed action and affected area is too small to disrupt the breeding cycle of a population of the Broad-toothed Rat. 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 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. 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 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.
Any impact on a Commonwealth Endangered Ecological Community	Yes: The Alpine Sphagnum Bogs and Associated Fens endangered ecological community occurs within the development site. 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 200 m^2 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. 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.

Matters to be considered	Impact
	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 under-boring and sod replacement techniques. 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 also recovered well since the 2003 wildfires. 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 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 South-east 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

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id
00033733/BAAS17061/22/00033734

Proposal Name
Leichhardt J-Bar

BAM data last updated *
16/06/2022

Assessor Name
Ryan Smithers

Assessor Number
BAAS17061

BAM Data version *
54

Proponent Name(s)

Report Created
02/08/2022

BAM Case Status
Finalised

Assessment Revision
0

Assessment Type
Part 4 Developments (Small Area)

Date Finalised
02/08/2022

BOS entry trigger
BOS Threshold: Biodiversity Values Map

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely 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

PCT Outside Ibra Added

None added

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	0.0	0	1	1.00
645-Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Not a TEC	0.0	1	0	1.00

637-Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region

	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_Good	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.
	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Alpine Complex	Tier 3 or higher threat status	637_Good	No	1	IBRA Region: Australian Alps, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
645-Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	**Like-for-like credit retirement options**					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Subalpine Woodlands This includes PCT's: 644, 645, 650, 677, 679, 952, 1190, 1191, 1196, 1199	Subalpine Woodlands <50%	645_Moderate	Yes	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.

BAM Biodiversity Credit Report (Variations)

645-Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Variation options					
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Grassy Woodlands	Tier 4 or higher threat status	645_Moderate	Yes (including artificial)	1	IBRA Region: Australian Alps, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Cyclodomorphus praealtus / Alpine She-oak Skink	**645_Moderate**	0.0	1.00
Mastacomys fuscus / Broad-toothed Rat	**637_Good, 645_Moderate**	0.1	2.00

Credit Retirement Options

Like-for-like options

Cyclodomorphus praealtus/ Alpine She-oak Skink

Spp	IBRA region
Cyclodomorphus praealtus/Alpine She-oak Skink	Any in NSW

Variation options

Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region

	Fauna	Endangered	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.
Mastacomys fuscus/ Broad-toothed Rat	Spp	IBRA region	
	Mastacomys fuscus/Broad-toothed Rat	Any in NSW	
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	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.

ecological AUSTRALIA
A TETRA TECH COMPANY

1300 646 131
www.ecoaus.com.au

Biodiversity payment summary report

Assessment Id	Payment data version	Assessment Revision	Report created
00033733/BAAS17061/22/00033734		0	02/08/2022

Assessor Name	Assessor Number	Proposal Name	BAM Case Status
Ryan Smithers	BAAS17061	Leichhardt J-Bar	Finalised

Assessment Type	Date Finalised	BOS entry trigger
Part 4 Developments (Small Area)	02/08/2022	BOS Threshold: Biodiversity Values Map

PCT list

Price calculated	PCT common name	Credits
Yes	**637 -** Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	1
Yes	**645 -** Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	1

Species list

Price calculated	Species	Credits
Yes	***Mastacomys fuscus*** (Broad-toothed Rat)	2
Yes	***Cyclodomorphus praealtus*** (Alpine She-oak Skink)	1

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Biodiversity payment summary report

IBRA sub region	PCT common name	Threat status	Offset trading group	Risk premium	Administrative cost	Methodology adjustment factor	Price per credit	No. of ecosystem credits	Final credits price
Snowy Mountains	**637 -** Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	Yes	Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	25.81%	$157.69	2.3313	$5,117.34	1	$5,117.34
Snowy Mountains	**645 -** Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	No	Subalpine Woodlands <50%	19.12%	$193.89	1.8976	$5,967.83	1	$5,967.83

Subtotal (excl. GST)	**$11,085.17**
GST	**$1,108.52**
Total ecosystem credits (incl. GST)	**$12,193.69**

Biodiversity payment summary report

Species credits for threatened species

Species profile ID	Species	Threat status	Price per credit	Risk premium	Administrative cost	No. of species credits	Final credits price
10510	***Mastacomys fuscus*** (Broad-toothed Rat)	Vulnerable	$173.02	20.6900%	$80.00	2	$577.64
20164	***Cyclodomorphus praealtus*** (Alpine She-oak Skink)	Endangered	$309.97	20.6900%	$80.00	1	$454.10

Subtotal (excl. GST)	**$1,031.74**
GST	**$103.17**
Total species credits (incl. GST)	**$1,134.91**

Grand total	**$13,328.60**

APPENDIX C

AHIMS SEARCH RESULTS

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : 09-22

Client Service ID : 699375

dabyne planning

Date: 11 July 2022

Attention: Ivan Pasalich

Email: ivan@dabyneplanning.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -36.41, 148.3992 - Lat, Long To : -36.4057, 148.4069, conducted by Ivan Pasalich on 11 July 2022.

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.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au