VICTORIA State Government

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Mt Elliot Adventure Park Masterplan

FINAL REPORT

TOWONG SHIRE COUNCIL

NOV 2023

ACKNOWLEDGEMENT OF COUNTRY

Towong Shire Council acknowledges the First Nations Peoples as the traditional owners and custodians of the land.

We pay our respect to elders past and present and extend that respect to all Aboriginal and Torres Strait Islander Peoples today.

ACKNOWLEDGEMENTS

Towong Shire Council and Urban Enterprise would like to gratefully acknowledge the funding received by the Victorian State Government to complete this project.

The Mt Elliot Adventure Park Masterplan was prepared by Urban Enterprise and Terrain Trails in collaboration with Towong Shire Council.

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ISSUE REGISTER

Rev	Date	Originator	Reviewed by	Issue Purpose	Description
A	20/07/2022	N. Yoo	M. Ruzzene	Draft Report	-
B	29/09/2023	N. Yoo	M. Ruzzene	Final Report	-
C	21/06/2024	N. Yoo	M. Ruzzene	Final Report	Incorporation of Cultural Heritage Management Plan and Native Vegetation Assessment.

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Acronyms and Glossary of Terms

ACRONYMS

AAGR	Average Annual Growth Rate
ACT	Australian Capital Territory
AM	All Mountain
ASL	Above Sea Level
BCR	Benefit Cost Ratio
CHMP	Cultural Heritage Management Plan
COM	Committee of Management
Council	Towong Shire Council
DH	Downhill
DMP	Destination Management Plan
EDS	Economic Development Strategy
FL	Flow
FR	Freeride
FTE	Full Time Equivalent
GE	Gravity / Enduro
HG	Hang Gliding
HPV	Hancock's Plantation Victoria Pty Ltd.
LGA	Local Government Area
LZ	Landing or 'Bomb-out' Zone
MTB	Mountain Bike
NEVHGC	North East Victorian Hang Gliding Club
NPV	Net Present Value
NSW	New South Wales
NVR	Native Vegetation Report
PG	Paragliding
PK	Park
ROI	Return on Investment
SAFA	Sports Aviation Federation of Australia
TO	Touring
TRA	Tourism Research Australia
TTF	Technical Trail Feature
VHC	Victoria's High Country
XC	Cross Country

GLOSSARY OF TERMS

Daytrip Visitor	Those who travel for a round trip distance of at least 50 kms, are away from home for at least 4 hours, and who do not spend a night away from home as part of their travel. Same day travel as part of overnight travel is excluded.
Overnight Visitor	People aged 15 years and over who undertake an overnight trip of one night or more and at least 40 kms away from home are referred to as overnight visitors. Only those trips where the respondent is away from home for less than 12 months are included in the data.
International Visitor	A person is defined as an international visitor to Australia if they are currently a resident overseas, have been in Australia less than one year and are aged 15 years or over.

Executive Summary

Background

Towong Shire Council (Council) appointed Urban Enterprise and Terrain Trails to prepare a tourism Masterplan and feasibility study for the Mt Elliot State Forest Reserve, located in Victoria's North East approximately 7km east of Corryong.

The project objective, as outlined by Council is to develop an accessible, high quality, and sustainable adventure destination product that leverages on the natural setting to provide both a community asset and tourism drawcard. The Masterplan will deliver positive social and economic outcomes for the Upper Murray communities.

Strategic Positioning

The Mt Elliot Adventure Park Masterplan has been informed by planning strategies previously undertaken for Towong Shire and the broader Ovens Murray region.

In existing strategies including the High Country Destination Management Plan, Towong Shire Destination Management Plan and Towong Shire Mountain Biking Strategy, Mt Elliot is recognised as a key strategic site for tourism development, in particular for delivery of a mountain bike park that can service visitors and the local residents of the region.

The development of a mountain bike park is identified as a key project opportunity for the region, leveraging the Reserve's steep topography and unique landscape features.

The mountain bike park will support expenditure within Corryong and encourage visitors to stop and stay overnight in the region.

Current Uses

Mt Elliot is used regularly for paragliding and hang gliding, mainly for training and competitions. Its location near the Victoria and the New South Wales (NSW) border draws a broad catchment of flyers.

Mt Elliot is considered a very safe cross country flying site due to the wide-open valleys and relatively consistent conditions, which enables cross country flying to the North, West and South.

There is also an existing network of informal tracks and trails on Mt Elliot Reserve for numerous activities including motor biking and four-wheel driving.

What has the community said?

The Upper Murray community were engaged throughout the process of preparing the Mt Elliot Adventure Park Masterplan.

The community identified the following key elements which have been considered as part of the Masterplan:

- Diverse MTB trails and walking trails
- Picnicking and BBQs
- Improved road access and car parking
- Camping areas with visitor amenities
- Upgraded gliding facilities
- Lookout points

Mountain Biking Market

Mt Elliot is well placed to leverage from the growing demand for cycling and mountain bike product.

Locally, it is estimated that the total Towong Shire cycling market from the residential and visitor markets is approximately 41,700 people, while the current mountain biking market is estimated at 11,500.

There is opportunity to draw mountain biking visitors already in the High Country region and those on their way to Thredbo or NSW. In addition, the large population in the Murray and Riverina provide a regional catchment for the Mt Elliot Mountain Bike Park.

Gliding Market

The Sports Aviation Federation of Australia (SAFA) has approximately 3,300 registered paragliding and hang gliding pilots.

Over a third of members are based in Victoria and NSW. Mt Elliot is well positioned to attract visitors from both NSW and Victoria due to it's proximity to the NSW-Victorian border.

Whilst the sport is niche, it is growing, and many of the other launch sites in Victoria's North East, such as Mystic Mountain, are very busy. This provides opportunity for Mt Elliot to service this market.

There is opportunity to develop an events program for both paragliding and mountain biking at Mt Elliot which will boost visitation, and expenditure in the Upper Murray, as well as strengthen awareness of the precinct.

Executive Summary

Masterplan Vision

The following vision has been set for Mt Elliot Adventure Park which draws on extensive community and stakeholder engagement, site analysis and market assessment:

Mt Elliot will be an accessible, high quality and sustainable nature-based adventure attraction - offering a range of mountain biking, paragliding, hang gliding and hiking experiences that will strengthen Towong Shire's positioning as a regionally significant tourism destination.

Masterplan Objectives

The Mt Elliot Adventure Park Masterplan will seek to achieve the following objectives:

1. Provide for a diverse mix of active and passive, programmed and unprogrammed, recreation opportunities for all ages and skill levels.
2. Provide access to product and infrastructure that encourages physical activity and social connection amongst residents and visitors in the Upper Murray region.
3. Provide high quality outdoor adventure recreation products at the Mt Elliot Reserve that become destination drivers and bring economic benefit for Corryong and the broader region.
4. Maintain an appropriate scale of development and activation which minimises potential adverse environmental impacts.
5. Ensure the Park's activities are operationally sustainable in the long term.

Key elements of the Masterplan include:

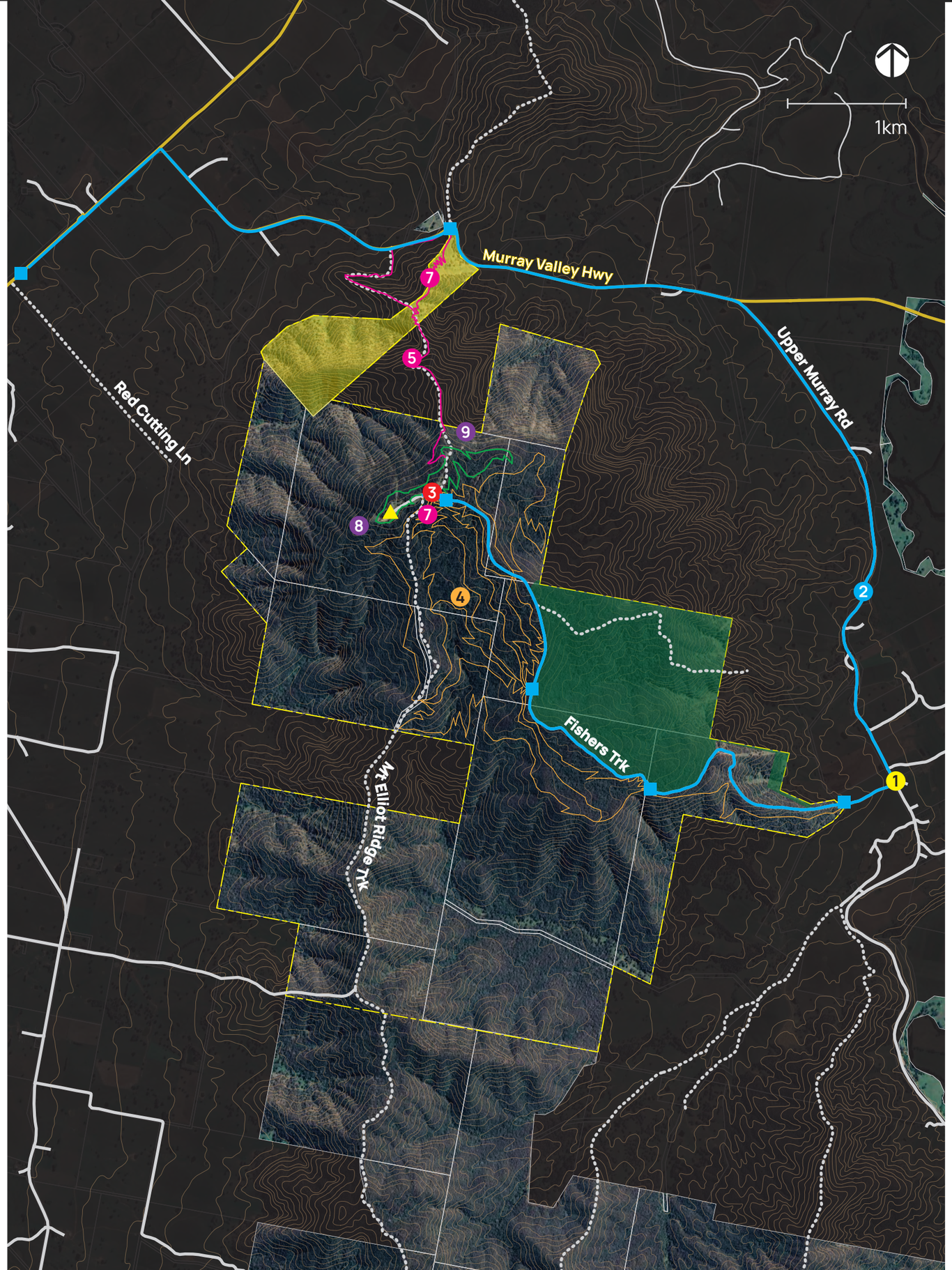
- Improved park entry – including signage, improved road quality and acquisition of land to support access
- Mountain bike network – 35 km network of mountain bike trails suited to all standards including cross country, slopestyle (jumps), flow trails and downhill
- Summit trailhead / visitor hub – facilities and visitor hub at the summit to service gliding and mountain biking
- Paragliding and hang gliding enhancement – improvement to launch sites
- Walking trail construction (including on-trail signage) – New walking trail from base to summit of Mt Elliot.

Key elements of the Masterplan are shown on the following page.

Economic Impact

The preliminary total project cost for the Mt Elliot Adventure Park is estimated at $2,816,615 (exc. GST).

The Mt Elliot Adventure Park is estimated to generate direct expenditure of $874,200 per annum in the Upper Murray. This equates to a total economic output of $1.65 million per annum and will generate 9 full time equivalent (FTE) jobs in the Hume Region.



LEGEND

- Special Protection Zone (SPZ)
- Grazing licence
- Private property
- Mt Elliot Summit
- 2WD road
- 4WD road
- Contour line (10m)
- Property boundary
- Proposed Mt Elliot Adventure Park boundary
- Proposed mountain bike trail
- Proposed shared rrail
- Proposed walking trail
- Proposed shuttle route & stops

DIRECTIONS

Access & Shuttling

1. Install new signage and gate infrastructure to establish visitor entry at Fishers Track via Upper Murray Road.
2. Develop a Bus Shuttle Route (supported by signage and shelters) for park users, considering stops at:
   - Red Cutting Lane (to pick up gliders)
   - Towong Gap Trail Car Park (to collect hikers)
   - Summit Trail Head; and
   - Each MTB trail hub.

Trailhead / Visitor Hub

3. Develop a visitor hub and trailhead at the Mt Elliot summit, comprising the following visitor facilities and amenity improvements:
   a. Bike racks and tool station,
   b. Tier 1 signage including maps, code of conduct, risk/liability mitigation, emergency procedures
   c. Formalised visitor parking
   d. Shuttle pick up and drop off zones
   e. Pop-up Events Centre / overflow parking
   f. Feeder trail leading into the gravity trails
   g. Speed limited shared zone
   h. Additional toilets
   i. Designated area for food trucks or kiosk

Mountain Bike Trail Network

4. Construct a mountain bike trail network comprising 16 trails (totalling 35km).

Walking Trails & Other Passive Recreation

5. Develop a walking trail from Towong Gap to the Mt Elliot Summit including four trail segments - Summit Loop (Shared Path), Summit Hike, Valley Views, Ridge Loop.
6. Undertake conservation work on heritage assets and construct interpretive signage or lookout points.
7. Install sheltered picnic facilities around the summit area and the proposed Valley Views lookout.

Paragliding and Hang-gliding Destination

8. Upgrade main launch site (NW) including re-surfacing, installation of removeable bollards and general landscaping.
9. Improve accessibility to the NE launch site including creation of parking, widening and resurfacing of launchpad and paths, and improved signage.

PART A

Introduction: Project Background & Masterplan Context

Project Background

Towong Shire Council (Council) appointed Urban Enterprise to prepare a tourism Masterplan and business case for the Mt Elliot State Forest Reserve, located in Victoria's North East approximately 7km east of Corryong.

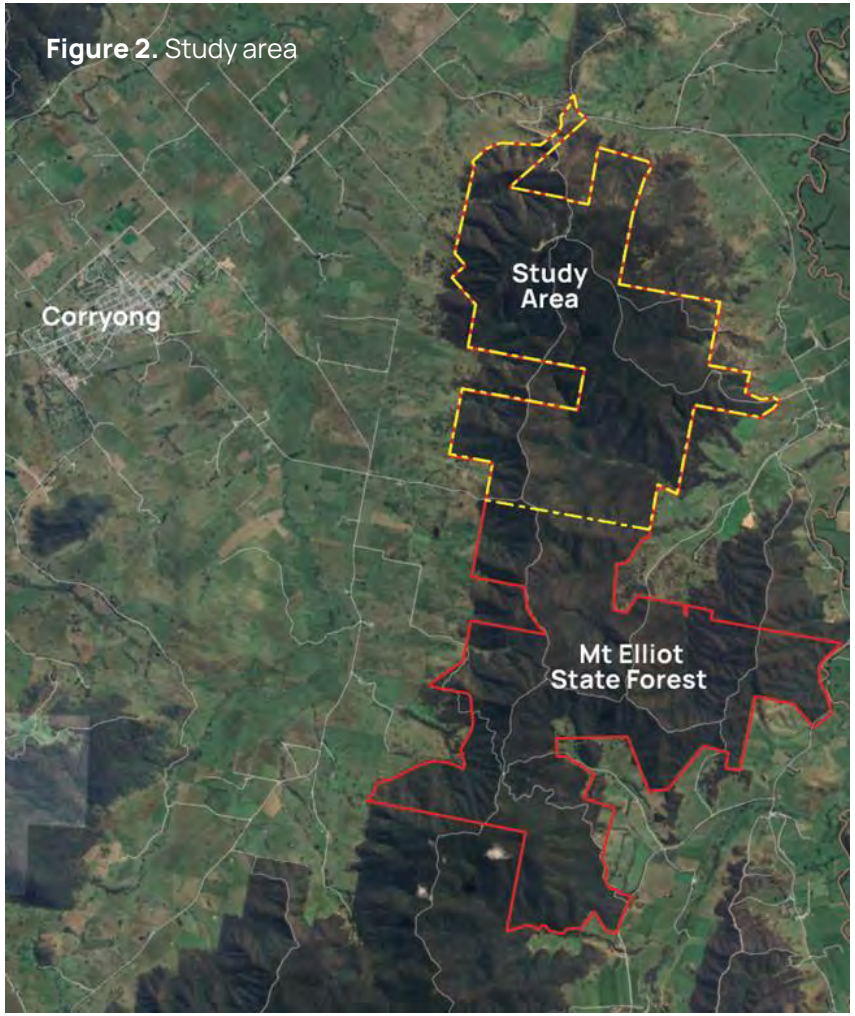
This project is being funded by the Victorian Government's Enabling Tourism Fund and will explore the enhancement of Mt Elliot as an adventure activities hub, with a focus on the establishment of a mountain bike park which will service the Upper Murray communities and visitors to the region.

The Reserve is currently a popular destination for paragliding, hang gliding and four-wheel driving but has potential to expand its existing facilities and accommodate other nature-based adventure activities.

The project objective, as outlined by Council is to **develop an accessible, high quality, and sustainable adventure destination product that leverages on the natural setting to provide both a community asset and tourism drawcard**. The Masterplan will deliver positive social and economic outcomes for the Upper Murray communities.

The study area includes the public land within the Mt Elliot State Reserve (See Figure 2).

Figure 1. Regional context



Project Approach

Figure 3 illustrates the approach adopted for the development of the Mt Elliot Adventure Park Masterplan.

Figure 3. Project approach

Stage 1: Background Research

- Strategic context review
- Tourism and socioeconomic context
- Analysis of existing conditions
- Site visits
- Market assessment

Stage 2: Stakeholder Consultations

- Project steering group (PSG) workshop
- Community information session
- Business and community survey (April 13 to May 7)
- Focus groups & 1:1 meetings

Stage 3: Issues and Opportunities

- Issues and constraints
- Development opportunities
- Preliminary MTB concept plan
- Technical assessments

Stage 4: Masterplan Development

- Concept plan refinement
- Cultural Heritage Management Plan
- Native Vegetation Assessment
- Completion of draft and final Masterplan

STAKEHOLDER ENGAGEMENT

Urban Enterprise and the project team have undertaken a targeted stakeholder engagement and consultation program to assist in the preparation of the Masterplan.

The following stakeholders have been consulted as part of the project:

Government

- Department of Energy, Environment and Climate Action (DEECA)
- Towong Shire Council (Council)
- Regional Development Victoria (RDV)
- Tourism North East (TNE)

Sports Clubs & Organisations

- North East Victoria Hang Gliding Club (NEVHGC)
- Hang Gliding Competitions Inc.
- ACT Hang Gliding and Paragliding Association
- Beechworth Chain Gang

Local Community Groups & Businesses

- Upper Murray Youth Working Group
- Corryong Community Recovery Committee

Broad-based community consultation was also undertaken through:

- Online Community & Business Survey: in-field from 13 April to 26 May 2023. A total of 69 responses were collected.
- Community Information Session: which was held on 26 April 2023. A total of 12 community members were in attendance.

Input obtained during these activities has been incorporated throughout the Masterplan.

Strategic Policy Context

The Mt Elliot Adventure Park Masterplan has been informed by planning strategies previously undertaken for Towong Shire and the broader Ovens Murray region. A summary of the project's alignment to key strategic documents, policies and reports is shown in Table 1.

Mt Elliot is recognised as a key strategic site for tourism development which is expected to bring economic and social benefits to Corryong township, surrounding Upper Murray towns and wider Towong Shire. The development of a mountain bike park is identified as a key project opportunity for the region, leveraging the Reserve's steep topography and unique landscape features.

The full strategic literature review can be found in Appendix A.

Table 1. Masterplan strategic context and alignment

Strategic Document	Relevant Strategic Directions & Actions	Strategic Alignment to Masterplan
Regional Strategies & Plans		
Ovens Murray Regional Economic Development Strategy 2022	Strategic Direction 2: Strengthen and diversify the visitor economy through leveraging the region's nature and epicurean tourism industries.	The Mt Elliot Adventure Park Masterplan will activate a key natural asset in Towong Shire that will drive visitor economy growth.
Victoria's High Country Destination Management Plan 2013 to 2023	Victorian High Country's (VHC) five product pillars are defined as: Cycle Tourism, Food, wine and beer, Snow, Nature-based experiences, Arts and Cultural Heritage. Priority projects set for the region include 'Ride High Country: Rail Trails' and 'Ride High Country: Mountain Bikes' which endeavours to elevate the VHC to the Australasian mountain biking and cycling destination of choice.	With established tourism pillars cycling and mountain-based recreation, Mt Elliot is well positioned to leverage off the High Country region's strong branding and marketing.
North East Victoria Cycling Optimisation Plan	The North East Victoria Cycling Optimisation Masterplan (NEVCO) identifies a range of projects that will offer cycle tourism growth opportunities for the High Country. The opportunity for a Mountain Bike Park in Mt Elliot is identified under Theme One (New and Enhanced Cycle Product and Experiences) of the NEVCO report.	The Mt Elliot Adventure Park Masterplan will aim to deliver a mountain bike park at Mt Elliot, a tier 3 project identified in the NEVCO report.
Local Strategies & Plans		
Towong Shire Economic Development Strategy (EDS) & Destination Management Plan (DMP) 2021 - 2025	The Mt Elliot Adventure Park is identified as a priority investment project for the Shire. It is well suited to the establishment of a shuttled gravity park. The shuttle services can support both hang gliding and mountain biking. Principles for Mt Elliot Gravity Park: • Support multiple gravity related recreation pursuits • Establish a range of gravity and flow trails for a variety of visitor markets • Use the steep vertical of Mt Elliot to support downhill mountain biking • Create linkages with Corryong • Encourage youth engagement in mountain biking • Encourage active recreation in Corryong. It is estimated the project will require $4 million of investment.	The Masterplan will aim to deliver the Mt Elliot Adventure Park project identified in the EDS and DMP. The principles set in the strategies will underpin the directions and actions presented in the Masterplan.

Strategic Policy Context

Table 1. Masterplan strategic context and alignment (cont.)

Strategic Document	Relevant Strategic Directions & Actions	Strategic Alignment to Masterplan
Local Strategies & Plans		
Towong Shire Council Plan 2021-2025	The Council Plan outlines to improve municipal outcomes in 6 key areas - Asset Management, Community Wellbeing, Economic and Tourism Development, Land-Use, Environmental Sustainability, and, Organisational Improvement. Key strategies relevant to the project include: • Deliver key projects to support economic, tourism and social development in the Shire • Continue to develop services and facilities to support long term population growth • Encourage active lifestyles and facilitate access to activities that have meaning to our community members in order to improve wellbeing • Strengthen the capacity of existing and new businesses to thrive • Expand tourism offerings, promotion and experiences across the Shire • Engage with our communities to ensure that decision making is informed by community needs.	The Mt Elliot Adventure Park Masterplan will add new tourism product to Towong Shire helping to increase visitation and attract more diverse visitor markets. This growth will help drive demand to existing tourism operators as well as investment into new businesses. The project will also deliver community benefits, encourage healthier lifestyles and improving amenity.
Towong Shire Mountain Biking Strategy 2021	Mt Elliot is identified as a key candidate site for a mountain bike park in the Strategy. The recommended concept to guide investment includes: • Trail Types: Flow Trails, Cross Country, Downhill, Traditional Old School Network • Recommended kms of Trail: 35km • Key Target Markets: Visitors, Upper Murray Community It was noted the following barriers be considered for future planning work: • Lack of resources to support trail maintenance. It will be important the mountain bike parks are supported by the community to assist with maintenance of trails • Small population to draw on to support mountain biking. However, mountain biking may increase the attractiveness of the towns for new residents • There is some distance to Melbourne which is the core visitor market for the High Country. Whilst this is a barrier, it also will encourage visitors to stay overnight and longer, increasing visitor yield.	The Masterplan will explore the feasibility of the MTB Park concept as recommended by the Strategy.

Towong Shire Health and Wellbeing Plan 2021 to 2025	Goal 1: A community that is safe and healthy.
	• Priority 1.1 people are supported to eat well and be physically active.
	  • Enhance infrastructure that encourages activity and open spaces
	  • Support sporting clubs and groups to improve physical activity
	  • Promote and support opportunities for active lifestyle choice.
		The Masterplan will deliver sport and recreation infrastructure for the community.

Tourism Context

Towong Shire is a rural Victorian municipality located on the border of Victoria and NSW, 4 hours (~350 kms) north-east of Melbourne.

The key tourism strength of Towong Shire is its natural amenity and nature-based assets. A major market opportunity for the Shire, identified in strategic work, is delivering cycle and walk experiences that meet demand from target segments. The terrain, natural amenity and nature-based assets of the Shire (including Mt Elliot) provide the base assets to attract these markets, with investment in infrastructure, experiences and promotion needed to further attract the market.

Leveraging the High Country Product Pillars

Towong Shire is located within Victoria's High Country, one of Victoria's leading tourism regions.

The region has built up its reputation as Australia's premier cycling destination, home to the most challenging alpine ascents and the largest selection of mountain bike parks. With established tourism pillars cycling and mountain-based recreation, Mt Elliot is well positioned to leverage off the High Country region's strong branding, marketing and existing pool of nature-based visitors.

Figure 4. Towong Shire regional tourism context

Map by Urban Enterprise, 2023.

Socioeconomic Context

Towong Shire is the largest municipality in the Hume Region (6,675 km^2), as well as the least populated (6,223 residents), making it one of the least densely populated areas in Victoria. This presents numerous challenges for Council, including service delivery, asset management and community and industry engagement.

Towong Shire is primarily known for agriculture, with a vast amount of productive farmland that comprises around 30% of total land in the Shire. This is the primary driver of Towong Shire's economy and employment, as well as its community identity.

Disaster Recovery

North East Victoria has been heavily impacted by multiple large-scale disasters, including bushfires in 2019/20, the COVID19 pandemic in 2020/22 and floods in 2022/23.

The events have significantly impacted township areas causing losses to homes and businesses along main streets and community facilities and schools. They also caused critical damage to farm infrastructure and emergency communication facilities, loss of thousands of livestock and agricultural land[1].

Recovery is expected to continue for several years, with trends still showing more businesses are exiting the Towong Shire economy rather than entering it[2].

Promoting Positive Community Health and Wellbeing Outcomes

As highlighted in the Shire's Health and Wellbeing Plan (adopted 2021), the municipality has experienced ongoing health and wellbeing challenges. Key health trends amongst the population, include:

- Less than half of the population meets the daily physical activity guidelines;
- 58% of residents are obese; and
- 30% of residents have been diagnosed with anxiety or depression.

As of 2021, Towong Shire has a SEIFA score of 1001[3] – which is just above the national average of 1,000. This ranks Towong Shire as the 39th most disadvantaged LGA in Victoria (out of 79).

Development of the Mt Elliot Reserve provides an excellent opportunity to deliver outdoor recreation facilities and increased opportunities for physical and recreational activity for Towong Shire residents, as well as attract new business and visitor spend opportunities for the local economy.

Table 2. Towong Shire socioeconomic context

	Towong Shire	Regional Victoria
Population (2021)	6,223	1,576,613
Projected Growth (2021 to 2036)*	+160 (+0.3%)	+324,000 (+2.0%)
Medium Age (2021)	52	43
Children (Aged 0 to 14) (2021)	965 (15%)	276,732 (18%)
Population Aged Over 65 (2021)	1,781 (29%)	1,576,606 (22%)
Are Aboriginal and/or Torres Strait Islander (2021)	1.8%	2.0%
Median Weekly Household Income	$1,282	$1,386
Unemployment Rate (Mar, 2023)	3.1%	3.1%
% Residents with a Diploma Qualification or Higher	23%	27%
Top 3 Industries by Employment	Ag, Forestry, Fishing (25%) Health Care, Social Assistance (15%) Construction (9%)	Health Care, Social Assistance (17%) Construction (10%) Retail Trade (10%)

Source: Australian Bureau of Statistics, 2021 (unless stated otherwise). Unemployment rate sourced from National Skills Commission Small Area Labour Markets June 2022

[1] Towong Municipal Recovery Plan 2019-2021, Towong Shire Council
[2] Towong Shire Health and Wellbeing Plan 2021 to 2025, Towong Shire Council, pg. 11.
[3] Socio-Economic Indexes for Areas (SEIFA), Australian Bureau of Statistics (ABS), 2021

PART B

Site Assessment: Existing Conditions & Development Constraints

Land Ownership and Management

As shown in Figure 6 (page 20), the core forested area of the Mt Elliot State Reserve is owned by the Department of Energy, Environment and Climate Action (DEECA). The management, land use activities and maintenance of the site relies on coordination of activities between several stakeholder groups.

Table 3 summarises the landowners and managers, current land uses, responsibilities, capabilities, and access requirements.

Table 3. Mt Elliot Reserve existing landowners and managers

Stakeholder Group	Management Responsibilities	Capabilities & Access Requirements
Department of Energy, Environment and Climate Action (DEECA)	• Government body that owns and manages the Mt Elliot Reserve (public land manager) • Responsible for bushfire and environmental management • Building and maintenance of basic public infrastructure including access roads, walking trails, public toilets • Protect assigned forest management zones and other designated conservation areas • Issue licences or permits for specific land uses i.e. grazing and hunting	• Require access 3 – 4 times a year for management activities i.e., controlled burns and clearing of access roads and trails. • Priority for resources is environmental management rather than recreation and/or tourism. • Funding and resources are already at capacity.
HG Comps Inc.	• Not-for-profit, established in 2020. • Responsible for organising hang gliding and paragliding competitions. • Secure sponsorships with local businesses to fund activities • Responsible for building and maintaining the landing site, 'bomb out' site and fencing stiles, windsocks, etc. • Manage informal arrangements with landowners for access to emergency 'landing paddocks'. • Educate new gliders on protocol and general etiquette when accessing private land and how to engage with landowners	• Not-for-profit, volunteer-based and recently established in 2020. • Require somewhat exclusive access to the summit are for competitions (50 to 60 days per annum). • Rely on goodwill of landowners for access to landing paddocks. • Require shuttle services up and down the mountain.
Private Landowners	• Own land surrounding the Mt Elliot Reserve including select segments of Fishers Track (see Figure 6) • Use the land for primarily horse, cattle, sheep farming and their place of residence.	• Maintain public/private access to their land through fencing and gates. • Only permit activities that are low impact and will not cause major disturbance to livestock. • Small residential population and no local clubs available to support additional tourism activities.

Access, Infrastructure and Landscape Features

Access and Service Infrastructure

Mt Elliot is located approximately 20 minutes' drive from the townships of Corryong and Khancoban. There are three key access roads into the Mt Elliot Reserve including:

- Fishers Track (2WD), the primary access point, via Murray Valley Hwy
- Mt Elliot Ridge Track (4WD) via Thowgla Rd
- Fishers Track (2WD) via Upper Murray Rd.

All roads to Mt Elliot pass through private land, are unsealed and have limited 2WD access.

There is a network of existing fire roads throughout the Reserve, in varying condition. The roads are managed and maintained by DEECA. Consultation with DEECA indicates there are currently no plans to upgrade roads within the Reserve.

There is limited power onsite but no water, gas or sewerage infrastructure. Except for a toilet located at the summit, there is no formal visitor infrastructure in place, including formalised car parking, rubbish bins, shelter or seating.

Although Mt Elliot does not currently have on-mountain product to accommodate visitors, it is in close proximity to the Corryong township which has retail, food, beverage and accommodation. Thus, through leveraging visitors, tourism development on Mt Elliot is expected to bring additional economic and social benefit to the local community.

Landscape Features and Aspect

As identified in previous strategic work, Mt Elliot is ideal for gravity fed flow trails with an impressive and steep vertical of 550 metres, but can also accommodate a variety of other MTB and walking trails.

The existing vegetation is a mix of low-to-moderately dense forest and open grassy areas which appear to be good for trail building.

The open areas provide high quality views of surrounding landscape, including picturesque farmlands, the Main Range (Including Mt Kosciuszko) and the Murray River to the east.

There are number of heritage assets including Fishers Hut, Lebner's Hut, and other mining related historical sites located throughout the Reserve.

Figure 5. Mt Elliot landscape character and views

A. Fishers Track Road Condition
B. Mt Elliot Reserve Vegetation
C. East Views from Fishers Track
D. North-West Views from the Mt Elliot Summit

These views and assets provide for excellent potential features on a mountain biking or hiking trail.

Planning, Heritage and Environmental Policy Constraints

PLANNING ZONES AND OVERLAYS

The Mt Elliot and surrounds is subject to several planning zones and overlays (shown in Figure 8). An overview of their purpose and implications for the Masterplan are summarised below.

Public Conservation and Recreation Zone (PCRZ)

The Public Conservation and Recreation Zone (PCRZ) applies to the entirety of the Mt Elliot Reserve. The purpose of the PCRZ is:

- To protect and conserve the natural environment and natural processes for their historic, scientific, landscape, habitat or cultural values.
- To provide facilities which assist in public education and interpretation of the natural environment with minimal degradation of the natural environment or natural processes.
- To provide for appropriate resource-based uses.

Most tourism uses including a camping and caravan park, informal outdoor recreation, interpretation centre, or kiosk do not require a permit as long as it permitted by, or conducted on behalf of, the public land manager (in this case, DEECA).

Bushfire Management Overlay (BMO)

The Bushfire Management Overlay (BMO) applies to the whole of the Mt Elliot Reserve due to the dry conditions of the area. The purpose of the BMO is:

- To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.
- To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.
- To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level.

The BMO may prohibit the development of select infrastructure or activities that pose a bushfire risk to the Mt Elliot Reserve.

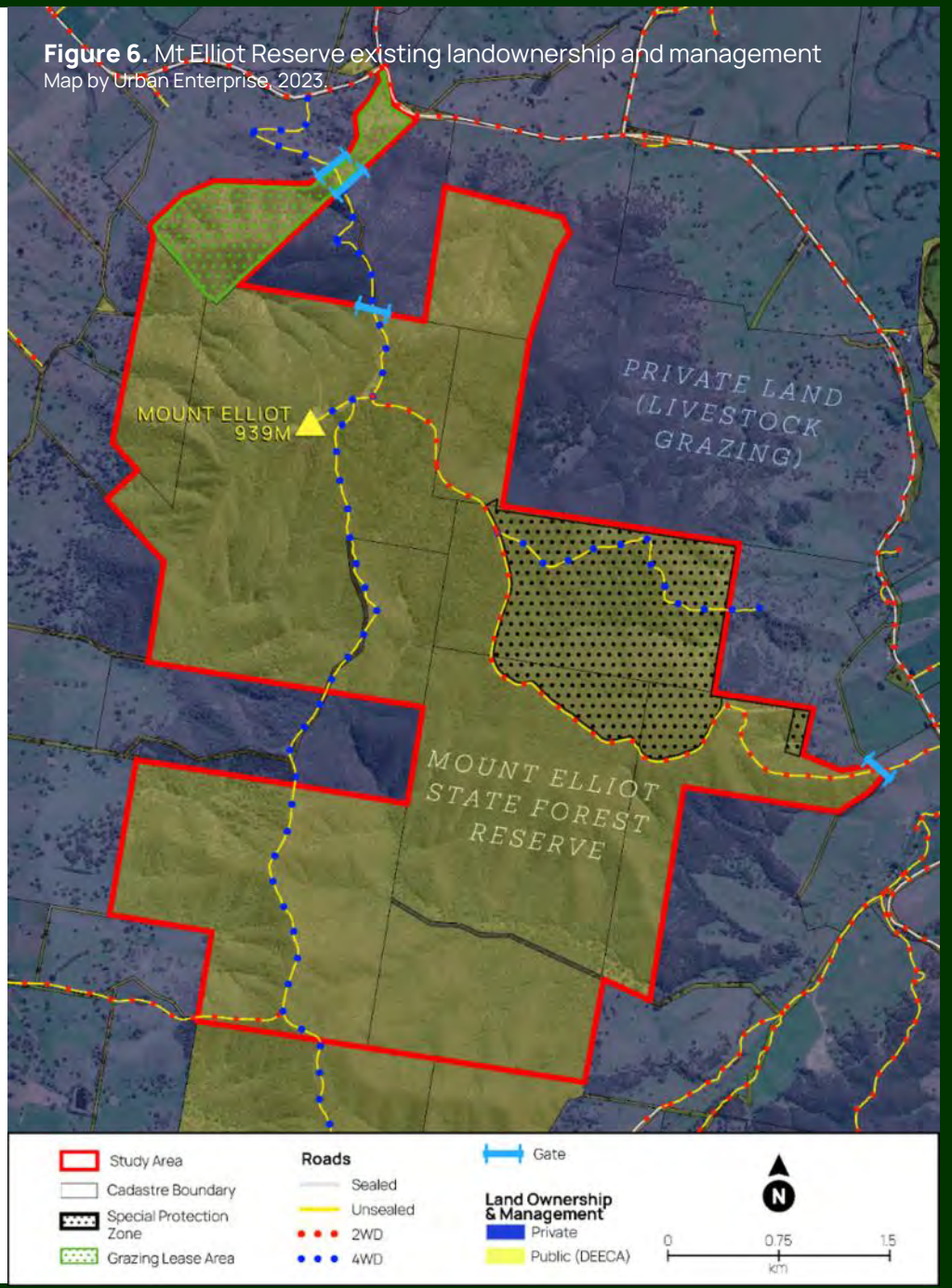


Figure 6. Mt Elliot Reserve existing landownership and management
Map by Urban Enterprise, 2023.

Planning, Heritage and Environmental Policy Constraints

FOREST MANAGEMENT ZONES

Special Protection Zone (SPZ)

There is a Special Protection Zone on the west side of the Reserve (see Figure 6). The Mt Elliot SPZ is designated for the protection of Old-growth values of Shrubby Dry Forest (Ecological Vegetation Class 21).

In accordance with the Victoria Forest Management Scheme, timber harvesting operations and other land clearing activities are generally prohibited within SPZs.

It is expected that any development or works requiring the removal of vegetation in this area will not be permitted.

SPECIAL USE LICENCES

Grazing Licence

There is an agricultural grazing licence for a single property on the northern periphery of the Reserve. The lease is automatically renewed on an annual basis with a paid fee.

The property is the only section of public Reserve with direct access to the Murray Valley Hwy, opening long term opportunities to develop a walking trail or alternative access road.

DEECA has advised the following process must be undertaken to alter or cancel any existing licences:

1. Council would initiate a preliminary consultation with DEECA and any current licence holders to pitch the proposed new use and define what action is being pursued (i.e. alteration or termination).
2. If DEECA is generally in support of the proposal, they will lead a second round of consultations with Council and existing licence holders to determine a fair and reasonable outcome for all parties.
3. Following DEECA's decision, current licence holders may appeal the decision, leading to further rounds of negotiations.

Timeframes could take weeks to months depending on the complexity of the proposal, number of licence holders, decisions to appeal, and availability of parties to meet.

Hunting Licence

Seasonal hunting of birds, pests and hog deer is permitted across the whole of Mt Elliot Reserve. Gundogs allowed for flushing or retrieval are also permitted for licenced hunters.

Mt Elliot Reserve's designation as a hunting area will need to be removed, prior to developing the Park for family outdoor recreation activities.

CULTURAL HERITAGE SENSITIVITY AREAS

At present, no areas of cultural heritage sensitivity have been identified on Mt Elliot. Further assessment of the site will be required during the detailed design stage.

Existing Activities and Recreation Infrastructure

PARAGLIDING AND HANG GLIDING

Infrastructure and Operations

Mt Elliot is used regularly for paragliding and hang gliding for training and competitions. Its location near the Victoria and NSW border draws a broad catchment of flyers.

Mt Elliot is considered a very safe XC flying site due to the wide-open valleys and relatively consistent conditions, which enables cross country flying to the North, West and South.

An overview of existing gliding infrastructure is shown in Figure 9. There are currently two launch sites:

- **Main take off (NW)** – Located at the Mt Elliot summit at 932 m ASL. It is a prepared earth ramp suitable for 1 PG/HG at a time. A weather tower and public toilets are also located at the summit.
- **Mother-Wilson take off (NE)** – Located 900 m ASL. The north-east launch is located 100m from the summit, east of road.

The primary bomb-out site (LZ) is located on the property bordering Red Cutting Lane. The landing site is marked by a row of trees and windsocks. The landing site is not currently secured through a lease agreement. It is has been noted there is good alignment between the main launch site and the LZ which makes for an efficient retrieval system.

There is no formalised parking at the summit. Gliders utilise private shuttling from the launch site to their landing area.

Consultation indicated that regular use of commercial shuttles would not be viable due to low usage. However, there may be opportunity and interest for a shared shuttle service with other activities (i.e. mountain biking) during peak periods.

Works to establish a PG/HG club for the Upper Murray region are currently underway. There is opportunity for the future local PG/HG club to lead or support site operations, maintenance, and activities at the Park.

Competitions and Other Events

A schedule of events and activities on Mt Elliot in a typical year is summarised in Table 4. The majority of events and training sessions are facilitated through HG Comps.

There are two commercial operators that use Mt Elliot including Sky Out Paragliding and Sydney Paragliding who provide flight training and other experiences. The SkyHigh Paragliding Club, based in ACT, also hold a fly-out event with up to 100 attendees.

On average, five gliding competitions are held on Mt Elliot per annum, amounting to approximately 30 to 40 days a year. The most significant events include the Flow Corryong Cup (Paragliding) and Corryong Cup (HG), which are national competitions that attract interstate and international pilots.

Due to the limited infrastructure at the summit, amenities such as marque shelters, water stations and seating must be supplied by HG Comps, often through event sponsors.

Consultation with HG Comps and other gliding associations identified growing the number of domestic and international gliding competitions as a key opportunity for Mt Elliot.

In order to attract these events, the following upgrades would be required for the main launch site:

- Additional amenities for event operations (i.e. bollards); and
- Improved accessibility for solo and international flyers.

Development of new activities (i.e. mountain bike park) should consider traffic planning near the summit area, as near exclusive access to the summit area is required on gliding competition and training days.

Table 4. Mt Elliot existing paragliding and hang gliding competition and events summary

	Events	Days	Visitors
Paragliding	8	39	
Hang gliding	2	14	
Total	10	53	
Competition	5	33	178
Flight Training	4	16	130
Club Fly-out	1	4	100
Casual Flys	n.a.	n.a.	n.a.
Total	10	53	408

Source: HG Comps, 2023

Existing Activities and Recreation Infrastructure

Figure 7. Mt Elliot paragliding and hang gliding infrastructure and events

A. Mt Elliot Summit Area: Weather Tower, Toilet Block

B. Main Take Off (NW) Launch Site

C. Mother-Wilson Take Off (NE) / North Lookout Site

D. Corryong Cup 2023 – Hang gliders in the Landing Zone

E. Corryong Cup 2023 – Mt Elliot Summit Parking

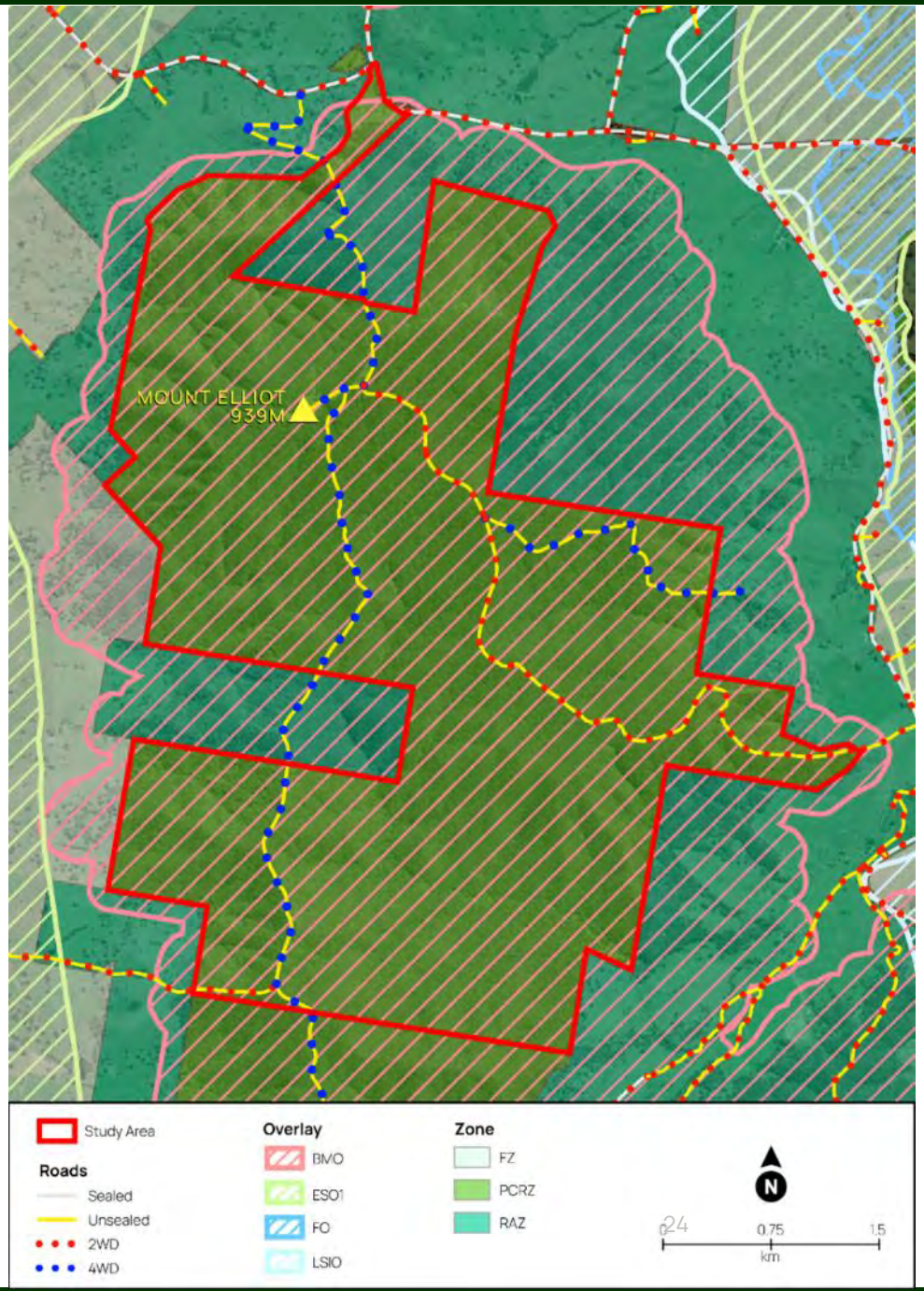
F. Flow Corryong Paragliding Open 2022: Paragliding wings being stored under trees.

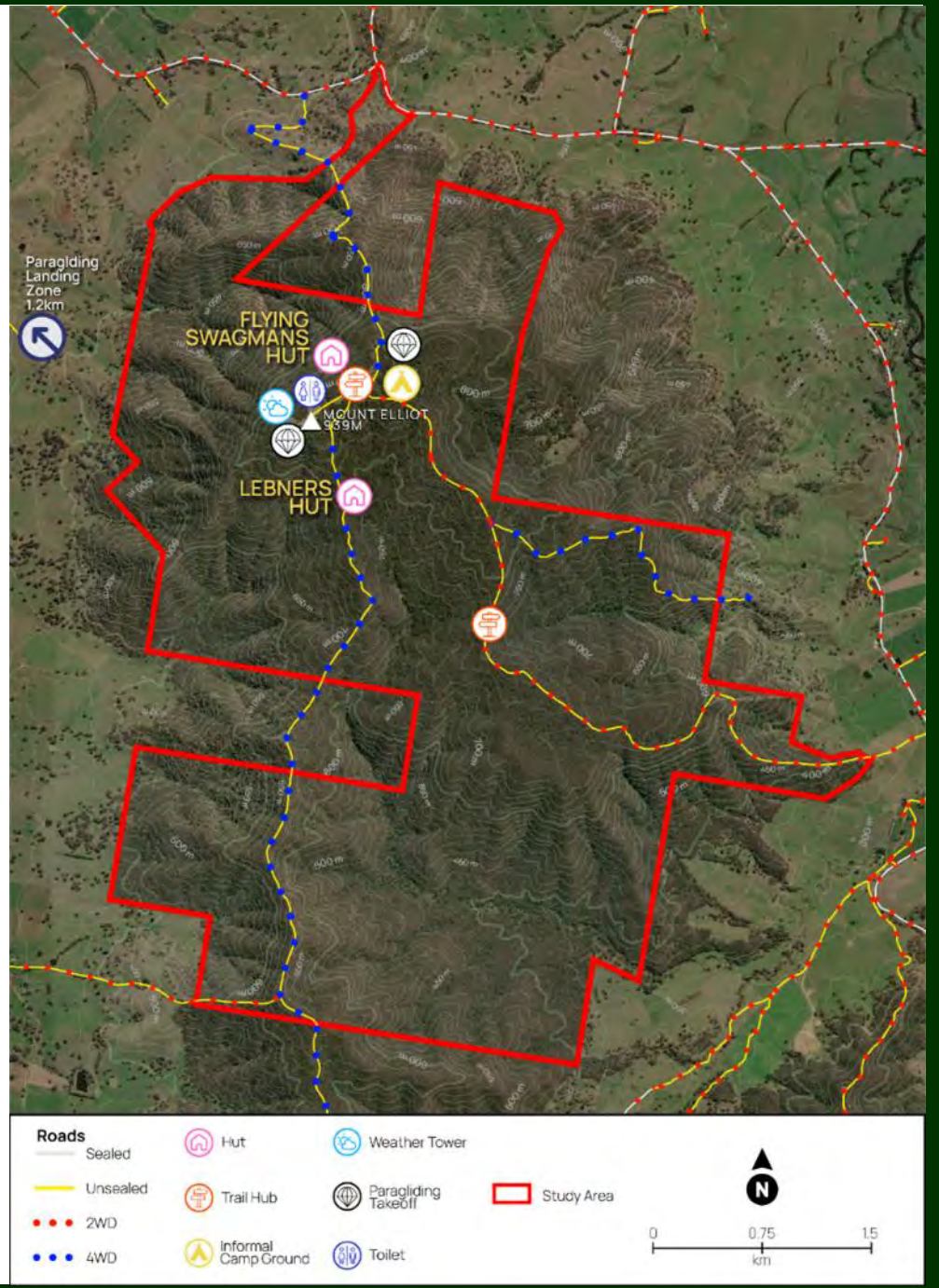
G. Flow Corryong Paragliding Open 2022

Image Source: HG Comps 2023 & ACTHPA, 2023

Figure 8 (left). Mt Elliot Reserve planning zones and overlays

Figure 9 (right). Mt Elliot Reserve existing infrastructure and landscape features





Map by Urban Enterprise, 2023.
Data Source: Victoria Planning Scheme

Existing Activities and Recreation Infrastructure

TRACKS AND TRAILS

There is an existing network of informal tracks and trails on Mt Elliot Reserve for numerous activities including dirt biking, motor biking and four-wheel driving. Through consultation, community members have reported these tracks are used by young adults frequently for casual dirt bike rides and are also being used for small local events from time to time. Some of the trails have been marked and named by the local users.

The heat map shown in Figure 10 sources data from Strava - a physical exercise tracking application which collects data from millions of users around the world. The map displays all data for cyclists (including motorcyclists) in orange and red, and shows significant usage of the private land in the north east of the Reserve.

Overall, these findings show there is an excellent opportunity to deliver formal mountain biking infrastructure for the local community through the Adventure Park Masterplan. The Masterplan will need to ensure any proposed development includes safe separation between any existing and new users' groups. Any removal or change to existing infrastructure as part of the masterplan should be clearly communicated to existing user groups.

Name Plaques of Existing Dirt Bike Trails
Photo: Leigh Hollands, 2023

Figure 10. Cycling activity heat map

Source: Strava Global Heatmap, 2023

PART C

Development Context : Market Potential & Competitor Analysis

Overview of Target Markets

The Mt Elliot Adventure Park has the potential to attract various visitor markets.

Key markets identified, include:

- Residential Market
- Visitor Market
- Mountain Biking and Cycling
- Paragliding and Hang Gliding

This section summarises the visitor and population trends of each market's predefined catchment area (summarised in Table 5).

It is noted that the catchment used for the residential and visitor assessment is defined as Towong Shire, as well as Wodonga (LGA) and Albury (LGA), due to their relative proximity and role as major population and visitor centres.

Table 5. Mt Elliot Adventure Park Key Visitor Markets

Catchment Area & Market Size	Demographics & Travel Patterns	Implications
Residential Market Towong Shire: 6,200 Albury-Wodonga : 93,300 Total: 106,000	• Towong Shire: 35% adult couples • Albury-Wodonga: Families with children make up almost 40%.	• Mix of low and high intensity activities for diverse age range • Need to leverage Albury-Wodonga family market
Visitor Market Towong Shire: 249,000 Albury-Wodonga : 1.9M Total: 2.13M	• The majority are aged 50+ years • Most are daytrip visitors • Primarily visiting for holiday and leisure purposes	• Highlights need for lower intensity recreation activities • Need to leverage Albury-Wodonga nature-based market
Mountain Biking Market Approx. 27,000 mountain bikers in the Towong, Albury and Wodonga LGAs	• Majority of Victorian and NSW are based in metro areas (76%) • Higher household incomes • High proportion of family groups	• Need to cater to diverse range of ages and abilities
Gliding Market VIC, NSW and ACT: 2,010 Australia: 3,500	• Average age is 50 years	

Sources: TRA, National Visitor Survey and International Visitor Survey and SAFA

Residential Market

Towong Shire has an approximate residential population of 6,200, with 23% of residents living in Corryong. The population of Albury Wodonga is substantially larger, with approximately 99,300 residents.

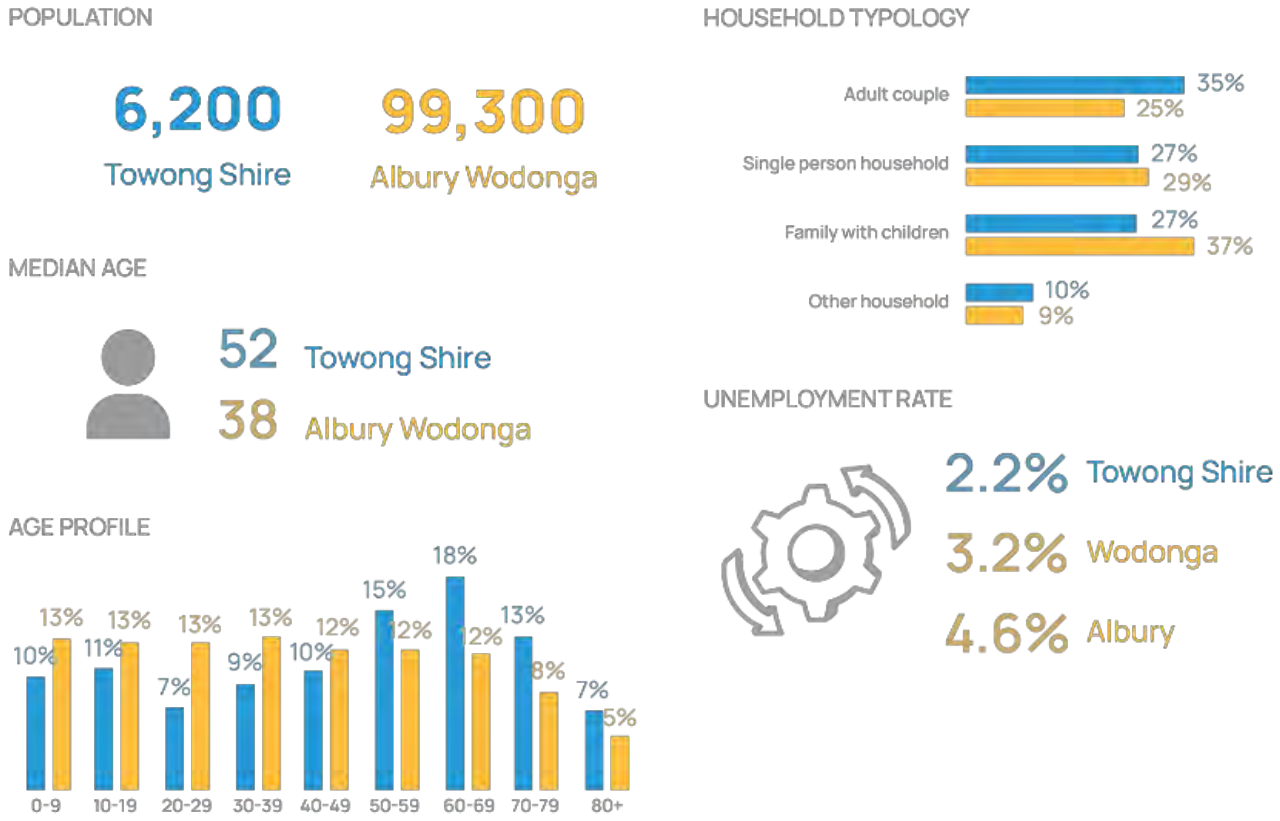
Towong Shire's population is expected to grow at an average annual growth rate of 0.78%, reaching just under 7,000 residents in 2036. Albury Wodonga has a much stronger growth rate; expected to reach 132,000 by 2036 at a rate of 1.9% per annum.

The demographic profile of Towong Shire residents varies considerably compared to that of Albury Wodonga. Towong Shire is primarily comprised of older residents with a median age of 52 but a lower rate of unemployment. Albury Wodonga has a comparatively younger resident population with a median age of 38.

Households in Towong Shire primarily comprise of adult couples, whereas families with children make up the majority of households in Albury Wodonga.

The majority of visitation from the residential market will likely be driven by the Albury Wodonga residents due to the region's large population and expected population growth over the next 10 years.

Figure 11. Residential Market Snapshot



Source: Census of Population and Housing, Australian Bureau of Statistics, 2016 and 2021. Unemployment rate sourced from National Skills Commission Small Area Labour Markets June 2022.

What did we hear from the Community?

Table 6 shows a summary of key findings from community consultations undertaken for the Masterplan. Results highlighted the need for the Masterplan to provide balance of both high and low intensity recreational opportunities.

Table 6. Community consultation summary

	Community Survey	Youth Information Session	Community Information Session
No.	69 responses	20 attendees	12 attendees
Demographics	• 48% aged 50+ years • 58% were Corryong residents • 89% have visited Mt Elliot	• Secondary school aged • About half have visited Mt Elliot	Mix of residents, business owners and community leaders
Preferred Activities	• Passive and low intensity • Hiking trails (73%), • Picnicking and BBQs (74%), • Heritage trails (56%), • Four-wheel driving trails (56%) • Soft surface trails (47%)	• High intensity - flying fox or high ropes course, diverse MTB trails • Events and competitions organised by school or local clubs • Short / day trails with interpretive elements	• Activities for all ages and families • Short or day experiences e.g. short trails, lookout points • Major events including paragliding, trail running, marathons, etc. • Motorbike, mountain biking and hiking/cycling trails
Infrastructure and Services Required	• Improved road access (84%), • Picnic and BBQ facilities (77%), • Improved car parking (58%) • Formalised tracks and trails	• Transport services from Corryong e.g. bus with bike racks • Car park with drop off zone • Bike repair station • Camping areas with visitor amenities	• Improved road access • Upgraded paragliding facilities • Lookout points • Directional and interpretive signage • Chairlift

Visitor Market

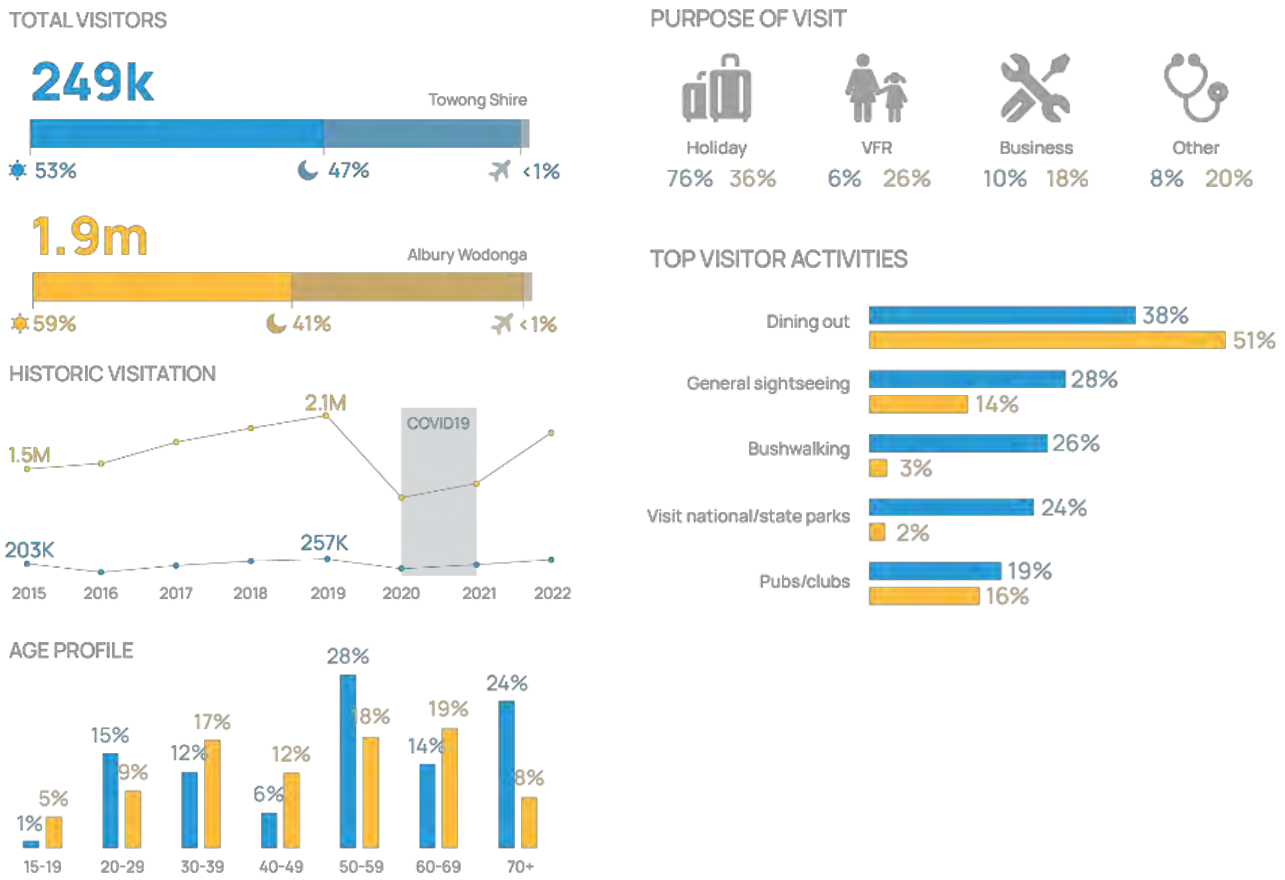
In 2022, Towong Shire attracted approximately 249,000 visitors. Due to the lack of accommodation stock and visitor experiences available, Towong Shire is primarily a day trip destination, seeing approximately 148,000 domestic day trip visitors (53%) annually. The regions' visitor market is also comprised of 102,00 domestic overnight visitors (47%) and 200 international visitors (<1%).

Prior to the COVID19 pandemic, both Towong Shire and Albury Wodonga were experiencing steady growth in visitation, peaking at approximately 257,000 and 2.1 million visitors in 2019 respectively. The majority of visitors to Towong Shire are older, with majority aged 60 years and older (38%). Where as, Albury-Wodonga has a relatively even spread of visitors.

Visitors to Towong Shire and Albury Wodonga are primarily visiting for holiday and leisure purposes. This presents as an opportunity to draw holiday and leisure visitors who are seeking a passive nature-based experience to Mt Elliot, as well as other adventure based experiences.

Engagement with the natural assets and participation in nature-based activities is comparatively higher in Towong Shire than Albury Wodonga. There is opportunity to increase engagement with nature-based experience amongst the natural landscape through the development of new tourism products and experiences.

Figure 12. Towong Shire 2022 visitor snapshot



Source: Tourism Research Australia, National Visitor Survey and International Visitor Survey. Unless stated otherwise, this data is for the 2022 calendar year only. Please note: Activities data is for domestic overnight and domestic day trip visitors only.

Visitor Market

VISITOR FORECASTS

The following provides a 10-year visitation forecast to Towong Shire and Albury Wodonga, with consideration of:

- Historical Growth Rates based on a five-year pre-COVID19 average growth rate (2015 to 2019)
- Midpoint Growth Rate based on the midpoint of the above.

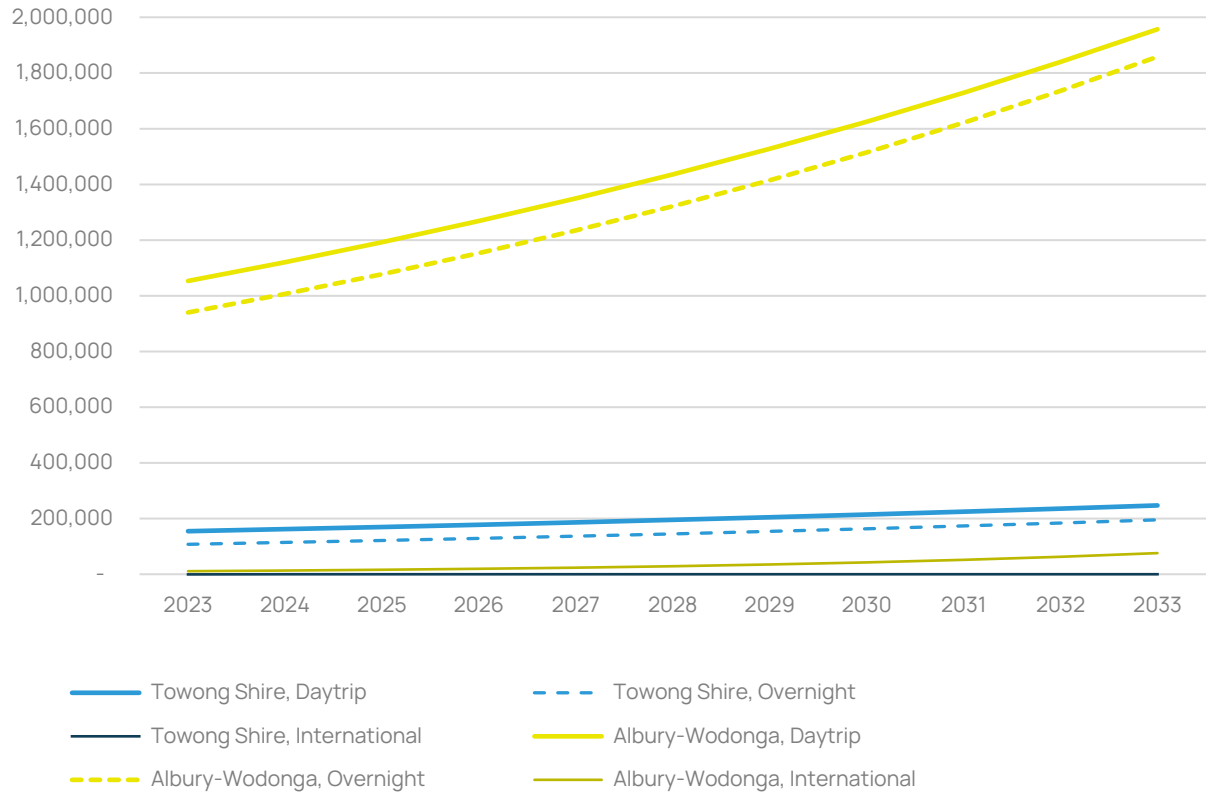
For the purpose of this report, the midpoint growth rate has been used. Forecast growth does not take into account macro-economic impacts such as recession and cost of living pressures impacting on leisure travel.

Forecast visitation modelling estimates that Towong Shire will attract up to 443,000 visitors annually by 2033 – equivalent to an additional 18,000 visitors per annum. Visitation to Albury Wodonga is set to almost double over the same period.

The majority of visitation growth will be driven by the Albury Wodonga visitor market due to its substantial accommodation base.

Figure 13 provides visitor forecasts broken down by visitor typology. It is predicted that visitation growth in Towong Shire will be primarily driven by overnight visitors at an average annual growth rate of 6.1%.

Figure 13. Forecast visitation by visitor type



Source: Urban Enterprise 2023, based on Tourism Research Australia (TRA) National Visitor Survey (NVS) and International Visitor Survey (IVS)

Mountain Biking and Cycling Market

A mountain bike park has been identified as the key opportunity for the Mt Elliot Reserve, therefore it is important to understand the mountain biking market. The following provides an overview of types of mountain bike users, trail types, participation trends, demographics and the benefits of mountain biking.

MOUNTAIN BIKING SEGMENTATION

Table 7 provides an overview of the different mountain bike users. Table 8 summaries the range of different mountain biking trail types.

Mt Elliot is well placed to deliver a range of trail types which expand its market potential. The focus should be on delivering trails for the large and growing market of cross country, all mountain, and gravity riders. Consultation has also suggested the inclusion of beginner focused gravity trails, to increase inclusiveness of the Park, enable young/beginner riders to graduate to more technical trails over time and develop a strong cycling culture amongst the region's youth.

Table 7. Mountain bike trail user types

Type	Description	Potential Market
Leisure	Includes general cyclists of all ages and abilities and is potentially the largest market. Typically, they ride infrequently, often have limited skills and require very accessible trails. They are not members of clubs and they are more likely to use highly accessible routes close to home or make the journey to trail facilities with amenities and services such as bike hire, cafés and toilets.	Significant
Enthusiast	Enthusiasts are purely recreational mountain bikers with moderate skills and variable fitness, and ride weekly. They are typically aged 29-49 and form the majority of mountain bike riders. They typically don't compete in events and they possess limited outdoors experience. They prefer trails with good trail signage and seek technical but not too challenging trails. Enthusiast Mountain bikers are the most likely to take short breaks to different areas.	Significant
Sport	Competitive mountain bikers, who ride regular routes multiple times a week and are members of mountain bike clubs, they are a small but influential market. They are willing to seek less accessible trails, have a high fitness level and are technically proficient but may have limited outdoor skills. They ride a very wide variety of trails.	Small but influential
Independent	Skilled outdoor enthusiasts who ride once a week and are technically proficient with good level of fitness. Generally, they are a small market. Often involved in other outdoor activities, they a capable of planning their own rides and ride a very wide variety of trail classifications. The adventurous aspect is more important than the technical challenge and they seek more remote trails.	Small
Gravity	Highly skilled technical riders who seek very challenging trails, typically ride at least once a week and are often members of clubs. They represent a small market that requires purpose built trails, which are repeatedly used in a concentrated manner. Gravity riders seek specific trails with the highest classifications.	Small but growing rapidly

Source: Australian Mountain Bike Trail Guidelines 2023.

Mountain Biking and Cycling Market

Table 8. Mountain bike trail types

Type	Description
Cross Country (XC)	Primarily single-track orientated with a combination of climbing and descending, and natural trail features of varying technicality. Cross Country trails appeal to the majority market and can cater for timed competitive events. Typically, bikes are lightweight with shorter travel dual suspension or have no rear suspension.
Flow (FL)	Flow trails typically contain features like banked turns, rolling terrain, various types of jumps, and consistent and predictable surfaces. Flow trails do not contain abrupt corners or unforeseen obstacles. Bikes are typically light-medium weight with medium-travel dual suspension.
All Mountain (AM)	Similar to Cross Country and primarily singletrack orientated, with greater emphasis on technical descents, with non-technical climbs. All Mountain trails can cater for timed competitive events. Bikes are typically light-medium weight with medium-travel dual suspension.
Gravity / Enduro (GE)	Similar to All Mountain with greater emphasis on steep, fast, technical descents. Gravity / Enduro trails can cater for timed competitive events. Gravity / Enduro trails appeal to more experienced riders who enjoy technical descents but are still happy to ride back to the top of the trail. Bikes are typically medium to long travel dual suspension and are built for strength.
Downhill (DH)	Purely descent only trails with emphasis on speed and technical challenge and focus on skill development. These trails can cater for timed Downhill competitive racing. Downhill trails typically appeal to the more experienced market, however green (easy) downhill trails are emerging to cater for all experience levels. Downhill trails usually require uplift to the trailhead via chairlift or vehicle shuttling. Bikes are designed for descending and are typically long-travel dual suspension and built for strength overweight.
Freeride (FR)	Typically, descent focused trails with emphasis solely on technical challenge and skill development. Trails feature both built and natural terrain technical features with a focus on drops and jumps. Appeals to the more experienced market and caters for competitions judging manoeuvres and skills only. Bikes are typically medium to long-travel dual suspension and are built for strength.
Park (PK)	Built feature environment with emphasis on manoeuvres, skill development and progression. Appeals to wide market including youth and can cater for competitions judging aerial manoeuvres. Can include Jump and Pump Tracks and Skills Parks. Typically, dirt surfaced but can include hardened surfaces. Bikes are typically built for strength, with short travel suspension.
Touring (TO)	Typically, long distance riding on reasonably uniform surface conditions and lower grades. Touring trails are dual direction linear trails or long-distance circuits with a focus on reaching a destination. Touring trails can include rail trails, access/fire roads and single track. While there is a limited market for long distance mountain biking, touring trails can be ridden in sections making them accessible to all. If carrying panniers bikes are usually robust with limited suspension, however, for short sections or day trips most mountain bikes are suitable.

Source: Australian Mountain Bike Trail Guidelines 2023.

Mountain Biking and Cycling Market

MARKET SIZE AND PARTICIPATION TRENDS

Mountain Biking and more broadly cycle tourism has undergone significant growth in recent years.

In the last 5 years, Mountain Bike Australia reported a membership increase of 60%, equating to 17,625 members across Australia.

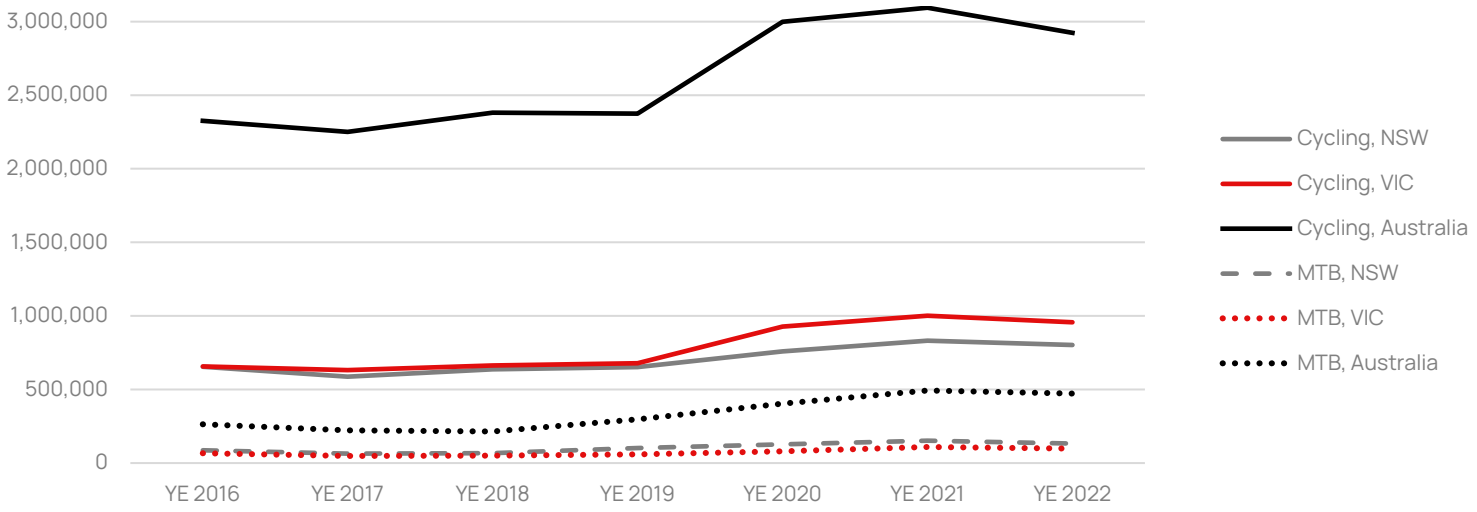
Figure 14 shows the growth in cycle participation. Since 2016, the mountain bike and cycling markets have experienced similar growth in participation. Victoria and NSW make up the greatest proportion of the cycling and mountain bike market in Australia.

Mt Elliot is well placed to leverage from the growing demand for cycling and mountain bike product.

Locally, it is estimated that the total Towong Shire cycling market from the residential and visitor markets is approximately 41,700 people, while the current mountain biking market is estimated at 11,500[4].

It is estimated that Towong has the potential to increase its visitor mountain biking market by approximately 8,300 visitors per annum if development aligns to the recommended concepts in the strategy. This would result in a total mountain biking market of 19,800 should investment occur in mountain biking as specified in this Masterplan.

Figure 14. Growth in cycling participation - 2016 to 2022



Source: Australian Sports Commission, 2016 to 2022.

[4] Towong Mountain Biking Strategy, Urban Enterprise, 2021.

Mountain Biking and Cycling Market

DEMOGRAPHIC PROFILE

The following data has been sourced from the Australian Sports Commission. A five-year average inclusive of the years from 2016 to 2019 and 2022 has been used to analyse Victorian and NSW residents who participate in mountain biking and cycling.

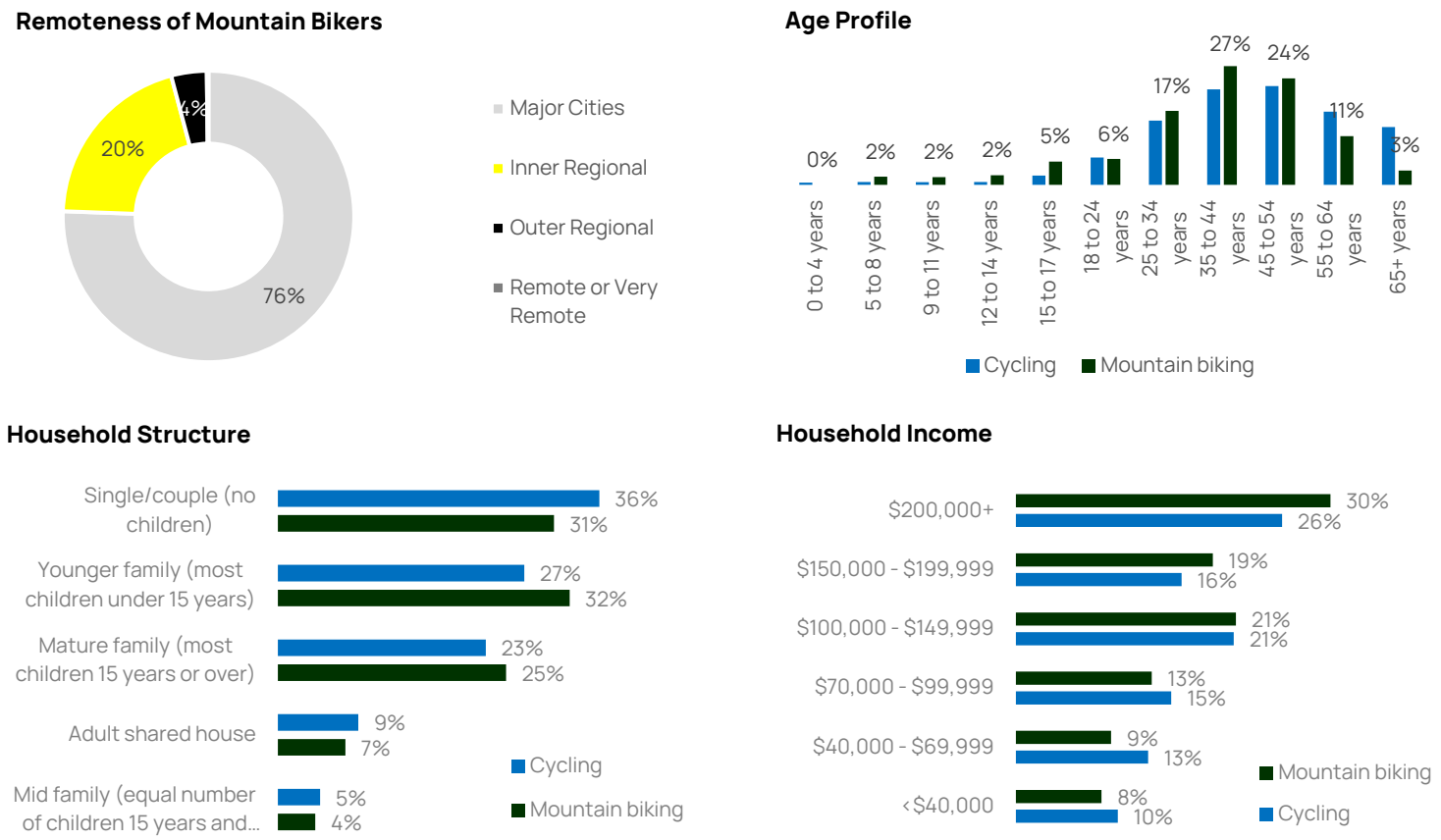
The majority of Victorian and NSW residents who participate in cycling and mountain biking originate from major cities (76%). Considering the bulk of MTB product is located regionally, this reinforces the willingness of these markets to travel considerable distances for cycling and mountain bike products and experiences.

The age profile of the cycling market is slightly older compared to the mountain bike market, with a third of cyclists aged 55 years and over (30%). Participation in mountain bike riding amongst those aged 17 years or younger is double that of general cycling This highlights the diverse range of ages and abilities of those who participate in cycling and mountain bike riding.

The household structure of cycling and mountain biking participants is similar. Participants are primarily a single or couple with no children, a part of a younger family with all children under the age of 15 years, or part of a mature family with most children over the age of 15 years.

Most people who participate in mountain biking and cycling are employed full-time. Of those who disclosed their annual household income bracket, the majority were moderate income earning between $70,000 and $149,000 per annum.

Figure 15. Mountain Bike Market Demographic Snapshot



Source: Australian Sports Commission, 2016 to 2019. A 5 year average of 2016-19 and 2022 has been used to analyse Victorian and NSW residents who participate in mountain biking and cycling.

Mountain Biking and Cycling Market

SUPPLY OF MOUNTAIN BIKE PARKS IN VICTORIA'S HIGH COUNTRY

The VHC region is Australia's leading cycling destination. The unique natural landscape of the High Country lends itself to a wide variety of cycling products and experiences. These products are widely successful due to the dedicated industry operators who deliver the products, experiences and maintain the tracks and trails.

The VHC region has an extensive supply of formalised mountain bike trails across 15 mountain bike parks (see Table 9). Key gaps in supply within the network include jumps and slopestyle. This is a growing segment within the sport, however remains a small part of the overall market. Consideration needs to be made in relation to the supply within the identified residential catchment area of Albury, Wodonga and Towong.

Whilst Albury Wodonga have small mountain bike parks, long gravity fed flow trails remain a gap and also the most popular segment within the mountain biking market. Mt Elliot's geography is well suited to providing gravity fed trails of various typologies given the vertical available within potential locations.

In terms of difficulty, the majority of the trails in the Mountain Bike Parks across the VHC region are intermediate (blue) grade trails. Table 10 provides an overview of the proportion of trails and their difficulties.

Table 9. Regional mountain bike park supply assessment

Network/Park Name	Location	Trail Type					Kms of Single Track
		XC	*G / E*	*DH*	*Epic*	*Pump-Track*	
Nail Can Hill	Albury, NSW	Y					29 km
Hunchback Hill MTB Park	Wodonga, Vic	Y	Y				23 km
Yackandandah MTB Track	Yackandandah, Vic	Y					93 km
Beechworth MTB Park	Beechworth, Vic	Y	Y	Y			20 km
Kinglake MTB Park	Kinglake, Vic		Y	Y			18 km
Eildon MTB Park	Eildon, Vic	Y		Y			15 km
Dinner Plain MTB Park	Dinner Plain, Vic	Y				Y	34 km
Falls Creek MTB Park	Falls Creek, Vic	Y	Y	Y			45 km
Mystic Mountain Bike Park	Bright, Vic	Y	Y	Y			71 km
Mt Buller MTB Park	Mt Buller, Vic	Y	Y	Y	Y	Y	140 km
Lake Mountain MTB Park	Lake Mountain, Vic	Y					146 km
Buxton Mountain Bike Park	Buxton, Vic	Y					23 km
Big Hill MTB Park	Mt Beauty, Vic	Y		Y			57 km
Indigo Epic Trail	Indigo, Vic				Y		56 km
Omeo MTB Park	Omeo, Vic	Y	Y	Y		Y	56 km

Source: Trailforks, 2023. Data is accurate as of November, 2023.

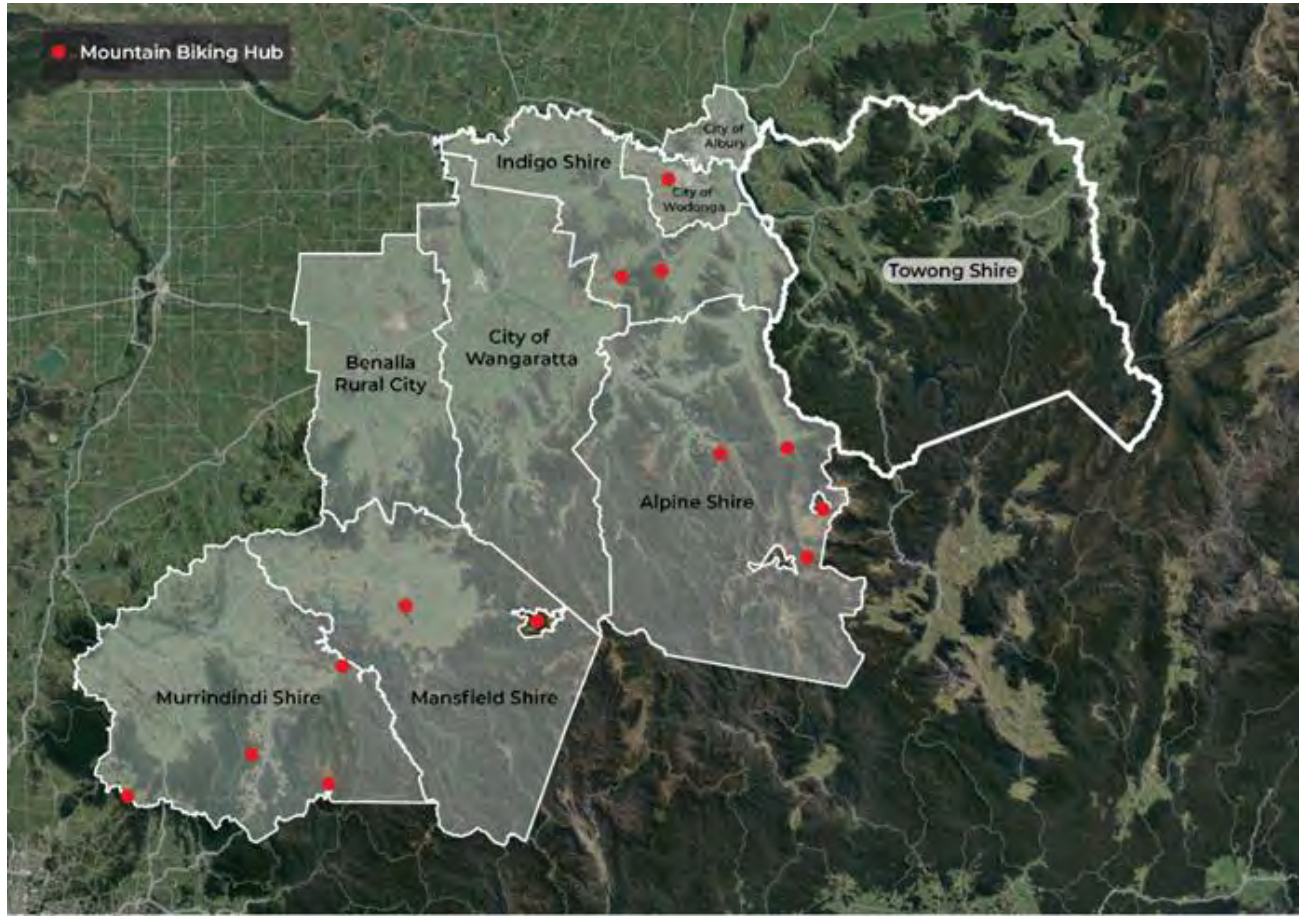
Mountain Biking and Cycling Market

Table 10. Difficulty of regional MTB trail supply

	% of Total
White (Easiest)	<1%
Green (Easy)	10%
Blue (Intermediate)	59%
Black (Very Difficult)	16%
Double Black (Extremely Difficult)	3%
Purple (Access Trail or Doubletrack)	11%

Source: Tourism Research Australia (TRA), National and International Visitor Survey (2019 to 2021). Presented by Urban Enterprise, 2023.

Figure 16. Victoria's High Country Regional Mountain Bike Park Supply



Map by Urban Enterprise, 2023.

Mountain Biking and Cycling Market

CASE STUDIES ANALYSIS

A number of successful mountain bike park case studies that are relevant to mountain bike park investment on Mt Elliot were examined in preparation of the Masterplan.

The purpose of this is to identify the key features that contribute to the success of comparable product, including the scale of development, trail typology and natural environment characteristics.

MTB parks that were analysed include Blue Derby Mountain Bike Park, Mystic Mountain Bike Park and Queenstown Bike Park, New Zealand. Key findings from the case study analysis include:

- Mountain biking continues to experience strong growth in participation numbers across North East Victoria.
- Generate flow-on economic benefits and positive social outcomes for communities.
- Council managed mountain bike parks tend to perform best long term with responsibilities formally agreed upon through MOUs and a Schedule of Use.
- Community volunteers are essential to support with trail maintenance and trail building projects.
- Key challenges for MTB parks are land management conflicts.
- Most MTB parks have free entry. MTB parks that have introduced entry fees tend to experience a significant decline in visitation.
- MTB typically generate revenue through charging for amenities such as shuttle buses, shower facilities, as well as membership fees.
- Community ride programs have been highly successful through grant funding.

Full case study summaries can be found in Appendix C.

PIPELINE & OUTLOOK

A number of new mountain bike and cycling products are planned or underway for North East Victoria and the surrounding region. Current projects in the pipeline and underway include:

- **Mitta Valley Mountain Bike Park**. Construction of a Mountain Bike Park is currently in progress in Mitta Valley. In 2021, Mitta Valley Inc. received 1.5 million through the Victorian State Government's Local Economic Recovery program to deliver the first stage of the trail network. Approximately 50% of the trail network (27kms) will be developed, in addition to branding, and the establishment of a social enterprise that will assist in the expense associated with maintaining the Park.
- **Omeo Mountain Bike Park**. East Gippsland Shire Council is currently constructing a nationally significant mountain bike park at the base of Mt Sam State Forest, Omeo. Stage One of the Omeo Mountain Bike Park will include 56 kms of cross-country, downhill and gravity trails and is due to be completed mid 2024. As part of the early stages of this project, a pump and skills track was developed. The track has been used extensively by locals and visitors since its completion in December 2020.
- **Shelley to Beetomba High Country Single Trail**. This single-track will be approximately 22kms long and include climbs and descents. The trail will be suitable to a range of skill levels and open to both mountain bike and rail trail riders.

Recent market research demonstrates that the VHC's reputation as 'Australia's premier cycling destination is strong and demand still growing, with cycling and mountain biking remaining as top motivating factors for visitors travelling to North East Victoria .

With Bright reaching capacity, new mountain bike and cycling products are needed to meet the demands of the market. There is opportunity for Mt Elliot to fill this gap and attract visitors traveling to North East Victoria for cycling and relieve capacity issues at other destinations. Dispersion throughout the region is greatly needed.

Paragliding and Hang Gliding Market

MARKET SIZE AND ORIGIN

The SAFA has approximately 3,283 registered gliding pilots. As shown in Table 11, over half of all members are based in Victoria and NSW. Mt Elliot is well positioned to attract visitors from both NSW and Victoria due to its proximity to the NSW-Victorian border.

Table 11. Origin of SAFA members

	No. Members
NSW	1,070
Victoria	838
Queensland	662
Western Australia	277
South Australia	119
ACT	102
Tasmania	92
Northern Territory	18
Address outside of Australia	105
Total	3,282

Source: SAFA, General Membership Statistics, April 2023.

SUPPLY OF LAUNCH SITES IN VICTORIA'S HIGH COUNTRY

There are 13 paragliding and hang gliding launch sites within the VHC and surrounding regions that have been formally recognised by SAFA. These sites are largely clustered around Bright, which is also home to 5 flight schools and the NEVHGC. Further detail of key launch sites in North East Victoria is provided in Table 12 below.

Table 12. VHC hang gliding and paragliding site supply

Location	No. of Launch Sites	Suitability	Difficulty	Access
Mt Elliot	2	Paragliding and Hang Gliding	PG4 / HG Intermediate	4WD vehicles only
Mt Mittamatite	1	Paragliding and Hang Gliding	PG4 / HG Intermediate	
Gundowring	1	Paragliding and Hang Gliding	PG2 / HG Supervised	4WD vehicles only
Mt Emu	2	Paragliding and Hang Gliding	PG4 / HG Intermediate	4WD vehicles only
Tawonga Gap	1	Paragliding and Hang Gliding	PG4 / HG Advanced	2WD access
Mystic Hill	1	Paragliding and Hang Gliding	PG4 / HG Intermediate	
Mt Buffalo	2	Paragliding only (Reed's Lookout)	PG5	
		Hang Gliding only (The Gorge Ramp)	HG Advanced	
Murmungee	1	Paragliding only	PG5	
Eagle Rise	1	Hang Gliding only	HG Intermediate	4WD vehicles only

Source: Australian National Site Guide, 2023.

Paragliding and Hang Gliding Market

Figure 17. Victoria's High Country hang gliding and paragliding supply

Source: Australian National Site Guide, 2023.

Paragliding and Hang Gliding Market

CASE STUDY FINDINGS

Several PG/HG case studies that are relevant to Mt Elliot were examined in preparation of the Masterplan.

The purpose was to identify the key features that contribute to the success of comparable product, including the type of infrastructure, management structure, revenue sources, and complementary

Flying sites that were analysed include those located in Mystic Mountain, Manilla and Canungra.

Key findings from the case study analysis include:

- Most gliding destinations operate under a membership structure to be financially sustainable
- Other revenue sources include flying lessons, tandem flights, competition fees, camp sites and other onsite accommodation.
- Biggest challenges for sites are:
    - Access and transporting gliders to and from landing and launch sites
    - Securing long term access to landing sites
- Events and launch sites are being forced to shut down permanently because of land access being withdrawn
- Securing long-term access through a formal lease agreement is required before further investment occurs
- Fees and gifts are paid to landowners for access/use at some sites
- Ongoing communication and maintaining a positive relationship with landowners is required for sustainability.

Full case study summaries can be found in Appendix C.

PIPELINE & OUTLOOK

There are currently no new launch site or major upgrades being planned for gliding destinations in the VHC region.

Consultation with other launch sites indicated urban encroachment and overcrowding of sites, particularly around Bright, may put a number of destinations at risk in the short to mid-term.

Although it is currently less accessible for casual flys than other flying sites in the region (i.e. Bright), Mt Elliot benefits from its relatively isolated location in the long term - as it minimises the risk of urban encroachment on landing sites.

PART D

The Masterplan

Masterplan Vision and Objectives

MASTERPLAN VISION

The following vision has been set for Mt Elliot Adventure Park (the Park):

Mt Elliot will be an accessible, high quality and sustainable nature-based adventure attraction - offering a range of mountain biking, paragliding, hang gliding and hiking experiences that will strengthen Towong Shire's positioning as a regionally significant tourism destination.

MASTERPLAN OBJECTIVES

The Mt Elliot Adventure Park Masterplan will seek to achieve the following objectives:

1	2	3	4	5
Provide for a diverse mix of active and passive, programmed and unprogrammed, recreation opportunities for all ages and skill levels.	Provide access to product and infrastructure that encourages physical activity and social connection amongst residents and visitors in the Upper Murray region.	Provide high quality outdoor adventure recreation products that become destination drivers and bring economic benefit for Corryong and the broader region.	Maintain an appropriate scale of development and activation which minimises potential adverse environmental impacts.	Ensure the Park's activities are operationally sustainable in the long term.

Masterplan Directions

GOVERNANCE, MANAGEMENT & OPERATIONAL MODEL

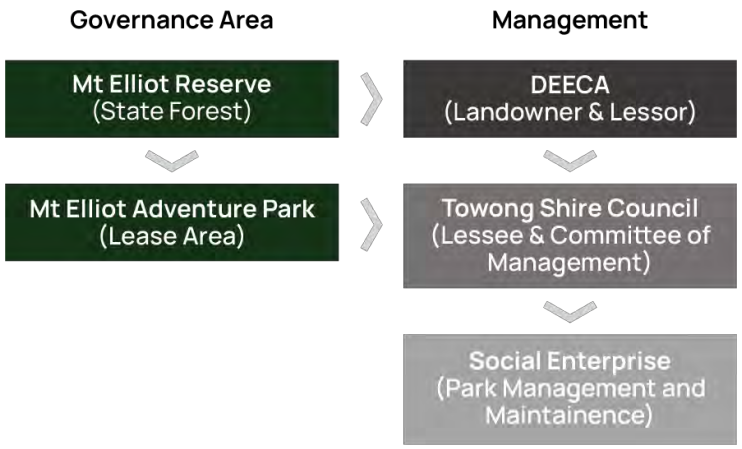
Figure 18 shows the recommended management model for the proposed Mt Elliot Adventure Park.

Due to the limited resources of DEECA to operate and maintain the Park, it is recommended that Council manage the Park through a lease agreement as the Committee of Management (CoM).

Establishment of a social enterprise could assist the Park to operate and manage visitor services, which in turn will provide income for maintenance and growth of the Park.

The appropriate business model and activities should be determined through a business plan and marketing plan.

Figure 18. Recommended Management Model



Ongoing Maintenance and Operations

A key element to the future feasibility of the mountain bike park is the development of an operational model that addresses the ongoing costs and resources associated with maintenance of the Mt Elliott Adventure Park. There are a number of potential revenue streams that may be considered for the Mt Elliot Adventure Park:

- Provision of shuttle service, or managing lease access to a private shuttle provider
- Event and race licences
- Trail pass
- Food and beverage sales
- Branded merchandise sales
- Bike and equipment hire
- Sponsorships and donations
- Commercial sponsorships and advertising
- Grazing and other land use licences

Mystic Mountain Bike Park in Bright has demonstrated the potential of outsourcing park management with the successful appointment of a commercial operator with revenue mostly generated from a trail pass and shuttle services. In the case of Mt Elliot which is likely to have lower levels of visitation, a social enterprise model may be more suitable.

Resources are needed to operate events and maintain the mountain bike trails and infrastructure within the park. It is envisaged that the majority of trails within Mt Elliot would be designed as low maintenance trails and reduce the need for resources to maintain them.

It is envisaged that a social enterprise would utilise local volunteer labour and some paid labour to maintain the park.

Masterplan Directions

1. Define proposed lease area within the Mt Elliot State Forest. (Polygon comprising trails, PG/HG sites and other areas proposed for development in the Masterplan).
2. Enter into a Lease Agreement with DEECA with Council as the CoM for Mt Elliot Adventure Park
3. Establish a Social Enterprise for Mt Elliot Adventure Park with Board Members including stakeholder representation from Council, HG Comps, community members, DEECA, etc.
4. Appoint the Social Enterprise as the operational manager of the park.
5. Undertake a business and marketing plan to define the roles and responsibilities of each stakeholder group.

Masterplan Directions

PARK ACCESS & SHUTTLING

The Masterplan proposes safe public access to the Mt Elliot Adventure Park and a shuttle bus that can efficiently service all park users including hikers, gliders and mountain bikers.

In order to secure long term public access to the Park, consideration will need to be given to acquire the sections of Fishers Track that are in private ownership.

Council will need to assume any additional costs (including the purchase itself) associated with acquisition. The costs will be made through negotiations and an independent evaluation of land value at the time of transaction. Alternatively, a long term lease could be negotiated with the existing landowners.

If the acquisition is successful, there may be an opportunity to issue grazing licences to generate additional income for the Park.

Masterplan Directions

1. **Remove hunting area designation from the Mt Elliot State Reserve** – Seek to remove the hunting area designation from the entirety of the Reserve. Ensuring clear communication with the existing hunters in the region during the process.
2. **Obtain public access into Mt Elliot Reserve** - Acquire or obtain leasehold of the alignment of Fishers Track, leading into the Mt Elliot, Reserve that is located on private land.
3. **Create a visitor entrance** - Install new signage and gate infrastructure to establish visitor entry points at:
   - Fishers Track via Upper Murray Rd (Primary Entrance)
   - Towong Gap
   - Fishers Track via Murray Valley Hwy
4. **Maintain Fishers Track for 2WD access** - Maintain Fishers Track suitable to 2WD vehicles with capacity for a shuttle bus.
5. **Shuttle service** - Develop a Bus Shuttle Route (supported by seating and shelters where appropriate) for park users, considering pick-up/drop-off stop signs located at:
   - Red Cutting Lane (to pick up gliders)
   - Proposed Towong Gap Trail Car Park (to collect hikers)
   - Proposed Summit Trail Head; and
   - Each proposed mountain bike trail hub.
6. **Emergency access -** Investigate tree clearing for emergency helipad / landing area near the Mt Elliot Summit.

Masterplan Directions

TRAILHEAD / VISITOR HUB

The Masterplan proposes an inverted trail network, with a multiuser trail hub located at the Mt Elliot summit near the start of gravity trails.

Figure 19 shows the concept plan for the summit trailhead. This hub will primarily service mountain bike and hiking trail users and provide good separation from the gliding launch site. This will allow visitors to easily access visitor amenities when the summit areas is closed off for gliding events or when the Park becomes congested.

Visitor Parking

A formalised parking area for general park operation with designated overflow for when events are proposed.

This layout estimates sufficient parking space for approximately 20 cars (based on an average car park size of 5.4m x 2.4m).

Shared Zone

The concept plan allows for a speed limited Shared Zone along Fishers Track and Mt Elliot Ridge Track in the summit area to minimise risk to riders and pedestrians.

Feeder Trail

A feeder trail will take riders past the start of the five gravity trails.

Separating the trail starts is important for event timing systems. A real advantage of the inverted network is the ability to group trail starts at the event centre. This minimises liaison stages and makes the logistics of running a gravity enduro event much more manageable compared to random start and finish points spread across the network.

Events Centre

There is a relatively flat open grass area further along the summit ridge to the west of the proposed trail hub that is suitable for a pop-up event centre.

This will provide enough room for various activities such as retailers and food outlets, first aid, hosting clubs, and registration tents.

In addition to the proposed shared zone, Fishers Track should be barricaded along both sides during an event to separate riders and pedestrians from through traffic.

Masterplan Directions

1. Develop a Multi-user Trailhead / Visitor Hub at the Mt Elliot Summit, comprising the following visitor facilities and amenity improvements:
    a. Bike racks and tool station
    b. Tier 1 signage including maps, code of conduct, risk/liability mitigation, emergency procedures
    c. Formalised visitor parking
    d. Shuttle pick up and drop off zones
    e. Pop-up Events Centre / overflow parking
    f. Picnic facilities including shelter, seating, a fire pit and/or BBQs
    g. Additional toilets
    h. Feeder trail leading into the gravity trails
    i. Speed limited shared zone
    j. Designated area for a food trucks or kiosk.

Masterplan Directions

MOUNTAIN BIKE TRAIL DEVELOPMENT

Figure 19 provides an overview map of the proposed Mt Elliot Adventure Park Mountain Bike Trail Network. Key aspects of the trail network include:

- 16 individual mountain biking trails
- 2 mountain biking trails rated as 'Easy to Intermediate'
- 10 mountain biking trails rated as 'Intermediate'
- 3 mountain biking trails rated as 'Intermediate to Difficult'
- 1 family shared walking and cycling trail at the Mt Elliot summit.
- The total length of the trail network is approximately 35.06km.

Table 13 provides the distance and trail difficulty rating of each trail.

Masterplan Directions

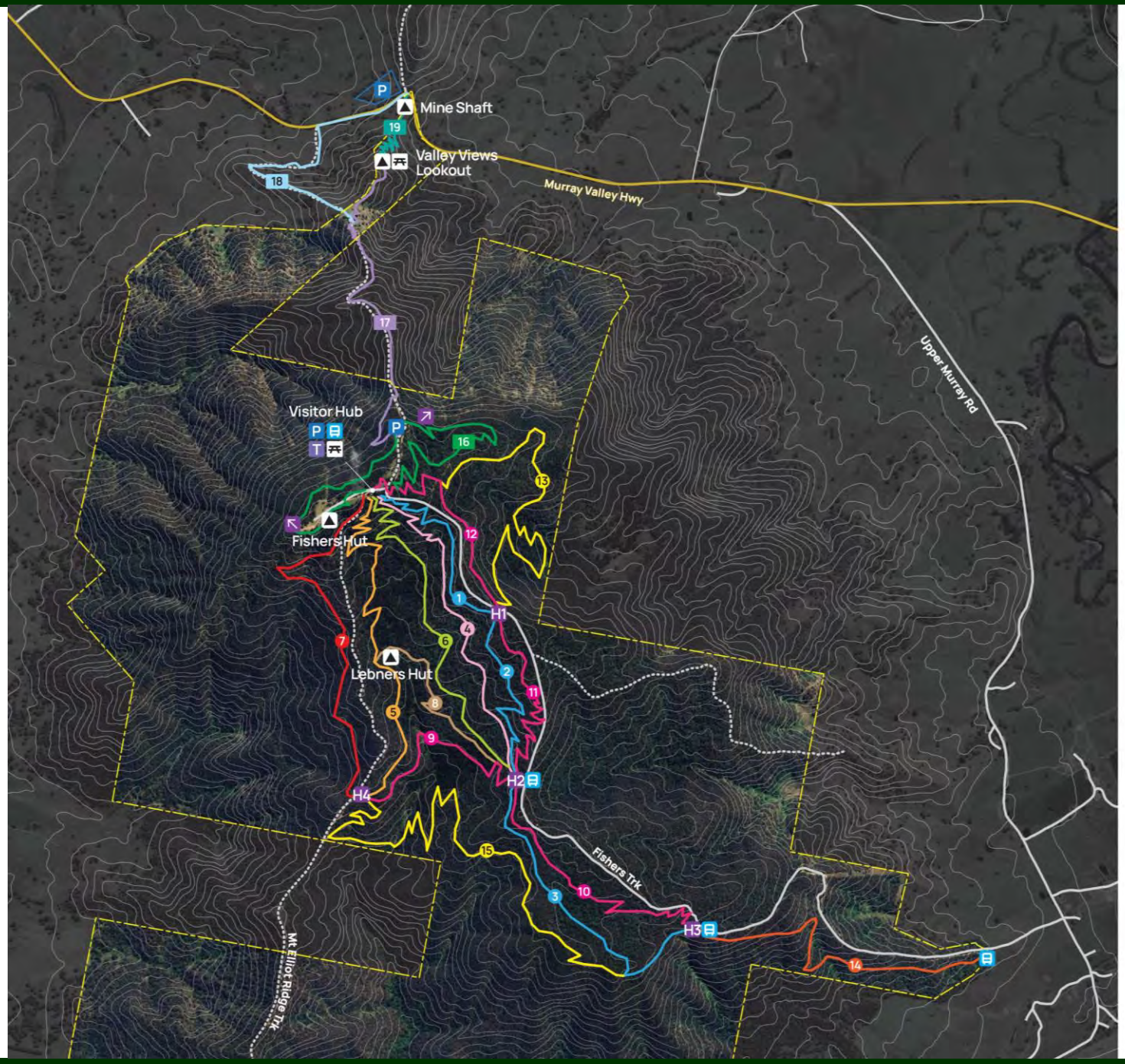
1. Construct a mountain bike trail network comprising 16 trails (totalling 35km).

Table 13. Mt Elliot Trail Network summary

Ref.	Trail Name	Distance	Descent	Ascent	Average	Trail Difficulty	Style
Mountain Bike Trails							
1	Descent 1	1,300 m	59 m	2 m	5.0%	Green/Blue	Easy Flow
2	Descent 2	1,400 m	87 m	0 m	6.6%	Blue	Flow
3	Descent 3	2,050 m	77 m	5 m	4.0%	Blue	Flow
4	Descent 4	2,020 m	147 m	9 m	6.7%	Blue	Jump Flow
5	Descent 5	2,800 m	193 m	0 m	6.9%	Blue	Descent
6	Descent 6	2,320 m	155 m	4 m	6.9%	Blue	Descent
7	Descent 7	2,500 m	222 m	8 m	9.2%	Blue/Black	Tech Descent
8	Lebner's Link	1,270 m	33 m	0 m	2.6%	Blue	XC
9	Fishers Link	1,660 m	0 m	54 m	3.3%	Blue	Arterial Climb
10	Lower Fishers Climb	2,010 m	3 m	72 m	3.6%	Blue	Arterial Climb
11	Mid Fishers Climb	1,670 m	0 m	69 m	4.1%	Blue	Arterial Climb
12	Upper Fishers Climb	1,460 m	2 m	55 m	3.9%	Green/Blue	Arterial Climb
13	Pitsaw	2,950 m	110 m	115 m	7.8%	Blue/Black	XC
14	Elliot DH	2,060 m	319 m	0 m	15.5%	Black	DH
15	Southern Link	4,090 m	94 m	111 m	5.4%	Blue	XC
Walking and Cycling Trails							
16	Summit Loop	3,500 m	77 m	77 m	3.7%		Shared Path
17	Towong Gap to Summit	3,200 m	0 m	429 m	13%		
-	**Total**	**39.26 km**					

Trail network design by Terrain Trails, 2023.

Figure 19. Proposed Mountain Bike Trail Network & Paragliding and Hang Gliding Destination Development Plan



Map by Urban Enterprise. Trail Network Design by Terrain Trails, 2023.

Masterplan Directions

Table 14. Trail options summary

Trail Option	Trail Difficulty	Estimated Trail Length	Description
Descent 1 and Upper Fishers Climb	Blue	2.8km	Combining Descent 1 and Upper Fishers Climb creates a Green/Blue Circle loop (as per Auscycling TDRS) of approximately 2.8km. Designed to provide progression from Summit Loop, Descent 1 will be an easy flow trail to introduce newer riders to gravity style trails. The trail loop could be potentially extended by combining the end of Upper Fishers Climb with Summit Loop shared trail.
Descent 1,2 and 3	Green / Blue	4.8 km	Descent 1,2 and 3 combined totals a 4.8km, 223m descent with shuttle and climb options. Designed to be fun and safe, this will be a huge hit with the beginner to intermediate rider. The trail provides 2 bailout options including one shuttle assisted. When combined with Fishers Climb provides a 10km Blue Square loop.
Descent 4	Blue	2.0 km	A jump flow trail providing safe progressive A and B line jumping options.
Descent 5	Blue	2.8 km	This trail will offer riders a more technical trail of 2.8km descending 193m, providing progression from flow trails. Ride options include: • Return to Mid Fishers Trail Hub and shuttle pick up via Fishers Link • Connect with initial descent of Southern Link via Ridge Track Trail Hub totalling to 3.8km and 273m descending • Connect to Lebner's Link at 1.7km to visit Lebner's Hut site and then slowly descend to Mid Fishers Trail Hub • Linking Descent 5 – Southern Link – (end of) Descent 3 to Lower Fishers Trail Hub/shuttle pick up 7.1km. Return via Fishers Climb will provide a 12.24km loop.
Descent 6	Blue	2.3 km	A fast-flowing trail, descending 155m over 2.3km – comprising steep berms followed by flat out contouring trail. The trail will have an option for shuttle pick up at Mid Fishers.
Descent 7	Blue / Black	2.4 km	A 2.4km technical Blue/Black square trail descending 212m to Ridge Track Trail Hub. Trail will have a raw hand build feel with handmade Technical Trail Features (TTF). Ride options include: • Connect with initial descent of Southern Link via Ridge Track Trail Hub to give 3.4km and 312m descending • Return to Mid Fishers Trail Hub and shuttle pick up via Fishers Link • Descent 7 – Southern Link – (end of) Descent 3 to Lower Fishers Trail Hub/shuttle pick up 6.8km. Return via Fishers Climb 11.95km loop.
Southern Link	Blue	4.6 km	With a more 'backcountry' feel, the Southern Link will be a 4.6km XC trail linking Ridge Track Trail Hub to Lower Fishers Trail Hub and shuttle pick up (including 500l/m of descent 3). Alignment to maintain grades suitable for 'big bikes' from descents 5 and 7.
Pitsaw	Blue / Black	3.0 km	A 3km Blue/Black square technical XC trail descending and climbing 110m. It is named after the vehicle track it crosses near the campground. Linking Descent 5 – Southern Link – (end of) Descent 3 – Lower Fishers Climb – Mid Fishers Climb – Pitsaw – (end of) Upper Fishers Climb will provide an advanced XC loop of 14.5km.

Trail Network Design by Terrain Trails, 2023.

Masterplan Directions

Table 14. Trail options summary (cont.)

Trail Option	Trail Difficulty	Estimated Trail Length	Description
Elliot DH	Black	2.1 km	A national level 2km downhill course dropping 326m with a steep, rocky, highly technical terrain. Its close alignment to Fishers Track will make for easy maintenance, spectating, emergency access and a quick shuttle turnaround. This track will require permission/easement or land purchase of Fishers track corridor on Whitehead farm - preferably with room for event staging and national level course finish. The Auscycling Technical Regulations 2020 states: *'The finish must be a minimum of 6 metres wide for at least 30 metres before and 35 metres after the finish line. The area after the finish line must be free from obstacles and conducive to safe slowing of riders. Barriers or a similar form of hard fencing must be erected at least 25 metres before and 50 metres after the finish line, or greater as required by the Technical Delegate or PCP. The finish area must be hard fenced in a 'bowl' or similar form, restricting general access to the area'.*

Trail Network Design by Terrain Trails, 2023.

Masterplan Directions

WALKING TRAILS & OTHER PASSIVE RECREATION

The masterplan proposes the following infrastructure to facilitate passive recreation activities, which was highlighted a key priority for the community:

- Two walking trails
- Heritage interpretation
- Picnic and BBQ areas

Indicative locations are mapped in Figure 19 (page 48). Trail details are summarised in Table 13 (page 47.

Summit Loop

The 3.5km summit loop trail will provide an easy family walking and cycling trail showcasing the amazing views over the valleys and to the Snowy Mountains. It offers interpretive signage opportunities focused on topics such as history of huts, past mining and grazing activities, and native biodiversity.

A gravel surface between 1.5 to 2m is proposed to facilitate both walking and cycling.

The shared path will formalise a walking link between the two current launch sites and also provide a link between possible campground and summit area / trailhead.

Masterplan Directions

1. Construct a 3.5km gravel loop trail near the summit area of Mt Elliot.
2. Install shared path signage to support the trail.

Towong Gap to Summit Hiking Trail

Starting at the future Towong Gap lookout, the hike would utilise a parcel of Crown Land that is currently under a grazing licence, a section of the Mt Elliot Ridge Track through a parcel of private land, before contouring across the northwestern face to meet the summit trail on State forest.

The trail is approximately 3.2km in length and climbs 429 vertical meters, resulting in an average trail grade of 13%. The trail concept offers three walk options:

- Valley Views
- Ridge Loop
- Summit Return

Valley Views

Approximately 850 meters from the future Towong Gap lookout, the proposed trail reaches a flat area beside the power line pylons. At 100 meters above the Murray Valley Highway this spot offers amazing views of the valleys to the East and West of the Gap.

Although some may argue that the pylons detract from the experience, standing beside them looking down the transmission lines as they swoop down through the valley is quite dramatic and presents a great opportunity for Snowy Hydro interpretive signage. There is evidence of mining activity on this ridge; approximately 150 meters from the start of the trail is a mine shaft that has been used as a rubbish tip over the years. The shaft could possibly be just on private land side of Crown Land boundary. There is a possibility that the shaft could be cleaned out, fenced and interpretive signage added. Returning the same way from the pylons provides a 1.7km return walk.

Consideration needs to be given to safe crossing of the Murray Valley Highway.

Ridge Loop

Approximately 1.35km from the future Towong Gap lookout and 160 vertical meters above the Murray Valley Highway, the proposed trail crosses the Mt Elliot Ridge Track. This presents the opportunity to return from this point via the Ridge Track with great views and the Murray Valley Highway creating a 3.3km loop.

Summit Return

If a walker was to start at the future Towong Gap lookout, hike to the Summit Walk, complete the Summit Walk and return to the Gap, it would provide a hike of approximately 10km. Unfortunately, land tenure constraints force the use of a section of the Mt Elliot Ridge Track which is steep and rocky. This route would connect to the conceptual camping area and offer the opportunity for a short overnight hike. Connecting to both hang gliding launches would also provide an alternative walk-up option for hang gliders. Consideration needs to be given to limited parking at the Gap lookout.

Future shuttle/transfer business could offer hiker drop off service to facilitate a single direction walk.

Masterplan Directions

Masterplan Directions

1. Discontinue or amend existing grazing licence to facilitate construction of the Towong Gap to Summit Hiking Trail.
2. Develop a walking trail from Towong Gap, connecting to the Summit Shared Trail, including:
    a. Three trail segments / walk options: Valley Views, Ridge Loop, Summit Hike
    b. Develop new facilities to support the trail including entry gate, trailhead, and visitor car parking.

Heritage Interpretation

There is opportunity for interpretative signage throughout the park to promote cultural, heritage or ecologically significant areas and add points of interest or rest to the proposed hiking and MTB trails.

Masterplan Directions

1. Undertake conservation works on heritage assets throughout the park.
2. Develop lookout points or interpretive signage at the following locations:
    a. Lebners Hut
    b. Fishers Hut
    c. Miners Shaft
    d. Peak point of the Valley View trail segment of the Towong Gap to Summit hiking trail.

Picnic and BBQ areas

Masterplan Directions

1. Install sheltered picnic facilities at:
    a. Visitor Hub / Main Trailhead
    b. Valley Views lookout point

PARAGLIDING AND HANG GLIDING

There are opportunities to expand current paragliding and hang gliding activities on Mt Elliot.

A paragliding and hang gliding destination development plan is shown in Figure 19.

Masterplan Directions

1. Investigate opportunities for the future Upper Murray HG / PG club to lead or support site operations, maintenance, revenue generation (i.e. through membership fees) and other activities at the Park.
2. Enter into a formal lease agreement with landowners to secure long-term access to landing sites.
3. Upgrade the main launch site (NW):
    a. Install bollards to section off the launch site for events
    b. Re-grass and undertake general landscaping improvements
4. Upgrade the NE launch site:
    a. Improve accessibility to launchpad
    b. Widen and resurface launchpad
    c. Construct car park in the existing clearing to support NE launch site
5. Continue to grow the number of gliding events including international competitions.
6. Investigate potential for a third south-facing launch site in the long term.

MOTORBIKE TRAILS

Potential for a motorbike trail network was identified as an opportunity for Mt Elliot in the long term.

Detailed planning to ensure clear separation from other user groups, as well as assessment of the environmental impacts of a motorbike trail network is required.

Masterplan Directions

1. Investigate opportunities for motorbike trails within the Mt Elliot Reserve in the long term.

Masterplan Directions

SIGNAGE PLAN

A signage plan has been prepared to support the delivery of the Mt Elliot Adventure Park Masterplan including required signage types, estimated sign quantities and indicative locations.

Mountain Bike And Hiking Trail Signage

Signage types required to support the proposed mountain bike and hiking trail network include:

- *Trailhead Sign* - A Trailhead Sign should include the following information:
  - Map of trail network including the trails names, distance and difficulty rating
  - Code of conduct or trail etiquette
  - Safety, risk and liability mitigation
  - Emergency information including contacts and mobile phone reception points
  - Other general information such as what to wear.
- *Trail Hub Sign / Decision Point* – Placed at each of the four trail hubs.
- *Trail Start Sign* - A Decision Point Sign should be used at the start of every trail. Decision Point Signs will include information such as the trail name and number, arrow indicating trail direction, difficulty and a small map showing the trail user's current location.
- *Waymarkers & other On-trail Signage* including A/B trail option signs, safety signs, and risk management signs, liability signs.
- *Shuttle Pick Up Sign* – Signage should include maps of the shuttle route and timetable information.
- *Interpretive Signage* – Interpretive signage should provide information on the natural, historical or cultural significance of Mt Elliot e.g. history of Fishers Hut, past mining and grazing activities, biodiversity, etc.

Signage estimates are based on the proposed trail network concept plan. Due to the organic nature of trail construction, estimated sign quantities for Waymarkers & Other On-Trail Signage have been excluded from plan.

A final signage plan will need to be completed post construction to quantify exact requirements. An allowance for on-trail signage has been incorporated into trail construction costs (See Appendix D).

Table 15. Mountain bike trail network estimated sign quantities and locations

	Trailhead Sign	Trail Hub Sign	Trail Start Sign	Shuttle Pick Up Sign	Interpretive Signage
Summit / Visitor Hub	1				
Trail 1 – Descent 1			1		
Trail 2 – Descent 2 / Trail Hub 1		1	1	1	
Trail 3 – Descent 3 / Trail Hub 2		1	1	1	
Trail 4 – Descent 4			1		
Trail 5 – Descent 5			1		
Trail 6 – Descent 6			1		
Trail 7 – Descent 7			1		
Trail 8 – Lebners Link			1		1
Trail 9 – Fishers Link			1		
Trail 10 – Lower Fishers Climb			1		
Trail 11 – Lower Fishers Climb			1		
Trail 12 – Lower Fishers Climb			1		
Trail 13 – Pitsaw			1		
Trail 14 – Elliot Downhill / Trail Hub 3	1	1	1	1	
Trail 15 – Southern Link / Trail Hub 4		1	1	1	
Trail 16 – Summit Shared Path			1		3
Total	2	4	16	4	4

Urban Enterprise, 2023.

Masterplan Directions

General Park Signage

The following sign types are required to support general Park operations:

- *Identification Signs* – Located at entry of key locations that signal to visitors that they have arrived at their destination and also serve as general wayfinding landmarks.
- *Regulatory Signs* – A regulatory sign is used to indicate or reinforce traffic or conduct laws, regulations or requirements. They include signage such as Road Signage (Speed Limits, Shared Zones), Safety Signage, and Prohibition Signs (No Dogs, No Open Fires, No Entry to Private Property).
- *Shuttle Pick Up Sign* – Signage should include maps of the shuttle route and timetable information.
- *Directional Sign*

Table 16. Towong Gap to Summit Hiking Trail estimated sign quantities and locations

	Trailhead Sign	Decision Point	Shuttle Pick Up Sign	Interpretive Signage
Towong Gap To Summit Hike Trail Entrance	1	1	1	
Valley Views Lookout		1		1
Mine Shaft				1
Summit Hike / Ridge Loop Intersection		1		
Summit Hike / Summit Loop Intersection		1		
Total	1	4	1	2

Table 17. General park estimated sign quantities and locations

	Identification Sign	Regulatory Signage	Shuttle Pick Up Sign	Directional Signage	Interpretive Signage
Adventure Park Main Entry	1	1			
Adventure Park Secondary Entry	1	1			
Summit Hike Trail Entrance		1			
Towong Gap Lookout Car Park	1	1		1	
Summit Visitor Car Park	1				
NE Launch Visitor Car Park	1				
Fishers Track		4		4	
Mt Elliot Ridge Track		2		4	
Main Gliding Launch Site	1	2			
NE Gliding Launch Site	1	1			
Red Cutting Lane		1	1	1	
Fishers Hut					1
Lebners Hut					1
Total	7	14	1	10	2

Urban Enterprise, 2023.

Masterplan Directions

ABORIGINAL CULTURAL HERITAGE MANAGEMENT

A Cultural Heritage Management Plan (CHMP) was prepared for the proposed development areas by Red-Gum Environmental Consulting. The full report can be found in Appendix H.

A Desktop & Standard Assessment were undertaken as part of the preparation of the CHMP which is being voluntarily prepared under r. 67(1)(a) and section 45 of the Act. The Desktop Assessment determined that, despite the likely disturbance within the Activity area, it is possible that Aboriginal cultural heritage is present, therefore a Standard assessment was conducted pursuant to r.62(1) of the Aboriginal Heritage Regulations 2018.

The Standard assessment did not record Aboriginal cultural heritage in the Activity area and concluded that the majority of works are proposed within areas where that have been disturbed through historic gold mining/exploration, forestry or existing tracks on steep (>1H:1V), heavily vegetated slopes.

Aboriginal cultural heritage was considered 'highly unlikely' or a 'low probability' to occur within the Activity area, therefore a Complex Assessment was not conducted in accordance with r.64 (1).

ENVIRONMENTAL MANAGEMENT

Native Vegetation Assessment (NVR) was also conducted for the proposed development area by Red-Gum Environmental Consulting. The full report including the detailed methodology can be found in Appendix I.

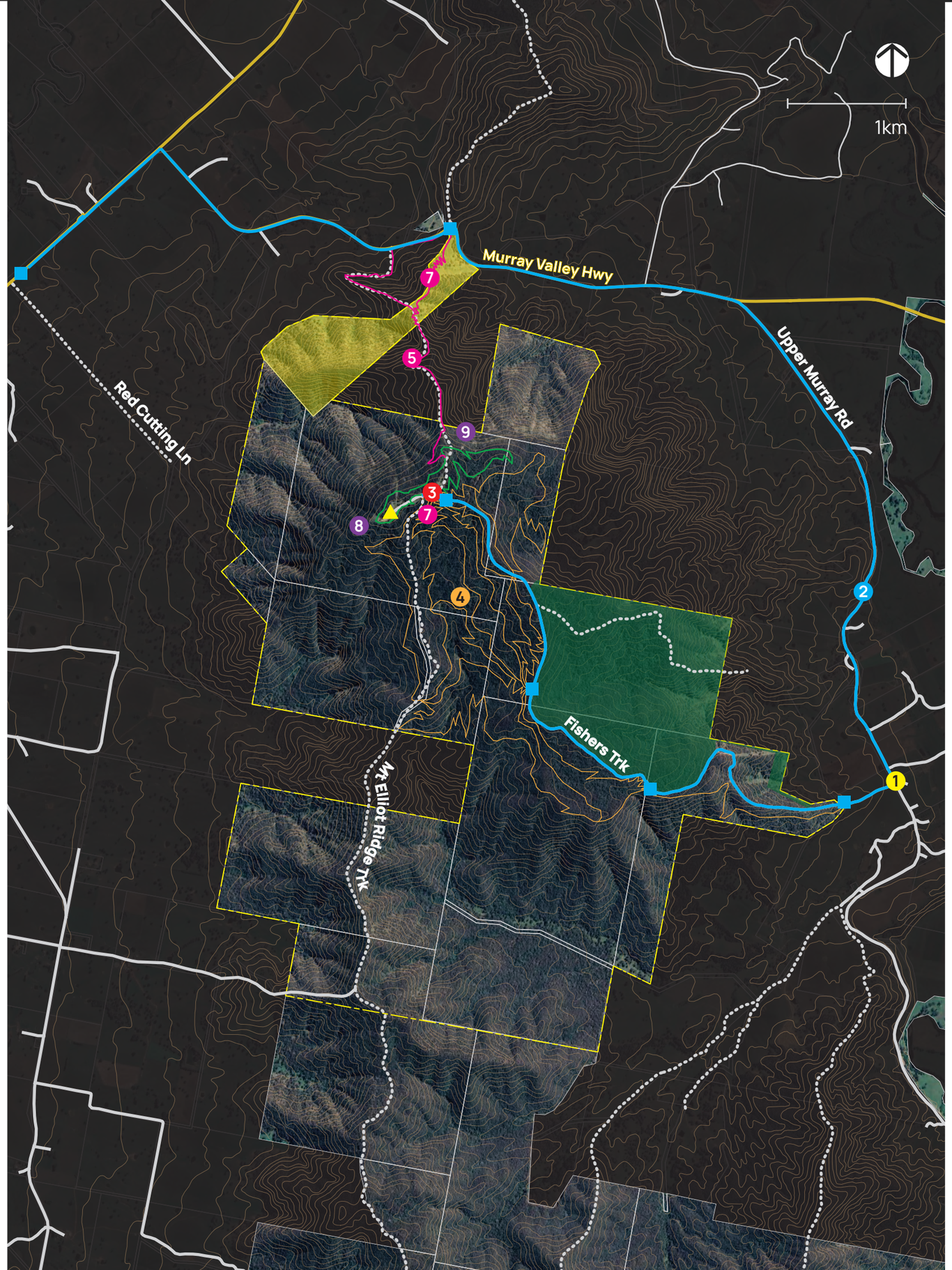
A biodiversity and ecological assessment determined implementation of the masterplan would result in the permanent removal of a maximum of 3.488 hectares of native vegetation - which will require a vegetation offset.

The assessment also identified a number of threatened flora and fauna species with a medium or higher likelihood of occurring in the study area including Grey Grass Tree and Barking Owl.

Overall, it was concluded these risks were easily manageable through measures to avoid, mitigate or offset potential impacts.

Masterplan Directions

1. During the construction stage, adjust and realign the trail routes in accordance with the recommendations of the NVR to minimise disturbance and loss of flora and fauna.
2. Implement relevant park visitor guidelines and infrastructure as recommended by the NVR (i.e. install barriers and signage near high traffic areas, enforce no-go zones where required).
3. Identify and implement appropriate general offsets for native vegetation losses that cannot be reasonably avoided.
4. Prepare a Construction Environmental Management Plan (CEMP) incorporating an Erosion and Sediment Management Plan (ESMP).



LEGEND

- Special Protection Zone (SPZ)
- Grazing licence
- Private property
- Mt Elliot Summit
- 2WD road
- 4WD road
- Contour line (10m)
- Property boundary
- Proposed Mt Elliot Adventure Park boundary
- Proposed mountain bike trail
- Proposed shared rrail
- Proposed walking trail
- Proposed shuttle route & stops

DIRECTIONS

Access & Shuttling

1. Install new signage and gate infrastructure to establish visitor entry at Fishers Track via Upper Murray Road.
2. Develop a Bus Shuttle Route (supported by signage and shelters) for park users, considering stops at:
   - Red Cutting Lane (to pick up gliders)
   - Towong Gap Trail Car Park (to collect hikers)
   - Summit Trail Head; and
   - Each MTB trail hub.

Trailhead / Visitor Hub

3. Develop a visitor hub and trailhead at the Mt Elliot summit, comprising the following visitor facilities and amenity improvements:
   a. Bike racks and tool station,
   b. Tier 1 signage including maps, code of conduct, risk/liability mitigation, emergency procedures
   c. Formalised visitor parking
   d. Shuttle pick up and drop off zones
   e. Pop-up Events Centre / overflow parking
   f. Feeder trail leading into the gravity trails
   g. Speed limited shared zone
   h. Additional toilets
   i. Designated area for food trucks or kiosk

Mountain Bike Trail Network

4. Construct a mountain bike trail network comprising 16 trails (totalling 35km).

Walking Trails & Other Passive Recreation

5. Develop a walking trail from Towong Gap to the Mt Elliot Summit including four trail segments - Summit Loop (Shared Path), Summit Hike, Valley Views, Ridge Loop.
6. Undertake conservation work on heritage assets and construct interpretive signage or lookout points.
7. Install sheltered picnic facilities around the summit area and the proposed Valley Views lookout.

Paragliding and Hang-gliding Destination

8. Upgrade main launch site (NW) including re-surfacing, installation of removeable bollards and general landscaping.
9. Improve accessibility to the NE launch site including creation of parking, widening and resurfacing of launchpad and paths, and improved signage.

Estimated Project Cost

Urban Enterprise and Terrain Trails have prepared a breakdown of indicative costs for delivery of Mt Elliot Adventure Park (Table 18). The preliminary total project cost for the Mt Elliot Adventure Park is estimated at $2,816,615 (exc. GST).

Table 18. Mt Elliot Adventure Park Masterplan Implementation Plan

Item	Unit	Qty	Rate	Total Cost
Park entry				**$49,000**
Panel road sign (medium)	Qty	2	$1,500	$3,000
Paddock gate (including signage)	Qty	2	$1,500	$3,000
Fencing	m	1000	$40	$40,000
Road Signage Allowance (Safety and Wayfinding)				$3,000
Mountain bike network				**$1,457,880**
Trail Path Construction (including On-Trail Signage)	m			$1,411,880
Trailhead (tier 1)	Qty	2	$10,000	$20,000
Trail hub (tier 3)	Qty	4	$4,000	$16,000
Trail start (tier 4)	Qty	16	$250	$4,000
Interpretive signage	Qty	2	$2,000	$4,000
Shuttle pick up sign	Qty	4	$500	$2,000
Summit trailhead / visitor hub				**$226,000**
Car Park (Gravel) including Bollards	Qty	1	$55,000	$55,000
Picnic shelter	Qty	1	$45,000	$45,000
Picnic tables	Qty	4	$3,000	$12,000
Bike rack	Qty	2	$2,500	$5,000
Tool station	Qty	1	$4,000	$4,000
Toilet	Qty	1	$100,000	$100,000
Signage Allowance (Safety and Wayfinding)				$5,000

Item	Unit	Qty	Rate	Total Cost
Paragliding and Hang gliding				**$275,000**
Gliding Launch Site Upgrade (including Bollards)	Qty	2	$60,000	$120,000
Car Park (Gravel) including Bollards	Qty	1	$150,000	$150,000
Shuttle pick up sign	Qty	1	$500	$500
Signage Allowance (Safety and Wayfinding)				$5,000
Towong Gap to Summit Hike				$141,350
Trail Path Construction (including On-Trail Signage)	m			**$70,350**
Trailhead (tier 2)	Qty	1	$6,000	$6,000
Picnic tables	Qty	1	$3,000	$3,000
Steps from MVH to Road Reserve Fence	Qty	1	$35,000	$35,000
Kissing gate	Qty	1	$2,000	$2,000
Interpretive signage	Qty	2	$1,500	$3,000
Car park (gravel)		1	$20,000	$20,000
Shuttle pick up sign	Qty	1	$500	$500
Signage Allowance (Safety and Wayfinding)				$2,000
Native Vegetation Offset Credit Fees				$300,000
Total Construction Cost				$2,449,230
Design and contingency (15%)				$367,385
Total Cost				**$2,816,615**

Implementation Plan

Table 19 outlines the recommended implementation plan and staging for establishment of the Mt Elliot Adventure Park.
Please note: Timeframes and costs for each stage are indicative and subject to funding availability.

Table 19. Mt Elliot Adventure Park Masterplan Implementation Plan

Stage	Stakeholders	Timing	Cost
Establish a Committee of Management (CoM) for Mt Elliot Adventure Park headed by Council, key stakeholders to include DEECA, HG Comps, and local clubs (i.e. MTB, Walking Groups, Gliding)	Council	Short Term (1-2 Years)	-
Establish MOU between User Groups covering responsibilities: • Infrastructure upgrades and maintenance • Hierarchy of use / user groups • Volunteer hours • Construction costs and fund raising • Marketing and visitor services	Mt Elliot Adventure Park CoM	Short Term	-
Secure Short-Term Access and Landholdings. Create a polygon for Mt Elliot Adventure Park and enter into a lease agreement with DEECA	Council, CoM	Short Term	-
Secure Long-Term Access and Landholdings, including: • Obtain leasehold or acquire the alignment of Mt Elliot Ridge Track within private land required to secure access to the Park. • Establish a lease agreement with landowners to secure landing sites for gliding activities	Council, DEECA, and HG Comps.	Short Term	-
Prepare a Business and Marketing Plan for the Mt Elliot Adventure Park, covering: • Establishment of a Social Enterprise to manage visitor services and Park income • Revenue Streams • Destination Website, Socials and Events Calendar • Visitor Servicing • Leverage the highly successful Ride High Country platform	Council, CoM	Short Term	$ 15,000
Prepare an Advocacy Document and Business Case (if required) including Branding and Concept Design Work	Council, CoM	Short Term	$ 10,000
Investigate and Secure Funding Sources including: • Regional Development Victoria funding and grants • Sport and recreation Victoria funding and grants • Sponsorships • Crowd funding • Disaster recovery funding • Australian government funding (e.g. Growing better regions)	Council	Short Term	-
Secure Funding and Construct Mt Elliot Adventure Park	Council	Medium Term (2-4 Years)	$ 3.02 M
Launch marketing including social media, website	Council	Medium Term	$ 10,000

Part E:

Project Benefits: Forecast Visitation and Economic Impact

Projected Economic Benefit

PROJECTED VISITATION

Table 20 provides estimates of visitation to the Mt Elliot Adventure Park once fully constructed in 2025.

It is expected that upon delivery of the Masterplan, there will be an uplift in mountain biking visitation of 8,300 per annum based on research of the national and regional MTB markets and their preferred trail typologies[5]. This equates to a forecast total of 19,800 visitors per annum.

The Mt Elliot Adventure Park will also capture an additional 1% of visitors in the passive recreation market. Towong Shire is forecast to attract 57,170 passive recreation visitors in 2025. Of these visitors, it is estimated that the Mt Elliot Adventure Park will attract 2,920 new visitors per annum.

In total, the Masterplan is estimated to attract 9,300 new visitors to the region once in operation.

PROJECT VISITOR EXPENDITURE

Table 21 shows the forecast expenditure of new additional visitors to the region through use of the Mt Elliot Adventure Park. Total direct expenditure per annum is estimated at $575,600 once fully operational in 2025. This is expected to grow to $751,440 in 2030.

Table 20. Estimated Mt Elliot Adventure Park visitation - 2025 to 2030

	Existing	Projected Visitors		Growth
Year	2023	2025	2030	2025-30
Towong Total Visitors	249,400	291,700	378,810	+ 87,110
Towong Shire Total MTB Visitors	11,500	19,800	25,760	+ 5,960
Towong Shire Total MTB Visitors (%)	4.6%	6.8%	6.8%	
New Additional MTB Visitors		+ 6,380	+ 8,330	+ 1,950
Towong Shire Total Passive Recreation Visitors^	36,700	57,170	74,250	+ 17,070
Towong Shire Total Passive Recreation Visitors (%)	18.6%	19.6%	19.6%	
New Additional Passive Recreation Visitors		+ 2,920	+ 3,790	+ 870
Total Towong Shire New Additional Visitors		+ 9,300	+ 12,120	+ 2,820

Source: Tourism Research Australia (TRA), National and International Visitor Survey (2019 to 2021). Presented by Urban Enterprise, 2023.

Table 21. Forecast visitor expenditure

	Average Spend per Visitor*	Additional Visitors	Additional Visitor Expenditure
2025	$62	+9,300	$576,600
2030	$62	+12,120	$751,440

Source: Tourism Research Australia (TRA), Towong LGA Tourism Profile, 2016 to 2019. Presented by Urban Enterprise, 2023.

[5] Towong Mountain Biking Strategy 2021, Urban Enterprise & Towong Shire Council.
^ Passive recreation market includes visitors who undertake bushwalking, picnicking and BBQing activities.
*Average Daytrip Visitor Spend.

Cost Benefit Assessment

A cost-benefit assessment has been undertaken for the proposed Mt Elliot Adventure Park Masterplan project over a 10-year impact period. The assessment estimates the likely economic benefits and costs associated with the improvements and upgrades to the Park over the adopted period.

From this analysis, the overall Return on Investment (ROI) has been identified by calculating the Net Present Value (NPV) and Benefit Cost Ratio (BCR).

The proposed investment is estimated to deliver:

- Total economic benefits in the order of $1,792,637 (2023 dollars); and
- A cost to benefit ratio of 1.6.

A BCR of 1:6 shows that the project is expected to deliver a positive economic return relevant to its costs. However, the economic benefits should not be assessed in isolation. The impact of the project is also closely linked to the significant community benefits that would be delivered.

Table 22. Cost Benefit Summary

	Mt Elliot Adventure Park
Project Benefits – Year 1	$576,600
Project Benefits – Year 10	$751,440
Operating Expenditure – Year 1	$49,432
Operating Expenditure – Year 10	$59,076
Total CAPEX	$2,816,615
NPV	$1,792,637
BCR	1.6

Source: Urban Enterprise, 2023.

Economic Impacts

METHODOLOGY AND ASSUMPTIONS

This project is of a size, scale and function to deliver direct and indirect economic benefits to the region, including additional economic output and job creation. These economic impacts are assessed over the following two phases:

- The **short-term construction phase** – This includes the following short-term direct and indirect impacts occurring during the construction phase:
  - The *direct effect* of the construction is defined by the development costs (e.g. construction costs); and
  - The *indirect effect* of this phase is typified by the subsequent flow-on impacts on other sectors of the economy, particularly the supply-chain.
- The **ongoing operational phase** – This considers the annual economic impact from the project benefits, quantified by the level of visitor expenditure generated annually. The ongoing direct and indirect impacts are defined as follows:
  - The *direct effect* is represented by visitor expenditure; and
  - The *indirect effect* reflects the additional, flow-on output generated by other sectors of the economy, particularly the supply chain.

It is important to note that resident expenditure is excluded from the economic impact assessment, as this does not constitute 'new' expenditure in the area (i.e. resident spending will not increase as a result of the project, rather it will be used on other sectors within the local economy).

This assessment adopts the input-output method of analysis (I-O). The I-O method is based on the interdependencies and relationship between industry sectors and is widely used across the public and private sector to estimate the direct and flow on economic impacts of a project or activity to an economy.

The Productivity Commission of Australia states that "*input-output tables can be used to compute output, employment and income multipliers. These multipliers take account of one form of interdependence between industries — that relating to the supply and use of products. The numbers add up the direct and indirect impacts of a change in final output of a designated industry on economic activity and employment across all industries in an economy.*"

The economic impact area adopted for this assessment is Victoria's Hume region. All figures in this section are indicative only and based on an adopted set of assumptions, which are detailed in Appendix C. Definitions of economic terms can be found in the glossary.

CONSTRUCTION PHASE IMPACTS

It is estimated that the construction of the Mt Elliot Adventure Park will generate a total economic output of $5.8 million and support 15 (FTE) jobs during the construction phase (see Table 23).

ONGOING ECONOMIC IMPACT

Table 23 summarises the ongoing economic impact of the Mt Elliot Adventure Park, based on direct expenditure of $874,200 million per annum at the end of the five-year period in 2032.

The project is estimated to deliver a total economic output of $1.65 million per annum and generate 9 (FTE) jobs in the Hume Region.

Table 23. Economic impact summary

	Additional Output	Additional Jobs
Construction Phase Impacts		
Direct	$2.8 million	6
Indirect	$3.0 million	9
Total	$5.8 million	15
Ongoing Operational Impacts		
Direct	$874,200	**7**
Indirect	$777,763	2
Total	$1,651,963	9

Source: Urban Enterprise, 2023.

Qualitative Benefits

Whilst it is recognised that constructing the Mt Elliot Adventure Park would result in a notable economic impact generated from both the construction and operational phases, there is also a suite of key qualitative benefits that will be delivered to the region; notably community and environmental benefits.

The key benefits that are expected to be generated from delivering the Masterplan are as follows:

- Strengthening the Towong Shire and Victoria's High Country brand as a premier cycling and walking destination.
- Encouraging a greater dispersal of visitation across the region.
- Increased health and wellbeing benefits.
- Alignment of Local and State Government Tourism, Health, Wellbeing and Economic Development Objectives.

Strengthening the Towong Shire and Victoria's High Country brand as a premier cycling and walking destination.

Victoria's High Country is Australia's premier cycling destination, home to the most challenging alpine ascents and more than half of Victoria's recognised mountain bike tracks.

Construction of a new trail network at Mt Elliot will continue to strengthen the region's brand as a premier cycling and walking destination, diversifying the region's tourism product strengths and meeting different walking and cycling market preferences.

Encouraging a greater dispersal of visitation across the region.

The Masterplan will open access to Mt Elliot become a destination driver for many locals and visitors to Mt Elliot for the first time.

This will attract more visitors to travel across the Shire, promoting greater dispersal of tourist exposure and expenditure, as well as longer lengths of stay in the Upper Murray region. This will create economic benefit for local businesses in the surrounding region.

Increased health and wellbeing benefits.

There are significant benefits associated with increased levels of walking and cycling. Various studies have been conducted into the health, environmental and economic benefits associated with walking and cycling. Benefits include:

- Health and health cost savings through an increase in activity (or reduction in inactivity);
- Reduced traffic congestion, road provision costs, vehicle ownership, operating and parking costs;
- Reduced environmental pollution and traffic noise;
- Improved physical and cognitive health for children and seniors in particular; and
- Increase in social connection and civic pride.

The Mt Elliot Adventure Park will strengthen Towong Shire's inventory of recreational assets, in which locals and visitors can utilise for exercise and leisure purposes.

It has been acknowledged that greater access to recreation and leisure infrastructure results in improved physical health and wellbeing. Regular physical activity has been shown to improve overall health and reduce the risk of a wide range of diseases, including cardiovascular diseases, hypertension, diabetes and some types of cancers[6]. This is a result of an increase in activity (or reduction in inactivity).

The construction of new MTB and hiking trails will help increase the average

[6] The Victorian Open Space Planning and Design Guide, Parks and Leisure Australia (2013)

Qualitative Benefits

amount of time spent exercising by the Upper Murray community. The expected increase in time spent on the trail for cyclists will result in recreation and leisure benefits in the form of health cost savings.

Alignment of Local and State Government Tourism, Health, Wellbeing and Economic Development Objectives.

Construction of the Mt Elliot Adventure Park satisfies some of the key goals and objectives identified in Local and State Government Strategies including:

Victorian Cycling Strategy 2018-28

- ✓ Increase the participation of underrepresented groups (including Women, children and senior Victorians).
- ✓ Support recreational cycling and sport, tourism and community events

Experience Victoria 2033

- ✓ Investment into the five product priorities including **nature-based assets.**

Ovens Murray Regional Economic Development Strategy 2022

- ✓ Strengthen and diversify the visitor economy through **leveraging the region's nature** and epicurean tourism industries.

Victoria's High Country Destination Management Plan 2013 to 2023

- ✓ Invest in the Victorian High Country's (VHC) five product pillars including **Cycle Tourism and Nature-based experiences.**

North East Victoria Cycling Optimisation Plan (NEVCO)

- ✓ Increase cycling visitors to Victoria's High Country.
- ✓ Deliver cycling product, infrastructure, experiences and services to meet cycling market need.
- ✓ Increase yield from cycle visitors.
- ✓ Address gaps in cycle infrastructure and build on the existing cycle infrastructure network.
- ✓ Grow the High Country visitor economy through cycle tourism.
- ✓ Encourage dispersal of visitors throughout the High Country for cycle experiences.

Towong Shire Economic Development Strategy (EDS) & Destination Management Plan (DMP) 2021 – 2025

- ✓ Activate, harness and showcase key natural and waterway assets through investment and improved utilisation.
- ✓ Deliver the Mt Elliot Adventure Park priority investment project for Towong Shire.

Towong Shire Health and Wellbeing Plan 2021 to 2025

- ✓ Enhance infrastructure that encourages activity and open spaces.
- ✓ Support sporting clubs and groups to improve physical activity.
- ✓ Promote and support opportunities for active lifestyle choice.

Appendices

Appendix A Strategic Context Review

Ovens Murray Regional Economic Development Strategy 2022

The Ovens Murray Regional Economic Development Strategy (Ovens Murray REDS) lays out medium– to long-term strategic directions for driving economic development in the region.

1. Expand business and employment opportunities in the transport, distribution, and logistics industries.
2. Strengthen and diversify the visitor economy through leveraging the region's nature and epicurean tourism industries.
3. Expand on existing strength in manufacturing to take advantage of opportunities in new industries.
4. Support and expand economic and employment opportunities in growing sectors (health, social services, education).
5. Position the region to benefit from emerging growth opportunities in natural resources.

The Strategy seeks to increase visitor growth, length of stay and visitor spending by leveraging the region's key product pillars: cycle tourism, food, wine and beer, snow and nature-based activities, and arts and culture.

Victoria's High Country Destination Management Plan 2013 to 2023

Victoria's High Country Destination Management Plan 2013–2023 was developed to identify the strategic direction of the region with the aim of uniting marketing, investment, product development and industry development efforts to achieve strong tourism outcomes for North East Victoria.

The High Country is defined by its product strengths – the five product pillars that are shared across the region and unique to the local offering: Cycle Tourism, Food, wine and beer, Snow, Nature-based experiences, Arts and Cultural Heritage.

The DMP sets 8 priority projects.

- Ride High Country – Rail Trails
- Ride High Country – Mountain Bikes
- Food, Wine and Beer Industry Innovation
- Alpine Snow Growth
- Alpine Resort Green Season Activation
- Inland Waterway Hubs
- Arts and Culture Invigoration
- Digital Excellence

Priority Project 1: Ride High Country – Rail Trails

The High Country features three iconic rail trails that will be collectively recognised as the best rail trail network in the Southern Hemisphere, acting as a major regional tourism driver. This position will be achieved through enhancing current trails with new and engaging trail installations, and by delivering rail trail extensions and upgrades to complete existing networks. This infrastructure will be supported through the development of new bike hubs that cater for the specific needs of cycle tourists, along with facilitated rail trail experiences and transport options. This project also entails the development of a regional 'Ride High Country' bike brand that is used to unite and promote the entire bike offering. Taken to market via a dedicated rail-trail campaign, this brand will be key in driving consumer awareness and bike product uptake.

Priority Project 2: Ride High Country – Mountain Bikes

The High Country will build on its strong mountain bike credentials to become the Australasian mountain bike destination of choice. This position will be achieved through the development of new mountain bike trails and ride experiences to fill existing gaps, and the improvement and extension of existing trails to establish a world-class regional bike park. Complementing the rail trail project, this offering also requires bike-specific hubs, new transport options and multi-destination experiences. The mountain bike product will be promoted under the overarching Ride High Country brand, with market exposure enhanced through the securing of high-profile events. The two Ride High Country projects (priority project 1 and 2) will enable the High Country to achieve an ownership position in the Victorian cycle tourism space.

Towong Shire Destination Management Plan 2021 to 2025

These are projects that will deliver the greatest economic benefit for the Shire, and will support the positioning of the Shire as a leading High Country destination to immerse in and experience nature.

The Mt Elliot Adventure Park is identified as a priority investment project for the Shire.

The Mt Elliot Adventure Park has strong community support and was previously identified as an opportunity in the Upper Murray Vision 2030 Plan as an opportunity and is acknowledged in the Municipality Recovery Plan.

Mt Elliot is home to a hang gliding launch pad and has a steep vertical drop of 600 metres also suited to gravity mountain biking.

Appendix A Strategic Context Review

Mt Elliott is well suited to the establishment of a shuttled gravity park. The shuttle services can support both hang gliding and mountain biking.

Principles for Mt Elliot Gravity Park:

- Support multiple gravity related recreation pursuits;
- Establish a range of gravity and flow trails for a variety of markets;
- Use the steep vertical of Mt Elliott to support downhill mountain biking;
- Create linkages with Corryong.
- Encourage youth engagement in mountain biking;
- Encourage active recreation in Corryong's township.

Estimated project cost: $4 million

Towong Shire Mountain Biking Strategy 2021

The Towong Mountain Biking Strategy assesses the mountain biking investment opportunities in the Shire. Mt Elliot is identified as a key candidate site for a Mountain Bike Park development. The recommended concept to guide investment includes:

- Trail Types: Flow Trails, Cross Country, Downhill, Traditional Old School Network
- Recommended Kms of Trail: 35km
- Key Target Markets: Visitors, Upper Murray Community

It was noted the following barriers be considered for future planning work:

- Lack of resources to support trail maintenance. It will be important the mountain bike parks are supported by the community to assist with maintenance of trails.
- Small population to draw on to support mountain biking. However, mountain biking may increase the attractiveness of the towns for new residents.
- There is some distance to Melbourne which is the core visitor market for the High Country. Whilst this is a barrier, it also will encourage visitors to stay overnight and longer, increasing visitor yield.

Towong Shire Council Plan 2021-2025

The Towong Shire Council Plan aims to improve municipal outcomes across 6 key areas, including:

- Asset Management Maintain and improve our Shire's infrastructure to meet the levels of service established in consultation with our communities.
- Community Wellbeing Encourage and support all people in our Shire to be healthy, happy, connected and resilient.
- Economic and Tourism Development Expand economic and employment opportunities across our Shire in a sustainable way.
    - Strengthen the capacity of existing and new businesses to thrive
    - Expand tourism offerings, promotion and experiences across the shire
- Land-Use Ensure that Council's planning, building and environmental health services support all aspects of liveability and sustainable population growth.
- Environmental Sustainability Integrate sustainable environmental management practices into all of our activities.
- Organisational Improvement Maintain a high performing customer-centred organisation that works with the community to develop and deliver priorities.

Towong Shire Economic Development Strategy 2021 to 2025

The Towong Shire Economic Development Strategy 2021-2025 (EDS) is a key strategic document for Towong Shire Council to help plan for future economic growth over the next five years.

1. Increase the rate of population growth and retention.
2. Support skilled workforce growth to service industry and residents.
3. Promote Towong Shire as a destination of choice for residents and visitors.
4. Improve liveability outcomes for residents.
5. Support the development of a more efficient and productive agricultural sector.
6. Advocate for investment in strategic infrastructure to meet community and industry needs.
7. Develop a more diverse business base, inc. rural industry, population service industries and tourism industry.
8. Support visitor economy growth through development of high-quality tourism product, infrastructure and experiences.
9. Support local businesses to stimulate investment, growth and promote resilience.

Appendix B Visitor Survey Results

Survey Overview

The Mt Elliot Adventure Park Masterplan Community and Business Survey undertaken as part of the consultation process, assisted in informing outcomes and objectives for the Masterplan.

The survey was undertaken from 13 April to 26 May 2023.

The community survey posed the following questions to stakeholders to help them consider the opportunities for Mt Elliot:

Project Drivers

- What recreational activities would motivate you to visit Mt Elliot?
- What recreational facilities would motivate you to visit Mt Elliot?

Development Opportunities

- What do you see as the major development opportunities for Mt Elliot?
- What additional services and infrastructure would be required to support development?

Aspirational Destinations

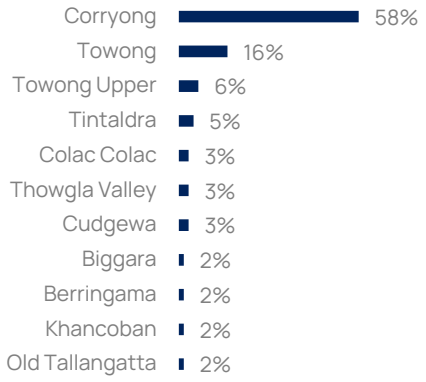
- Are there any mountain-based destinations (nationally or internationally) that you feel Mt Elliot could aspire to? Or do you have any other ideas or suggestions?

Survey Analysis

In total, the Mt Elliot Adventure Park Masterplan Community and Business Survey received 69 responses.

Survey Respondent Location

As shown in the figure below, majority of survey respondents live in Corryong (58%). Survey respondents were primarily aged between 50 and 59 years (31%).

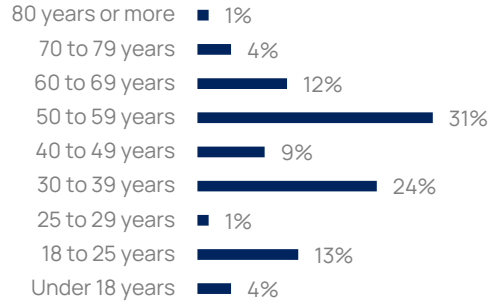


Source: Question 1. Where do you live? N=64, Mt Elliot Adventure Park Masterplan Community Survey, 2023.

Age Profile

Similar to the general population, survey respondents skewer older.

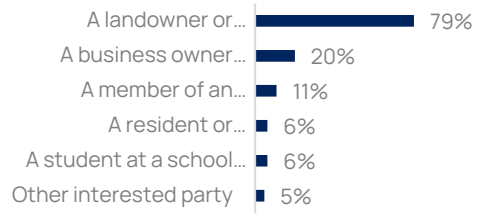
About one third of respondents were aged between 50 to 59 years, followed by the 30 to 39 age group (25%).



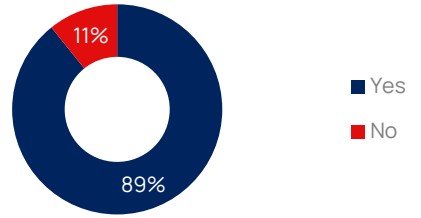
Source: Question 2. What is your age? N=68, Mt Elliot Adventure Park Masterplan Community Survey, 2023.

Relationship with Mt Elliot / Towong Shire

Majority of the survey respondents indicated they are a landowner or resident within Towong Shire (79%). 20% of respondents are a business owner in the Shire and 11% are a member of an organisation, club or group active on Mt Elliot. The figure below indicated that the majority of survey respondents have visited Mt Elliot in the past (89%).

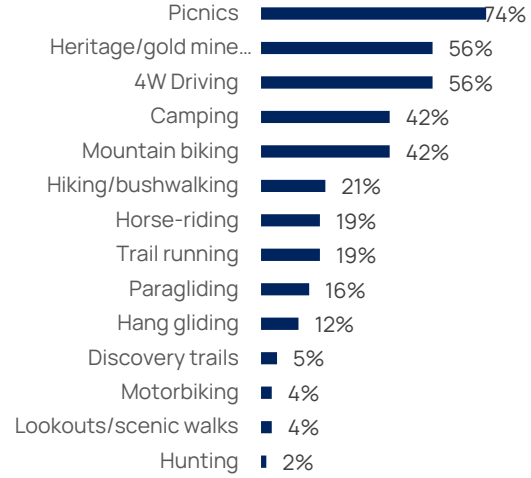


Source: Question 3. How would you best describe yourself? N=66, Mt Elliot Adventure Park Masterplan Community Survey, 2023.



Source: Question 4. Have you visited Mt Elliot before? N=65, Mt Elliot Adventure Park Masterplan Community Survey, 2023.

Motivational Recreation Activities

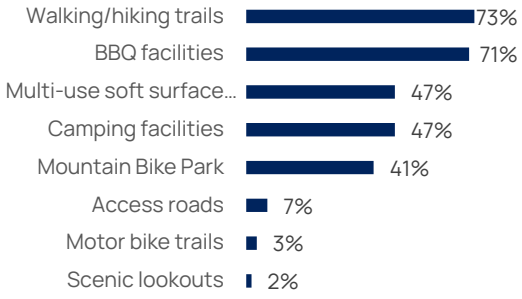


Source: Question 5. What recreational activities would motivate you to visit Mt Elliot? N=57, Mt Elliot Adventure Park Masterplan Community Survey, 2023.

Appendix B Visitor Survey Results

Recreation activities that would motivate respondents to visit Mt Elliot primarily include picnics (74%), heritage and gold mining history (56%) and camping (42%). Respondents are also highly motivated by outdoor adventure activities including four-wheel driving (56%) and mountain biking (42%).

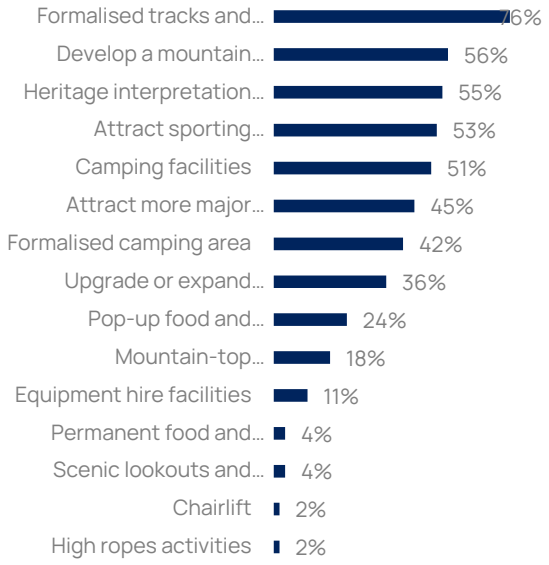
Recreational facilities needed to support the activities that would motivate respondents to visit Mt Elliot include walking and hiking trails (73%), BBQ facilities (71%), multi-use surfaces (47%) and camping facilities (47%).



Source: Question 6. What recreational facilities would motivate you to visit Mt Elliot? N=59, Mt Elliot Adventure Park Masterplan Community Survey, 2023.

Development Opportunities

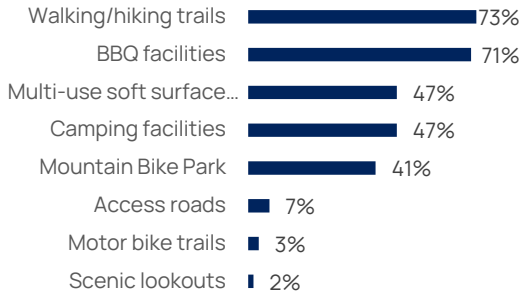
Major development opportunities for Mt Elliot include the formalisation of tracks and trails (76%), a mountain bike park (56%) and heritage interpretation and signage (55%).



Source: Question 7. What do you see as the major development opportunities for Mt Elliot? N=55, Mt Elliot Adventure Park Masterplan Community Survey, 2023.

Additional Services and Infrastructure

As identified by survey respondents, additional services and infrastructure required to support the development of Mt Elliot include improved road access (84%), picnic and BBQ facilities (77%) and improved car parking (58%).



Source: Question 8. What additional services and infrastructure would be required to support development? N=57, Mt Elliot Adventure Park Masterplan Community Survey, 2023.

Aspirational Destinations

Source: Question 9. Are there any mountain-based destinations (nationally or internationally) that you feel Mt Elliot could aspire to? Or do you have any other ideas or suggestions? N=28, Mt Elliot Adventure Park Masterplan Community Survey, 2023.

Survey respondents were asked to identify aspirational destinations; which are highlighted in the previous figure . Key aspirational destinations include Mystic Mountain, Thredbo Mountain Bike Park, Falls Creek and Derby Mountain.

Appendix C MTB and PG / HG Case Studies

MTB CASE STUDIES

Blue Derby Mountain Bike Park

Blue Derby Mountain Bike Trails is a renowned mountain biking destination located in the town of Derby in north-eastern Tasmania. With an extensive network of over 85km of trails, Blue Derby Mountain Bike Trails offers a range of green, blue, and black difficulty-rated trails. These trails are characterised by diverse terrains, including rocky descents, lush forests, and scenic river crossings, providing a thrilling and challenging experience for riders of all levels.

Blue Derby opened in 2014 and has received $4.5 million in government investment to expand the trail network over the past six years. Having previously benefited from a thriving tin mining industry, the Derby township had been in decline for a number of years following the closure of the town's mining operations. Since its development in 2014, the Park has grown visitation to approximately 45,000 visitors annually and has revitalised the economic outcomes for the town, adding an estimated $30 million to the regional economy.

The funding and management of the Blue Derby Mountain Bike Trails is primarily carried out through a combination of government support, private donations, and community partnerships, and commissions for accommodation bookings made through the Park's website. These functions are overseen by the Blue Derby Foundation, which was established in 2021 to build the Blue Derby brand, manage sponsorships and merchandise, and fundraise for trail maintenance and other projects around the town. The Blue Derby Foundation is a not-for-profit organisation comprised of a chairman and six directors. It was established by Dorset Council to act as an independent body to raise funds for the trails and support the economic and social development of Derby. The Blue Derby Foundation also runs a paid shuttle service to transport bikers back to the trail head, which is generally required for downhill biking trails.

As an independent entity that sits outside of Council, the Blue Foundation has greater capacity to partner with private sponsors, hold fundraising events, and accept public donations, which have proved critical to its ongoing success.

Mystic Mountain Bike Park

Located in Bright, north-east Victoria, Mystic Mountain Bike Park features trails that cater to all skill levels; from easy-grade green trails right up to double black trails for advanced riders. Mystic Mountain Bike Park is part of the larger network which includes other nearby areas such as Hero Trail, Canyon Trail, and more. The park's 50km of trails wind through picturesque landscapes, offering expansive views of the surrounding mountains and forests.

The park is operated by Alpine Community Plantations (ACP), a not-for-profit community group that was formed by the site's landowner, Hancock Victorian Plantations (HVP), the Alpine Cycling Club, Northeast Victoria Hang Gliding Club and the Bright and District Chamber of Commerce. The management of ACP is overseen by its executive officer and board of directors who are made up of representatives from each of the founding affiliate groups.

In late 2022, ACP announced that all riders using the Park, must obtain an ACP membership, with memberships ranging from single day, annual, to family packages. This shift away from a free to ride model was described as necessary to ensure the long-term viability of park. In addition to the membership fees, riders are also required to obtain a shuttle pass for the Park's shuttle service, which is run by Blue Dirt, a commercial shuttle operator.

Queenstown Bike Park, New Zealand

Queenstown Bike Park is carved into the pine forest above Queenstown. The bike park includes a 30km trail network with a world class reputation and incredible views over the surrounding landscape, including Lake Wakatipu. The park comprises 31 designated trails covering 450m of vertical elevation. The trails range from beginner to flowy machine-built trails to technical, narrow single tracks, with a number of jumps and features. The park was New Zealand's first lift assisted bike park, with a gondola running from the town to the top of the mountain that entrances the bike park. The bike park has no entry charge and is open all year round, however, the gondola requires a paid half-day, full-day or season pass. The gondola is open for up-lifts September through May, and the operator of the gondola provides assistance to the Park in the form of trail maintenance.

Appendix C MTB and PG / HG Case Studies

Separate from the bike park, Queenstown is renowned throughout the world as an adventure destination and offers a huge range of outdoor adventure activities. The destination receives approximately 2.9 million visitors annually and was experiencing strong growth (pre COVID-19), with tourism expenditure in excess of $2 billion a year.

Queenstown provides an example of a mountain bike park that has successfully leveraged a strong existing visitor market. Queenstown offers useful insights for Towong with respect to trail type and integration with townships to maximise the benefits generated by a mountain bike park.

PG / HG CASE STUDIES

Mystic Mountain

North East Victoria Hang Gliding Club (NEVHGC) operates its principal paragliding and hang gliding launch site at Mystic Mountain, near Bright in north-eastern Victoria. This Astroturf launch site is located right next to the road and is currently unobstructed as all pine trees have been cut down over the entire face of the hill. It boasts the safest launch area (about 100m wide) of all the sites in this region. This launch site, and the club's two landing zones, are located on a mixture of pine plantation land leased from Hancocks Victoria Plantations Pty Ltd (HVP), and private property.

As part of the club's lease agreement with HVP, flyers are required to be club members. The membership fees are not published on the club's website, however, the club notes that the fees contribute towards maintenance of the launch and landing areas, and the purchase of land management equipment and weather stations.

The Mystic Mountain site is suited to hang gliding, paragliding, thermalling and XC flying. To cater to visitors and first-time flyers, the club also offers tandem paragliding where beginners can fly with an experienced instructor.

Mystic Hill is one of the most popular launch sites in Victoria for paragliders and hang gliders. The site has hosted both national and international competitions, including the Paragliding World Cup in 1998 and 2018.

Fly Manilla

Flying at Fly Manilla covers all aspects of paragliding, from ground handling paddock, low slope training, high flights, ridge soaring, thermalling and cross country flying. The flying facility is located at Mt Borah, Manilla in NSW and maintains four different launch sites, which are selected depending on the wind conditions and time of day. Although the 'West launch' site serves as the main take-off area, the wind conditions may require use of one of the three other sites, all located nearby.

The operator of Fly Manilla owns all private landholding within Mt Borah, including the four launch sites. The business' other key assets include a sports facility building, and serviced cabins and camping facilities. Fly Manilla positions itself as having the most expansive site, services, and facilities out of all paragliding sites nearby; it hosts several national and international paragliding events. Since 1994, the club has hosted 18 international events and 15 NSW state championships.

Although the business is owned by its operator, who is a highly experienced paraglider, Fly Manilla offers membership to skilled and frequent flyers. To become a member of the Manilla Sky Sailors Club, flyers must have a current SAFA membership. Membership rates for pilots have remained at an annual fee of $30. All revenue generated from the fees goes towards maintaining the site's facilities at a 50/50 cost share basis between the business and its operator.

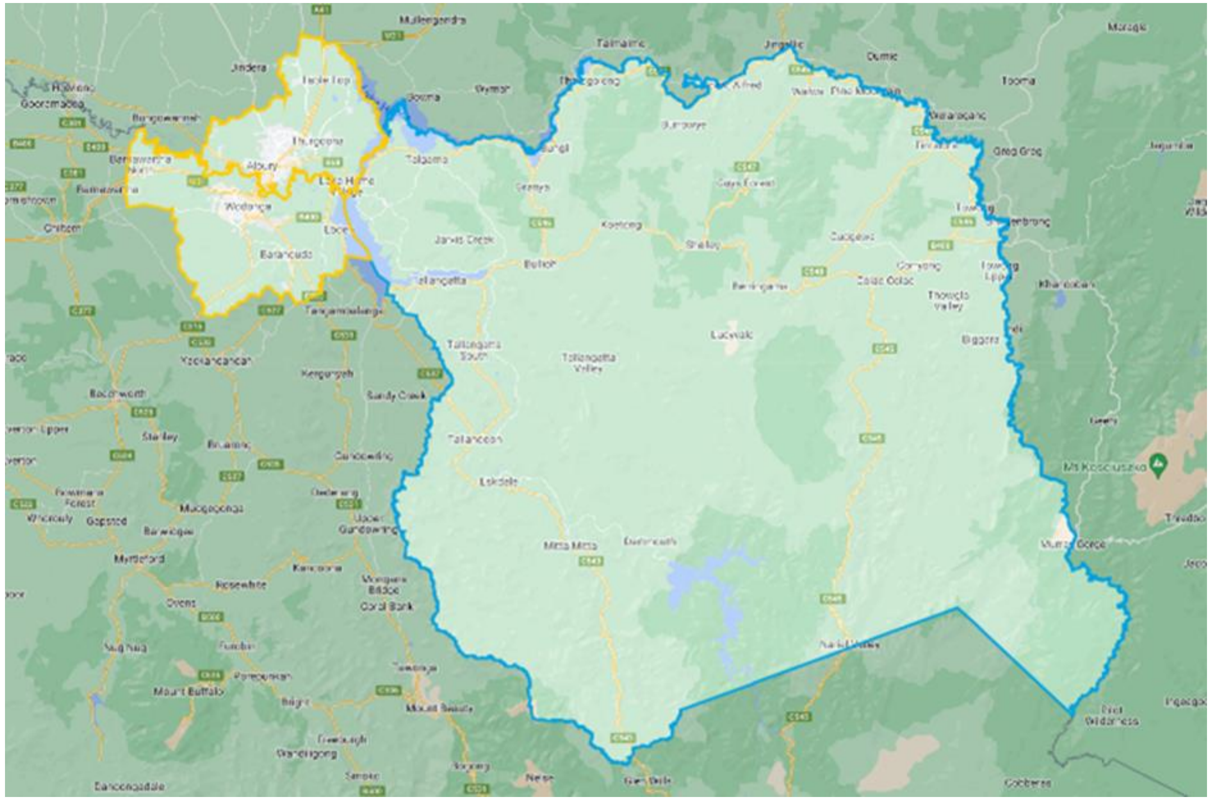
Canungra Hang Gliding

Canungra Hang Gliding Club operated across four flying locations: Beechmont, Tamborine, Hinchies, and Flying Fox. However, the club's premiere Beechmont site was closed in 2023 after the Queensland Environment Department banned the club from using a neighbouring paddock for its landing area. While the club owned the land at Rosins Lookout where its three launch sites were located, it relied on use of the nearby paddock for landings. Without access to this area for landings, the club had no alternative but to close the site.

Prior to its closure, the Beechmont site was best suited to hang gliding and paragliding. The club requires flyers to have a membership before flying, however, offers a range of membership types. These memberships include temporary memberships that are valid for a couple of days, right up to full annual memberships. Current members of the club can still fly from the remaining three locations. The closure of the club highlights the challenges that flying clubs can face when relying on land outside of their ownership for take-off or landings.

Appendix D Economic Impact Model Assumptions

Catchment Area



Appendix E Detailed Trail Construction Costs

Trail #	Trail	Distance	Build Rate l/m	Build Estimate	Infrastructure Allowance[1]	On Trail Signage[2]	Total
1	Descent 1	1,300	$35	$45,500	$5,200	$350	$51,050
2	Descent 2	1,400	$40	$56,000	$5,600	$500	$62,100
3	Descent 3	2,050	$40	$82,000	$8,200	$350	$90,550
4	Descent 4	2,020	$40	$80,800	$8,080	$1,100	$89,980
5	Descent 5	2,800	$35	$98,000	$11,200	$1,400	$110,600
6	Descent 6	2,320	$35	$81,200	$9,280	$1,100	$91,580
7	Descent 7	2,500	$35	$87,500	$10,000	$1,400	$98,900
8	Lebner's Link	1,270	$32	$40,640	$5,080	$500	$46,220
9	Fishers Link	1,660	$32	$53,120	$6,640	$350	$60,110
10	Lower Fishers Climb	2,010	$32	$64,320	$8,040	$350	$72,710
11	Mid Fishers Climb	1,670	$32	$53,440	$6,680	$350	$60,470
12	Upper Fishers Climb	1,460	$32	$46,720	$5,840	$350	$52,910
13	Pitsaw	2,950	$35	$103,250	$11,800	$500	$115,550
14	Elliot DH	2,060	$60	$123,600	$8,240	$1,100	$132,940
15	Southern Link	4,090	$35	$143,150	$16,360	$800	$160,310
16	Summit Shared Path	3,500	$30	$105,000	$10,000	$900	$115,900
17	Gap to Summit Hike (Build)	2,170	$25	$54,250	$15,000	$1,100	$70,350
-	**Total**	**37,230**		**$1,318,490**	**$151,240**	**$12,500**	**$1,482,230**

[1] Infrastructure allowance is a provisional sum for trail construction items such as rock armouring, elevated platform, minor low bridges etc.

[2] On trail signage allowance relates to tier 5 signage along the trail such as A/B line options, caution, gap jumps, drops etc. (Excludes trail start tier 4 signs). Due to the organic nature of MTB trail construction, a final signage plan will need to be completed post construction to quantify exact requirements. For walking trails this relates to wayfinding (Excludes interpretive).

Appendix F Detailed Financial Model

BENEFIT COST RATIO/NPV

Discount rate	7.0%

Year	Benefits	Costs	Discount factor	Discounted benefits	Discounted costs	Discounted net benefits	Net benefits
0	$ -	$ 2,471,615	1.00	$ -	$ 2,471,615	-$ 2,471,615	-$ 2,471,615
1	$ 576,600	$ 49,432	0.93	$ 538,879	$ 46,198	$ 492,680	$ 527,168
2	$ 611,568	$ 50,421	0.87	$ 534,167	$ 44,040	$ 490,128	$ 561,147
3	$ 646,536	$ 51,429	0.82	$ 527,766	$ 41,982	$ 485,784	$ 595,107
4	$ 681,504	$ 52,458	0.76	$ 519,916	$ 40,020	$ 479,896	$ 629,046
5	$ 716,472	$ 53,507	0.71	$ 510,835	$ 38,150	$ 472,685	$ 662,965
6	$ 751,440	$ 54,577	0.67	$ 500,716	$ 36,367	$ 464,349	$ 696,863
7	$ 786,408	$ 55,669	0.62	$ 489,735	$ 34,668	$ 455,068	$ 730,739
8	$ 821,376	$ 56,782	0.58	$ 478,048	$ 33,048	$ 445,001	$ 764,594
9	$ 874,200	$ 57,918	0.54	$ 475,507	$ 31,503	$ 444,003	$ 816,282
10	$ 909,168	$ 59,076	0.51	$ 462,175	$ 30,031	$ 432,144	$ 850,092

Present value benefits	$ 5,037,744			
Present value costs		$ 2,847,621		
NPV			$ 2,190,123	
Benefit-cost ratio				**1.8**

Appendix G Paragliding and Hang gliding Site Ratings

The definition of the difficulty levels assigned to each launch site is defined in the table below.

Difficulty	Definition
Paragliding 2 (PG2) **Hang Gliding (HG) Supervised**	A graduate of a student certification course is now licensed to fly solo, under supervision, as a new pilot. Take-off and landing are limited to flying sites with an easier rating.
Paragliding 3 (PG3)	After at least 15 flying hours over 60 successful flights, pilots are eligible to graduate to limited unsupervised flying.
Paragliding 4 (PG4) **Hang Gliding (HG) Intermediate**	After at least 30 hours flying time, on at least 25 flying days, pilots are eligible to be certified for flight at more difficult flying sites.
Paragliding 5 (PG5) **Hang Gliding (HG) Advanced**	The top rated pilot certification, this requires additional flying hours, as well as navigational certification.

Appendix H Cultural Heritage Management Plan (CHMP)

Proposed Mount Elliot MTB Trail, Biggara, VIC 3707

Cultural Heritage Management Plan No: 20119

Activity Size: *Large*

Assessment: *Desktop & Standard*

Sponsor: *Towong Shire Council*

(ABN: 45 718 604 860)

Heritage Advisor: *Damian Wall*

Author: *Damian Wall, Maggie Cronin & Jacqui Durrant*

Version 1

Date: 22/5/2024

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Proposed Mount Elliot MTB Trail, Biggara, VIC 3707

Cultural Heritage Management Plan
Number: 20119

Activity Size: Large

Assessment: Desktop & Standard

Sponsor: Towong Shire Council (ABN: 45 718 604 860)

Heritage Advisor: Damian Wall

Authors: Damian Wall, Maggie Cronin & Jacqui Durrant

Aboriginal Cultural Heritage in the Activity Area:
None

Version 1

Date: 22/5/2024

EXECUTIVE SUMMARY

Compliance requirements are set out in Part 1 of the Cultural Heritage Management Plan. Part 2 describes the Assessment undertaken within the Activity Area.

Activity Area

The activity area occurs within the Highlands Northern Fall bioregion, Towong Shire Council local government area (LGA) and North East Catchment Management Authority (CMA) area. An indicative trail alignment (as mapped by Terrain Trail Constructions) was provided by the proponent, with the proposed trail in the study area covering approximately 35 kilometres of existing roads and proposed new trail through State Forest east of Corryong, VIC.

The Sponsor

The sponsor for this CHMP is Towong Shire Council (ABN: 45 718 604 860).

The Activity

The proposed activity is a 35 kilometres of new mountain bike trail through State Forest near Biggara, east of Corryong, Victoria 3707. The trail will traverse a mixture of existing tracks, informal tracks, game trails and other existing disturbed areas, where possible, and will predominantly be a combination of new tracks that need to be constructed through State Forest, to bring them up to mountain bike trail standards. With the utilisation of existing tracks and game trails, the total length of new trail is significantly less than 35 kilometres of the total trail that forms the Activity area. Specific impacts are detailed in Section 4 of this CHMP.

Assessment Undertaken & Results

A Desktop & Standard Assessment were undertaken as part of the preparation of this CHMP which is being voluntarily prepared under r. 67(1)(a) and section 45 of the Act. The Desktop Assessment determined that, despite the likely disturbance within the Activity area, it is possible that Aboriginal cultural heritage is present, *therefore a Standard assessment was conducted pursuant to r.62(1) of the Aboriginal Heritage Regulations 2018.*

The Standard assessment did not record Aboriginal cultural heritage in the Activity area and concluded that the majority of works are proposed within areas where that have been disturbed through historic gold mining/exploration, forestry or existing tracks on steep (>1H:1V), heavily vegetated slopes.

Aboriginal cultural heritage was considered 'highly unlikely' or a 'low probability' to occur within the Activity area, therefore a Complex Assessment was not conducted in accordance with r.64 (1).

Aboriginal Cultural Heritage in the Activity Area

No Aboriginal cultural heritage material or places were located in the Activity area.

Contributors

Ms Jacqui Durrant' sole and specific attribution to this CHMP is Section 6.3 *Historical and Ethno-historical accounts in the geographic region*.

ACKNOWLEDGEMENTS

Reg Murray - Duduroa Dhargal Aboriginal Corporation

CONTENTS

LIST OF TABLES

LIST OF MAPS

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Part 1. Cultural Heritage Management Conditions

These Management Conditions become compliance requirements once the CHMP is approved. Failure to comply with a condition is an offence under Section 67A of the *Aboriginal Heritage Act* 2006.

The Cultural Heritage Management Plan must be readily accessible to the sponsor and their employees and contractors when carrying out the activity.

1. Cultural Heritage Management Conditions

The *Aboriginal Heritage Act* 2006 requires a CHMP to set out Management Conditions for measures to be taken before, during and after the activity. No Aboriginal cultural heritage was identified during the Desktop or Standard Assessment, and no areas are identified as likely to contain Aboriginal cultural heritage. No specific cultural heritage management activities are provided; however, one (1) general cultural heritage management condition has been detailed below.

1.1 Management Condition 1: Cultural Heritage Management Plan to be available onsite

A hard copy (or a digital copy on a suitable electronic device) of this approved Cultural Heritage Management Plan (CHMP) must be held onsite at all times within the on-site construction office or with the site manager if an office is not provided, where it will remain readily available to all construction staff.

2 Cultural heritage management contingencies

Clause 13(1) Schedule 2 of the Aboriginal Heritage Regulations 2018 requires that the management plan must contain a contingency plan for the matters referred to in Section 61 of the Aboriginal Heritage Act 2006, the resolution of disputes between the sponsor and the RAP, reviewing compliance with the CHMP including mechanisms for non-compliance, the management of Aboriginal cultural heritage identified during the activity, and the notification requirements in regards to the identification of Aboriginal cultural heritage during the activity.

Note that any notification and/or communication required as a result of adhering to these contingencies should refer to Appendix 6 for relevant contacts. A Compliance Checklist has been added as Appendix 5 for use prior to and during the works stage.

2.1 Contingency 1 – The discovery of Human Remains

If any suspected human remains are found during any activity, works must cease. The Victoria Police and the State Coroner's Office must be notified immediately. If there are reasonable grounds to believe the remains are Aboriginal, the Coronial Admissions and Enquiries hotline must be contacted immediately on 1300 309 519. This advice has been developed further and is described in the following 5-step contingency plan. Any such discovery at the activity area must follow these steps.

1) Discovery:
    a) If suspected human remains are discovered, all activity within at least 30 metres must stop
    b) The remains must be left in place and protected from harm or damage, and
    c) Do not contact the media; do not take any photographs of the remains other than those requested by the relevant authorities below.
2) Notification:
    a) If suspected human remains have been found, the State Coroner's Office and the Victoria Police must be notified immediately
    b) If there are reasonable grounds to believe the remains are Aboriginal Ancestral Remains, the Coronial Admissions and Enquiries hotline must be immediately notified on 1300 309 519
    c) All details of the location and nature of the human remains must be provided to the relevant authorities
    d) If it is confirmed by State Coroner's Office that the discovered remains are Aboriginal Ancestral Remains, the person responsible for the activity must report the existence of them to the Victorian Aboriginal Heritage Council in accordance with section 17 of the *Aboriginal Heritage Act 2006*.
3) Impact Mitigation or Salvage:
    a) The Victorian Aboriginal Heritage Council, after taking reasonable steps to consult with any Aboriginal person or body with an interest in the Aboriginal Ancestral Remains, will determine the appropriate course of action as required by section 18(2)(b) of the *Aboriginal Heritage Act 2006*
    b) An appropriate impact mitigation or salvage strategy as determined by the Victorian Aboriginal Heritage Council must be implemented by the Sponsor. All costs associated with this will be the responsibility of the Sponsor.
4) Curation and further analysis:
    a) The treatment of salvaged Aboriginal Ancestral Remains must be in accordance with the direction of the Victorian Aboriginal Heritage Council.

5) Reburial:

a) Any reburial site(s) must be fully documented by an experienced and qualified archaeologist and all relevant details provided to the Registrar

b) Appropriate management measures must be implemented to ensure the Aboriginal Ancestral Remains are not disturbed in the future.

2.2 Contingency 2 – Aboriginal cultural heritage (excluding Aboriginal Ancestral Remains)

1) Secret / sacred objects

a) Any suspected Secret / Sacred Objects must be reported to the Victorian Aboriginal Heritage Council, as per Part 2, Division 3 (sections 21-2) of the *Aboriginal Heritage Act 2006*.

b) All works must stop within at least 10 metres of the objects

c) The Victorian Aboriginal Heritage Council will transfer the object/s to an Aboriginal person that the Victorian Aboriginal Heritage Council is satisfied is entitled to and willing to take possession, custody or control of the object/s, or otherwise deals with the object/s as the Victorian Aboriginal Heritage Council thinks appropriate, as per section 21B of the *Aboriginal Heritage Act 2006*.

2) Discovery

If any other suspected Aboriginal cultural heritage, excluding Aboriginal Ancestral Remains and suspected Secret / Sacred Objects, is uncovered or identified:

i) All works must stop within at least 10 metres of the suspected Aboriginal cultural heritage

ii) The 'stop works' area around the suspected Aboriginal cultural heritage must be fenced off using appropriate temporary fencing and protected from further disturbance; "no-go zone" signage must be attached to the fencing at all times to prevent the area being disturbed further

iii) An appropriately qualified Heritage Advisor must be notified within two working days

iv) An appropriately qualified Heritage Advisor must inspect the suspected Aboriginal cultural heritage within three working days of notification

v) Relevant Traditional Owner groups must be provided the opportunity to participate in the inspection.

3) Notification

The Department of Premier and cabinet (vahr@dpc.vic.gov.au) must be notified of the discovery of any Aboriginal cultural heritage excluding Aboriginal Ancestral Remains by the Sponsor within five working days.

4) Unexpected discoveries of Aboriginal cultural heritage

If the Heritage Advisor determines that the discovery is Aboriginal cultural heritage, and is not Aboriginal cultural heritage as described in Example Contingency 2.5:

i) the Sponsor must consider whether it is possible to avoid harm to the Aboriginal cultural heritage, and if harm cannot be avoided, whether harm can be minimised, and salvage excavation of the Aboriginal cultural heritage undertaken to mitigate impact

ii) if harm cannot be avoided, the Sponsor must arrange a meeting between the Heritage Advisor, relevant Traditional Owner groups (should they wish to attend) and the Department of Premier and Cabinet, as soon as practicable, to discuss and agree an appropriate way of managing the Aboriginal cultural heritage

iii) all reasonable costs arising from the meeting and any agreed management actions must be borne by the Sponsor

iv) the temporary fencing around the suspected or identified Aboriginal cultural heritage may be removed, and works re-commence in the "no-go zone", when the suspected or identified Aboriginal cultural heritage has been investigated and managed appropriately, in accordance with *the Aboriginal Heritage Act 2006* and as agreed in discussions with the Department of Premier and Cabinet

v) the Heritage Advisor must record the Aboriginal cultural heritage in accordance with VAHR standards and relevant forms must be submitted to the Victorian Aboriginal Heritage Register as soon as practical.

5) Not unexpected Aboriginal cultural heritage and low density artefact distributions

If the Heritage Advisor determines that the discovery is a low density artefact distribution or other expected Aboriginal cultural heritage:

i) the Heritage Advisor must record the Aboriginal cultural heritage in accordance with Victorian Aboriginal Heritage Register (VAHR) recording standards, and relevant forms must be submitted to the VAHR as soon as practical

ii) works can continue once the Aboriginal cultural heritage has been recorded and all temporary fencing is removed.

2.3 Contingency 3 – Custody and Management

Where the Secretary, Department of Premier and Cabinet determines the approval of a Management Plan, the custody of Aboriginal cultural heritage (with the exception of Aboriginal Ancestral Remains, or secret or sacred objects) discovered during or after an activity must comply with the requirements of the *Aboriginal Heritage Act 2006* and be assigned according to the following order of priority, as appropriate:

a. any relevant Registered Aboriginal Party for the land from which the Aboriginal cultural heritage is salvaged

b. any relevant registered native title holder for the land from which the Aboriginal cultural heritage is salvaged

c. any relevant native title party (as defined in the *Aboriginal Heritage Act 2006*) for the land from which the Aboriginal cultural heritage is salvaged

d. any relevant Traditional Owner or Owners of the land from which the Aboriginal cultural heritage is salvaged

e. any relevant Aboriginal body or organisation which has historical or contemporary interests in Aboriginal cultural heritage relating to the land from which the Aboriginal cultural heritage is salvaged

f. the owner of the land from which the Aboriginal cultural heritage is salvaged

g. Museum Victoria.

1) Final management arrangements, such as repatriation and / or reburial, must occur within six months of the completion of the activity.

2) If the relevant Traditional Owners request, and if it is practical, provisions should be made to re-bury artefacts within the activity area, in a place which will not be disturbed by future works. (Note, if reburial is to be within the extent of registered place the management plan must allow for that harm to occur.)

3) Any reburial must be documented by a suitably qualified Heritage Advisor and the relevant forms and spatial data provided to the VAHR, as soon as practicable.

2.4 Contingency 4 – Dispute Resolution

This contingency has no application as the Secretary to the Department of Premier and Cabinet is evaluating the Management Plan.

2.5 Contingency 5 – Compliance

In the event of suspected non-compliance:

a) All relevant works must stop
b) The Sponsor must contact the Statewide Compliance and Enforcement Unit (compliance.aboriginalvictoria@dpc.vic.gov.au) within two working days to review the suspected non-compliance and agree to any required remedies
c) If agreement cannot be reached by all parties, the Minister may order an audit of the management plan.
d) All reasonable costs arising from the meeting and any agreed remedies must be borne by the Sponsor.

Part 2. Assessment

3 Introduction

Towong Shire Council ("the Sponsor") is proposing a new Mountain bike trail (MBT) near Biggara, east of Corryong, Victoria. the Corryong Circuit Trail within the township of Corryong, VIC 3707. The project proposes the construction of approximately 35 kilometres of MTB trail (less than one metre-wide shallow excavated earthen path) to provide a variety of trails to suit different skill levels, with the aim of increasing recreational opportunities and fitness levels in the local and broader region. There is also a proposed 3.5-kilometre shared path for bicycles and pedestrians which loops around the hang-gliding and paragliding launch area on the summit.

3.1 The reasons for preparing a Cultural Heritage Management Plan

This CHMP is being voluntarily prepared under r. 67(1)(a) and section 45 of the Act and assesses the impacts associated with the proposed development. The Activity area does not intersect any mapped areas of cultural heritage sensitivity in accordance with r.26 & 25 of the Regulations.

However, the proposed activity is considered to be a *high impact activity* in accordance with r.47 Constructing specified items of infrastructure:

> (1) The construction of any one or more of the following is a high impact activity if the construction would result in significant ground disturbance—
>
> (b) a bicycle track with a length exceeding 500 metres;

3.1.1 Voluntary Cultural Heritage Management Plan

Based on an analysis of the proposed activity and the requirements set out by the Regulations of the Aboriginal Heritage Act 2006, a Cultural Heritage Management Plan (CHMP) is NOT a mandatory requirement for the works being proposed.

However, the Sponsor has requested a Voluntary CHMP be undertaken to manage the risk of uncovering Aboriginal cultural heritage during works on the Activity area.

3.2 Notice of Intention to prepare a Cultural Heritage Management Plan

Currently there is no Registered Aboriginal Party (RAP) for the activity area. A Notice of Intention (NoI) to prepare a plan was provided to the Secretary of the Department of Premier and Cabinet (DPC) on 8th May 2024. A copy of this notice is in Appendix 1.

3.3 Location and Extent of the Activity area

The activity area occurs within the Highlands Northern Fall bioregion, Towong Shire Council local government area (LGA) and North East Catchment Management Authority (CMA) area. An indicative trail alignment (as mapped by Terrain Trail Constructions) was provided by the proponent, with the proposed trail in the study area covering approximately 35 kilometres of existing roads and proposed new trail through Crown land reserves.

The assessment area considered for the purposes of this assessment was 10 metres either side of the indicative trail (Map 1).

Table 1: Crown Allotment & SPI Details of the Linear Activity area

Crown Description	Address	Standard Parcel Identifier (SPI)	Parish
Allot. 34	Mount Elliot Ridge Track, Towong, 3707	34\PP3644	Towong
Allot. 36B	Fishers Track, Towong Upper, 3707	36B\PP3644	Towong
Allot. 34, Allot. 34A, Allot. 7A Sec. K	Mount Elliot Ridge Track, Towong, 3707	34\PP3644, 34A\PP3644, 7A~K\PP3644	Towong
Allot. 36A	North Findlay Track, Towong Upper, 3707	36A\PP3644	Towong
Allot. 38A	Fishers Track, Towong Upper, 3707	38\PP3644	Towong
Allot. 39	Fishers Track, Towong Upper, 3707	39\PP3644	Towong

3.4 Sponsor

The sponsor for this CHMP is Towong Shire Council (ABN: 45 718 604 860). The Sponsors contact for the works described in the CHMP is:

Name: Kerissa Heritage
Address: P.O. Box 55 Tallangatta, Vic, 3700
Email: Kerissa.Heritage@towong.vic.gov.au
Phone: 0428 568 156

3.5 Owners and occupiers of the land

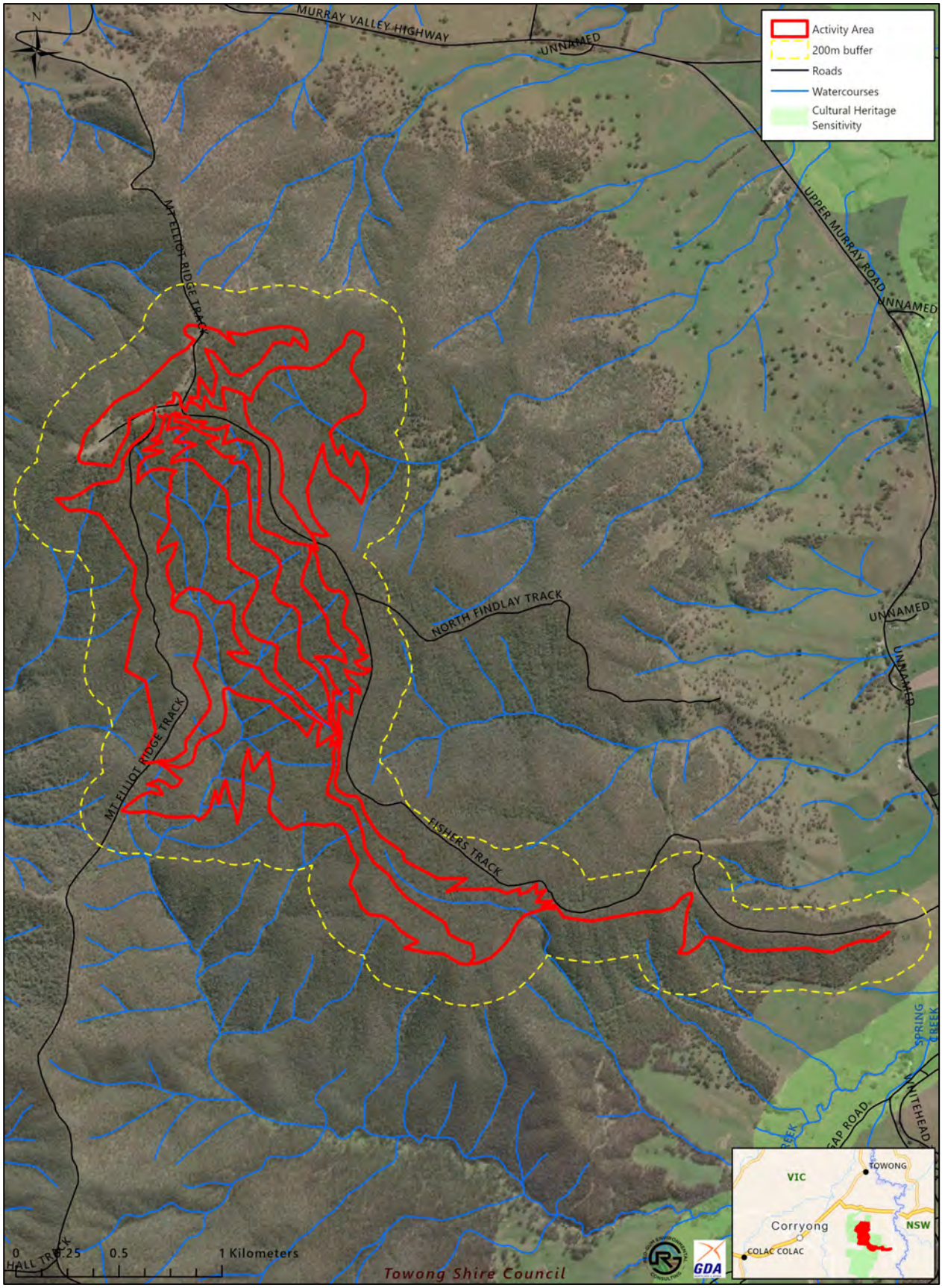
The Activity area is within State Forest managed by the Department of Environment, Land, Water and Planning (DELWP).

3.6 Heritage Advisors

Damian Wall (Red-Gum Environmental Consulting Pty Ltd) has 15 years' field experience in Archaeological practice, is a Full Member of the Australian Association of Consulting Archaeologists Inc (AACAI) and has a Graduate Certificate in Cultural Heritage Management from Flinders University (SA). Damian is suitably qualified under section 189 of the *Aboriginal Heritage Act* 2006 and appropriately qualified in archaeology to supervise excavation for a complex assessment as specified in Aboriginal Heritage Regulation 2018, s.61(3).

3.7 Registered Aboriginal Parties

Currently there is no Registered Aboriginal Party (RAP) for the Activity area. The Secretary of the Department of Premier and Cabinet (DPC) will assess this CHMP. The Duduroa Dhargal Aboriginal Corporation (DDAC) are an interested party in the region including the activity area and had representatives involved in review of the Draft CHMP and development of the Management Conditions.



Map1: Activity area location. Source: ESRI Australia, 2024. Scale 1:6,000

4 Activity Description & Potential Impacts

Towong Shire Council ("the Sponsor") is proposing the construction of approximately 35 kilometres of Mountain Bike (MTB) Trail near Biggara, east of Corryong, Victoria 3707. The trail will traverse a mixture of existing tracks, informal tracks, game trails and other existing disturbed areas, where possible, and will predominantly be a combination of new tracks that need to be constructed through Crown bushland and other works on those existing tracks to bring them up to MTB trail standards. With the utilisation of existing tracks and game trails, the amount of new trail is significantly less than 35 kilometres total length.

4.1 Statement of Potential Impacts

The proposed activity expands on existing tourist trails and off/on-road track networks in the Upper Murray region, including the existing High Country Rail Trail which travels from Wodonga to Corryong. The project is seen as an important opportunity to further increase tourism to the region, grow the economy and strengthen the health and well-being of the region's residents by providing new scenic recreational pursuits. The project includes the following elements:

- Approximately 34.9 kilometres of trails utilising existing unofficial trails, game trails and other disturbed areas where possible.
- The majority of new trail is being constructed through patch vegetation, ranging from low-moderate (around the cleared summit of Mount Elliot) to high quality condition.
- Trails are generally approximately 50 centimetres wide, up to a maximum of one metre wide for berms and switchbacks. Losses have been calculated on a one metre-wide loss zone to factor in tracking of construction machinery along the alignment (hence losses will actually be considerably less than the one metre-wide loss figure being offset);
- Trees losses being avoided and trail construction within Tree Protection Zones (TPZ) to occur at natural soil grade with minimal excavation of the natural surface (with a maximum of 150mm depth).
- Avoidance of tree Structural Root Zones (SRZ) unless unavoidable, and where crossed, no excavation within Structural Root Zones (SRZ), with some use of local clean permeable fill to create a level trail surface where SRZ are intersected (but not impacted via building up to avoid root zone damage);
- Trail construction outside of TPZs, to be excavated to a suitable subgrade, generally no deeper than 150mm, but in some areas greater depth may be required for track grade, drainage run-offs or obstacle avoidance measures;
- Waterways and wet areas being avoided to the greatest extent possible via design and micro-siting final alignment. Fibreglass bridge crossings with minimal low impact footings (hand drilled pile footings) where the trail crosses small creeks.
- Extended fibreglass boardwalks where other sensitive areas are to be avoided, via aerial routing of the trail, if required. Micro-siting of final route should largely if not completely avoid this requirement.

These activities have the potential to impact on the current land surface, subsurface deposits, any buried land surfaces and surface and/or subsurface Aboriginal cultural heritage that may be present in the activity area.

5 Documentation of Consultation in Relation to the Assessment

A Notice of Intent to Prepare a Management Plan (NOI) was submitted to the Secretary of the Department of Premier and Cabinet (DPC) 8th May 2024 in accordance with s. 54 of the Act (Appendix 1).

5.1 Consultation in Relation to the Proposed Methodology

An inception meeting between Damian Wall (Red-Gum Environmental Consulting Pty Ltd) and Reg Murray (Duduroa Dhargal Aboriginal Corporation) was held via phone on 10h May 2024 and it was agreed that the survey methodology was to be one (1) Heritage Advisor walking accessible parts of the Activity area with one (1) additional Red-Gum Archaeologist, one (1) Red-Gum field staff one and (1) Aboriginal representatives from Duduroa Dhargal Aboriginal Corporation (DDAC).

A Standard assessment summary and management conditions meeting was held on site between Damian Wall (Heritage Advisor, Red-Gum Environmental Consulting), Maggie Cronin (Red-Gum Archaeologist), Olivia Hynam (Red-Gum Field Staff) and Reg Murray (DDAC) on 14th May 2024. The meeting discussed the effectiveness of the methodology and the results of the assessment (Section 7). All representatives agreed that the Standard assessment had adequately assessed the Activity area for the presence of Aboriginal Cultural Heritage and were satisfied with the proposed Management Conditions and contingencies.

5.2 Fieldwork Participation

A standard assessment was undertaken on 14th May 2024 by Damian Wall (Heritage Advisor, Red-Gum Environmental Consulting), Maggie Cronin (Red-Gum Archaeologist), Olivia Hynam (Red-Gum Field Staff) and Reg Murray (DDAC). No (zero) Aboriginal cultural heritage was identified during the standard assessment. It was agreed that the majority of landforms intersected by the Activity area were very steep and heavily vegetated, possessing inherently low archaeological potential.

5.3 Summary of Consultation in Relation to the Management Conditions

A Management Conditions meeting between Damian Wall (Heritage Advisor, Red-Gum Environmental Consulting), Maggie Cronin (Red-Gum Archaeologist), Olivia Hynam (Red-Gum Field Staff) and Reg Murray (DDAC) on site, after the Standard Assessment on 14th May 2024.

The meeting discussed the effectiveness of the methodology and the results of the assessment. All representatives agreed that the Standard Assessment had adequately assessed the activity area for the presence of Aboriginal Cultural Heritage and were satisfied with the proposed Management Conditions and contingencies.

6 Aboriginal Cultural Heritage Desktop Assessment

6.1 Introduction

Under Part 3 of the *Aboriginal Heritage Regulations 2018*, a CHMP must include a desktop assessment and if required, also a Standard Assessment and/or a Complex Assessment. The desktop assessment was undertaken by Damian Wall, Olivia Hynam & Jacqui Durrant to determine the likelihood of the activity area containing Aboriginal cultural heritage and to assist in assessing the significance of any heritage that may be found. Desktop research provides information enabling predictions to be made as to whether a place may contain Aboriginal cultural heritage. This research involves the following:

- Investigating the site registry.
- Reviewing other cultural heritage reports undertaken within the geographic area.
- Reviewing local ethnographic histories of the area.
- Research into past historic land use.
- Reviewing local histories of the area.
- Researching the geomorphology and geology of the region encompassing the Activity area.

6.2 The Geographic region

For the purposes of this report, the geographic region is considered as a 10km buffer of the Activity area as this area is considered to contain a representative sample of all features that exist throughout the landforms relevant to the Aboriginal cultural heritage that may be present (Map 3). This assessment will study comparable landscape factors including geology, topography, environmental conditions and occurrence of potential archaeological sites. Those sites within the geographic region, that have the most similar landscape features to that of the activity area have been prioritised for scrutiny.

6.2.1 Climate

Climate conditions have been sourced from the nearest weather observation station in Khancoban, approximately 36 km east of the activity area. Average daytime maximum temperatures in Corryong are 22 °C with summer time maximums reaching 40 °C and prevailing winds from the northwest. Rain typically falls as thunderstorms in the summer, and in winter with cold fronts, with April the driest month and June the wettest (BOM, August 2023). Rainfall averages out to 630 millimetres (25 in) a year, most of which falls in winter with passing frontal systems; however, these can occur at any time of year, and the main form of rainfall in spring and summer is from thunderstorms (BOM, August 2023).

Aboriginal people have been in Australia for at least 40–60,000 years and possibly longer (Allen 1989; Jones 1995). This period falls within the last world climatic downturn or glacial period, which commenced about 80,000 years ago. During the glacial period, the climate was up to 6°C lower in the southern hemisphere, the tree line was lowered, and large glaciers formed in Tasmania and on the Great Divide (Gibson et al. 1987). Greater amounts of water held within the large glaciers and ice sheets led to lower sea levels and Tasmania and Papua New Guinea were joined to Australia by land bridges. The climate was much drier and cooler and landmasses stretched to the edge of the continental shelf. After 26,000 years before present (BP) the climatic downturn became more severe and sea levels were at their lowest and the climate at its coldest at 18,000 BP (Bowler et al. 1976: 374; Dodson et al. 1992: 117; Freslov 2018: 27).

Temperatures were up to 6°C lower than today and while Tasmania was heavily glaciated, on the mainland cirque glaciers were only found at Mount Kosciusko (Peterson 1968: 74–75). As conditions ameliorated following the last glacial, it became milder, but wetter and the tree line increased to its present altitude. Vegetation dependant on wetter conditions expanded, including rainforests and wet sclerophyll forests, reaching its maximum extent during the mid-Holocene at 5000 BP (Gell & Stuart 1989: Figures 6–11). Since 5000 BP, conditions have been cooler and drier, with the ENSO (El Nino Southern Oscillation) weather pattern becoming more dominant (Rowland 1999: 18; Sandweiss et al. 1996). Increased fire risks and extensive fires are associated with a periodic but severe ENSO weather pattern (Freslov & Goulding 2002; Freslov 2018: 27).

6.2.2 Geomorphology

The Activity area is located within the Eastern Uplands (EU) geomorphic division. The EU It is centred on the main divide in eastern Victoria, separating streams draining north to the Murray-Darling Basin from those flowing southwards directly to the sea (VRO, 2023). The EU division is variable in height and follows a meandering path as a parting of north and south draining river systems in an extensive area of mountain ridges and high plateau-like surfaces (VRO, 2023).

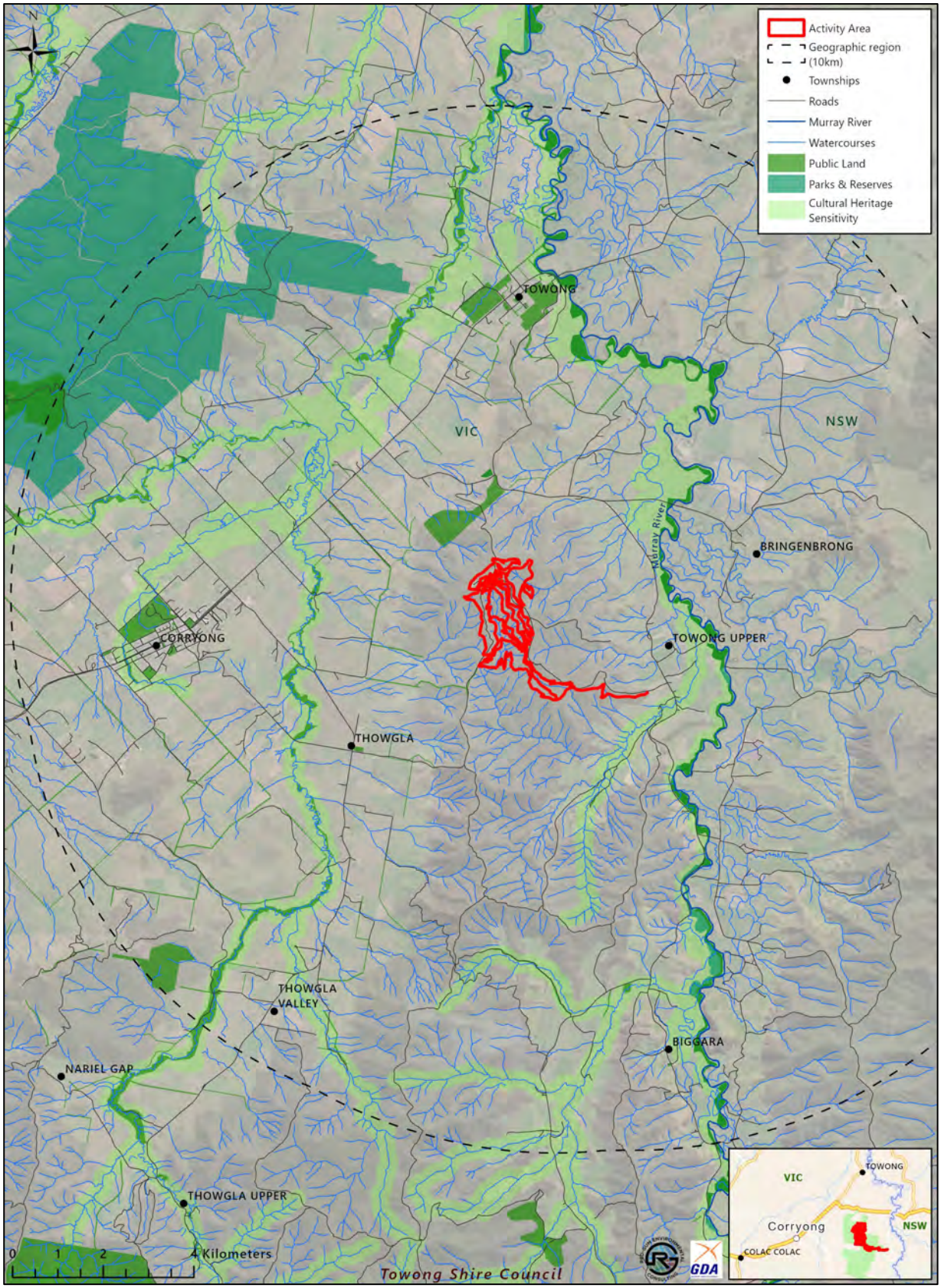
The Activity area is mapped as being located in the Deeply dissected ridge and valley landscapes (headwaters of major rivers such as the Wonnangatta, King and Kiewa Rivers, Mt Coopracambra) geomorphological tier (Map 3) which consists of high, narrow-topped ridges form the divides between the major streams, and steep spurs and side slopes extend down to steeply graded streams, deeply incised with intricately interlocking V-shaped spurs and tributary valleys, commonly with local relief of 500-700 m from ridge-top to valley bottom. The upper levels of the highest ridges are typically accordant with the high-level plateaus (about 1 500- 1 800 m), but most tend to be no higher than about 1 000-1 200 m, and decrease in height the further north or south they are from the high level landscapes (VRO, 2024).

6.2.3 Geology

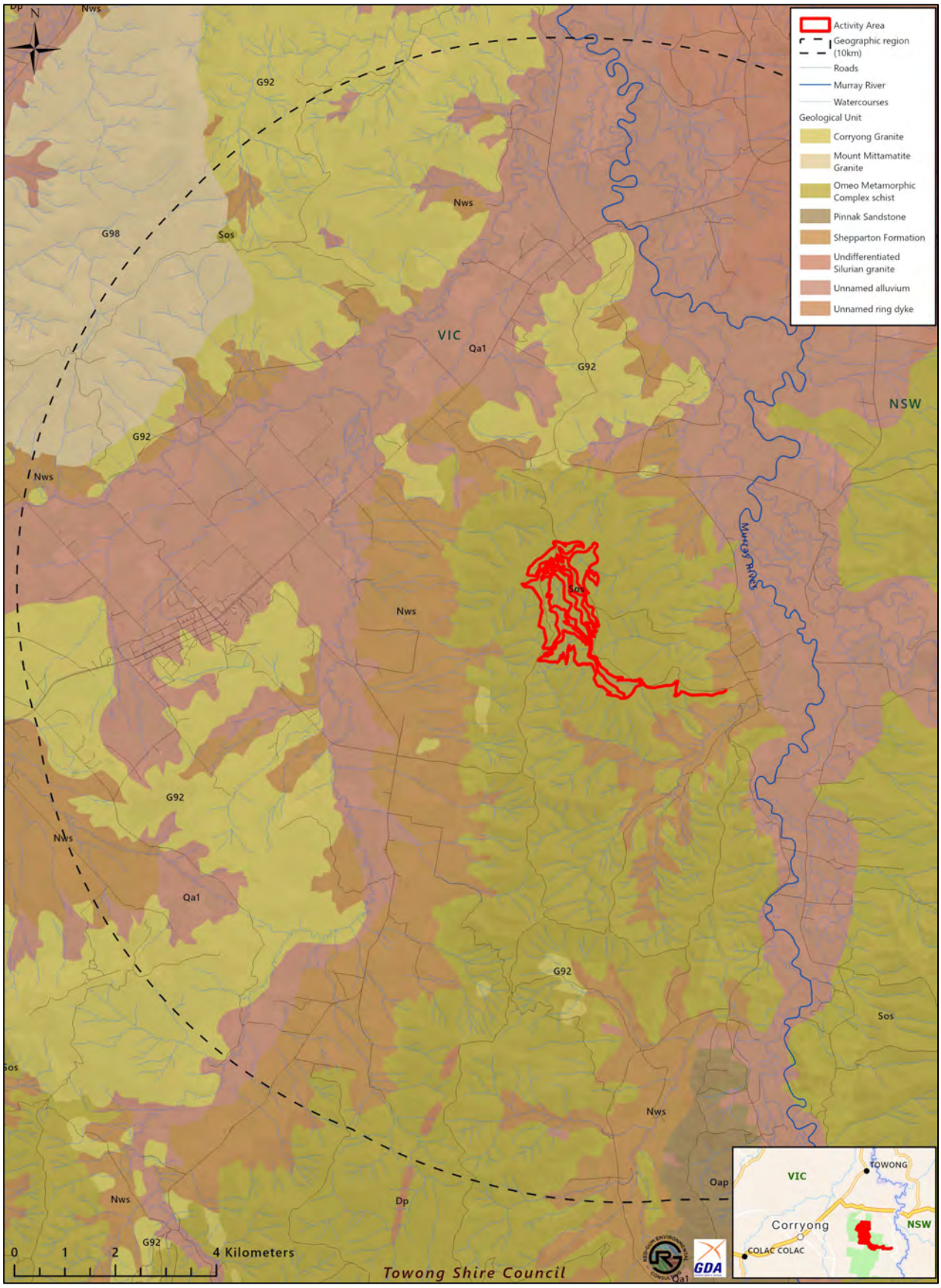
The Activity area is located (Map 4), in the Eastern Highlands, which is mountainous with several wide, flat river valleys cutting into the highlands and draining into the Murray River system. The area is part of the Lachlan Fold Belt and within the Omeo Structural Zone, incorporating parts of the High Plains and Corryong subzones, and the Wagga–Omeo Metamorphic Belt (Simpson et al, 2001).

The geological history of the area involved deposition of a large volume of turbidites in a deep water setting that were then deformed and intruded by granite during the Benambran and Bindian orogenies. A period of extension in the Early Devonian resulted in the formation of the Mount Burrowa and Dartella calderas of the Cravensville Igneous Province, north-west of the activity area. Simpson et al (2001) note that *"the area was deformed again during the Tabberabberan Orogeny. Erosion has been the most important geological process since the Devonian, except for a period of extension and uplift at about 100 Ma, related to the breakup of the Gondwana supercontinent"*.

Simpson et al (2001) summarises the structural history as involving *"deformation, metamorphism and intrusion in the early Silurian Benambran Orogeny, followed by southward transport of the Omeo Zone during the Bindian Orogeny. Post-early Devonian deformation produced a series of mostly north- to northeast-trending faults associated with cataclasites and alteration zones, and probably reactivated existing NNW-trending faults. Much later movement, followed by erosion, led to large relief changes across some of the northeast trending faults, such as the Walwa Fault"*.



Map 3: Activity area and surrounding geographic region, showing Geomorphological Units. Scale 1:112,00. Source: GeoVic Online, 2024



Map 4: Activity area and Geological Units. Scale 1:6,000. Source: GeoVic Online, 2024

6.2.4 Vegetation

The site at Corryong is within the Northern Inland Slopes bioregion, west of the Great Dividing Range. Mapping suggests that Heathy Dry Forest (EVC 20), Shrubby Dry Forest (EVC 21), Grassy Dry Forest (EVC 22), Herb-rich Forest Foothill (EVC 23), Valley Grassy Forest (EVC 47), Floodplain Riparian Woodland (EVC 56) are the most likely Pre-1750 Ecological Vegetation Class (EVC) that existed within the activity area (Map 5).

EVC 20 occurs on shallow, rocky skeletal soils on a variety of geologies and on a range of landforms from gently undulating hills to exposed aspects on ridge tops and steep slopes at a range of elevations. Generally comprised of open eucalypt forest to 20m tall, the understorey is dominated by a low, sparse to dense layer of ericoid-leaved shrubs including heaths and peas. Graminoids and grasses are frequently present in the ground layer, but do not provide much cover.

EVC 21 occurs on a range of geologies on exposed aspects such as ridge-lines and medium to steep upper slopes, often in high rainfall areas and on shallow infertile soils. The overstorey is a low, open forest to 25 m tall characterised by the diversity and variability of the eucalypts, dominant species include Broad-leaved Peppermint (*E. dives*) and Brittle Gum (*E. mannifera ssp. Mannifera*). The understorey often lacks a secondary tree layer but contains a well-developed medium to low shrub layer. The ground layer is often very sparse with tussock-forming graminoids being the dominant life form.

EVC 22 occurs on a variety of gradients and altitudes and on a range of geologies. The overstorey is dominated by a low to medium height forest of eucalypts to 20 m tall, sometimes resembling an open woodland with a secondary, smaller tree layer including a number of Acacia species. The understorey usually consists of a sparse shrub layer of medium height. Grassy Dry Forest is characterised by a ground layer dominated by a high diversity of drought-tolerant grasses and herbs, often including a suite of fern species.

EVC 23 occurs on relatively fertile, moderately well-drained soils on an extremely wide range of geological types and in areas od moderate to high rainfall, mainly on lower slopes and gullies. Vegetation consists on medium to tall open forest or woodland with a canopy to 25 m tall and a small tree layer over sparse to dense shrub layer. A high cover and diversity of herbs and grasses in the ground layer are characteristic.

EVC 47 occurs under moderate rainfall regimes of 700-800 mm per annum on fertile well-drained colluvial or alluvial soils on gently undulating lower slopes and valley floors. Open forest to 20 m tall that may contain a variety of eucalypts, usually species which prefer more moist or more fertile conditions over a sparse shrub cover. In season, a rich array of herbs, lilies, grasses and sedges dominate the ground layer but at the drier end of the spectrum the ground layer may be sparse and slightly less diverse, but with the moisture-loving species still remaining. Dominant canopy species include Blakely's Red-gum (*Eucalyptus blakelyi*), Red Stringybark (*E. macrorhyncha*), Yellow Box (*E. melliodora*), White Box (*E. albens*), Candlebark (*E. rubida*), But But (*E. bridgesiana*) and Red Box (*E. polyanthemos*).

EVC 56 occurs along the banks and floodplains of the larger meandering rivers and major creeks, often in conjunction with one or more floodplain wetland communities. Elevation and rainfall are relatively low and soils are fertile alluviums subject to periodic flooding and inundation. It is generally comprised of open woodland to 20 m tall usually dominated by Red Gum Eucalyptus spp. over a medium to tall shrub layer with a ground layer consisting of amphibious and aquatic herbs and sedges.

Regardless of the vegetation community that occupied the site pre-settlement, the area (adjacent and upslope from a permanent water source) would have provided a wide range of food and material resources for Aboriginal people. Water rushes and marsh vegetation as well as a number of plant-food resources would have grown in nearby. The rivers, creeks and swamp areas in the geographic region, would have supported various species of fish, eel, frogs and turtle as well as various larger game including kangaroos, wallabies and wombat (Reich 2018).

Map 5: Pre-1750 Modelled Ecological Vegetation Classes (EVCs) at the Activity area. Source: DEECA, 2024. Scale: 1:10,000.

6.3 Historical and ethno-historical accounts in the geographic region

This ethnohistory will discuss the Upper Murray area in general, and then focus specifically on ethnohistory that relates to the Activity area.

The First Nations people of the Upper Murray area were Dhudhuroa-speaking people/s belonging to one or more local groups ('clans'), one of which can be clearly identified by name: Dyinning-middhang.[1] The name 'Djilamatang' [a.k.a. 'Gele-matong'], as mapped by Tindale (1974),[2] is most likely also a cognate of this name. The first part of the name may derive from the widespread rootword 'djina' meaning 'foot',[3] while the suffix '—middhang' (rendered many different ways, including '—mittung') means a 'number or group' of people.[4] Another Dhudhuroa local group, the Theddora-mittung [a.k.a. Dodoro], occupied the alpine ranges further to the south.[5]

In general, the Dyinning-mittung occupied country centred on the lower Mitta Mitta River and the Tallangatta Creek (historically known as the 'Nurmalong River') to where these flowed into the Murray River. This country was most likely bounded to thew west from the Tallangatta Valley most likely as far as Sandy Creek.

As for their northern boundary, Dyinning-mittung man Neddy Wheeler, reported to ethnologist R.H. Mathews that 'Dhudhuroa was [also] spoken … on the lower… Kiewa Rivers, and also the Murray Valley from Albury via Dora Dora [ie: west of present-day Talmalmo], Jingellic, to about Walaregang.'[6] This is the sole ethnohistorical basis on which Tindale (1974) mapped Dhudhuroa country as extending along the Murray River to at least as far as Wodonga.[7] Neddy Wheeler's comments regarding the extent of Dhudhuroa language along the Murray River do have a strong geographical basis: while the Murray River Valley above Albury has been altered through the construction of Lake Hume as far as Talgarno, from this point upstream it runs through what constitutes a narrow and well-defined mountain-locked valley. Wheeler's description suggests that this entire geographically distinct valley *on both sides of the river* (as indicated by Wheeler's naming of locations on the northern bank of the river) was occupied by Dhudhuroa-speaking peoples.

Neddy Wheeler also stated that Dhudhuroa occupation of the Murray River Valley only stretched to 'about Walaregang [around the] junction of Tooma River,'[8] to where it met with Wolgal [in Dhudhuroa language, 'Wolgalu'] country. Alfred Howitt's informants Mrangalla (Singing Johnny), and Yibai-Mailian (Murray Jack) similarly suggested that the north-eastern bank of the Murray (Indi) River from Welaregang and above, leading into the Snowy Mountains, was Wolgal country.[9]

Dhudhuroa language was originally described by ethnographer R. H. Matthews in 1909,[10] and has been more recently analysed as a distinct language by linguists Julie Reid and Barry Blake.[11] Lexio-statistical analysis has demonstrated that Dhudhuroa has a high incidence of shared vocabulary with neighbouring 'Pallanganmiddang' (ie: Waywurru) language to the west. Linguistic comparison between Dhudhuroa and 'Snowy Mountains Language' (a linguistic grouping which includes language from Canberra, the Wolgal people, the Ngarigu-speaking people, and Omeo language), is currently being undertaken by Harold Koch;[12] however analysis by Blake and Reid already demonstrates that Dhudhuroa has at least an equal, and potentially far higher proportion of shared vocabulary with Snowy Mountains Language than with Pallanganmiddang.[13] Dhudhuroa language also has a high degree of shared vocabulary with another neighbouring

[1] R H Mathews, MS 8006 Series 3 Item 7 Notebook 7, National Library Australia, p.30.
[2] Norman Tindale, *Aboriginal Tribes of Australia: Their Terrain, Environmental Controls, Distribution, Limits, and Proper Names*, University of California Press, Berkeley, 1974.
[3] Barry Blake and Julie Reid, 'The Dhudhuroa language of northeastern Victoria: a description based on historical sources,' *Aboriginal History*, 2002, VOL 26, p.183.
[4] Diane Barwick, 'Mapping the Past: An Atlas of Victorian Clans 1835–1904', Aboriginal History, vol. 8, 1984, p.106, including footnote 9; Howitt, 'Notes by Howitt on the Omeo Tribe', p. 3. This explanation is given by Howitt's informant Jenny Cooper: 'Mittung = a number, or many [people]'.
[5] Alfred Howitt, *Native Tribes of South-East Australia,* Macmillan, London, 1904, p.177. Howitt believed that this was a local group of the Yaitmathang 'tribe', but Ian Clark is of the opinion that Theddora is cognate with Dhudhuroa, and that therefore they were a Dhudhuroa-speaking people. See: Ian Clark, 'Dhudhuroa and Yaithmathang languages and social groups in north-east Victoria – a reconstruction,' *Aboriginal History*, 2009 Vo. 33, pp.201-229.
[6] R. H. Mathews, MS8006, Series 5, File 3, Box 6, National Library of Australia.
[7] Norman Tindale, op cit.
[8] R. H. Matthews, MS 8006, Series 3, Item 4, Volume 2 [Marked /6/], and Series 5, File 3, Box 6, National Library Australia; for occupation of Tallangatta Creek, see James Wilson in *Report of the Select Committee of the Legislative Council on Aborigines, 1858-59*, John Ferres, Government Printer, Melbourne, 1859, p.46.
[9] Alfred Howitt field notes, catalogued as HW0185, 'Howitt notes on the Wolgal,' p.1, State Library of Victoria. This information has been supplied to Howitt by one of three informants: Yibai-Mailian (Murray Jack) and his daughter Janey Alexander, and/or Mragula (Mragulla, Singing Johnny).
[10] R. H. Mathews, 'The Dhudhuroa Language of Victoria,' reprinted from the *American Anthropologist,* Vol. 11, No. 2, April-June, 1909, pp:278-284.
[11] Originally identified by R. H. Mathews [R. H .Mathews, MS8006, Series 5, File 3, Box 6, National Library of Australia; and confirmed by Barry Blake and Julie Reid, 'The Dhudhuroa language of northeastern Victoria: a description based on historical sources,' *Aboriginal History*, 2002, Volume 26, pp: 177-210.
[12] Harold Koch, per comm with the author, March 2021. Koch prefers the more neutral term 'Snowy Mountains Language' rather than the well-known language name 'Ngarigu', because he does not wish to privilege any particular section of the overall grouping.
[13] Barry Blake and Julie Reid, op cit.

language, Wiradjuri.[14] These shared vocabularies between Dhudhuroa and neighbouring languages are mirrored in the primary ethnohistoric sources, which indicate that Dhudhuroa people also had a ceremonial relationship particularly with people who spoke Snowy Mountains Language to the north and east: Thomas Wilkinson, the first European occupant of Yallowin station (on the west bank of the Tumut River near Talbingo), who had arrived there in 1838,[15] recalled of his early days at Yallowin in Wolgal country:

'The blacks used to come in from Yass, Welaregang, Omeo, and Mitta Mitta, and held corrobories at Yallowin. I have seen 300 there at one time… The blacks increased in numbers after a while, and 600 of them used to come through from Tumbarumba way. Not more than a dozen of them could speak English… On a hill in front of Yallowin homestead there still remains the mark of a ring-formed by the blacks in going through their corrobories which were carried on as part of the ceremony attached to "making men" of the youths after they had attained a certain age.' Wilkinson went on to describe the tooth evulsion ceremony for 'making men', which he says took place nearby, in what is now known as the 'Bogongs Peaks wildness area'.[16]

The arrival of 'squatters' (pastoralists) in the Upper Murray area from late 1836 onwards saw violent conflict between local Dyinning-middhang people and the European invaders. When visiting Towong station on 2 August 1839, Crown Lands Commissioner Henry Bingham noted in the record of his itinerary 'The natives were hostile in this part pf the District[;] for special report of an affray — [indecipherable] both parties see my letter to the Colonial Secretary 13 August.'[17] This 'affray' may be the origin of the local folk stories relating to the later discovery of a mass grave in Towong Upper (in a gully located on Spring Creek as it crosses the Upper Murray Road, on the western side); reputedly the site of a massacre.[18]

In 1936, C. A. Smithwick (whose father owned Jingellic station from 1859, shifting to Talmalmo in 1868[19]) also wrote of an historic attack by local First Nations people on Dora Dora station (immediately west of Talmalmo), to which European occupants had responded with lethal force, having been forewarned by a friendly local 'chief', Billy Maracket (Maracket being the pastoral station just east of Talmalmo).[20] In the wake of this attack, Billy Maracket (who was given a breastplate acknowledging his assistance to the Europeans), left the area to live at Tumut in Wolgal country,[21] presumably where he felt safe in the wake of frontier violence. King Billy Maracket's decision to relocate to Tumut likewise suggests a cultural affinity between Dhudhuroa people and those who spoke Snowy Mountains Language, such as the Wolgal.

The incursion of European settlers on Dhudhuroa lands from 1836 onwards took an enormous toll on the Dhudhuroa population. By 1858, James Wilson of Tallangatta station reported that 'There are very few aborigines in the Mitta Mitta district, probably not more than twelve (12).' (This figure is probably discounting children borne to Dhudhuroa women and European men.) With respect to the Dyinning-mittung, Wilson added, 'The Talangatta creek was the hunting ground of the Ginning-matong tribe. There are only three of this tribe now alive.'[22] Local histories often still attempt to account for the destruction of Dyinning-mittung people by stating that, in an act of inter-tribal warfare, the 'Geelamatong… were supposed to have been ultimately wiped out by a general rising of the various river tribes.'[23] However, the decimation of Dyinning-mittung people by gunshot wounds inflicted by stockmen is likely to have played a major role, as A.C. Wills attested was the case in nearby Omeo.[24]

[14] ibid.
[15] 'The late Mr. Thomas Wilkinson.' *The Tumut Advocate and Farmers and Settlers' Adviser*, Tuesday 19 July 1904, p.2.
[16] Thomas Wilkinson, 'A Record of Olden Days,' *The Tumut and Adelong Times*, Friday 22 July 1904, p.2.
[17] NRS 906: Colonial Secretary: Commissioners of Crown Lands - Itineraries, Murrumbidgee, Henry Bingham, 10 Jul - Nov 1839, Aug 1843, Jul 1844, Mar - Nov 1845, Apr - Jun 1847 [X812], Reel 2748 [Squatters and Graziers Index, State Archives and Records NSW].
(At present the author has not yet located this letter. The letter would have been directed to Colonial Secretary Deas.)
[18] pers comm. John Murphy and Megan Carter, Corryong, Towong, 28 April, 2121.
[19] Charles Albert Smithwick (J. Henwood & M. Swann, Eds.), *Early History of the Upper Murray*, John Henwood, Camberwell, 2003, p.ix.
[20] Worth noting is that J. F. H. Mitchell attributed this act to 'King George' or 'Gentleman George', in his manuscript notes. These notes were written when Mitchell was in his mid-80s. See: 'John Francis Huon Mitchell papers, 1903-1923,' call number A 1671, State Library of New South Wales.
[21] 'The "Prince's" Badge of Honor,' *Border Morning Mail*, Saturday 9 September 1939, p.13.
[22] James Wilson in *Report of the Select Committee of the Legislative Council on Aborigines, 1858-59*, op cit., p.26.
[23] Arthur Andrews, *First settlement of the Upper Murray, 1835-1845: with a short account of over two hundred runs, 1835 to 1880*, D. S. Ford, Sydney, 1920, p.35.
[24] A.C. Wills in *Report of the Select Committee of the Legislative Council on Aborigines, 1858-59*, p.29.

By the early 1860s, Dhudhuroa people could be found on the Tangambalanga Aboriginal Reserve [1862-1873]: This is evident from Honorary Correspondent Thomas Mitchell's 1865 report to the Central Board appointed to watch over the interests of the Aborigines in the Colony of Victoria, that 'Of the Tangambalanga tribe [ie: Waywurru] there are only eleven persons left; and of the Upper Murray tribe [ie: Dhudhuroa] sixteen.'[25] These numbers are also reflected in a vocabulary collected by Thomas Mitchell at Tangambalanga, titled 'Barwidgee,' which contains as much as 70% Dhudhuroa words.[26] However, C. A. Smithwick's story of 'King Billy Maracket' choosing to live at Tumut suggests that some Dhudhuroa people may have also ultimately ended up on Brungle Aboriginal Reserve in New South Wales.

Other First National people who chose to remain 'on country' ended their days living and working on the properties of squatters, including those of Joseph Hanson (initially of Colac Colac and later Elm Hill at the foot of Mount Mittamatite);[27] and his half-brother and his wife, Jim and Mary Wheeler, of Colac Colac station;[28] Thomas Mitchell after he moved from Tangambalanga to Bringenbrong in 1875;[29] and also, according to the Corryong Museum, James Findlay of Towong station.

6.3.1 Aboriginal Reserves and Honorary Correspondent Depots

In 1858 the Victorian Government recommended the formation of a Central Board to replace the Protectorate system and take over responsibility for the protection of Aboriginal people within the colony (EDM Group 2008). In 1860 the 'Central Board Appointed to Watch Over the Interests of Aborigines in the Colony of Victoria' was established. The CBA was also responsible for allocating reserves of land variously known as stations, missions or reserves on which Aboriginal people were encouraged to settle (EDM Group 2008). The Board appointed Honorary Correspondents to keep records and distribute rations within their districts.

According to the 6th report of the CBA, the Honorary Correspondent for the area was Mr Curtis A. Reid who was stationed at Reidsdale near Tarrawingee. He reported that he supplied up to 33 Aboriginal people including 11 men, 15 women and seven children, the 'greater number of the latter being half-castes' (CBA 1869:7). The report states that Reid employed several Aboriginal people on his station. Reid notes that the *'original stock of Aborigines is rapidly disappearing and has decreased fully one-half within the last seven years'* (CBA 1869:7). After the 1860s the Aboriginal people that remained in the Murray and Ovens areas were forced to move into Government or Mission controlled stations, such as Coranderrk, near Healesville and Cummeragunga, in NSW near Barmah (Long 1996:14).

According to Calladine & Ellis (2008:15) Aboriginal people were able to… *'maintain their traditional clan and moiety identity at these missions; however, the Aborigines Protection Act 1886 excluded 'half-castes' from living on the missions, and resulted in further segregation of Aboriginal people*' (Barwick 1984:113-4; Presland 1994:92-106)'. Although many of the Indigenous families in the local area were forced onto government stations at Corranderrk and Maloga (Cummeragunga) during the nineteenth century, many maintained connections with, and returned to, the North East well into the twentieth century. There are no Aboriginal Reserves and Honorary Correspondent Depots within the Activity area geographic region.

6.4 Search of the Victorian Aboriginal Heritage Register

The search of the Victorian Aboriginal Heritage Register (VAHR) was initially undertaken on 5th May 2024 by Damian Wall indicated that there are thirteen (13) previously recorded Aboriginal places within the 10km defined Geographic Region consisting of artefact scatters (N=9), object collections (N=2), quarries (N=1) and a single low density artefact distribution (N=1) (Table 1, Map 6). There are no (zero) previously recorded places within 200m of the Activity area. The closest registered place is an object collection (VAHR 8425-0021-1) recorded as 'Thowgla Creek Artefact Scatter 1'.

[25] 'THE ABORIGINES.' *The Argus*, Thursday 14 June 1866, p.6.
[26] Barry Blake and Julie Reid, 'Pallanganmiddang: a language of the Upper Murray,' *Aboriginal History*, 1999, Vol. 23, p.17.
[27] Jean Carmody, *Early Days Of the Upper Murray*, Shoestring Press, Wangaratta, 1981, p.56.
[28] ibid, p.54.
[29] ibid,p.96.

Table 1: Registered Aboriginal Places within 10km of activity area.

Aboriginal Place No	Aboriginal Place Name	Component Place Number	Component Type	Distance from AA (km)
8425-0005	OFCV 1	8425-0005-1	Artefact Scatter	8.1
8425-0038	Cemetery Crk AS 1	8425-0038-1	Artefact Scatter	8.5
8425-0017	MITTAMITITE 8	8425-0017-1	Artefact Scatter	8.6
8425-0006	CORRYONG MUSEUM COLLECTION	8425-0006-1	Object Collection	7.4
8425-0009	MITTAMITITE 1A	8425-0009-1	Artefact Scatter	8.3
8425-0008	MITTAMITITE 1	8425-0008-1	Artefact Scatter	8.4
8425-0010	MITTAMITITE 1C	8425-0010-1	Artefact Scatter	8.5
8425-0009	MITTAMITITE 1A	8425-0009-2	Quarry	8.7
8425-0011	MITTAMITITE 2	8425-0011-1	Artefact Scatter	8.7
8525-0003	Upper Murray Road Biggara Artefact	8525-0003-1	Low Density Artefact Distribution	6.5
8425-0021	Thowgla Creek Artefact Scatter 1	8425-0021-1	Artefact Scatter	6.4
8425-0021	Thowgla Creek Artefact Scatter 1	8425-0021-2	Object Collection	4.3
8425-0008	MITTAMITITE 1	8425-0008-2	Artefact Scatter	7.8

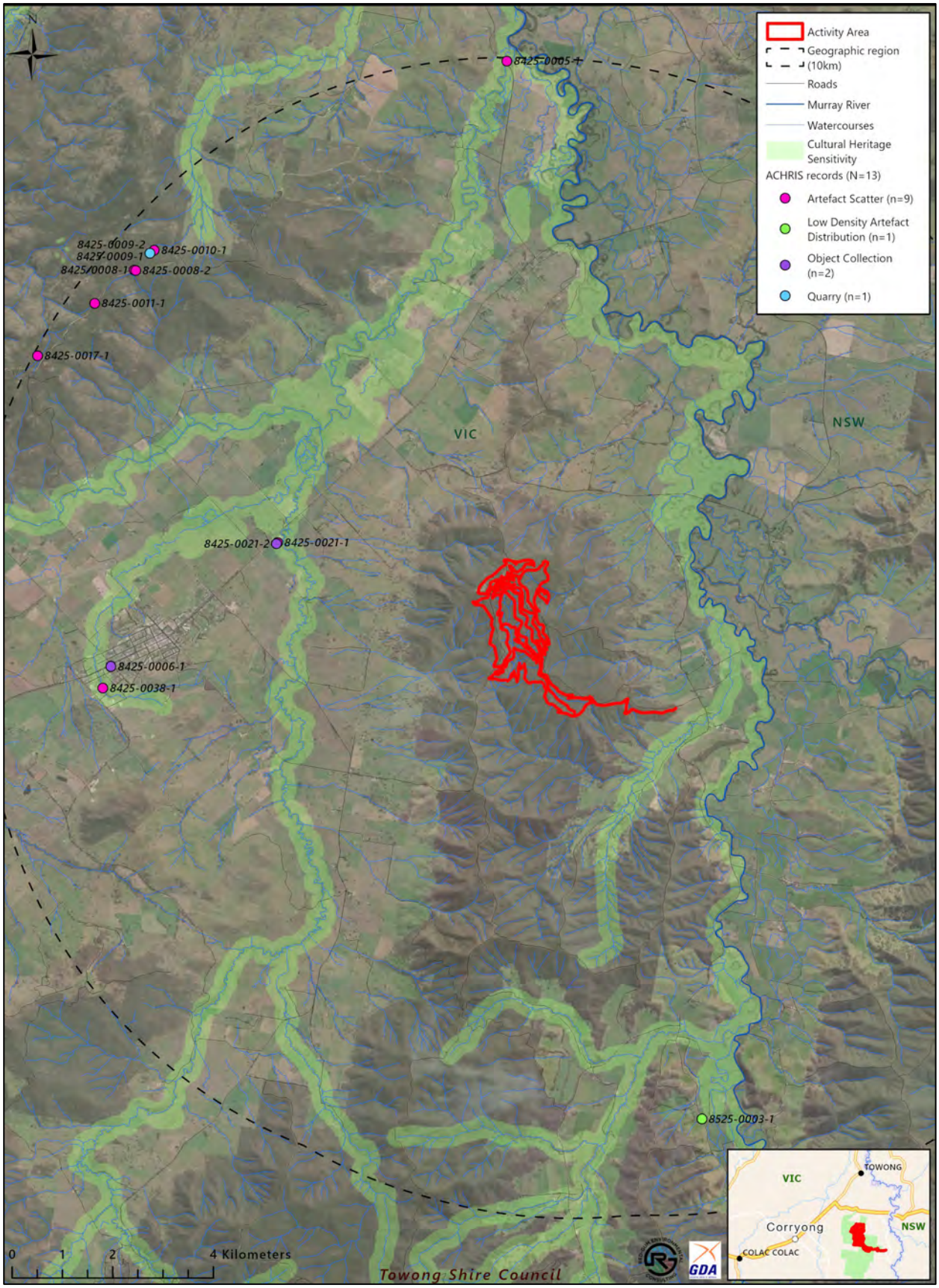
6.5 Aboriginal Places in the Geographic Region

In the 10 km geographic region surrounding the Activity area, the following types of Aboriginal places have been recorded and registered:

Aboriginal Artefact Scatters: Artefact scatters are the material remains of past Aboriginal people's activities. Scatter sites usually contain stone artefacts, but other material such as charcoal, animal bone, shell and ochre may also be present. Artefact scatters may vary over the ground surface from one square metre to one hectare, and contain few or thousands of artefacts. Artefacts often are chipped stone artefacts and occasionally, animal bone, shell, charcoal, hearth stones, clay balls and ochre.

Low Density Artefact Distributions: A Low Density Artefact Distribution (LDAD) is the occurrence of stone artefacts at densities of up to 10 counted artefacts in any area of approximately 10m x 10m, or 100m², including within a single test pit of ≤1m². As a distribution, the LDAD does not have an 'extent' but each individual artefact is accorded an area of Aboriginal cultural heritage sensitivity.

Quarry: Aboriginal quarries are places where Aboriginal people took stone from rocky outcrops to make chipped or ground stone tools for many different purposes. Some quarries are small, consisting of just a single protruding boulder. Other quarries incorporate many outcrops and areas of broken stone that cover thousands of square metres. Aboriginal quarries are generally found on slopes where erosion has exposed the stone, for example, the slopes above creeks and rivers, on the sides of old volcanoes and on ridges.



Map 6: Previously recorded Aboriginal Places within the geographic region. Scale 1:57,000. Source: ACHRIS, 2024

6.6 Previous archaeological work in the geographic region

A review of reports and published works about Aboriginal cultural heritage in the geographic region referred to in Section 6.2 is used to provide relevant information to determine if there is any relationship between Aboriginal cultural heritage places, strategic values, geology, landforms and soil profiles. These investigations may provide insight into Aboriginal cultural heritage place patterning.

This evidence informs directly on the desktop site model presented in Section 6.9. Only reports most relevant to this CHMP are discussed in detail below. There is a general paucity of studies in the northeast, a result of the slow movement of development in this region, therefore only a few systematic field assessments have been undertaken in the geographic region, in particular in a similar environmental context.

6.6.1 Regional Studies

On a regional level, Zobel (1984) prepared a report to the Land Conservation Council on the Aboriginal occupation of the North East Study Area. Zobel (1984: 24) notes the paucity of research and, as a result, recorded Aboriginal places in the northeast of Victoria. This has not rapidly changed in anyway as development as increased swiftly around the southern and central hubs and has been slower to move in other regional locations. At the time of Zobel's research, scarred trees were the most commonly registered site type followed by stone artefact occurrences, rock art sites, mounds burials and then, lastly, quarries (Zobel 1984: 24-25). The artefacts identified at sites were interpreted as reflected small, temporary camps associated with a mobile settlement pattern and with tools made and used on the spot then discarded (Zobel 1984: 28-29).

Clark et al (2003) completed a desktop review of Cultural Heritage of the North East Catchment, including the region where the current activity area occurs. The study area is just under 2 million hectares, bordered on the north and east by the Murray River and on the south by the Great Dividing Range. It includes the Ovens, Kiewa, Mitta and Upper Murray Basin catchments. Clark, like Thompsons and Zobel previously, comments on the lack of archaeological investigation completed in northeastern Victoria, with research focused on Australia's southeastern upland region, including the Australian Alpine region. Amidst the lack of documentation of Aboriginal people and territories around contact, a study of primary source information by Wesson (2000) is credited as being the most comprehensive document at the time. The *Theddora* or *Dhudhoroa,* of the *Waveroo* language group, are the traditional owners of the current activity area, are said to have utilised the river systems and resources of the upper Mitta Mitta River. A diversity of resources in the region, reflected in the diversity of landforms, would have influenced the occupation and utilisation of the landscape, relative to season and cyclic changes. At the time of publication 476 Aboriginal cultural heritage sites had been recorded, the majority of which are located along the Murray river, and in the mountains of Mount Buffalo and the Alpine National Park. However, lack of sites recorded in other areas are not reflective of lack of occupation of those sites, but potentially related to the absence of archaeological investigations throughout the region ins a systematic fashion. Artefact scatters dominate the archaeological record (60%), followed by scarred trees (27%). Other sites recorded in the study area include rock wells, hearths, mounds, burials, art sites, stone arrangements, quarries and fish/eel traps. A site prediction model for the most likely site types was attempted based on the sites recorded in the area:

- Artefact scatters were predicted to be found in flat gently sloping areas near accessible water and resources; larger sites found at lower elevations and smaller sites in upland areas; sites near to rivers and streams likely to be buried under alluvial deposits; and, in steep terrain and highland areas, sites occur around sheltered areas, ridgelines, spurs, saddle and rocky knolls.
- Scarred trees are possible anywhere were mature stands of eucalypt remnant vegetation occurs, especially along creeks and rivers at low elevations.
- Quarries are associated with exposed rock outcrops.
- Rock art sites are associated with rock shelters and overhangs, especially in granite areas on low/mid slopes.
- Mounds are related with the Murray River and adjoining wetlands

Freslov et al (2004) undertook a broad scale pedestrian archaeological survey of historic and Aboriginal cultural heritage places following a large scale bushfire that occurred in 2003 of the Chesney Vale Reserves. Freslov concluded that there were a total of 61 previously recorded Aboriginal archaeological sites within the parks, comprising two artefact scatters, 40 scarred trees, 11 isolated artefacts, five rock wells and three mounds. Freslov's subsequent survey of the Chesney Vale Reserves located a further 21 Aboriginal archaeological sites including eight isolated artefacts, two artefact scatters, six scarred trees, three rock wells and two earth ovens.

Flood (1976) Discusses the relationship between Aboriginal people and ecology in the highlands of southeast Australia by drawing upon anthropological, linguistic, ethnographical and archaeological evidence. Flood uses the small tool tradition to indicate the timing of habitation of the highlands and hypothesised that movement into the tablelands originated from the east. She also suggests that due to the presence of European motifs in Victorian rock art indicates this art was a late introduction to south east Australia. Several ethnographic sources were discussed, and these indicated that the average size of the Aboriginal groups was approximately 500 people. Two examples were given and discussed at length to illustrate the relationship between Aboriginal people and the ecology of the region - Bogong moth-hunting feasts and the Bunya Bunya Nut festival. These examples were used to illustrate tribal relations. Importantly, Flood (1980) remarks upon two things pertaining to tribal distribution in the region; within each group's territory there was both a major food resource and a low-lying frost-free valley suitable for winter occupation, and there was a high degree of correlation between group and physiographic boundaries. She concludes that while occupation in the region may have originally been only seasonal it later developed into year-round habitation.

Buckley and Hughes (2000) produced a desktop report on an Aboriginal heritage management system for the North East RFA region of Victoria. Scarred trees, artefact scatters and isolated artefacts were the most common Aboriginal cultural heritage places recorded in the region. Other site types included rockshelters, art sites, quarries, rock arrangements, burials, fish traps and rock wells. The authors concluded that stone artefact scatters were the most likely site type to be found in the region despite the fact that scarred trees had been more regularly recorded over artefact scatters. This was believed to reflect the locations of the surveys undertaken rather than the actual frequency of site types. The authors identified two sub-regions, Granya Foothills and Corryong Foothills (the landscape unit were the Activity area is located), as having moderate potential for Aboriginal cultural heritage material.

6.6.2 Localised Studies

Paton (1993) conducted a survey of optical fibre cable routes in northeast Victoria, with most survey located within road easements. The nearest section to the present study was the Cudgewa–Corryong cable route. This section was located on the alluvial soils associated with the valley of Cudgewa Creek. The entire length of each proposed cable route was surveyed either on foot or from a vehicle and the survey located 12 unrecorded Aboriginal archaeological places (six artefact scatters/isolated artefacts and six scarred trees). Paton (1993) concluded that many sites in the study area may have been destroyed due to the level of disturbance.

Muhlen-Schulte (2009) prepared CHMP10496 for the realignment of vehicle tracks in the Burrowa-Pine Mountain National Park (10496), approximately 10km north-west of the Activity area. The Standard Assessment located one stone artefact scatter of six quartz flakes on the surface of a dirt track (VAHR 8425-0019). Since the artefacts were found in an area of slope wash they were believed to have eroded onto the track from the slope above. Muhlen-Schulte (2009) concluded that the recorded artefacts location corresponded with studies in the broader alpine area which suggest that Aboriginal places are less likely to be located on slopes at an angle greater than 5 degrees. No Aboriginal cultural material was located during the subsurface testing.

Dugay-Grist et al (2012) prepared CHMP12008 for the construction of three new bridges at Moscrops Road, Bullioh & Germans Road, Cudgewa. The authors noted that a major obstacle encountered by the Standard Assessment was poor ground surface visibility due to dense grass and vegetation cover which obscured the original ground surface throughout most of the activity area. The Standard Assessment did not identify any new Aboriginal places in the activity area. While the level of disturbance was considerable in some parts of the activity area due to the construction of the existing bridges

and roads, some potentially undisturbed deposits also existed, therefore a Complex Assessment was deemed necessary. No Aboriginal cultural heritage materials, features or deposits were located in any of the excavation areas and the results are considered to reflect the nature of prior land use of the activity area by Aboriginal people.

Wall & Dunn (2014) prepared CHMP12768 for a new Murray Goulburn Retail Store west of Corryong. The Standard assessment was not deemed effective due to a very thick cover of grass impeding ground surface visibility, therefore a Complex Assessment was conducted. The complex assessment recovered forty-six (46) sub-surface artefacts which were registered as Thowgla Creek Sub-Surface Artefact Scatter (VAHR No.8425-0021).

Wall & Durrant (2020) prepared a CHMP 17307 for the Proposed Upgrade of the Colac Colac Caravan Park, Corryong, VIC 3707. A Desktop and Standard Assessment were undertaken as part of the preparation of this Voluntary CHMP. A standard assessment was conducted which did not record Aboriginal cultural heritage in the activity area. The Standard assessment identified that the majority of works were within areas where there has been a large proportion of disturbance to natural surfaces, hence Aboriginal cultural heritage was considered 'unlikely' or a 'low probability' to occur, therefore a Complex Assessment was deemed unnecessary.

Wall & Durrant (2022) prepared a CHMP17935 for the Proposed Murray River Road Walking Track, Murray River Reserve, Towong, VIC 3707. A desktop, Standard and Complex Assessment were undertaken as part of the preparation of this CHMP. The Standard assessment did not record Aboriginal cultural heritage in the Activity area and concluded that the majority of works are proposed within areas that have been previously disturbed. However, a single raised landform overlooking the Murray River floodplain was identified where the proposed track transitions to the boardwalk. It was concluded that this area may have been utilised intermittently when traversing from the Murray River to the floodplain to the south. Therefore, consistent with r. 64, a Complex Assessment was required to excavate this section of the walking track. Aboriginal cultural heritage was considered 'highly unlikely' or a 'low probability' to occur within the remainder of the Activity area. One (1) 1m x 1m pit was excavated during the Complex Assessment. Excavation did not proceed past the sterile clay layer. No Aboriginal cultural heritage was identified during the subsurface testing program.

Wall & Durant (2024) Prepared a CHMP 19390 for the Proposed Corryong Circuit Trail, Corryong, VIC 3707. A desktop, Standard and Complex Assessment were undertaken as part of the preparation of this CHMP. The Standard Assessment demonstrated that the Activity Area has been subject to varying levels of disturbance, vegetation removal and infrastructure development with associated utilities. No Aboriginal places were identified during the Standard Assessment, however given the very limited GSV in some areas, a Complex assessment was recommended. Twenty-six subsurface artefacts were identified during the excavation of test pits in the Complex Assessment. Artefacts were mainly of basalt. All artefacts were identified in one test pit (TP1), and no other cultural heritage material was discovered within the 6 additional test pits. No further extent testing was undertaken.

6.6.3 Summary

Previous assessments summarised in Section 6.6 suggest that the region is sensitive for Aboriginal cultural heritage material, primarily in the form of stone artefact scatters. The types of Aboriginal cultural places occur most frequently in close proximity to the major watercourses that transect the region.

Review of CHMPs within the geographic region shows that Aboriginal Cultural is less likely to be located on slopes at an angle > 5 degrees and has a greater probability to be located at lower elevations, adjacent to major creeks and rivers.

Thirteen (13) Aboriginal places have been previously recorded within the 10km defined Geographic Region, however the lack of recorded sites in the past may be attributed (in part) to lack of survey effort within the region.

6.7 Oral history

No oral history information was collected during the desktop assessment.

6.8 Obstacles encountered in completing the desktop assessment

No obstacles were encountered in completing the desktop assessment.

6.9 Site prediction model

Generally speaking, Aboriginal places would be expected to be situated close to either an ephemeral or permanent water source, providing adequate shelter from the elements and rising floodwaters, and have access to a food source. Additionally, for Aboriginal places to remain *in situ* in these situations through time, the landscape will not have been subject to ground disturbing activities.

The results of the desktop assessment indicate that the Activity area occurs within a range of reliefs, most likely dominated by steep slopes >5 degrees that are heavily vegetated. The geological history of the area involved deposition of a large volume of turbidites in a deep water setting that were then deformed and intruded by granite during the Benambran and Bindian orogenies (VRO, 2023).

A search of the VAHR database for registered Aboriginal Places within the defined Geographic Region suggests that *artefact scatters* are the most likely place type to be found in association with the activity area landform.

6.10 Conclusions from the Desktop Assessment

The desktop assessment has demonstrated that:

- There are no (0) previously registered places within the Activity area.
- The search of the VAHR indicated that there are thirteen (13) previously recorded Aboriginal places within the 10 km defined Geographic Region.
- The activity area does intersect any areas of mapped Aboriginal Cultural Heritage Sensitivity on ACHRIS.
- Areas of Aboriginal cultural sensitivity within the geographic region have been deemed as proximity to fresh water on a range of landforms.
- Aboriginal Cultural heritage is *less likely* to be located on slopes at an angle >5 degrees, but has a greater probability to be located at lower elevations adjacent to major creeks and rivers.
- Regional studies have demonstrated that very few (if any) sites in the Victorian Alps occur on steep hill slopes >5 degrees in heavily vegetated landforms.
- The wider area would have provided a wide range of food and material resources for Aboriginal people across a range of habitats within the forest environs and on the valley floors.
- Previous land use activities such as cattle grazing, logging, historic gold mining/exploration and road/bridge development, will have impacted the subsurface deposits on existing tracks within the Activity area.
- *As it is reasonably possible that Aboriginal cultural heritage is present in parts of the activity area a standard assessment is required pursuant to r.62(1) of the Aboriginal Heritage Regulations 2018.*

7 Standard Assessment

The results of the desktop assessment indicated that a standard assessment was required to further investigate the potential for Aboriginal cultural heritage to be located within the activity area. The specific aims of the survey are to identify and investigate the following:

- All areas of high ground surface visibility for targeted detailed surface inspection;
- Ground disturbance;
- Any surface or obtrusive cultural heritage places, if present;
- Landform patterns and elements;
- Areas of proposed activities that would result in ground disturbance; and
- Test the site prediction model generated by the desktop assessment.

7.1 Methodology

The pedestrian survey was conducted in a systematic manner and in accordance with proper archaeological practice. All areas were examined to determine areas of good ground surface visibility and/or high potential archaeological sensitivity for Aboriginal cultural material. The pedestrian survey examined all accessible areas, landform patterns, elements and attributes. Detailed notes were taken, including descriptions of landform elements, ground surface visibility, ground disturbance, vegetation, water sources and potential Aboriginal cultural heritage sensitivity (Burke & Smith 2004). The standard assessment was recorded using recording forms to note features and disturbance within the activity area. The location of the features and disturbance were recorded using a dGPS. Photographs of the activity area were also taken using a digital camera.

7.2 Fieldwork participants

A standard assessment was undertaken on 14th May 2024 by Damian Wall (Heritage Advisor, Red-Gum Environmental Consulting), Maggie Cronin (Red-Gum Archaeologist), Olivia Hynam (Red-Gum Field Staff) and Reg Murray (DDAC).

7.3 Oral history

No oral history information was provided during the standard assessment.

7.4 Obstacles encountered in completing the standard assessment.

The site is very steep and heavily vegetated making access to many areas proposed for tracks unsafe to access. The survey team agreed to focus survey effort on the accessible areas of the major ridgelines and any exposed areas on the lower slopes if any were to be impacted by the proposed activity.

7.5 Ground Surface Visibility, Survey Areas and Effective Survey Coverage

Archaeological visibility refers to the amount of ground surface that is clearly visible for inspection. The greater the ground surface visibility, the more effective are surface surveys. Examples of high surface visibility are vehicular & pedestrian tracks, dune blow outs (100% per m^2); and examples of poor visibility are areas of heavy vegetation cover (0-10% per m^2) (Murphy & Thomson 2016).

Unfortunately, it is often the case that highly visible Aboriginal cultural heritage places are also often highly disturbed. High ground surface visibility (GSV) is therefore often related to the amount of disturbance that has occurred. This disturbance may be manmade (such as drainage lines, vehicle tracks), by stock (overgrazing, tracks), or due to natural processes (erosion by wind or water).

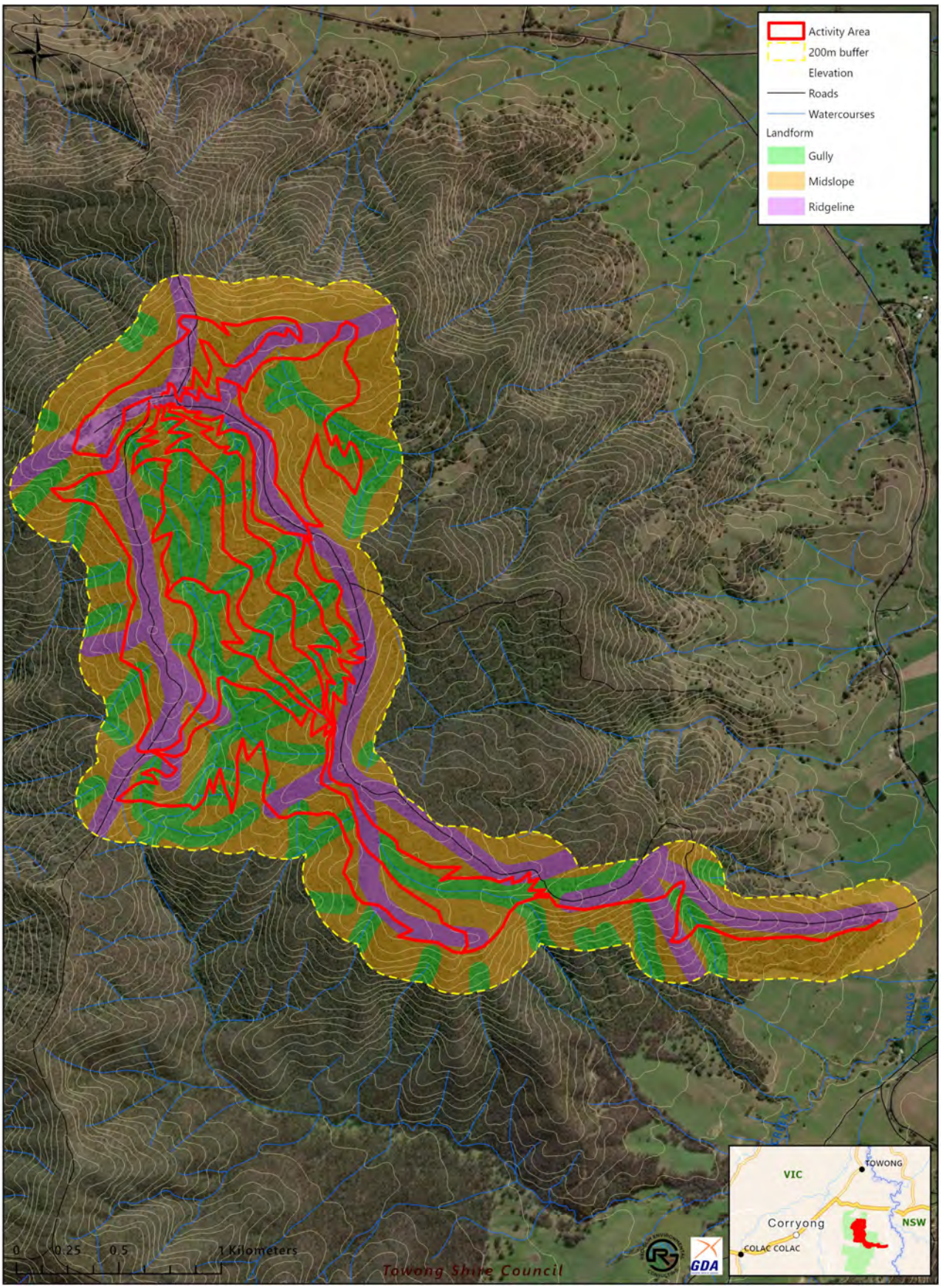
The level of GSV is typically assessed as is shown in Table 2. Effective Survey Coverage (ESC) is a measure of each Survey Unit (identified in the Activity area – Map 7) that was adequately surveyed during the Standard Assessment by the survey team (Table 3).

Table 2: Ground Surface Visibility (GSV)

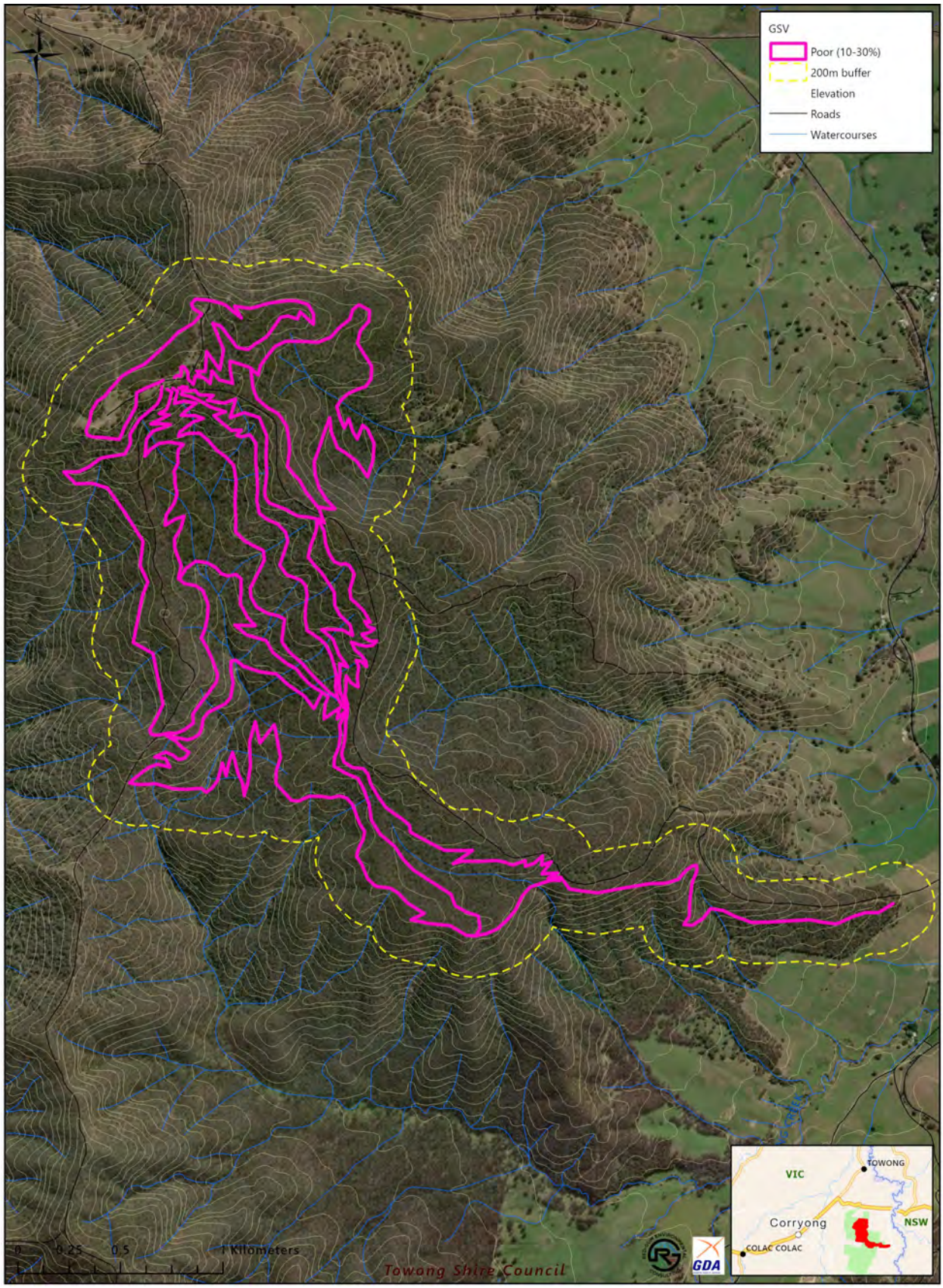
%	0%	0 – 10%	10 – 30%	30 – 50%	50 – 70%	70 – 90%	90 – 100%
Rating	No visible ground surface	Very poor	Poor	Fair	Good	Very good	Excellent

Table 3: Effective Survey Coverage

Survey Unit	Area of Survey Unit (m²)	Area Surveyed (m²)	% Surveyed
A (Gully)	8,680	1,101	12.7
B (Midslope)	18,601	2,656	14.2
C (Ridegline)	7,576	3,444	45.5
Totals	5980	5980	100%



Map 7: Landforms in the Activity area. Scale 1: 1,500. Source: Nearmap 2024.



Map 8: Ground Surface Visibility in the Activity Area. Scale 1:1,500. Source: NearMap 2024.

7.6 Results of the Standard Assessment

The Pedestrian survey confirmed the findings of the desktop assessment in that the entire activity area has been subject to various degrees of disturbance, such as logging, early grazing, track/road/bridge building and historical gold mining and associated impacts.

The Activity area traverses three (3) landforms, Ridgelines, Gullies and Mid slopes across a range of elevations (Map 9A & 9B). Due to the area being heavily vegetated and with almost all of the proposed track on steep slopes, the site was difficult to traverse with steep grades of >1V:1H making up a large proportion of the area. GSV was Poor (10-30%) over the areas that were assessed – mainly the ridges (Map 7) due to a thick layer of leaf litter in most situations.

The survey team agreed to focus survey effort on the accessible areas of the major ridgelines and any exposed areas on the lower slopes leading up from the Valley floor. The major ridgelines were accessed by 4WD to the highest elevations able to be accessed and pedestrian survey down the ridgelines was initiated from where the access tracks intersected the spurs or ridges.

The areas of existing walking and driving trail were clearly evident along some of the ridges and slopes were they intersect the proposed new trail (Photos 1-3 and 7-8) and GSV (10-30%) in these areas was hindered by heavy leaf litter, however the minimal public use that these areas currently get is maintaining a clearway that was thoroughly inspected.

No scarred or culturally modified trees and no rock shelters or caves. There are no naturally occurring waterholes and soaks present within the Activity area. No Aboriginal cultural material was observed during the Standard assessment.

Photo 1: General ground conditions at summit hang gliding pad. Fair GSV. East orientation. Photo: D.Wall 2024.

Photo 2: Typical ground conditions at summit tracks. Very Poor GSV off existing track. South orientation. Photo: D. Wall 2024.

Photo 3: General ground conditions, at presumed trailhead. Poor GSV. Photo: D.Wall 2024.

Photo 4: Mid-slope ground conditions with fairly open canopy and a grassy understorey with scattered shrubs Photo: D.Wall 2024.

Photo 5: Ridgeline ground conditions with fairly open canopy and a grassy understorey with scattered shrubs Photo: D.Wall 2024.

Photo 6: General ground conditions, at lower slope, existing vehicle track at image left. Poor GSV. Photo: D.Wall 2024.

Photo 7: Midslope existing vehicle track cut-away. Poor GSV. Photo: D.Wall 2024.

Photo 8: Very steep midslope existing vehicle track distrubance. Poor GSV. Photo: D.Wall 2024.

Photo 9: Very steep fallaway at ridgeline. Poor GSV. Photo: D.Wall 2024.

Photo 10: Ground conditions at ridgeline near summit, with fairly open canopy and a grassy understorey. Poor GSV. Photo: D.Wall 2024.

7.7 Areas likely to contain Aboriginal cultural heritage & Aboriginal cultural heritage scientific sensitivity model

Generally speaking, Aboriginal places would be expected to be situated close to either an ephemeral or permanent water source, providing adequate shelter from the elements and rising floodwaters, and have access to a food source. For intact Aboriginal places to remain in these areas, the landscape will not have sustained ground disturbing activities. Where they do remain in disturbed landscapes or contexts, they are not likely to be *in situ*.

The Activity area traverses three (3) landforms, Ridgelines, Gullies and Mid slopes, therefore, the majority of the trail traverses steep slopes, up and down multiple ridges and gullies. The standard assessment did not record any cultural heritage material within the Activity area with a moderate to high degree of subsurface disturbance was noted across the entire Activity area (where the trail was using existing tracks).

The area is heavily vegetated and with almost all of the proposed track on steep slopes, the site was difficult to traverse with steep grades of >1V:1H making up a large proportion of the area. GSV was poor (10-30%) over the areas that were assessed due to a thick layer of leaf litter in most situations.

The results of the standard assessment have been used to refine the desktop assessment Aboriginal cultural heritage prediction model (Section 6.9). All mature trees within the Activity area were inspected, with no cultural scarring observed.

7.8 Conclusions from the Standard Assessment

The standard assessment has demonstrated that in relation to the Activity area:

- No Aboriginal cultural heritage was identified during the standard assessment;
- The Standard assessment confirmed the findings of the desktop assessment in that the Activity area has experienced environment impacts directly from gold mining, associated mining infrastructure, tracks and road/track building.
- Additional impacts to the Activity area would have been early pastoralism/grazing, forestry activities such as land clearing and track building and the construction and maintenance of existing access roads and other fire access tracks, this includes grading road shoulders, maintaining table drains, movement of soil, etc.
- GSV encountered was Poor (10 -30%) across the parts of the Activity area that were accessible, due to thick leaf litter and native grasses covering the ground surface;
- No Aboriginal cultural heritage material was located during the Standard assessment;
- There were no rock shelters or caves within the activity area.
- The site is extremely steep and the track construction is restricted to the gullies, ridgelines and mid-slope landforms which is >1V:1H in many areas. These parts of the landscape are highly unlikely to have been occupied for any length of time or used as rest areas due to the steepness;

The Standard assessment did not record Aboriginal cultural heritage in the Activity area and concluded that the much of works are proposed within areas that have been extensively disturbed. Aboriginal cultural heritage was considered 'highly unlikely' or a 'low probability' to occur within the Activity area, therefore a Complex Assessment was not conducted in accordance with r.64 (1).

8 Impact assessment – Section 61 matters

In accordance with Section 61 of the Aboriginal Heritage Act 2006 an assessment must be made as to whether the proposed activity will be conducted in a way that avoids harm to Aboriginal cultural heritage or be conducted in a way that minimises harm to Aboriginal cultural heritage.

The purpose of the Act is to provide for the protection of Aboriginal cultural heritage in Victoria. In the first instance, harm to Aboriginal cultural heritage should be avoided. This may be achieved through appropriate management strategies (or specific measures) in relation to the Aboriginal Places and the activity, the use of protective fencing during construction or restricting access, in addition to cultural awareness training for contractors. In the second instance, harm to Aboriginal cultural heritage must be minimised. This may be achieved through re-aligning infrastructure, locating public open space areas over cultural values (if appropriate) or using less invasive construction methods. The final resort is the salvage of cultural heritage where appropriate.

This CHMP has undertaken desktop and a standard assessment in order to investigate the nature and extent of any Aboriginal cultural heritage values of the Activity area and to mitigate the risks to these Aboriginal Places through appropriate management strategies.

8.1 Can Harm to Identified Cultural Heritage Places be Avoided?

The proposed activity will not harm Aboriginal cultural heritage places as there were no Aboriginal cultural heritage places identified within the Activity area.

8.2 Can Harm to Identified Cultural Heritage Places be Minimised?

No specific measures are required as no Aboriginal cultural heritage material was identified.

8.3 Are Specific Measures Needed for the Management of Identified Cultural Heritage Places?

No specific measures are required as no Aboriginal cultural heritage material was identified.

8.4 Are There Particular Contingency Plans That Might be Necessary?

Processes to be followed in relation to delays and other obstacles are outlined in the management conditions in Section 2. Procedures are outlined for factors that may affect the conduct of the activity. These include procedural guidelines in the event that suspected human remains are discovered, as well as safety requirements.

8.5 What Custody and Management Arrangements Might be Needed?

The custody and management of Aboriginal cultural heritage are addressed in Section 2.3.

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10 Appendices

Appendix 1: Notice to prepare Cultural Heritage Management Plan

VICTORIA State Government | Premier and Cabinet

Notice of Intent to prepare a Cultural Heritage Management Plan for the purposes of the *Aboriginal Heritage Act 2006*

This form can be used by the Sponsor of a Cultural Heritage Management Plan to complete the notification provisions pursuant to s.54 of the *Aboriginal Heritage Act 2006* (the "Act").

For clarification on any of the following please contact Victorian Aboriginal Heritage Register (VAHR) enquiries on 1800-726-003.

SECTION 1 - Sponsor information

Sponsor:	Towong Shire Council		
ABN/ACN:	45 718 604 860		
Contact Name:	Kerissa Heritage		
Postal Address	32 Towong Street, Tallangatta, VIC 3700		
Business Number:	1300 365 222	Mobile:	0428568156
Email Address:	Kerissa.Heritage@towong.vic.gov.au		

Sponsor's agent (if relevant)

Company:			
Contact Name:			
Postal Address			
Business Number:		Mobile:	
Email Address:			

SECTION 2 - Description of proposed activity and location

Project Name:	Proposed Mountain Bike Trail at Mt Elliot, Corryong, VIC 3707
Municipal district:	Towong Shire Council

Clearly identify the proposed activity for which the cultural heritage managment plan is to be prepared (ie. Mining, road construction, housing subivision)

Bicycle track

SECTION 3 - Cultural Heritage Advisor

Name	Company	Email address
Damian Wall	Red-Gum Environmental Consulting Pty Ltd	damian.wall@red-gum.com.au

SECTION 4 - Expected start and finish date for the cultural heritage management plan

Start Date:	08-May-2024	Finish Date:	31-Aug-2024

VICTORIA State Government | Premier and Cabinet

SECTION 5 - Why are you preparing this cultural heritage management plan?

☐ A cultural heritage management plan is required by the Aboriginal Heritage Regulations 2007

What is the high Impact Activity as it is listed in the regulations?

Is any part of the activity an area of cultural heritage sensitivity, as listed in the regulations? 0

☑ Other Reasons (Voluntary)

☑ An Environment Effects Statement is required

☐ A Cultural Heritage Management Plan is required by the Minister for Aboriginal Affairs.

☐ An Impact Management Plan or Comprehensive Impact Statement is required for the activity

SECTION 6 - List the relevant registered Aboriginal parties (if any)

This section is to be completed where there are registered Aboriginal parties in relation to the management plan.

SECTION 7A - List the relevant Aboriginal groups or Aboriginal people with whom the Sponsor intends to consult (if any)

*This section is to be completed only if the proposed activity in the management plan is to be carried out in an area where there is **no Registered Aboriginal Party.***

Duduroa Local Custodians

SECTION 7B - Describe the intended consultation process (if any)

*This section is to be completed only if the proposed activity in the management plan is to be carried out in an area where there is **no Registered Aboriginal Party.***

All parts of the CHMP process will be in consultation with the DLTCI

SECTION 8 – State who will be evaluating this plan (mandatory)

The plan is to be evaluated by:

☐ Joint - Registered Aboriginal Party AND The Secretary

☐ A Registered Aboriginal Party

☑ The Secretary

☐ Victorian Aboriginal Heritage Council

SECTION 9 – Preliminary Aboriginal Heritage Tests (PAHTs)

List the Reference Number(s) of any PAHTs conducted in relation to the proposed activity:

SECTION 10 - Notification checklist

Ensure that any relevant registered Aboriginal party/ies is also notified. A copy of this notice with a map attached may be used for this purpose.
(A registered Aboriginal party is allowed up to 14 days to provide a written response to a notification specifying whether or not it intends to evaluate the management plan.)

Appendix 2: Summary of Consultation

Date	Time	Type	Name (from)	Party (to)	Discussion/Details
8/05/2024	9:00	Email	Damian Wall (Red-Gum)	Secretary of the Department of Premier and Cabinet (DPC)	A Notice of Intent to Prepare a Management Plan (NOI) was lodged.
10/05/2024	11.30	Phone	Damian Wall (Red-Gum)	Reg Murray (DDAC)	DW rang RM for an inception meeting held via phone, they agreed on the approach to the CHMP and set up a time to conduct the standard assessment.
14/05/2024	10:00	In person	Damian Wall, Maggie Cronin, Olivia Hynam (Red-Gum)	Reg Murray (DDAC)	DW, MC, OH & RM undertook the standard assessment and agreed that a complex assessment was not required, the land was very steep and densely vegetated with low archaeological potential.
14/05/2024	16:00	In person	Damian Wall (Red-Gum)	Reg Murray (DDAC)	DW & RM had a management conditions meeting involving MC and OH. It was agreed that other that the CHMP being on site, there were no other conditions required.
22/5/2024	13:30	Phone	Damian Wall (Red-Gum)	Reg Murray (DDAC)	DW emailed RM to read through the draft CHMP and checked the agreed management conditions. RM advised that they were acceptable to DDAC.

Appendix 3: Qualifications of Heritage Advisor

Damian Wall

Managing Director - Red-Gum Environmental Consulting Pty Ltd

Qualifications:

- Bachelor of Applied Science (Parks, Recreation & Heritage), CSU Albury, 1996
- Master Environmental Management and Restoration, CSU, 2005
- Certified Environmental Practitioner (CENVP), Environment Institute of Australia & New Zealand, 2008
- Full Member Australian Association of Consulting Archaeologists Inc (AACAI)
- Graduate Certificate in Cultural Heritage Management (CHM), Flinders University, 2011
- Heritage Advisor as defined under section 189(1) of the Aboriginal Heritage Act 2006.

Appendix 4: Glossary of terms

Activity	The development or use of land
Activity Area	The area or areas to be used or developed for an activity
Archaeology	The study of the past through the systematic recovery and analysis of material culture.
Artefact Scatter	A group of stone or other artefacts found scattered on the ground surface.
Assemblage	A collection of artefacts that are derived from the same Aboriginal place.
Burial (Aboriginal Ancestral Remains)	Usually represented by a concentration of human bones or teeth. Burials can be associated with charcoal or ochre, shell, animal bone or stone tools. They tend to be located in sandy areas, which were easy to dig or in rock shelters or tree hollows. They are usually exposed through earthworks or erosion.
Culturally Modified Tree	See Scarred Tree
Earth Feature	Includes mounds, rings, hearths, post holes and ovens.
Excavation	The systematic recovery of archaeological data through the exposure of buried sites and artefacts.
Low Density Artefact Deposit (LDAD)	Artefact deposit with average stone density of less than 10 artefacts in a 10m x 10m area.
Material culture	The tangible evidence or cultural remains that are produced by human activity.
Object Collection	A collection of Aboriginal cultural heritage objects.
Quarry	A location from which Aboriginal people have extracted stone for making stone artefacts or mineral such as ochre for use in painting.
Rock Art	Paintings or engravings on the surface of caves or rock shelters, created by Aboriginal people in the past.
Scarred Tree	Trees from which bark has been removed for the manufacture of utilitarian items such as containers, shelter sheets, canoes or medicine.
Shell Midden	A midden is the remains of a meal. In the case of shell middens, marine or freshwater molluscs are the dominant component.
Stone Feature	Rock art consisting of stones arranged in a pattern.

Appendix 5: Compliance Review Check list

COMPLIANCE CHECK LIST CHMP 20119						
Item	Date	Compliance (Y/N)	Issue/reason for non-compliance	Action	Person supervising action	Date to be completed by
Management Conditions						
Is a copy of this CHMP stored at all times in the site construction office? (Section 1.1)						
Contingencies						
If any skeletal remains area identified during the activity have all works ceased & the remains been protected *in situ*? (2.1)						
If Aboriginal cultural material (non-skeletal) is found during the activity have all works ceased within 10 m of the find and a fenced buffer zone been established and clearly marked as a 'no-go' zone? (2.2)						
Have all following steps been followed regarding notification, inspection, reporting, managing, agreement and custody been followed? (2.3)						
Have appropriate and required VAHR forms been completed and submitted as per Section 2.3?						
Has compliance with the CHMP been reviewed (2.5)?						
If any non-compliance has been identified have works ceased (2.5)?						
Have any non-compliance issues been managed as per 2.5?						
Has the lot been developed in accordance with the relevant planning scheme as per 2.6?						
Comments (can the process be improved)						
Signature:			Date:			

Appendix 6: Communication Contact Table

Name	Role	Company	Phone	Address	Email
Kerissa Heritage	Project Manager	Towong Shire Council	0428 568 156	P.O. Box 55 Tallangatta, Vic, 3700	Kerissa.Heritage@towong.vic.gov.au
Mr Texas Nagel	Acting Manager, Heritage Programs (Hume)	Aboriginal Victoria, Department of Premier & Cabinet	(03) 5722 7116 M: 0458 325 421	Level 1, 62 Ovens Street, Wangaratta VIC 3677	texas.nagel@dpc.vic.gov.au

Appendix I Native Vegetation Report (NVR)

Native Vegetation Report: Detailed Assessment

for

Proposed Mount Elliot MTB Trail, Biggara, VIC 3707

Version 1

Date: 14/5/24

94 Kirby Flat Road,
Yackandandah, VIC 3749
Phone: 0402 344 574
ABN: 797 823 838 29
damian.wall@red-gum.com.au

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1 Introduction

1.1 Project Background

Red-Gum Environmental Consulting Pty Ltd (Red-Gum) was commissioned by Towong Shire Council ('the proponent') to undertake a detailed flora and fauna assessment of the land proposed to be included within the Mount Elliot Mountain Bike (MTB) Trail near Biggara, east of Corryong, Victoria ('the project'). The project proposes the construction of approximately 35 kilometres of MTB trail (less than one metre-wide shallow excavated earthen path) to provide a variety of trails to suit different skill levels, with the aim of increasing recreational opportunities and fitness levels in the local and broader region. There is also a proposed 3.5-kilometre shared path for bicycles and pedestrians which loops around the hang-gliding and paragliding launch area on the summit.

The trail will traverse a mixture of existing tracks, informal tracks, game trails and other existing disturbed areas, where possible, and will predominantly be a combination of new tracks that need to be constructed through Crown bushland and other works on those existing tracks to bring them up to MTB trail standards. With the utilisation of existing tracks and game trails, the amount of new trail is significantly less than 35 kilometres total length. The Mt Elliot MTB trail expands on existing tourist trails and off/on-road track networks in the Upper Murray region, including the existing High Country Rail Trail which travels from Wodonga to Corryong. The project is seen as an important opportunity to further increase tourism to the region, grow the economy and strengthen the health and well-being of the region's residents by providing new scenic recreational pursuits. The project includes the following elements:

- Approximately 34.9 kilometres of trails utilising existing unofficial trails, game trails and other disturbed areas where possible.
- The majority of new trail is being constructed through patch vegetation, ranging from low-moderate (around the cleared summit of Mount Elliot) to high quality condition.
- Trails are generally approximately 50 centimetres wide, up to a maximum of one metre wide for berms and switchbacks. Losses have been calculated on a one metre-wide loss zone to factor in tracking of construction machinery along the alignment (hence losses will actually be considerably less than the one metre-wide loss figure being offset);
- Trees losses being avoided and trail construction within Tree Protection Zones (TPZ) to occur at natural soil grade with minimal excavation of the natural surface (with a maximum of 150mm depth).
- Avoidance of tree Structural Root Zones (SRZ) unless unavoidable, and where crossed, no excavation within Structural Root Zones (SRZ), with some use of local clean permeable fill to create a level trail surface where SRZ are intersected (but not impacted via building up to avoid root zone damage);
- Trail construction outside of TPZs, to be excavated to a suitable subgrade, generally no deeper than 150mm, but in some areas greater depth may be required for track grade, drainage run-offs or obstacle avoidance measures;
- Waterways and wet areas being avoided to the greatest extent possible via design and micro-siting final alignment. Fibreglass bridge crossings with minimal low impact footings (hand drilled pile footings) where the trail crosses small creeks.
- Extended fibreglass boardwalks where other sensitive areas are to be avoided, via aerial routing of the trail, if required. Micro-siting of final route should largely if not completely avoid this requirement.

The project aims to avoid biodiversity impacts to the greatest extent, and where avoidance is not possible, minimise potential adverse effects on native vegetation and fauna, as well as address offset requirements consistent with Victorian and Commonwealth legislation and policies.

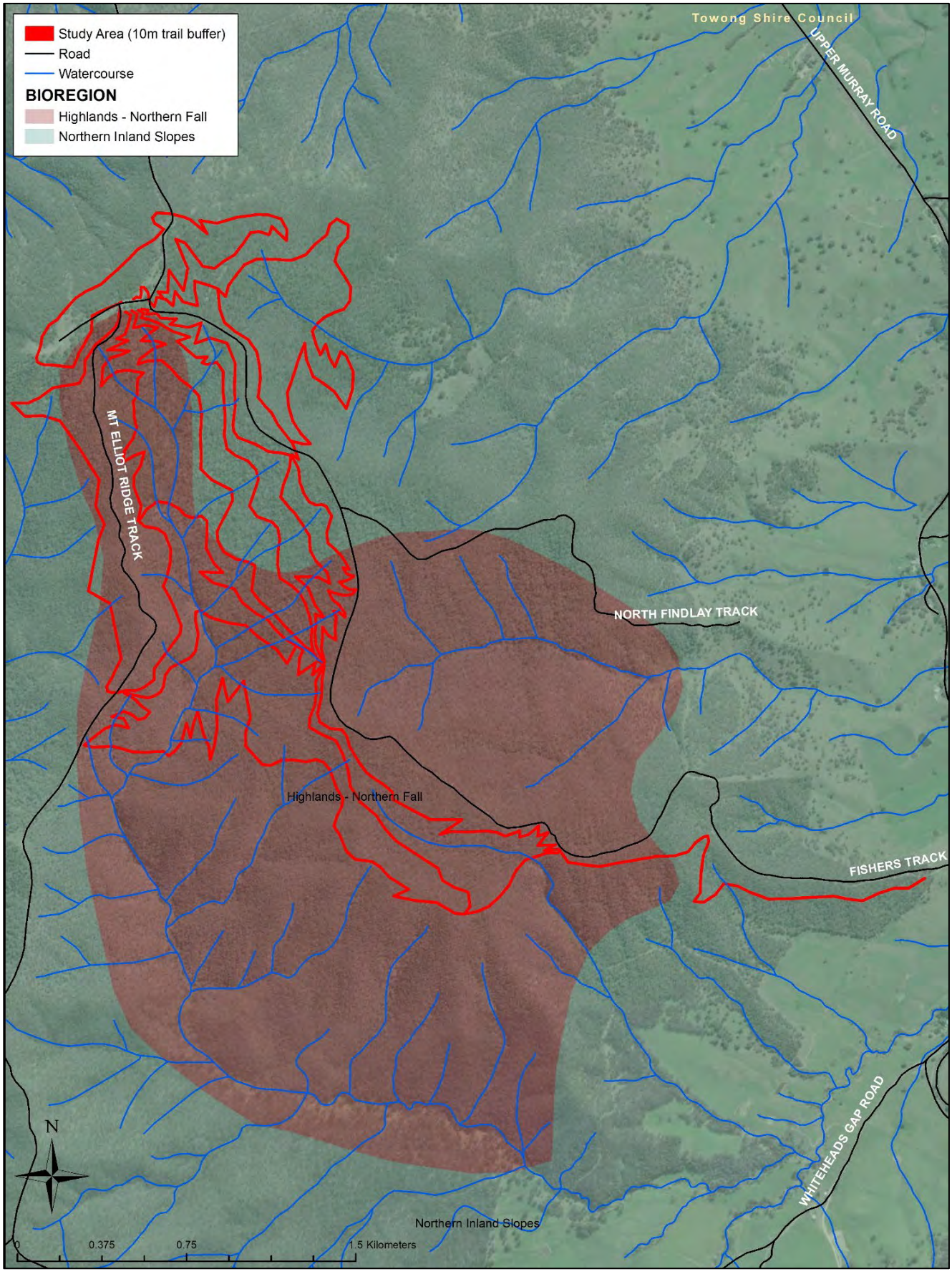
1.2 Scope of the Assessment

The scope of works for the flora and fauna assessment includes:

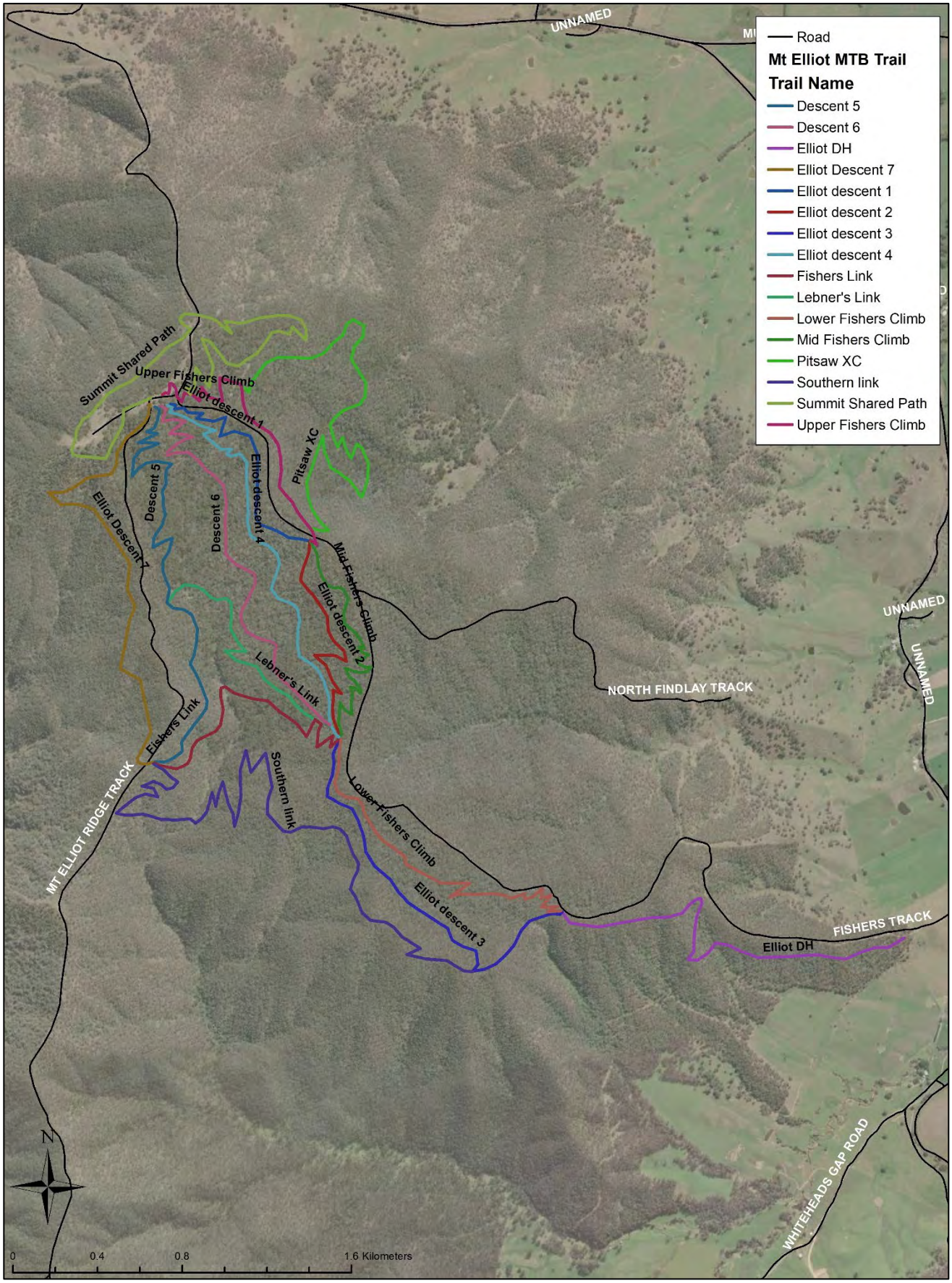
- Desktop review of known and/or predicted ecological values occurring within the study area;
- Assessing and mapping ecological values and identify their quality and extent within the study site;
- Identifying the presence and likelihood of occurrence of Victorian and Commonwealth listed threatened flora, fauna, and communities within the study site;
- Identifying the potential impacts to these ecological values, including implications under relevant legislation and policies;
- Providing recommendations and outlining appropriate measures to avoid, mitigate or offset potential impacts; and
- Preparing a report to document the results of the ecological assessments.

1.3 Location of the Study Area

The study area occurs across two bioregions, the Highlands Northern Fall bioregion, which occurs on the higher areas in the central and southern part of the study area, and the majority of trail is occurring in this bioregion. The second bioregion is the Northern Inland Slopes bioregion, which occurs on the mid slopes around the western, northern and far eastern parts of the study area, where Mt Elliot begins to slope down to the valley floor. Towong Shire Council local government area (LGA) and North East Catchment Management Authority (CMA) area. An indicative trail alignment (as mapped by Terrain Trail Constructions) was provided by the proponent, with the proposed trail in the study area covering approximately 35 kilometres of existing tracks and proposed new trail through crown land reserves. The assessment area considered for the purposes of this assessment was 10 metres either side of the indicative trail (**Map 1**).



Map 1: Overview of the Mt Elliot MTB trail project study area (proposed alignment), Biggara area (Victoria).



Map 2: Overview of the Mt Elliot MTB trail project with trail section names.

2 Methods

2.1 Database Review

As part of due diligence, a review of relevant Victorian and Commonwealth Government biodiversity databases was undertaken. Information about flora and fauna located within ten kilometres of the study area was downloaded and assessed. The relevant records and provisions from the following databases were reviewed:

- The Department of Energy, Environment and Climate Action's (DEECA) Victorian Biodiversity Atlas (VBA) flora and fauna species recorded within the study area.
- The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES) relevant to the study area, including wetlands, threatened ecological communities/species and migratory species (DCCEEW 2023b).
- DEECA's NatureKit mapping for Ecological Vegetation Classes (EVCs) (extant and pre-1750s), location risk mapping, and Habitat Importance Maps.
- DEECA's Native Vegetation Information System (NVIM) for biodiversity information relevant to the study site including public land, bioregions, catchments, and modelled native vegetation.
- DEECA's MapshareVic Interactive Mapper and the Victorian Department of Planning and Transport Planning Schemes Online and Planning Maps Online for local government areas planning zones, overlays and schedules.

2.2 Definitions of Significance

Threatened species and communities are declared under the Commonwealth's *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act). The significance of a species or ecological community is determined by its listing status under the EPBC Act and FFG Act. Lists of significant species generated from the database searches and recorded on site are provided in **Appendix 1B** (flora) and **Appendix 2B** (fauna), and the significant species have been evaluated to determine their likelihood of occurrence based on the process outlined below. The habitat value for species listed on the FFG Act is calculated by the Habitat Importance Modelling produced by DEECA (see **Appendix 6**).

2.3 Evaluating the Likelihood of Occurrence of Threatened Species

The likelihood of occurrence indicates the potential for a threatened species or ecological community to occur regularly within the study area. It is based on expert opinion, information in relevant biodiversity databases and reports, and an assessment of the habitats present on site. The likelihood of occurrence is ranked as: No, Low, Medium, High, or Recorded. The justification for the ranking for each species is provided in **Appendix 1B** and **Appendix 2B**. Species that have at least a Medium likelihood of occurrence are given further consideration in this report. The need for targeted survey for these species is also considered.

2.4 Site Assessment

The biodiversity assessment of the of the entire project area was undertaken over three survey efforts by four qualified Red-Gum Environmental Consulting ecologists/botanists. Habitat Zones 1 (A to T) and 2 (A to Z) were assessed on 23 January 2024; Habitat Zones 3A, 4 (A to 0), 5 (A to E), 6 (A to C), 7 (A to B) and 14 (A to H) were assessed on 5 March 2024; and Habitat Zones 8 (A to G), 9 (A to T), 10 (A to C), 11 (A to E), 12 (A to B) and 13 (A to B) were assessed on , 16 April 2024. A detailed ecological assessment was conducted which involved:

- A Habitat Hectares assessment in accordance with current DEECA methodology and the *Vegetation Quality Assessment Manual* (DSE 2004). Data was collected in accordance with the DEECA *Guidelines for the removal, destruction or lopping of native vegetation* (The Guidelines; DELWP 2017) and included mapping of:
    - Remnant patches of native vegetation (including canopy drip line and on-ground extent of understorey collected by a surveyor to an accuracy of <1 m)
    - Scattered and canopy trees within patches within the impact footprint (*Assessor's handbook Applications to remove, destroy or lop native vegetation*, DELWP 2017) were not mapped, given the scale of the footprint and the avoidance measures being taken to avoid tree impacts.
- Identifying the presence or likelihood of occurrence of species and ecological communities listed under the FFG Act and EPBC Act;
- Recording the number of specimens of FFG Act-listed protected flora recorded within the study area; and
- Recording all native and exotic flora and fauna species encountered during the site assessments.

Data from the site assessment was used to inform the analysis and outcomes of this report. Data was collected using a hand-held GPS unit and Avenza mapping software. The accuracy of the mapping is generally accurate to +/- 5 metres and is deemed to be sufficient for the purposes of the assessment. Where data accuracy is suspect, minor alterations may be made using the latest aerial photography available for the study area. The report mapping was developed using ArcGIS software. Species nomenclature for flora follows the National Herbarium of Victoria. A variety of survey methods were employed during the field assessment stage, however, the nature of the proposal and construction methodology meant that some investigations were not warranted, especially where native vegetation was not proposed to be removed or significantly impacted. **Table 1** provides a summary of methodologies used, those that were not and the reasons for both.

Table 1: Field assessment methods employed for fauna

Intended Target	Methodology
Diurnal Birds	Area search, where the observer walked representative sections of the site on two field assessment occasions. Recording of bird calls.
	Point Count method, where observations were made from 2 points in each habitat zone for 20 minutes each.
Nocturnal Birds	Day habitat search. Search habitat for pellets, and likely hollows.
	Tree watching for 30mins prior to sunset and 60mins following sunset of those trees proposed for removal greater than Medium Tree size – Not undertaken due to remote site and steep terrain. Hollow trees not being impacted.
Flying Mammals	Spotlighting on foot – 2hrs hour walking the site on 1 night. Not undertaken due to remote site and steep terrain. No impacts expected for hollow trees and other important habitat.
	Stag-watching. Observing potential roost hollows for 30mins prior to sunset and 60mins following sunset. Not undertaken due to remote site and steep terrain. No impacts expected for hollow trees and other important habitat.
Non-Flying Mammals	Search for scats and signs - 30 minutes searching relevant habitat, including trees for scratch marks. Tree watching for 30mins prior to sunset and 60mins following sunset of those trees proposed for

Intended Target	Methodology
	removal greater than Medium Tree size. Tree watching not completed due to remote site and steep terrain, and project not impacting on trees.
Frogs	Listening to calls during the day (including early and late in day) in impacted small drains/channels and nearby wetlands and creeks, where they may occur. Dusk surveys not completed due to remote site and steep terrain, and trails having very limited impact on frog habitat.
Reptiles	Search of rocky areas and areas that contain ground timber and other suitable reptile habitat. Little rocky habitat is intersected by the proposed trail alignment. Limited suitable reptile habitat for searches to be conducted.
Aquatic species	No searches were conducted for aquatic species as part of this assessment due to lack of aquatic habitat being intersected by the alignment.

2.5 Report Limitations

The assessment of the study area was undertaken over three survey efforts, on 23 January, 5 March and 16 April 2024. As surveys were conducted at three different times, this provided high confidence that species for these areas have been adequately captured during the assessment process, and that surveys were undertaken during an optimal time of year for conducting surveys in north-east Victoria. A species list of flora and fauna encountered during surveys has been provided (**Appendix 1A** and **1B**), and given the study area scale, it is likely that not all species were captured which may be present throughout the 35 kilometres trail alignment However, the flora list is considered a relatively comprehensive species list for the entire route.

2.6 Review of Legislation and Policy

The implications for the project were assessed in relation to key biodiversity legislation and policy including:

- Matters listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), associated policy statements, significant impacts guidelines, listing advice and key threatening processes;
- Threatened taxa, communities and threatening processes listed under Section 10 of the *Flora and Fauna Guarantee Act 1988* (FFG Act);
- Guidelines for the Removal, Destruction or Lopping of Native Vegetation (DELWP 2017);
- Native Vegetation Management Plans prepared by Catchment Management Authorities;
- *Planning and Environment Act 1987* (specifically Clauses 12.01-2, 52.17 and 66.02) and overlays in the Towong Planning Scheme;
- Noxious weeds and pest animals lists under the *Catchment and Land Protection Act 1994* (CaLP Act);
- *Fisheries Act 1995* (where relevant);
- *Water Act 1989* (where relevant); and
- *Environment Protection Act 1971*: *State Environmental Protection Policy (Waters of Victoria) 2003* (where relevant).

3 Results

Species recorded during the flora and fauna assessment are listed in **Appendix 1A** (flora) and **Appendix 2A** (fauna). Unless of particular significance, these species are not discussed further. Those species recorded or predicted (modelled) to occur in the local area are also provided in **Appendix 1B** (flora) and **Appendix 2B** (fauna), along with an assessment of the likelihood of the species occurring within the study area. A total of 149 flora species were identified during assessments, with 15 being introduced (exotic) species. A total of 38 fauna species were identified, with only one being an introduced species. A species likelihood of occurrence assessment was completed (**Appendix 1B** and **2B**) and species that had a likelihood assessment of Medium, High or Recorded, are considered further in this report.

3.1 Vegetation and Habitat

The study area encompasses approximately 38.8 kilometres of trail, which includes a significant amount of existing unofficial trail and game trail, as well as some sections of completely new trail. Despite the use of large amounts of existing trail, all trails are considered to be new impacts to patch vegetation. At a maximum distance of one metre wide, the trail covers approximately 3.9 hectares of public land and forest tracks. In reality, many parts of the track will involve a cleared area (impact area) of less than one metre, so the actual vegetation impacts will be less than this one metre-wide figure.

The trail starts on the summit of Mount Elliot, and there are a number of trail options, including downhill trails and cross-country trail options. Most of the trails are situated south of the summit, between Mt Elliot Ridge Track and Fishers Track, with some small sections of trail extending north of the summit in a loop fashion (**Map 2**). The trails (three sections) also extend south and east down Fishers Track, on the southern side, before joining to form one trail and then terminating where the bush finishes at the interface between the park and the private land on the Biggara side of the mountain. The trail is surrounded by predominantly Crown managed bushland. Representative photos of the Habitat Zones being intersected by the trail are provided in **Appendix 4**.

Much of the study area has been degraded by a variety of disturbance mechanisms, including by pest animal (deer and rabbits) grazing, weed invasion, and historical disturbances (i.e. logging) associated with forestry operations and construction of the tracks through the area. However, the majority of the study area support predominantly native vegetation that is of good habitat value for native flora and fauna. The most disturbed of the habitat zones are those at or near the summit, where more clearing and ongoing disturbance has occurred. Beyond the disturbed summit area, the vegetation increases in quality the further one gets from the summit and the track network, with some more isolated areas having much lower weed levels and higher biodiversity values. The trail utilises an existing track network for a large part of the 38.8 kilometre total, essentially meaning the losses being calculated and offset for the trail development are significantly more than the losses that will actually be incurred on the ground.

With construction utilising existing trails and disturbed areas, where possible, these disturbed trail alignments were chosen because they have existing substantial levels of disturbance and in doing so, the environmental impacts from the project are being significantly reduced. Notwithstanding the above, the remainder of the study area supports a range of ecological features including areas (patches) of native vegetation, including some small ephemeral creeks, ground timber and large trees, many of which are hollow-bearing. The native vegetation throughout the trail alignment is representative of Grassy Dry Forest (EVC 22), Herb-rich Foothill Forest (EVC 23), and Shrubby Dry Forest (EVC 21) of varying condition across two bioregions (Highlands Northern Fall and Northern Inland Slopes – see **Map 1**).

These features are described further in **Table 2**. The EVCs closely align with DEECA 2005 modelled EVC data, and given the remoteness and the difficulty in precisely mapping EVC changes on the ground, the DEECA modelled EVC layer has been adopted to determine the habitat zone boundaries (**Map 3**).

Table 2 Summary of vegetation and habitat types within the study area.

Vegetation or Habitat Type	Description	Location	Significant Values
Herb-rich Foothill Forest (EVC 23) – Northern Inland Slopes	Described formally as a medium to tall open forest or woodland to 25 metres with a small tree layer over a sparse to dense shrub layer. The EVC has a high cover and diversity of herbs and grass species in the ground layer, which characterise the EVC from similar nearby EVCS that lack such herb cover. Within the study area, Narrow-leaf Peppermint (*Eucalyptus radiata*), Broad-leaf Peppermint (*E. dives*), Blue Gum/Eurabbie (*E. globulus subsp. bicostata*) and Brittle Gum (*E. mannifera*) dominated the canopy, with Silver Wattle (*Acacia dealbata)*, Cassinia (*Cassinia arculeata*) and Bursaria (*Bursaria spinosa*) in the mid-storey. The quality of understorey varied depending on the overall disturbance levels of the habitat zone, with some areas near to roads being weedy, with infestations of Blackberry (*Rubus fruticosus spp. agg*), whereas other more remote areas had high diversity of grasses, low-growing shrubs and herbs, including Honeypots (*Acrotriche serrulata*), Grey Guinea Flower (*Hibbertia obtusifolia*), Prickly Coprosma (*Coprosma quadrifida*), Common Woodruff (*Asperula sp*.), Bidgee-widgee (*Acaena spp.*) Austral Bugle (*Ajuga australis*) and numerous sedge, grasses, orchids and scramblers.	Habitat Zones 5 and 7.	Unlike some other habitat zones further east, many areas contained large remnant hollow-bearing trees with some fallen woody debris below, and the better patches containing large logs. Includes some areas of potential habitat for those listed flora and fauna species with greater than medium likelihood of occurrence in the study area (**Appendix 1B** and **2B)**.
Grassy Dry Forest (EVC 22) Northern Inland Slopes	Described formally as a low to medium height forest to 20 metres, sometime resembling an open woodland, with a secondary, smaller tree layer consisting of a number of different Acacia species. The understorey layer is usually consists of a sparse shrub layer of medium height shrubs. The EVC has a ground layer that is dominated by a high diversity of drought-tolerant grasses and herbs, as well as fern species. Within this EVC in the study area, Red Stringy-bark (*Eucalyptus macrorhyncha*), Red Box (*E. polyanthemos*), Long-leaf Box (*E. goniocalyx*) dominated the canopy, as well as Narrow-leaf Peppermint (*Eucalyptus radiata*) and Blue	Habitat zones 4, 13 and 14	Unlike some other habitat zones further east, many areas contained large remnant hollow-bearing trees with some fallen woody debris below, and the better patches containing large logs. Includes some areas of potential habitat for those listed flora and fauna species with greater than medium likelihood of occurrence in the study area (**Appendix 1B** and **2B)**.

Vegetation or Habitat Type	Description	Location	Significant Values
	Gum/Eurabbie (*E. globulus subsp. bicostata*) near edges of adjoining zones, with Silver Wattle (*Acacia dealbata)*, Cassinia (*Cassinia arculeata*), Cherry Ballart (*Exocarpos cuppressiformis*) and Kurrajong (*Brachychiton populneus*) in the mid-storey. The quality of understorey varied depending on the overall disturbance levels of the habitat zone, with some areas nearer roads being weedy, with infestations of Blackberry (*Rubus fruticosus spp. agg*), whereas other more remote habitat zones had high diversity of grasses, low-growing shrubs and herbs, including Honeypots (*Acrotriche serrulata*), Handsome Flat-pea (*Platylobium montanum*), Native Raspberry (*Rubus parvifolius*), Common Woodruff (*Asperula sp*.), Bidgee-widgee (*Acaena spp.*) Prickly Starwort (*Stellaria pungens*), Austral Bugle (*Ajuga australis*) and numerous sedges, grasses, orchids and scramblers.		
Shrubby Dry Forest (EVC 21) Northern Inland Slopes	Described as a low open forest to 25 metres, characterised by the diversity and variability of the eucalypt species that are present. The EVC occurs on a range of geologies on more exposed aspects such as ridge-lines and upper slopes, often in high rainfall areas and grows on shallow infertile soils. The understorey often lacks a secondary tree layer (understorey trees) but contains a well-developed low to medium shrub layer. The ground layer is often sparse due to shading and low fertility, with tussock-forming grasses being the dominant lifeform. Within this EVC in the study area, Broad-leaved Peppermint (*Eucalyptus dives*), Red Stringy-bark (*E. macrorhyncha*) Narrow-leaf Peppermint (*E. radiata*) dominated with the occasional Silver Wattle and Cassinia being present in the mid storey. The quality of understorey varied from sparse and dominated by graminoids of Poa and Lomandra species, to areas that were more heavily covered with lower-growing shrubs and herbs such as Handsome Flat-pea (*Platylobium montanum)*, Grey Guinea Flower (*Hibbertia obtusifolia*) Purple Coral-pea (*Hardenbergia violata*), Rough Coprosma (*Coprosma hirtella*), Parrot Pea (*Dillwynia sericea*) and various common herbs and scramblers.	Habitat Zone 12	Lower numbers of large trees were persisting in this zone due to past disturbance regimes, however the area still some areas of potential habitat for those listed flora and fauna species with greater than medium likelihood of occurrence in the study area (**Appendix 1B** and **2B)**.
Herb-rich	There is little distinguishable difference between the	Habitat	Habitat Zones 2 and 3 have

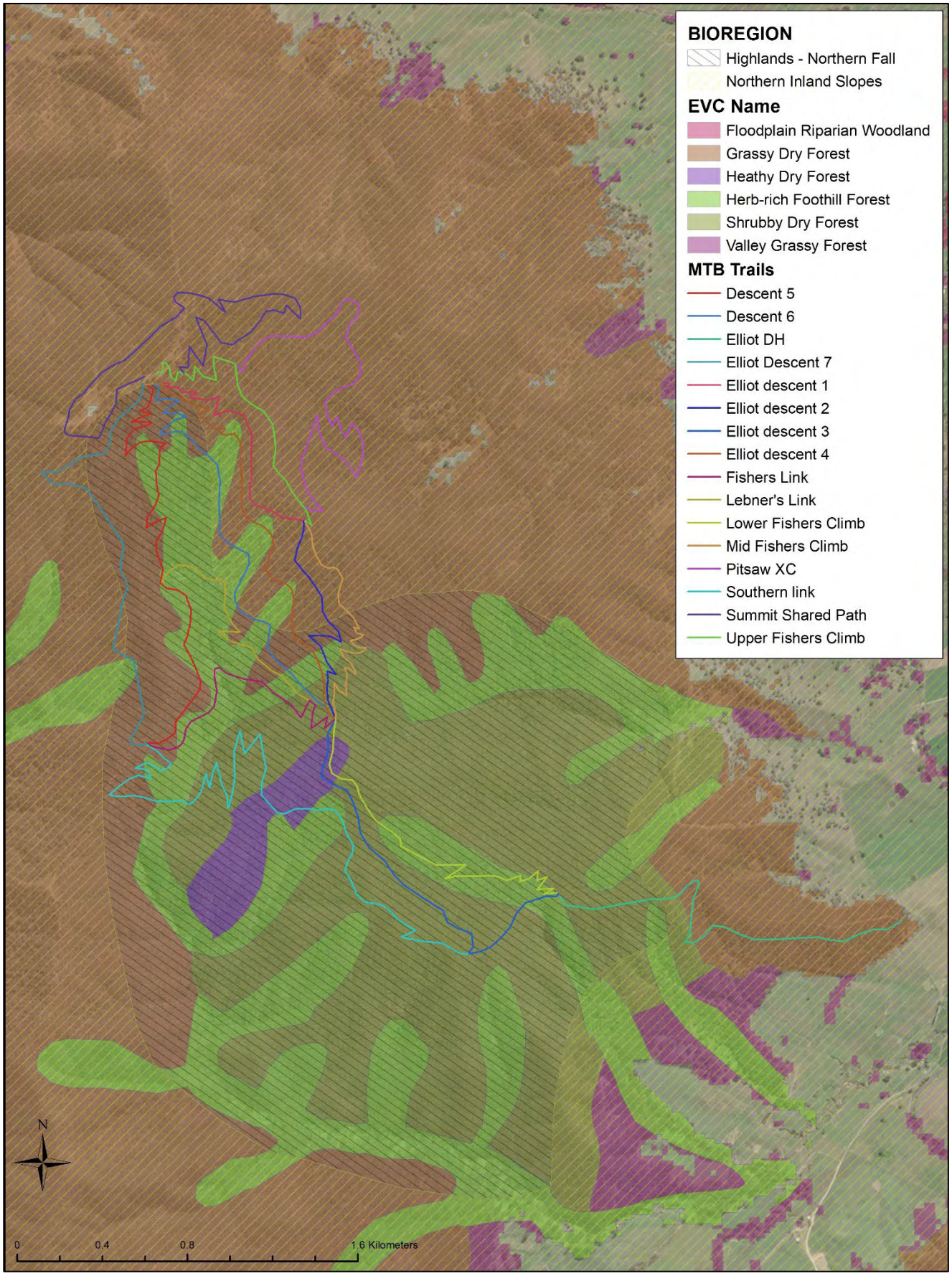
Vegetation or Habitat Type	Description	Location	Significant Values
Foothill Forest (EVC 23) (EVC 22) Highlands Northern Fall	Highlands Northern Fall bioregion HRFF, and the Northern Inland Slopes bioregion HRFF. This was reflected by the site assessment, with the same EVC in the different bioregions having little observable difference in structure and species composition. See the HRFF description above for key species.	Zones 2, 3 and 11	many areas containing large remnant hollow-bearing trees with some fallen woody debris below, and the better patches containing large logs. Zone 11 has fewer large trees, however the area still has some areas of potential habitat for those listed flora and fauna species with greater than medium likelihood of occurrence in the study area (**Appendix 1B** and **2B)**.
Shrubby Dry Forest (EVC 21) Highlands Northern Fall	There is little distinguishable difference between the Highlands Northern Fall bioregion SDF, and the Northern Inland Slopes bioregion SDF. This was reflected by the site assessment, with the same EVC in the different bioregions having little observable difference in structure and species composition. See the SDF description above for key species.	Habitat Zone 9	Lower numbers of large trees were persisting in this zone due to past disturbance regimes, however the area still some areas of potential habitat for those listed flora and fauna species with greater than medium likelihood of occurrence in the study area (**Appendix 1B** and **2B)**.
Heathy Dry Forest (EVC 20) Highlands Northern Fall	Described as a low open eucalypt forest, poor in form to 20 metres with an open crown cover. The understorey is dominated by heathy (ericoid-leaved) shrubs made up of heaths and pea species. There are some grasses present in the ground layer, but they don't provide significant percentage cover. Within this EVC in the study area, Broad-leaved Peppermint (*Eucalyptus dives*), Brittle Gum (*E. mannifera*) and Long-leaved Box (*E. goniocalyx*) dominated with clusters of occasional Silver Wattle (*Acacia dealbata*) and Shiny Cassinia (*Cassinia longifolia*) being present in the mid storey. The quality of understorey varied from sparse and dominated by graminoids of Poa and Lomandra species, to areas that were more heavily covered with lower-growing shrubs and herbs such as Common Beard-heath (*Leucopogon virgatus*), Ploughshare Wattle (*Acacia gunnii*), Parrot-pea (*Dillwynia sericea*), Rice Flower (*Pimelea* sp.), Rough Coprosma (*Coprosma hirtella*), and various common herbs and scramblers.	Habitat zone 10	Lower numbers of large trees were persisting in this zone due to past disturbance regimes, however the area still some areas of potential habitat for those listed flora and fauna species with greater than medium likelihood of occurrence in the study area (**Appendix 1B** and **2B)**.
Grassy Dry Forest (EVC	There is little distinguishable difference between the Highlands Northern Fall bioregion GDF, and the	Habitat Zone 1,	Habitat Zones 1 and 6 have many areas containing large

Vegetation or Habitat Type	Description	Location	Significant Values
22) Highlands Northern Fall	Northern Inland Slopes bioregion GDF. This was reflected by the site assessment, with the same EVC in the different bioregions having little observable difference in structure and species composition. See the GDF description above for key species.	6 and 8	remnant hollow-bearing trees with some fallen woody debris below, and the better patches containing large logs. Zone 8 has fewer large trees, however the area still has some areas of potential habitat for those listed flora and fauna species with greater than medium likelihood of occurrence in the study area (**Appendix 1B** and **2B)**.

3.2 Landscape Value

At the broader landscape scale, the landscape is moderately to heavily cleared and modified by human-induced agriculture and in particular livestock farming, as well as some large tracts of land around Corryong being cleared for production softwood plantations. This has caused quite significant fragmentation to the local landscape around Corryong, leaving the native vegetation patches in the study area moderately connected to the larger core bush areas in the broader area to the south, along the vegetated ridge and area either side of Mt Elliot Ridge Track (albeit relatively narrow and two points). To the west, north and east, there is limited and weak connectivity between the study area and the larger core areas of bushland, such as Mount Mittamatite, Burrowa-Pine Mountain National Park to the north-west, and the Alpine National Park to the east. Connectivity through these low lying agricultural areas is predominantly along some vegetated road reserves or riparian areas, making movement between the study area in any direction other than south, difficult for the majority of species, expect for more highly mobile avifauna.

No permanent waterways or wetlands are being intersected by the project's impact area, although there are several small ephemeral creeks, all of which are being avoided or will be minimally impacted by the trail alignment. As the trail is to avoid all significant trees (all trees larger than sapling size), and will avoid high quality patches of bush, grasslands, wet areas, and the majority of creek lines, the project is not expected to have a significant impact on the natural values or the connectivity in operation within the bushland of the study area.



Map 3: 2005 Modelled Ecological Vegetation Classes (EVCs) and bioregions of the study area.

3.3 Significant Species and Ecological Communities

3.3.1 EPBC Act and FFG Act listed species

Lists of EPBC Act and FFG Act listed threatened ecological communities (TECs) and threatened species recorded or predicted to occur within 10 kilometres of the study area are provided in **Appendix 1B** (flora) and **Appendix 2B** (fauna). An assessment of the likelihood of these species occurring in the study area and an indication of where within the site (i.e. those habitats or features of relevance to the species) are included. These communities and species are mapped in **Map 4** and **Map 5**. A summary of those species recorded with a medium or higher likelihood of occurring in the study area is provided in **Table 3**.

Table 3: Summary of listed threatened species (EPBC Act and FFG Act) with a medium or higher likelihood of occurring in the study area.

Species	Listing status	Areas of value within the study area
Flora		
Cottony Cassinia	FFG – Endangered	This species may be present throughout the areas with poorer soils and shaley or rocky substrates, especially in areas that have had recent disturbance. However, the trails are intersecting very little habitat with these features, and the selection of existing disturbed areas and trails, where possible, will help to limit the risk of impacting this species. Trails that are to be newly constructed (not following existing trail or disturbed areas) are to be micro-sited to select the path of least value/impact. Trail construction managers will also be provided with an identification guide for all flora and fauna species they may encounter during micro-siting, including this species. If any species are encountered or suspected, works must halt until contact and clarification is made with the environmental consultant, Council or DEECA.
Elegant Cassinia	FFG – Vulnerable	This species may be present in granite areas of the study area. However, these areas are very limited in the study area, with the site being dominated by shale where rock is present on the surface. Trails that are to be newly constructed (not following existing trail or disturbed areas) are to be micro-sited to select the path of least value/impact. Trail construction managers will also be provided with an identification guide for all flora and fauna species they may encounter during micro-siting, including this species. If any species are encountered or suspected, works must halt until contact and clarification is made with the environmental consultant, Council or DEECA.
Broad-leaf Hop-bush	FFG – Endangered	This species may be present in the more protects gullies, especially those with rocky areas in and around waterways. However, the avoidance of all significant trees and high value areas, and minimal impacts being made to waterways and gully vegetation will act to help minimise possible impacts to this species.
Crimson Grevillea	FFG – Endangered	This species may be present throughout the study area, but predominantly in granitic areas with scrubby vegetation and well-drained soils. Trails that are to be newly constructed (not following existing trail or disturbed areas) are to be micro-sited to select the path of least value/impact. Trail construction managers will also be provided with an identification guide for all flora and fauna species they may encounter during micro-siting, including this species. If any species are encountered or suspected, works must halt until contact and clarification is made with the environmental consultant, Council or DEECA.

Species	Listing status	Areas of value within the study area
Dwarf Milkwort	FFG – Endangered	This species may be present in higher quality areas with a grassy understorey. Trails that are to be newly constructed (not following existing trail or disturbed areas) are to be micro-sited to select the path of least value/impact. Trail construction managers will also be provided with an identification guide for all flora and fauna species they may encounter during micro-siting, including this species. If any species are encountered or suspected, works must halt until contact and clarification is made with the environmental consultant, Council or DEECA.
Antelope Greenhood	FFG – Endangered	Same habitats and impact controls as per above.
Cupped Bush-pea	FFG – Endangered	This species may be present throughout higher quality parts of the study area, particularly near waterways and other drainage lines. Trails that are to be newly constructed (not following existing trail or disturbed areas) are to be micro-sited to select the path of least value/impact. Trail construction managers will also be provided with an identification guide for all flora and fauna species they may encounter during micro-siting, including this species. If any species are encountered or suspected, works must halt until contact and clarification is made with the environmental consultant, Council or DEECA.
Distal-lobe Fireweed	FFG – Vulnerable	This species could be present throughout the study area, but is more likely to be in locations with an altitude of more than 800 metres. Trails that are to be newly constructed (not following existing trail or disturbed areas) are to be micro-sited to select the path of least value/impact. Trail construction managers will also be provided with an identification guide for all flora and fauna species they may encounter during micro-siting, including this species. If any species are encountered or suspected, works must halt until contact and clarification is made with the environmental consultant, Council or DEECA.
Grey Grass Tree	FFG – Critically Endangered	This species was recorded many areas throughout the study area. It is likely this species occurs throughout the majority of ridges and north-west facing slopes of the study area and appears to be a stronghold for the species at the local level. This is a large conspicuous species which is easily seen and easily avoided during micro-siting of the final alignment.
Fauna		
Chestnut-rumped Heathwren	FFG – Vulnerable	This species could frequent areas throughout the study area, but would tend to prefer heathland and forested areas with dense undergrowth. This species tends to nest on or close to the ground, in thick grasses or dense shrubs. The alignment is avoiding high quality areas and thick scrub, where possible. However, if construction is occurring during breeding season (July to November), construction managers must be alert to the potential presence of nesting birds in any grassy or shrubby areas.
Gang-gang Cockatoo	EPBC and FFG Endangered	This species may be present in trees of the forest and woodland habitat throughout the treed areas of the trail, however, no trees (greater than sapling size) will be impacted by the development.
Brown Treecreeper	EPBC – Vulnerable	This species may be present throughout the trail alignment, but areas with limited shrub cover and quality grassy understorey are likely to be preferred. The avoidance of all significant trees will minimise possible impacts to this species.
Hooded Robin	FFG – Vulnerable	This species may be present in the suitable grassland habitat, especially around the summit area, and the species may be present on occasion or may reside in area. However, the avoidance of all significant trees and high value areas will minimise possible impacts to this species.

Species	Listing status	Areas of value within the study area
Barking Owl	FFG – Critically Endangered	This species could occur throughout the study area, but is more likely to be residing where large trees with hollows are plentiful, such as on east-facing slopes or in gullies. The avoidance of all significant trees will minimise possible impacts to this species.
Powerful Owl	FFG – Vulnerable	This species could occur throughout the study area, but is more likely to be residing where large trees with hollows are plentiful, such as on east-facing slopes or in gullies. The avoidance of all significant trees will minimise possible impacts to this species.
Pilotbird	EPBC and FFG - Vulnerable	This species may be present in densely vegetated moist gullies. The trail has been designed to minimise the length of trail intersecting these areas. In addition, higher quality vegetation will be avoided and existing cleared or disturbed areas are to be followed, wherever possible. These actions will minimise the potential impacts upon this species' habitat.
Speckled Warbler	FFG - Endangered	This species could occur throughout the study area, but is more likely to be residing on the rocky ridges or gullies. The avoidance of all significant trees will minimise possible impacts to this species.
Diamond Firetail	EPBC and FFG – Vulnerable	This species may be present in trees and grasslands of open forest and woodland habitat. The avoidance of trees and high quality grasslands will minimise possible impacts to this species.
Southern Greater Glider	EPBC – Endangered FFG - Vulnerable	This species may be present in the higher quality bush areas with abundant tree hollows, and especially prefers ridgelines that link south to other large core areas of bushland. The avoidance of all significant trees will minimise possible impacts to this species. Actions to minimise noise and vibration disturbances around large habitat trees are also recommended in the report.
Satin Flycatcher	EPBC - Migratory	This species may be present in densely vegetated moist gullies. The trail has been designed to minimise the length of trail intersecting these areas. In addition, higher quality vegetation will be avoided and existing cleared or disturbed areas are to be followed, wherever possible. These actions will minimise the potential impacts upon this species' habitat.
Rufous Fantail	EPBC - Migratory	This species may be present in densely vegetated moist gullies or in forest in proximity to a water source. The trail has been designed to minimise the length of trail intersecting these areas. In addition, higher quality vegetation will be avoided and existing cleared or disturbed areas are to be followed, wherever possible. These actions will minimise the potential impacts upon this species' habitat.

3.3.2 FFG Act Listed Species Habitat Importance Assessment

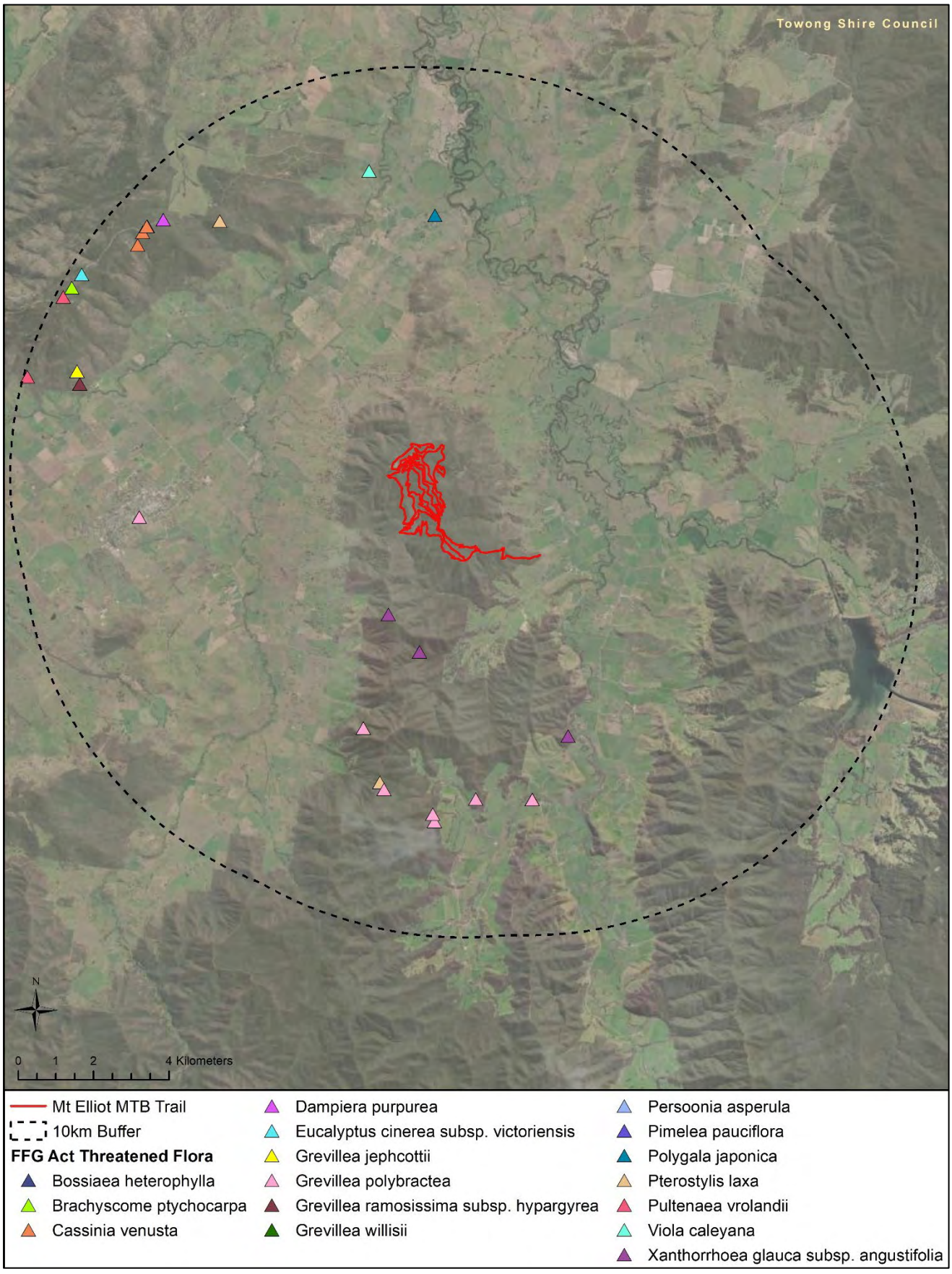
Under the Guidelines, state-wide Habitat Importance Maps (HIM) form the basis for determining the impact of potential native vegetation removal on rare and threatened species listed under the FFG Act (DELWP 2017). There were no FFG Act listed species being impacted beyond their impact threshold to the extent that species offsets would be required, as listed in the DEECA Native Vegetation Removal Report in **Appendix 6**. The largest impact to a HIM was for Benambra Club-sedge (*Isolepis gaudichaudiana*), for which 0.0007% of the modelled habitat value for the species was being affected by the project. The species has not been recorded in the local 10 kilometre radius, and was not detected during site assessments.

3.3.3 Significant Ecological Communities

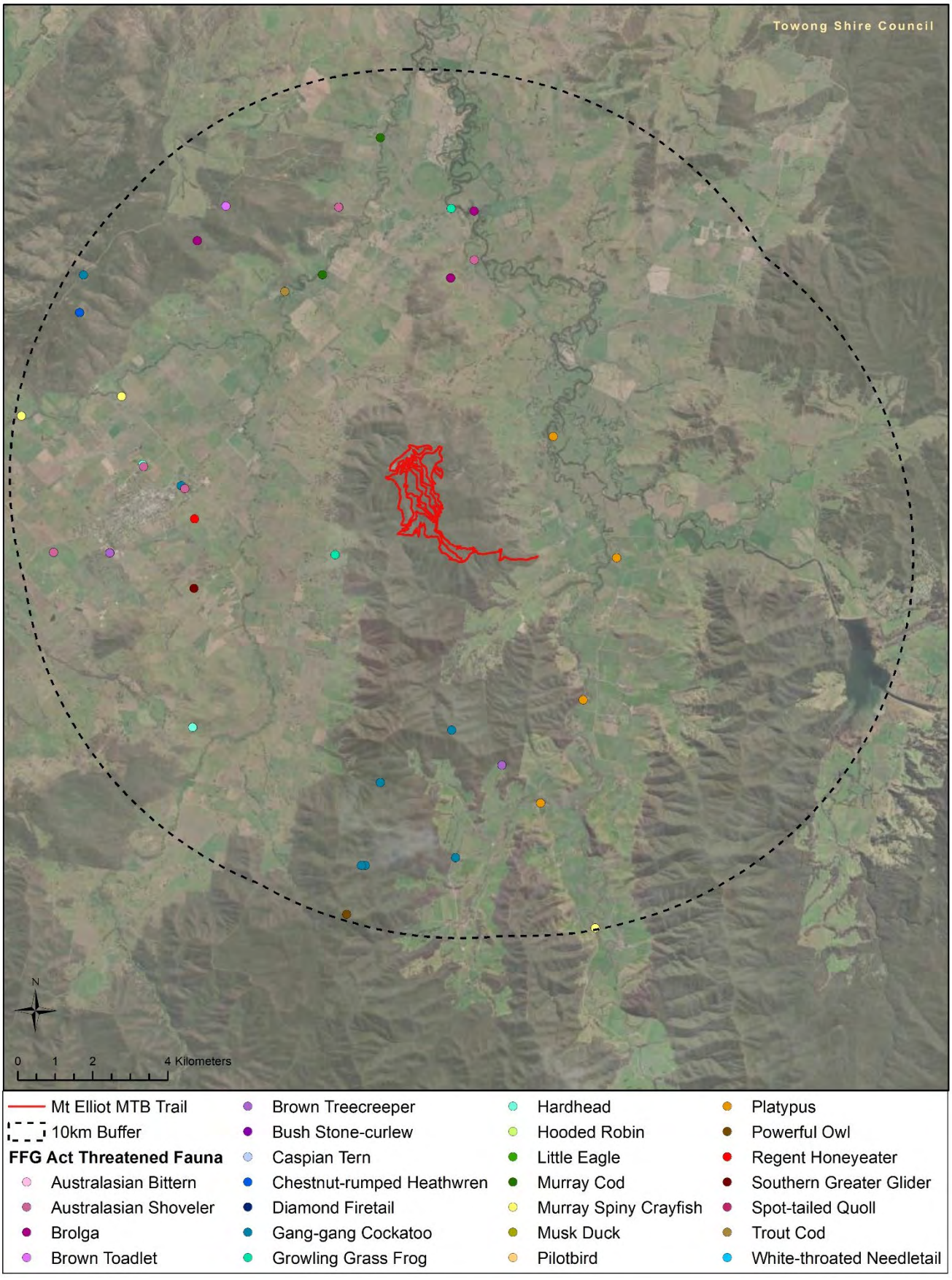
The threatened ecological communities (TEC) listed under the EPBC Act and FFG Act as having a medium or higher likelihood of occurring within 10 kilometres of the study area are listed in **Table 4.** See also **Appendix 1B** for the full list of threatened communities that were considered by the likelihood of occurrence assessment. The only TEC considered present is the Victorian Temperate Woodland Bird Community, as there are a range of birds from this TEC present, along with suitable habitat in the study area (albeit marginal and not core parts of this TEC's distribution)**.** With the efforts being made to avoid trees impacts, avoid higher quality areas where possible, and to stick to existing trails and areas of disturbance, it is unlikely that there will be significant impacts on this TEC or the individual species which make up the TEC.

Table 4: Summary of listed EPBC Act and FFG Act threatened ecological communities with a medium or higher likelihood of occurring in the study area.

Threatened Ecological Community Name	Listing Status	Areas of value within the study area
Victorian Temperate Woodland Bird Community	FFG TEC	TEC is known from dry forests and woodlands. The study area contains suitable habitat and some or many of the TEC species may frequent the site, or be resident. This TEC is considered present. However, trees are being avoided, and high value vegetation are being avoided, where possible, and no significant impact to this TEC is expected



Map 4: Threatened flora within a 10 kilometre radius of the study area



Map 5: Threatened fauna within a 10 kilometre radius of the study area.

3.4 Other Ecological Values

There were no additional ecological features noted during the three days of fieldwork.

3.5 Further Survey Recommendations

The flora and fauna survey is considered comprehensive enough to ascertain good detail about the environmental values across the study area. Efforts are being made to avoid significant habitat areas such as wetlands and swampy areas, and the trail is being micro-sited as it gets constructed, to favour aligning the trail along and through existing cleared areas such as existing tracks, game trails and other more clear areas that do not possess high quality vegetation, wherever possible. With these impact minimisation measures in mind, and the narrow impact footprint (maximum of one metre wide), the likelihood of the development significantly impacting threatened species is low.

A guide is being developed for trail construction managers, that details all threatened species that may be encountered during final micro-siting of the trail. In instances where managers suspect they have found a threatened species, the trail is to be realigned to avoid the species. All suspect sightings are to be photographed and recorded with GPS. Liaison with the environmental consultant, Council or DEECA must also take place, and is compulsory where a potential or actual threatened species population cannot be avoided. For these reasons, impacts to threatened species will be low to negligible, and no further surveys are recommended. The measures that are to be put in place to ensure there are procedures and reporting requirements to handle any situations that arise where a suspected threatened species or community is encountered during the construction will be written into the CEMP.

4 Biodiversity Legislation and Government Policy

This section provides an assessment of the project in relation to key biodiversity legislation and government policy. This section does not describe the legislation and policy in detail. Where available, links to further information are provided.

4.1 Commonwealth

4.1.1 Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act applies to developments and associated activities that have the potential to significantly impact on Matters of National Environmental Significance (MNES) protected under the Act. An assessment of impacts and recommendations for the MNES relevant to the project are available in **Appendix 1B** and **2B**, and are summarised below in **Table 5.** The EPBC Act listed species that have a medium or higher likelihood of occurring in the study area are summarised in **Table 3** (and mapped in **Map 4** and **5**) and have been individually assessed against the appropriate EPBC Act Significant Impact Criteria (SIC) and associated guidelines (DoE 2013) (**Appendix 3**). Other EPBC Act-listed species are considered unlikely to occur within the study site due to absence of suitable habitat and/or lack of previous records within or in proximity to the study area. Based on the proposed footprint of the concept design and sensitive construction techniques, it considered highly unlikely that there will be significant impact to any EPBC Act listed flora and fauna species.

Of the three potential EPBC Act listed threatened ecological communities within the impact footprint, none are present in the study area. Neither *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grasslands* TEC or *Alpine Sphagnum Bogs and Associated Fens TEC* are considered present along the

proposed alignment, according to EPBC Act listing criteria (DAWE 2006 and 2009). None of the key indicator species were present in the study area for either of these TECs, and the 10 kilometre radius search area is likely to have triggered these potential communities from further west (for the box-gum woodlands) and further south-east (for the alpine bogs). There is a small grassed area at the summit of Mount Elliot, however this is a result of unnatural clearing, the area lacks the key indicator species, and the ongoing disturbances at the summit have led to a high number of weed species being present. As a result of these factors, the area does not qualify to be considered representative of *Natural Temperate Grassland of the South-Eastern Highlands TEC* .

Table 5: Summary of project in relation to EPBC Act

Matter of National Environmental Significance (MNES)	Project specifics	Assessment against significant impact criteria
Threatened species	Six (6) EPBC Act species have a medium or higher likelihood of occurring in the study area as per **Appendix 1B and 2B** likelihood assessments, and are summarised in **Table 3.**	The SIC assessments in **Appendix 3** determined that none of these species are likely to be significantly impacted by the development. No referral required. Surveys confirmed the presence of Brown Treecreeper (Vulnerable). No other threatened flora or fauna species were detected. No EPBC listed flora species were recorded.
Threatened ecological communities (TEC)	Nil present	*White Box-Yellow Box-Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands TEC* is not considered as being present along the proposed alignment as there were no key indicator species present, hence it did not meet the EPBC Act listing criteria (DAWE 2006). *Alpine Sphagnum Bogs and Associated Fens TEC* is not considered present due to no key indicator species being present, thus it does not qualify for the condition thresholds as per the TEC's listing advice (DAWE 2009), which means it is not considered a MNES and does not trigger the "significant impact assessment" criteria test. *Natural Temperate Grassland of the South-Eastern Highlands TEC* is not present as the entire study area is forested except the summit, which is unnaturally cleared and has a high weed load.
Migratory species	Seven (7) migratory species have been recorded or are predicted to occur in the 10km radius project search area, however all but two (2) were unlikely to occur in the project footprint (**Appendix 2B**).	Satin Flycatcher and Rufous Fantail were considered as having a high and medium likelihood that they would frequent the study area on occasion or may be resident during certain times of the year due to the presence of suitable habitat. However, these EPBC Act migratory species are not expected to be negatively impacted in the short, medium or long-term from the development, due to the construction avoiding trees and high value areas, where possible. No referral required. See **Appendix 2B** and **Appendix 3** for further details.
Wetlands of international importance (RAMSAR sites)	No Ramsar Wetlands occur on site or within the vicinity of the study area.	No impact likely on any significant wetlands. The CEMP is to ensure erosion and sedimentation risks are adequately controlled for the life of the project. No referral required.

Following this assessment, the project is considered highly unlikely to significantly impact any EPBC Act listed species, threatened communities or significant wetlands. Referral to the Commonwealth Environment Minister is therefore not required. However, if the proponent wishes to seek Commonwealth approval of the project for transparency or legal clarity, they may submit the development proposal reports to the Minister to give them an opportunity for feedback and project approval.

The EPBC Act-listed threatening processes which are considered in operation (or may be in operation) within the study area are listed in **Table 6**. Where threats are operating or may be in operation, measures to help ameliorate the risks associated with the threat are outlined.

Table 6: EPBC Act Threatening Processes and measures to ameliorate those in operation within the study area.

Threatening Process	Measures to ameliorate the risk
Aggressive exclusion of birds from potential woodland and forest habitat by over-abundant noisy miners (*Manorina melanocephala*)	Noisy Miners were not observed, but are active in the surrounding landscape and may sometimes be present, but are unlikely to be in significant numbers in the study area. The forests are not their preferred habitat. This development will not impact on vegetation in the area to the extent it will benefit this often dominant and aggressive species.
Competition and land degradation by rabbits	Rabbits are present in the study area, but in low numbers. Council, in cooperation with adjoining landholders, should employ regular monitoring of rabbit numbers and where numbers increase and/or their damage levels become hazardous, control efforts should be employed.
Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)	There were no obvious areas of dieback within the study area. Monitoring should take place to check for the presence of dieback. Where dieback is detected, tests should be conducted via soil samples sent to AgriBio (LaTrobe University Bundoora) to determine if the disease is present. If present, efforts should be undertaken to set up an exclusion zone around known infected trees, to prevent the disease spreading to uninfected areas. The critically endangered Grey Grass Tree (*Xanthorrhoea glauca subsp. angustifolia*) is highly susceptible to death from Phytophthora infection. Machinery must arrive on site in a clean state to prevent accidental spread of dieback fungus. If previously working in an infected or potentially infected area, It is essential that machinery and work boots are disinfected prior to starting work on the site. Machinery must be washed then decontaminated with Phytoclean or another suitable fungicide treatment. Advice may be sought from Agriculture Victoria or DEECA. Grey Grass Trees should also be avoided by the trail by at least 50 metres during the micro-sting process.
Fire regimes that cause declines in biodiversity	Fire regimes in SE Australia are commonly vastly different to pre-European regimes. Efforts need to be undertaken to ensure fires do not occur at excessively close intervals within the study area. Council may also wish to explore environmental burning practices (potentially in cooperation with DEECA and CFA) in the woodland areas of the road reserves, in a mosaic pattern with burnt and unburnt areas. The Construction Environmental Management Plan (CEMP) will outline measures to limit the risk of fires resulting from construction processes and will have contingencies in place to manage any accidental fire incidents in a rapid and effective manner.
Infection of amphibians with Chytrid Fungus resulting in chytridiomycosis	The disease is not known to be present. Equipment involved should be thoroughly decontaminated (washed) prior to arriving on site to reduce the risk of introducing Chytrid Fungus. Swampy and wetland habitats are being avoided by the trail alignment, thus little preferred frog habitat is being intersected. Any machinery that was previously working in wetlands, creeks or other frog habitat must be thoroughly decontaminated prior to bring onto site.
Land clearance	The study area is predominantly Crown reserve that is protected from the impacts of further non-permitted clearing; however, illegal cutting of firewood may be a risk. Council may need to monitor for illegal wood cutting and consult with DEECA if losses

Threatening Process	Measures to ameliorate the risk
	are found. The project involves low levels of native vegetation impacts, and no significant trees (larger than saplings) are being removed as part of the development. Only those areas marked for removal (trail construction footprint) are to be impacted by construction works. Any impacts beyond this, or accidental losses, must be communicated to DEECA and addressed as per DEECA's advice.
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	Garden escapes spreading within the study area are uncommon given the distance to urban areas or waste dumping hotspots. There are historical areas / dwellings in the summit, however there are no obvious garden escapes in the area. Efforts are to be made to ensure no garden escapes or their propagules (seeds, fruits etc) are spread during construction works. Machinery and equipment being used for the development must arrive on site clean and propagule free. In the event machinery enters an infested area, the machinery must be thoroughly cleaned down prior to moving to another part of the study area. It is recommended the trail be developed in higher quality vegetation areas such first, before moving to lower quality weedier zones. The trails around the summit should be completed last, OR substantial weed washdowns must take place prior to moving from summit areas into higher quality bush areas. Agriculture Victoria can provide advice on appropriate clean-down methods depending on the weed species being dealt with.
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	It is likely that climatic influences are already occurring in the study area. The machinery used for construction is of a small scale and does not have an excessive carbon footprint. The project CEMP will detail measures to help minimise greenhouse gas emissions that are involved with the construction process.
Novel biota and their impact on biodiversity	New species introductions are uncommon, however human movement and development projects have contributed over the years to significant change to receiving environments from intentional and accidental species introductions. The CEMP will detail measures to ensure the likelihood of species introductions will be reduced during construction and rehabilitation efforts. Also see the weed management section above for further details on managing spread.
Predation by European Red Fox	Fox predation is a significant issue throughout SE Australia. The development will not influence the operation of this threat in the local area. Council, in cooperation with adjoining landholders, should undertake regular fox control efforts to protect native species from the impacts of fox predation.
Predation by feral Cats	Feral Cat predation is a significant issue throughout SE Australia. The development will not influence the operation of this threat in the local area. Council, in cooperation with adjoining landholders, should undertake regular cat control efforts to protect native species from the impacts of predation.

4.2 State

4.2.1 Flora and Fauna Guarantee Act 1988 (FFG Act)

The FFG Act is the key piece of Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes (DEECA 2023). A total of forty-nine (49) FFG Act-listed species were mapped as potentially occurring in the area. The likelihood assessment revealed that of the potential 49 species, only 21, consisting of nine (9) flora and twelve (12) fauna, have a medium or higher likelihood of occurring in the study area, and are summarised in **Table 3** (with their likelihood assessment in **Appendix 1B** and **2B)** and mapped in **Map 4** and **Map 5**. There was one critically endangered FFG Act-listed flora species, Grey Grass Tree (*Xanthorrhoea glauca* subsp*. angustifolia*) recorded throughout much of the study area, and no FFG Act listed fauna species were recorded in the project area during the assessment.

No other FFG Act-listed species were detected within the project footprint despite numerous surveys involving attempts to see or hear all the species summarised in **Table 3.** Despite their absence from survey results, a number of FFG Act-listed species are considered likely to occur within the study site due to the presence of historical records and suitable habitat within the study area. Based on the proposed footprint of the concept design, avoidance of habitat and trees, and with the use of sensitive construction techniques, it is considered unlikely that there will be significant impact to any FFG Act-listed flora and fauna species. One of the four (4) potential FFG-listed TECs are considered to occur within the study site, and are described in the likelihood assessment in **Appendix 1B**)**.** However, the Victorian Temperate Woodland Bird Community is not at risk from this development, due to the selection of existing disturbed areas for many of the trails, and the avoidance of impacts to any significant trees (no trees greater than sapling size are to be impacted by the works).

4.2.2 FFG Act Protected Flora Permits

Under the FFG Act, a permit is required from DEECA to 'take' protected flora species from public land. That is, works or other activities on public land, which may affect protected native plants, will require a *Protected Flora Permit* under the FFG Act. Listed protected flora are available in **Table 7**.

Table 7: List of protected flora proposed for removal to be included in the application for a FFG Act Protected Flora Permit

Scientific Name	Common Name	FFG Permit
Acacia gunnii	Ploughshare Wattle	Y
Acrotriche serrulata	Honeypots	Y
Adiantum aethiopicum	Maidenhair Fern	Y
Arthropodium millflorum	Pale Vanilla Lily	Y
Astroloma humifusum	Cranberry Heath	Y
Calytrix tetragona	Fringe Myrtle	Y
Cassinia aculeata subsp. *aculeata*	Common Cassinia	Y
Cassinia longifolia	Shiny Cassinia	Y
Cheilanthes austrotenifolia	Green Rock-fern	Y
Chrysocephalum semipapposum	Clustered Everlasting	Y
Cymbonotus preissianus	Austral Bear's Ear	Y
Dipodium roseum	Rosy Hyacinth Orchid	Y
Eriochillus culcalatus	Parson's Bands	Y
Euchiton involucratus s.l.	Common Cudweed	Y
Euchiton japonicus	Creeping Cudweed	Y
Euchiton sp.	Cudweed	Y
Euchiton sphaericus	Annual Cudweed	Y
Grevillea alpina	Cat's Claw Grevillea	Y
Hardenbergia violacea	Purple Coral-pea	Y
Lagenophora stipitata	Common Bottle Daisy	Y
Leucopogon virgatus	Common Beard Heath	Y
Microseris walteri	Yam Daisy	Y
Polystichum proliferum	Mother Shield-fern	Y
Prasophyllum sp.	Leek Orchid	Y
Pterostylis sp. 1	Greenhood	Y
Pterostylis sp. 2	Greenhood	Y

Scientific Name	Common Name	FFG Permit
Senecio hispidulus s.l.	Rough Fireweed	Y
Senecio linearifolius	Fireweed Groundsel	Y
Senecio phellus	Woodland Groundsel	Y
Senecio prenanthoides	Beaked Fireweed	Y
Senecio quadridentatus	Cotton Fireweed	Y
Senecio sp.1	Groundsel	Y
Senecio sp.2	Toothed Senecio	Y
Senecio tenuiflorus s.l.	Slender Fireweed	Y
Solenogyne dominii	Smooth Solenogyne	Y
Stylidium graminifolium	Grass Trigger-plant	Y
Xanthorrhoea glauca subsp. *angustifolia*	Grey Grass Tree	Y
Xerochrysum viscosum	Shiny Everlasting	Y

4.2.3 FFG Act Public Authority Duty

Section 4G of the FFG Act, the Public Authority Duty, now requires ministers and public authorities to consider the FFG Act when performing functions that might impact upon Victoria's biodiversity. Other matters to be considered include the Biodiversity Strategy, species action statements, management plans or critical habitat determinations. Impacts on biodiversity to be considered include long and short-term impacts, direct and indirect impacts, cumulative impacts, and the impacts of threatening processes.

Towong Shire Council is a public authority and therefore the FFG Act Public Authority Duty applies to this development. There must be a reasonable expectation of biodiversity impacts for the duty to be relevant to an authority's functions. This assessment and report are considering the impacts to biodiversity on the authority's (Council's) behalf; however the findings and recommendations of this report should be carefully reviewed by Council to ensure they are satisfied with the assessment of biodiversity impacts and the recommendations being put in place to minimise impacts to biodiversity that result from the project.

4.2.4 FFG Act Threatening Processes

FFG Act Listed threatening processes which may be in operation within the study area are listed in **Table 8** and where threats are operating or may be in operation, measures to help ameliorate the risks associated with the threat and the proposed development are outlined.

Table 8: FFG Act Threatening Processes and measures to ameliorate those in operation (or may be in operation) within the study area.

Threatening Process	Measures to ameliorate the risk
Inappropriate fire regimes causing disruption to sustainable ecosystem processes and resultant loss of biodiversity	Fire regimes in SE Australia are commonly vastly different to pre-European regimes. Efforts need to be undertaken to ensure fires do not occur at close intervals within the study area. Council may also wish to explore environmental burning practices, in a mosaic pattern (burnt and unburnt areas). Suggest liaison and cooperation with CFA and DEECA. The CEMP will outline measures to limit the risk of fires resulting from construction processes and will have contingencies in place to manage any accidental fire incidents in a rapid and effective manner.
Increase in sediment input into Victorian rivers and streams due to human activities	The trail is avoiding waterways and wet areas and will have minimal impacts to several creeks where creeks have to be crossed. Any more significant creek crossings will be low impact fibreglass bridges with hand-installed piles. Trails will be contoured, and run-off drainage (tail-outs) will be installed at appropriate intervals to ensure water does not run down the tracks, creating eroded areas. Minimal erosion and sedimentation impacts are expected. The CEMP will detail actions to ensure erosion and sedimentation associated with the proposed works are appropriately controlled and monitored.
Infection of amphibians with Chytrid Fungus, resulting in chytridiomycosis	The disease is not known to be present. Equipment involved should be thoroughly decontaminated (washed) prior to arriving on site to reduce the risk of introducing Chytrid Fungus. Swampy and wetland habitats are being avoided by the trail alignment, thus little preferred frog habitat is being intersected. Any machinery that was previously working in wetlands, creeks or other frog habitat must be thoroughly decontaminated prior to bring onto site.
Invasion of native vegetation by Blackberry *Rubus fruticosus* L. agg	Blackberry is a problem within parts of the study area. There may be some Blackberry works (mulching) required to allow the trail to be constructed, where small gullies or creeks are heavily infested, particularly on the east-facing slopes. Machinery should be decontaminated when leaving infested areas to prevent spreading seed from Blackberry to other parts of the study area, especially the higher quality less weedy areas through the centre of the study area. Ongoing Blackberry control is required, and the species should be monitored for and controlled if detected in new areas near the trail network.
Invasion of native vegetation by environmental weeds	There are several environmental and noxious weeds within the study area. This report and the CEMP should outline measures to ensure the proposed construction works do not introduce weed species or spread weed species during construction works.
Loss of coarse woody debris from Victorian native forests and woodlands	Historically, woody debris levels have been reduced in parts of the study area because of human activity, in particular firewood collection and inappropriate fire regimes, as well as natural fires. Being a Crown reserve, this threat should now be under control, although Council should monitor for illegal activity and act if wood removal is in operation. Despite this, many areas in the steeper terrain of the study area have significant levels of ground timber, acting as important habitat and refuges for a number of species, some of which may be threatened species.
Loss of hollow-bearing trees from Victorian native forests	Loss of hollow-bearing trees may have occurred in the past. Through iterative designs of the proposed project, tree losses are being avoided and native vegetation impacts have been significantly reduced. All large mature and hollow-bearing trees are to be avoided and works must be particularly sensitive in the vicinity of large hollow trees.
Loss of terrestrial climatic habitat caused by anthropogenic emissions of greenhouse gases	It is likely that climatic influences are already occurring in the study area, although these are inherently difficult to identify and quantify. The smallest machinery possible is being utilised to complete the construction and hence will contribute little emissions to the atmosphere. The project CEMP will detail measures to help minimise greenhouse gas emissions that are involved with the construction process.
Predation of native wildlife by the cat, *Felis catus*	Feral cat predation is a significant issue throughout SE Australia. The development will not influence the presence or abundance of wild cats in the study area. Council, in cooperation with adjoining landholders, should consider undertaking regular cat control efforts to protect native species from the impacts of predation.
Predation of native wildlife by the introduced red fox *Vulpes vulpes*	Fox predation is a significant issue throughout SE Australia. The development will not influence the presence or abundance of foxes in the study area. Council, in cooperation with adjoining landholders, should undertake regular fox control efforts to protect native species from the impacts of fox predation.

Threatening Process	Measures to ameliorate the risk
Reduction in biodiversity resulting from Noisy Miner (*Manorina melanocephala*) populations in Victoria	Noisy Miners were not observed during field assessments, but are likely to be present, especially in the more open areas at the start of the trail. The development does not significantly further fragment native vegetation in the study area or change ground cover levels in a way that would benefit this species.
Reduction in biomass and biodiversity of native vegetation through grazing by the rabbit *Oryctolagus cuniculus*	Rabbits are present in the study area, but in low numbers. The development is not likely to increase rabbit numbers or their associated impacts. Council, as the land manager, should employ regular monitoring of rabbit numbers and where numbers increase and/or their damage levels become hazardous, control efforts should be employed.
The introduction and spread of the large earth bumblebee *Bombus terrestris* into Victorian terrestrial environments	The development is highly unlikely to be implicated in the introduction of this species into the local environment as part of the proposed works.
The spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority	There were no obvious areas of dieback within the study area. Monitoring should take place to check for the presence of dieback. Where dieback is detected, tests should be conducted via soil samples sent to AgriBio (LaTrobe University Bundoora) to determine if the disease is present. If present, efforts should be undertaken to set up an exclusion zone around known infected trees, to prevent the disease spreading to uninfected areas. Machinery must arrive on site in a clean state to prevent accidental spread of dieback fungus. If previously working in an infected or potentially infected area, machinery must be washed then decontaminated with Phytoclean or another suitable fungicide treatment. Advice may be sought from Agriculture Victoria or DEECA. **IMPORTANT NOTE:** The critically endangered species on site, Grey Grass Tree, is highly susceptible to *Phytopthora cinnamomi*. Micro-siting should avoid this species by as much distance as possible (at least 10 metres) to prevent possible introduction of the fungus. **Thorough wash-down with Phytoclean is required for all equipment being taken onto the site.**
Threats to native flora and fauna arising from the use by the feral honeybee *Apis mellifera* of nesting hollows and floral resources	The incursion of nesting hollows by feral honeybee populations is a common problem throughout SE Australia. Applications from apiarists to use floral resources within the study area need to be carefully considered by Council. The project is highly unlikely to contribute to this threatening process.
Use of *Phytophthora*-infected gravel in construction of roads, bridges and reservoirs	All efforts must be made to avoid bringing soil or gravel onto the site. If unavoidable - The source of gravel and soil used for construction needs to be verified as being *Phytophthora*-free. It is unlikely that fill needs to be transported onto the site, and use of local soil is recommended. If outside soil must be transported into the study area, vehicles and equipment must arrive on site in a clean condition and any vehicles or equipment that may have been in a *Phytophthora* infected area must be appropriately decontaminated with a suitable decontaminant, such as Phytoclean or similar.

4.2.5 Planning and Environment Act 1987

The *Planning and Environment Act 1987* (P&E Act) governs the planning framework for the use, development, and protection of land in Victoria. The P&E Act provides procedures for the preparation and amendment of the Victoria Planning Provisions and planning schemes. The Act also provides avenues for the acquisition and compliance of permits under local planning schemes.

4.2.6 Land Tenure

The project occurs within Crown reserve that is managed by Towong Shire Council.

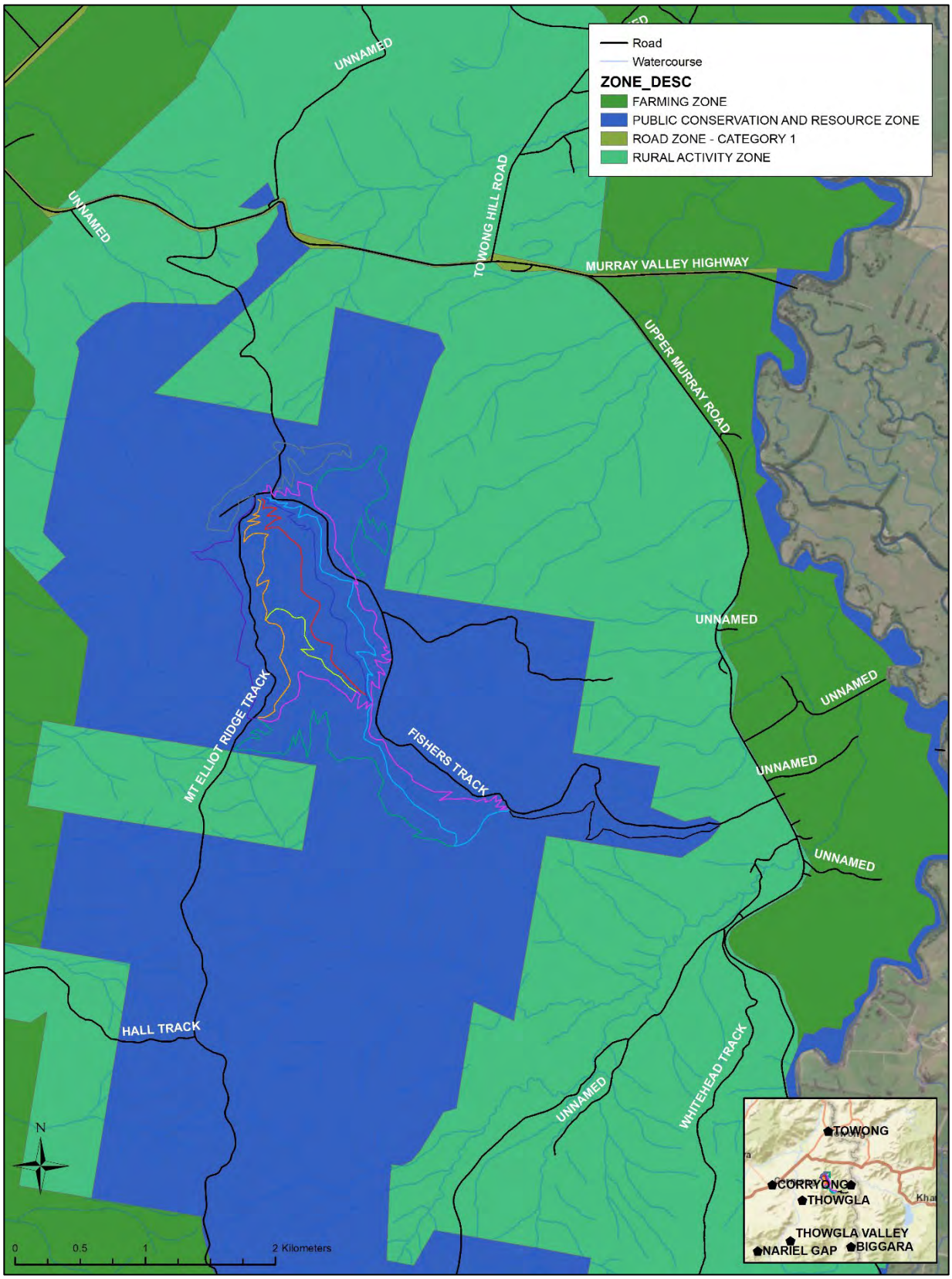
4.2.7 Planning Scheme Zones and Overlays

There is one planning zone across the study area as shown in **Map 6**:

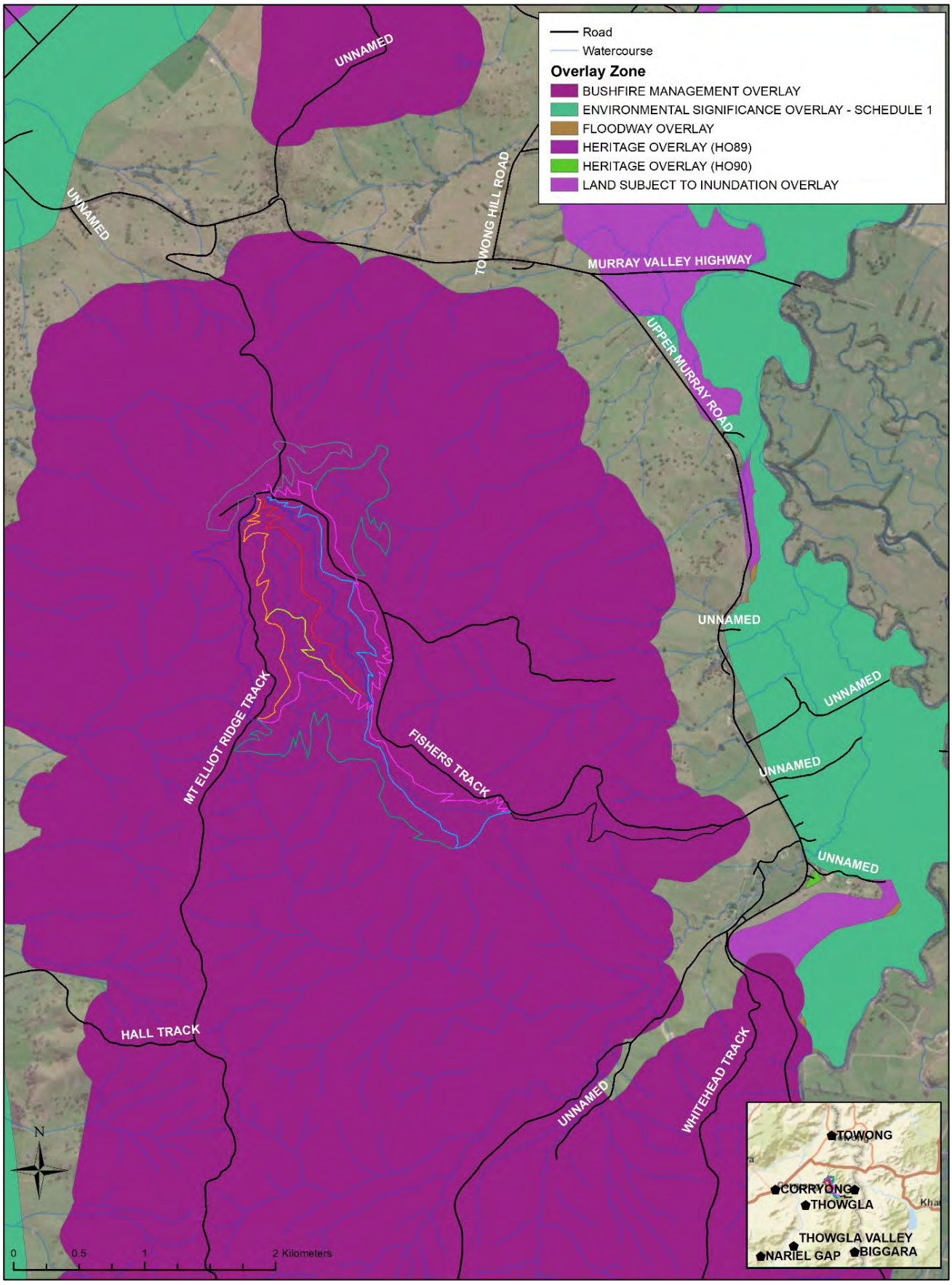
1. **The 'Public Conservation and Resource Zone'**. The main purpose The main purpose according to State Government of Victoria (2024) is to:
    - To implement the Municipal Planning Strategy and the Planning Policy Framework.
    - To protect and conserve the natural environment and natural processes for their historic, scientific, landscape, habitat or cultural values.
    - To provide facilities which assist in public education and interpretation of the natural environment with minimal degradation of the natural environment or natural processes.
    - To provide for appropriate resource based uses.

The study area is covered by one planning overlays as shown in **Map 7**:

- **The 'Bushfire Management Overlay (BMO)'**. The BMO identifies areas where the bushfire hazard is high and warrants bushfire protection measures to be implemented for the purposes of protecting human life and strengthening community resilience to bushfire events. Only development that reduces bushfire risks to acceptable levels are permitted in this area. The development is not affected by this overlay and the trail will not create any additional bushfire risk for the environment, community, or nearby assets.



Map 6: Study area planning zones.



Map 7: Study area planning overlays.

4.2.8 Planning Policy Framework

The development of land in Victoria is managed through the P&E Act and through the integrated planning schemes of local governments right across Victoria. In relation to developments that have impacts on native vegetation, such as this development, The Guidelines for the Removal, Destruction or Lopping of Native Vegetation (the Guidelines) set out and describe the application of Victoria's statewide policy on native vegetation removal. These Guidelines are incorporated into the Victorian Planning Provisions and are embedded within all planning schemes in the state.

Under the Towong Shire Planning Scheme (the Scheme), Clause 52.17 deals with native vegetation and requires a planning permit to allow the removal, destruction or lopping of native vegetation. The Guidelines (see **Section 5**) are in place to provide the detail on protecting native vegetation and ensuring actions consider the avoidance and minimisation of impacts/losses, and offsetting of any losses to native vegetation. Where vegetation does not meet the definition of native vegetation under the Guidelines (patch or scattered trees), the Guidelines do not apply to that vegetation. However, a permit may still be required to remove, destroy or lop the native vegetation under the provisions of the Local Scheme. The need for a permit for removal of native vegetation can also be triggered by the presence of an Environmental Significance Overlay (ESO). However, there are no ESOs in the study area or other overlays which require additional permit requirements in relation to vegetation clearing.

There are also a number of clauses in the Victorian Planning Policy Framework (PPF) which may apply to the project and have been specifically address in the sections below, including:

- **Clause 12.03-1S:** River corridors, waterways, lakes and wetlands.
- **Clause 13.04-2S:** Erosion and landslip.
- **Clause 14.02-1S:** Catchment Planning and Management.

Clause 12.03-1S: River Corridors, Waterways, Lakes and Wetlands

The objective of this Clause 12.03-1S (River Corridors, Waterways, Lakes and Wetlands) is to protect riparian areas, waterways, lakes and wetlands. **Table 9** outlines how the requirements of Clause 12.03-1S have been addressed by the project.

Clause 13.04-2S: Erosion and landslip

The objective of the SPP Clause 13.04-2S (Erosion and Landslip) is to protect areas of land that are prone to erosion issues, landslip or other soil related degradation issues. **Table 10** describes how strategies in the Clause have been address by the design of the trail and associated development.

Clause 14.02-1S: Catchment Planning and Management

The objective of the SPP Clause 14.02-1S (Catchment Planning and Management) is to manage development in a manner to help protect and restore catchments, waterways, groundwater and the marine environment. **Table 11** described the efforts taken to address the requirements of this Clause during project planning.

Table 9: Clause 12.03-1S and how the project addresses the requirements of the Clause

Clause 12.03-1S requirements	How the project addresses the SPP Clause requirements
Protect the environmental, cultural and landscape values of all water bodies and wetlands.	An Aboriginal Cultural Heritage Due Diligence Assessment (ACH DDA) has been conducted for the study area by Red-Gum Consulting and recommendations of that ACH DDA are to be implemented to protect Aboriginal heritage. The trail has been located in a manner that minimises the impact to the environment, by utilising the existing tracks, game trails and disturbed areas that have been previously disturbed and/or cleared of native vegetation to some extent, where possible. Native trees are being avoided for biodiversity and landscape values, with only some sapling size trees removed, if unavoidable. Higher quality areas of native vegetation have been avoided, as well as wetlands, swamps and wet grasslands. A CEMP will be in place for the project to ensure controls are put in place to manage sedimentation, erosion, dust, noise, pollution and will put a number of environmental controls in place to protect the remaining environment, including the establishment of no-go areas to be protected from impacts during construction. No permanent waterways or wetlands traverse the project's impact footprint. Several ephemeral creeks are being crossed but low impacts methods are to be followed. There is no WoW permit requirements, as there are no named waterways being intersected by the works.
Ensure development responds to and respects the significant environmental, conservation, cultural, aesthetic, open space, recreation and tourism assets of water bodies and wetlands.	As above. The project is seen an important opportunity to further increase tourism, grow the economy and strengthen the health and well-being of its residents, increasing the recreational and tourism values of the area by providing opportunities for more cyclists to have access to recreational pursuits and natural spaces.
Ensure development is sensitively designed and sited to maintain and enhance environmental assets, significant views and landscapes along river corridors and waterways adjacent to lakes and wetlands.	As above.
Ensure development does not compromise bank stability, increase erosion or impact on a water body or wetland's natural capacity to manage flood flow.	Only minor earthworks are required on or in proximity to several small ephemeral watercourses. Swamps and wetlands within the study area are being avoided the project impact footprint. Works on Waterways permit is not required.
Protect the Yarra, Maribyrnong and Murray River corridors as significant economic, environmental and cultural assets.	Not applicable as no earthworks are required in proximity to the Murray River.
Facilitate growth in established settlements where water and wastewater can be managed.	Not applicable to this type of project.

Table 10: Clause 13.04-2S and how the project addresses the requirements of the Clause

Clause 13.047-2S requirements	How the project addresses the SPP Clause requirements
Identify areas subject to erosion or instability in planning schemes and when considering the use and development of land.	The trail route does not intersect any areas that are erosion or instability prone, or which are currently experiencing erosion or instability issues. No permanent waterways, waterbodies or wetlands traverse the project footprint. Measures are to be put in place via the project CEMP to address soil and erosion management.
Prevent inappropriate development in unstable areas or areas prone to erosion.	The trail is being placed predominantly on the existing disturbed tracks and trails for the majority of its length, with new trail being placed only where required and where natural or cultural asset avoidance is required, or where existing disturbed areas do not exist. No permanent waterways or wetlands traverse the project impact footprint, however there are minor creeks being crossed, the protection of which will be accounted for via low impact works methods, with these requirements and measures to be incorporated in the CEMP. Where earth works are required as part of constructing new sections of trail, drainage will be incorporated where necessary as to prevent any alteration to local drainage patterns.
Promote vegetation retention, planting and rehabilitation in areas prone to erosion and land instability.	Efforts have been made to locate the trail alignment in a manner that promotes native vegetation retention, by utilising the existing tracks and trails, and cleared areas that have been previously disturbed and cleared of native vegetation. No trees are being lost, aside from some sapling size trees, if they are unavoidable. Higher quality areas of native vegetation have been avoided, where possible, as well as all trees above sapling size. The trail route does not intersect any areas that are erosion or instability prone, or which are currently experiencing erosion or instability issues. If any are to be found, they will be avoided, or if intersected, will be appropriately rehabilitated post construction. The CEMP will contain actions to address these risks.

Table 11: Clause 14.02-1S and how the project addresses the requirements of the Clause

Clause 14.02-1S requirements	How the project addresses the SPP Clause requirements
Ensure the continued availability of clean, high-quality drinking water by protecting water catchments and water supply facilities.	No permanent waterways or wetlands are being intersected by the project's impact footprint, however, there are minor roadside drains that and small creeks that will be crossed. The measures to minimise impacts to these drains and small waterways and to minimise the effects of increased run-off, erosion or siltation during or after construction will be outlined in detail in the CEMP.
Consider the impacts of catchment management on downstream water quality and freshwater, coastal and marine environments.	As above. Works are of a narrow and relatively low impact nature, with track grading and run-off drainage at set intervals to reduce the potential for erosion and sedimentation. There are no anticipated impacts to downstream water quality from the project. The effects and management of increased run-off, erosion or siltation during or after construction will be outlined in detail in the CEMP.

Clause 14.02-1S requirements	How the project addresses the SPP Clause requirements
Retain natural drainage corridors with vegetated buffer zones at least 30 metres wide along each side of a waterway to: maintain the natural drainage function, stream habitat and wildlife corridors and landscape values; minimise erosion of stream banks and verges; reduce polluted surface runoff from adjacent land uses.	As above. No permanent waterways or wetlands are being impacted by the project footprint, however there are minor creeks and roadside drains that will be accounted for and incorporated, where necessary, to prevent any alteration to roadside and landscape drainage. The CEMP will contain actions to ensure no pollution is contributed to the receiving environment during construction.
Undertake measures to minimise the quantity and retard the flow of stormwater from developed areas.	There are no stormwater implications arising from the development. The trail is not located in a developed area.
Require appropriate measures to filter sediment and wastes from stormwater prior to its discharge into waterways, including the preservation of floodplain or other land for wetlands and retention basins.	As above.
Ensure that development at or near waterways provide for the protection and enhancement of the environmental qualities of waterways and their instream uses.	The trail does not interfere with any significant waterbodies, and the trail only crosses minor creeks and roadside drains. No permanent waterways or wetlands are traversed by the project footprint. Works are of a narrow and relatively low impact linear nature, with track grading and run-off drainage at set intervals to reduce the potential for erosion and sedimentation. There are no anticipated impacts to downstream water quality from the project. The effects and management of increased run-off, erosion or siltation during or after construction will be outlined in detail in the CEMP.
Require appropriate measures to restrict sediment discharges from construction sites.	The project CEMP will contain actions to ensure erosion and sedimentation issues are adequately addressed during construction and rehabilitation, and that no significant levels of sediment will be discharged into the environment. No permanent waterways or wetlands are traversed by the project footprint.
Ensure planning is coordinated with the activities of catchment management authorities.	The trail does cross some minor waterways, but there are no works in the vicinity of any named waterways. As a result, Council is not required to liaise with the North East CMA to attain a WoW permit for the works in these areas. However, it is advisable that liaison occurs, if Council wishes to give NECMA some oversight to ensure catchment management issues are being effectively managed during the construction processes.
Ensure that water quality infrastructure is designed to minimise risk of harm to surface waters and groundwater.	There is no major water quality infrastructure associated with this development. However, soil and sediment barriers and other devices are to be used, and will be monitored and serviced regularly to ensure they are operating to their optimal potential.

4.2.9 Environmental Protection Act 2017

The purpose of the *Environmental Protection Act 2017* (EP Act) is to prevent and minimise the risks to the environment and human health from pollution sources and waste disposal. The project has been designed in a manner that avoids as much native vegetation as possible and utilises existing disturbed areas, such as the existing tracks and game trails wherever possible, follows lesser quality areas of vegetation where possible, with the aim of significantly reducing the development's impact on the receiving environment.

The project will have a CEMP which will outline management actions that are to be undertaken to protect the local environment from impacts from development, such as noise pollution controls, dust controls, vibration controls, light pollution controls, spills and leak controls, no-go areas, and erosion and sedimentation controls.

4.2.10 Environment Effects Act 1978

The purpose of the *Environmental Effects Act 1978 (EE Act)* is to ensure any project with the potential to cause significant impacts to the environment are adequately assessed. It generally relates to larger projects and if applicable, the Act requires the proponent to submit an Environmental Effects Statement (ESS) to the Minister for Planning, enabling the relevant authorities to adequately scrutinise the potential effects of the development prior to any project approvals being granted. The '*Ministerial Guidelines for the Assessment of Environmental Effects under the Environmental Effects Act 1978*' documents criteria to help a proponent determine whether an EES may be required for the development, and they include consideration of individual potential project impacts as well as combination (cumulative) impacts.

The proposed trail project has been assessed against the individual and combination potential effects criteria based on the level of proposed native vegetation removal and other direct and indirect impacts of the development, the bioregional conservation status of the EVCs being impacted, and impacts on EPBC Act and FFG Act listed species and communities. These assessments, despite observing the precautionary principle and ensuring impacts are over-estimated rather than under-estimated, indicate that the project will not trigger a referral to the Minister for Planning for an EES determination. The EE Act referral criteria have been addressed in detail in **Table 12** and **Table 13** Below.

Table 12: EE Act Referral Criteria - Individual type effects

EE Act Referral Criteria	How the Criteria Applies to the Project
Potential clearing of 10 ha or more of native vegetation from an area that: • **is of an Ecological Vegetation Class identified as endangered by the Department of Sustainability and Environment (in accordance with Appendix 2 of Victoria's Native Vegetation Management Framework); or** • **is, or is likely to be, of very high conservation significance (as defined in accordance with Appendix 3 of Victoria's Native Vegetation Management Framework); and** • **is not authorised under an approved Forest Management Plan or Fire Protection Plan**	Even with an overestimation of the impact (1 metre wide when much of the trail will be a narrower than 1 metre, and many trails to follow existing tracks and trails, meaning few virgin trails are created), there is much less than 10 hectares of native vegetation required to be cleared as part of the project.
Potential long-term loss of a significant proportion (e.g. 1 to 5 percent depending on the conservation status of the species) of known remaining habitat or population of a threatened species within Victoria	No moderate or significant impacts to threatened species are expected.
Potential long-term change to the ecological character of a	The project does not affect any RAMSAR

EE Act Referral Criteria	How the Criteria Applies to the Project
wetland listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'	wetlands or wetlands on the national directory.
Potential extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term	The project will have minimal impact upon aquatic systems in the study area and avoidance and mitigation measures are being applied via this report and the CEMP, to reduce impacts as much as possible.
Potential extensive or major effects on the health, safety or well-being of a human community, due to emissions to air or water or chemical hazards or displacement of residences	There are no negative effects forecast for the health, safety or well-being of a community. Health and wellbeing levels are likely to improve in the local and broader community, as a result of this development.
Potential greenhouse gas emissions exceeding 200,000 tonnes of carbon dioxide equivalent per annum, directly attributable to the operation of the facility.	There will be very low levels of greenhouse gas emissions associated with the development.

Table 13: EE Act Referral Criteria - Cumulative type effects

EE Act Referral Criteria	How the Criteria Applies to the Project
Potential clearing of 10 ha or more of native vegetation, unless authorised under an approved Forest Management Plan or Fire Protection Plan	See above. There is less than 10 hectares of native vegetation required to be cleared as part of the project.
Matters listed under the FFG Act 1988: **potential loss of a significant area of a listed ecological community; or** **potential loss of a genetically important population of an endangered or threatened species (listed or nominated for listing), including as a result of loss or fragmentation of habitats; or** **potential loss of critical habitat; or** **potential significant effects on habitat values of a wetland supporting migratory bird species**	There will be minimal impacts to any FFG listed ecological communities (none known to be present), fauna habitats or threatened species as a result of this project. Minimisation of removal of habitat has been given high priority in the design phase and via micro-siting the final alignment, therefore the project will not significantly impact FFG matters. There will be no impacts to the local wetlands as these are all being avoided. The trail is crossing some ephemeral waterways, and there are measures in place via the CEMP to minimise impacts to these areas. Therefore, the project will not impact migratory species. The trail does not impact any critical habitat.
Potential extensive or major effects on landscape values of regional importance, especially where recognised by a planning scheme overlay or within or adjoining land reserved under the National Parks Act 1975	There are no expected impacts to landscape values as a result of the project.
Potential extensive or major effects on land stability, acid sulphate soils or highly erodible soils over the short or long term	There are minimal to no impacts expected for land stability, acid soils or erodible soils over the short or long term as a result of this project. Erosion and sedimentation controls will be administered via the project CEMP to further reduce any potential risks.
Potential extensive or major effects on beneficial uses of waterbodies over the long term due to changes in water quality, stream flows or regional groundwater levels	The project is unlikely to result in long-term changes to the hydrology of the area.
Potential extensive or major effects on social or economic well-being due to direct or indirect	The project site is in Crown reserve and there will be no negative effects upon social or economic wellbeing due

EE Act Referral Criteria	How the Criteria Applies to the Project
displacement of non-residential land use activities	to displacement of non-residential land use activities.
Potential for extensive displacement of residences or severance of residential access to community resources due to infrastructure development	The project will not displace or disconnect residents from community resources. The project will facilitate better community access and provide greater recreational opportunities for residents in the broader project area.

4.2.11 Water Act 1989

The purpose of the *Water Act 1989* (WA Act) is to provide a legal framework for the management of water resources in Victoria. Works within and in the vicinity of water bodies and designated (named) waterways are regulated under the Act by the local Catchment Management Authority (North East CMA). As the project does not directly or indirectly affect named waterways, wetlands, rivers or their banks or the riparian vegetation on or within 30 metres of a named waterway, it does not require approval or a permit from the North East CMA.

4.2.12 Catchment and Land Protection Act 1994

The *Catchment and Land Protection Act 1994* (CaLP Act) provides a legal framework for the establishment of Catchment Management Authorities and lists declared noxious weeds and pest animals with a hierarchy of risk level and various landowner management responsibilities for controlling the pests, depending on their classification (Agriculture Victoria 2024). Declared noxious weeds found during the site assessments are listed in **Appendix 1A** and the pest animal species detected are listed in **Appendix 2A**.

The recommendations of this report include measures to control major infestations of noxious and environmental weeds, especially the WoNS weed Blackberry. There are also measures to limit the introduction of weeds into the study area during construction and maintenance and to prevent weeds from leaving the site on construction machinery. The project will also include a CEMP that will have more specific detail on how the risks associated with noxious weeds and pest animals will be controlled before, during and after construction.

4.2.13 Plant Biosecurity Act 2010

The *Plant Biosecurity Act 2010* (Biosecurity Act) is a legislative framework that is in place to manage the spread of declared pests under various Orders declared via the Act. There are no known pests or diseases in the study area that are listed in the Biosecurity Act.

Phytophthora cinnamomi (or Cinnamon Fungus) is another biosecurity risk which attacks plant root systems which act to cause tree decline and eventual death due to trees not having the capability to draw suitable water and nutrients. Patches of dead trees and shrubs can often indicate the presence of this disease and certain trees and shrubs, such as Grass Trees (*Xanthorrhoea* spp.), are particularly susceptible. The disease is spread through the movement of infected plants and soil, and through movement of machinery that has worked in an infested area that hasn't been appropriately decontaminated. There is a risk that Cinnamon Fungus is present in the study area, or may be introduced to the study area on vehicles and machinery.

There is no cure for Phytophthora, and given that the Cinnamon Fungus sensitive and critically endangered Grey Grass Tree is located throughout much of the study area, the project must ensure strict adherence to decontaminating all machinery and equipment prior to arriving on site (with Phytoclean or similar), and monitoring for sick trees and appropriately washing down machinery where suspicions arise that a work area may be infected (or after leaving all work areas) is best practice at preventing the introduction of this disease into or from the study area.

5 Victoria's Guidelines for the Removal, Destruction or Lopping of Native Vegetation.

The Guidelines for the Removal, Destruction or Lopping of Native Vegetation (the Guidelines) were incorporated into the Victorian Planning Provisions and all planning schemes in Victoria in December 2017 (DELWP 2017). Under the Guidelines, all applications for a permit to remove native vegetation in Victoria must follow a three-step approach to achieving no net loss to biodiversity:

1. Avoid the removal, destruction or lopping of native vegetation;
2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided; and
3. Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation.

In accordance with the Guidelines, an application to remove native vegetation must clearly demonstrate that no options exist to further avoid and minimise the impacts of native vegetation removal, that will not undermine the objectives of the proposed use or development (DELWP 2017).

5.1 Avoid and Minimise Statement

The following Avoid and Minimise Statement has been developed in accordance with the decision guidelines outlined in Table 2, page 17 of the *Assessor's Handbook for Applications to Remove, Destroy or Lop Native Vegetation* (DELWP 2017). The proposed project footprint has been designed to impact the smallest area possible to avoid and minimise native vegetation and biodiversity impacts. The design process has facilitated a design that:

- Avoids as much high quality native vegetation (trees, native grass, shrubs etc) as possible, while still ensuring the project is a viable recreational trail and will meet the needs of trail users.
- Avoids the loss of all significant trees (greater than sapling size), especially large old trees (as according to large tree dimensions in the relevant EVC benchmark) with both TPZ and SRZ protections being put in place.
- Minimises the amount of damage to TPZ and Structural Root Zones (SRZ) of all trees greater than three metres in height, such that less than 10% of that calculated area is impacted by the works, OR trail is built up rather than being excavated if a large tree SRZ is unavoidable (but acknowledging that this is a last resort option).
- Ensures the alignment of the project footprint is positioned in areas that have already been subject to disturbance and are largely devoid of native vegetation; and where this is not possible, find areas of lower quality native vegetation.

- Where possible (and legal) existing tracks and trails have been used to avoid impacts to native bush areas.
- Wetlands, swamps and wet grasslands are being avoided to protect these habitats and the potential threatened species that may be present in these areas. Furthermore, MTB trail best practice construction aims to avoid construction in these types of habitats, for trail stability, maintenance and user safety purposes.
- The final alignment is to be micro-sited (fine scale tree, obstacle and habitat avoidance) to ensure existing disturbance is followed and the higher quality areas of native vegetation or other important site features (such as large hollow trees and Grey Grass Trees) are avoided wherever possible.

Reducing the project's native vegetation impact has also been achieved as much as is practical by limiting the trail construction width (to a maximum one metre) and committing to low impact sensitive construction techniques within that loss zone, such as using the lightest weight and smallest construction vehicles available to complete the project within the impact area (loss zone). Sensitive construction measures are considered unlikely to cause tree decline where TPZ and SRZ encroachment occurs, however it is recommended that tree SRZs be avoided, and no excavation is to take place in those zones to protect trees. In the unlikely event that a tree SRZ is unavoidable, the trail must be built up in that area from local soil and or rock/stone (with no excavation down into the tree SRZ). With effective micro-siting, this outcome should be avoidable. The following strategies are to be implemented to minimise the impacts of the operation on surrounding native vegetation:

- All personnel involved with any development on the site are to be 'tool-boxed' on the importance of minimising their impact on retained vegetation beyond the one metre impact zone, adherence to the defined extent of works and any permit conditions. The tool-box talks are to include provisions such as avoiding work in the SRZs of trees, minimising works in the TPZs of trees, avoidance of Grey Grass Trees and high quality areas of vegetation on site, and processes to report any significant finds (biodiversity or cultural) during construction.
- The construction method and type of machinery selected to be used on the project is to be cognisant of the narrow construction footprint (maximum one metre) and the loss zone is to be the main construction corridor always employed.
- Avoid excavation within SRZs, and instead (if unavoidable) use small volumes of clean fill to create a level surface for the trail without disturbance being made to tree or shrub roots.
- Machinery to be used on the project shall be thoroughly cleaned AND decontaminated before entering the site to remove all seeds of invasive weeds and non-natives that could invade the site, and to decontaminate any potential Cinnamon Fungus being harboured by machinery or equipment. Consideration is also to be given to diseases such as Cinnamon Fungus (*Phytophthora*) during works, which may be present already in the study area, and if suspected, must be dealt with appropriately to prevent spreading the disease.
- The site extent will be clearly defined (track centreline to be pegged during micro-siting stage) prior to the construction period commencing and will remain in place until works in that section are completed.
- Construction methods for the bridge crossings are to utilise prefabricated decks and minimal impact screw piles to ensure that the footprint is the minimum amount of time necessary to complete the project.
- No soil will be brought in or removed from site and low impact measures will be utilised so that native grass seed banks are not permanently compromised.

- Any noxious or serious environmental weeds within the loss area will be mulched or sprayed or mechanically removed before works commence. Machines must be decontaminated upon leaving infested areas and prior to entering higher value native bushland.

5.2 Proposed Native Vegetation Removal

The extent of native vegetation patches were mapped within the study area. Fieldwork determined that EVC mapping was relatively accurate and that no alterations were required from the DEECA mapped EVCs given the very minimal on-ground differences that occurred. The condition of the native patches was assessed in relation to standard methods provided by the Vegetation Quality Assessment Manual (VQAM - DSE 2004 and amendments), Appendix 6 of the Assessors Handbook (DELWP 2018) and the relevant EVC benchmarks (DEECA 2023). The assessments were undertaken by accredited assessors from Red-Gum Environmental Consulting Pty Ltd (Stuart Mendham and Katherine Hill), with support from Olivia Hynam, Breanna Fisher and Charley Schultz. The results of the assessment are mapped in **Map 8** to **Map 11** with representative photos of the areas where proposed native vegetation losses are to take place in **Appendix 4**.

The proposed removal of native vegetation was assessed in accordance with the final trail alignment design approved by the client (**Map 1** to **2**). Proposed native vegetation removal is mapped in **Map 8** to **Map 11** and removal is summarised below in **Table 14.** No past removal of native vegetation has occurred in the project footprint within the previous five-year period, and losses only include proposed losses associated with this project. All native vegetation beyond the impact zones (loss area) is being retained.

An NVR report (RGE_2024_006) for the project was provided by DEECA on 14 May 2024 using the site condition scores from the native vegetation assessment, and it provides details of losses and offset requirements. This report is provided in **Appendix 6** and is summarised in the following sections. The final trail design proposes to remove a maximum of 3.488 hectares (partial loss) of native vegetation, comprising patch vegetation consisting of understorey only (noting this is an overestimate of the actual losses). No canopy trees or scattered trees are to be deemed lost. Losses are outlined in (**Map 8** to **Map 11**) and consist of vegetation from three EVCs in Northern Inland Slopes (NIS) Bioregion, and four EVCs in Highlands Northern Fall (HNF) Bioregion:

- **NIS - Herb-rich Foothill Forest** (EVC 23 – Least Concern).
- **NIS – Grassy Dry Forest** (EVC 22 – Depleted).
- **NIS – Shrubby Dry Forest** (EVC 21 – Least Concern).
- **HNF - Herb-rich Foothill Forest** (EVC 23 – Least Concern).
- **HNF – Shrubby Dry Forest** (EVC 21 – Least Concern).
- **HNF – Heathy Dry Forest** (EVC 20 – Least Concern).
- **HNF – Grassy Dry Forest** (EVC 22 – Least Concern).

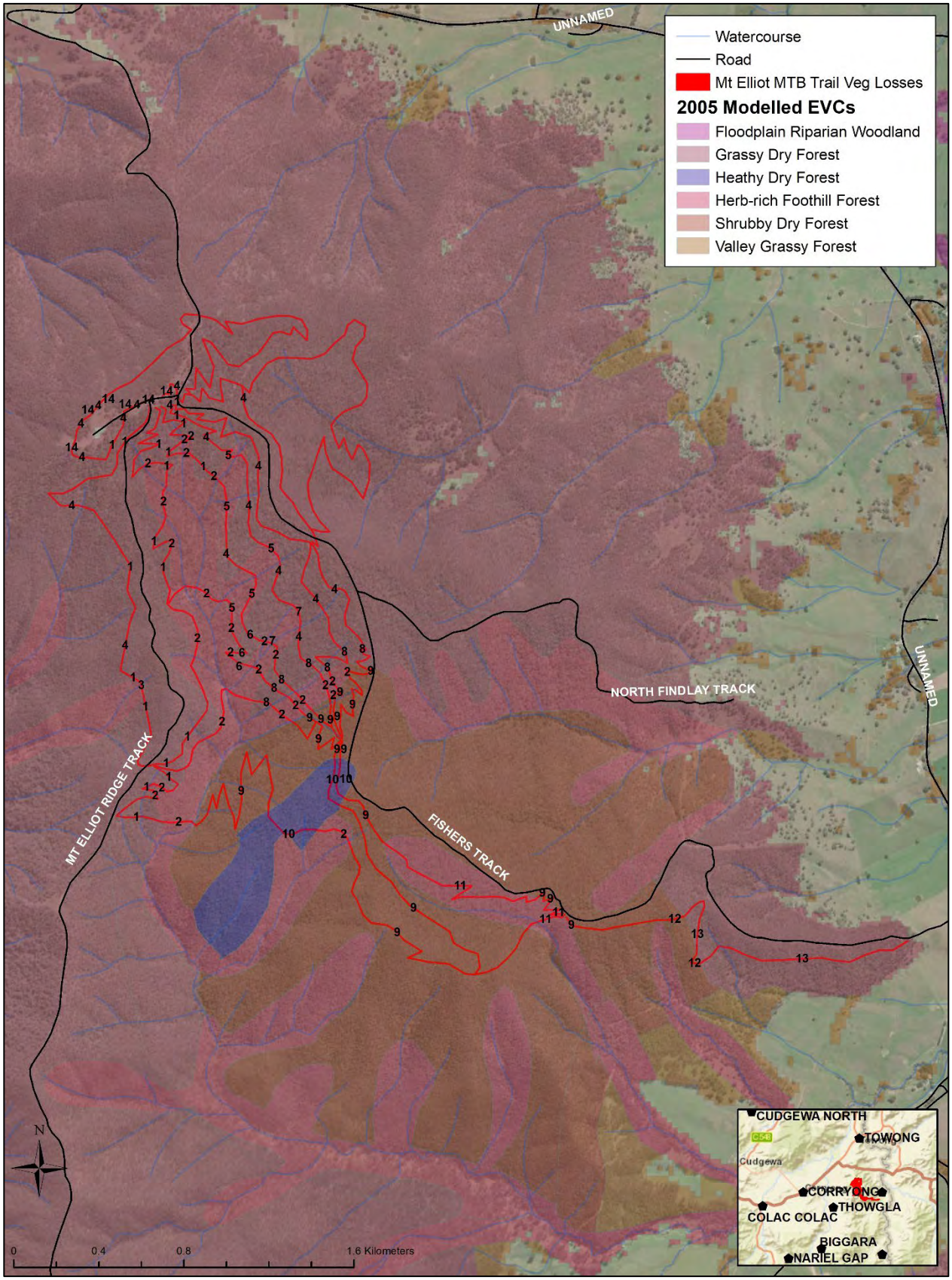
The removal of this native vegetation will result in the removal of:

- 14 patches (understorey loss only) of 6 least concern EVCs and one depleted EVC within the Highlands Northern Fall and Northern Inland Slopes bioregion.
- No trees (>three metres high) are being removed or deemed lost as a result of the proposed works.

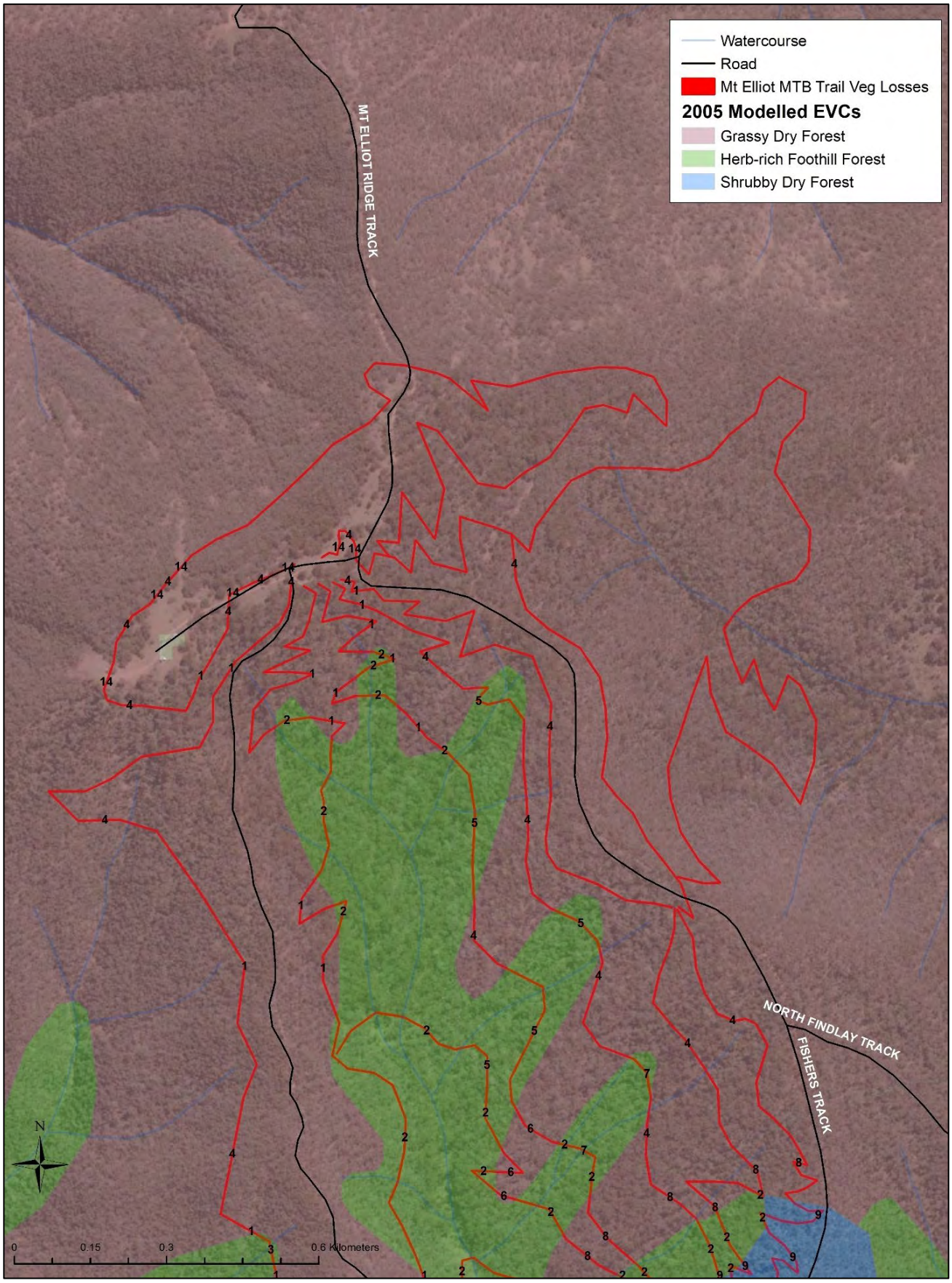
No EVCs being impacted have a bioregional conservation status of vulnerable or endangered

Table 14: Native vegetation removal details.

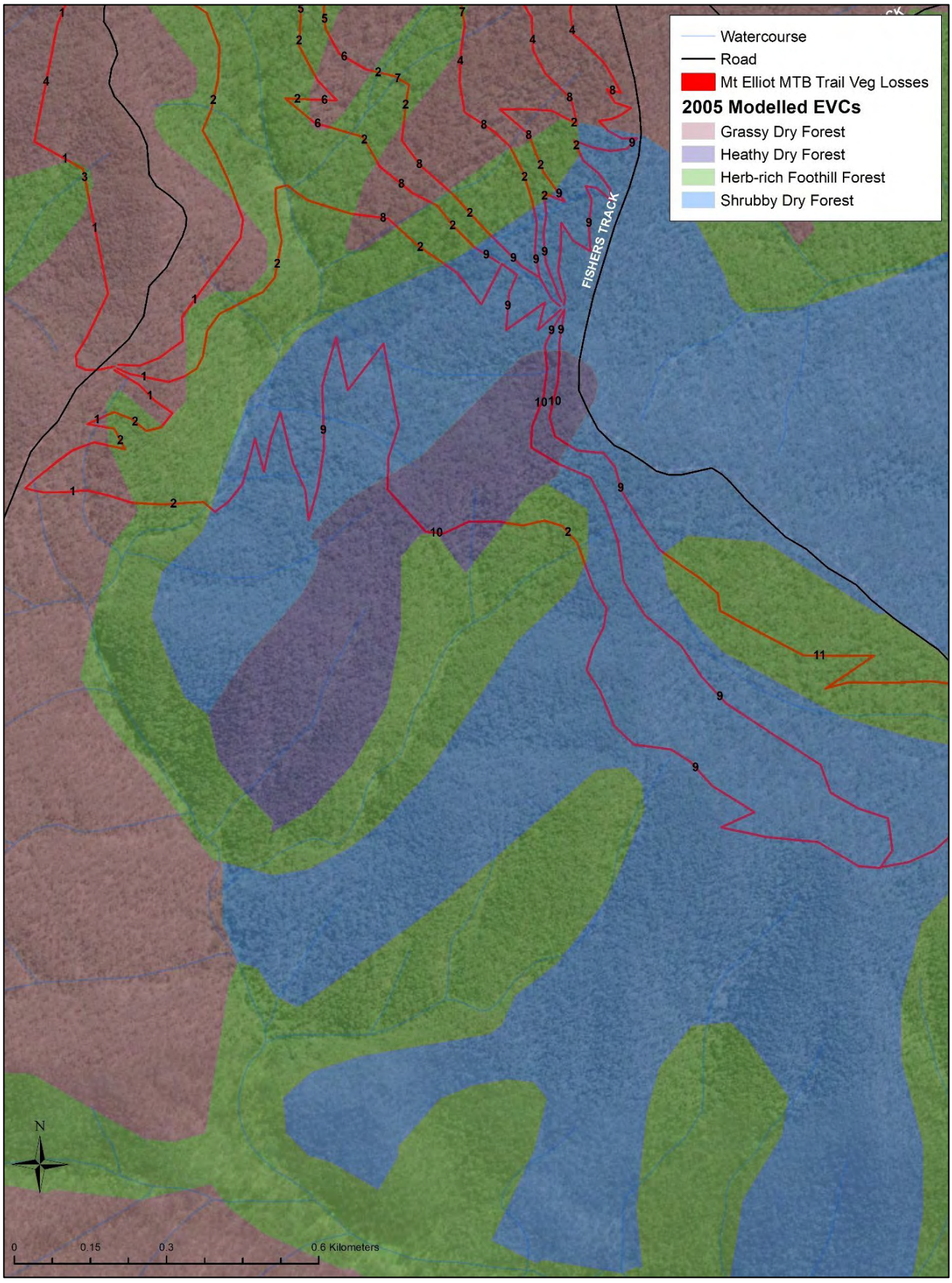
Proposed vegetation removal details	
Assessment pathway	Detailed
Extent of removal	3.488 ha
No. large trees to be removed	0
General offset amount	1.746 general habitat units
Total number of large trees that offset must protect	0
Minimum strategic biodiversity score	0.456



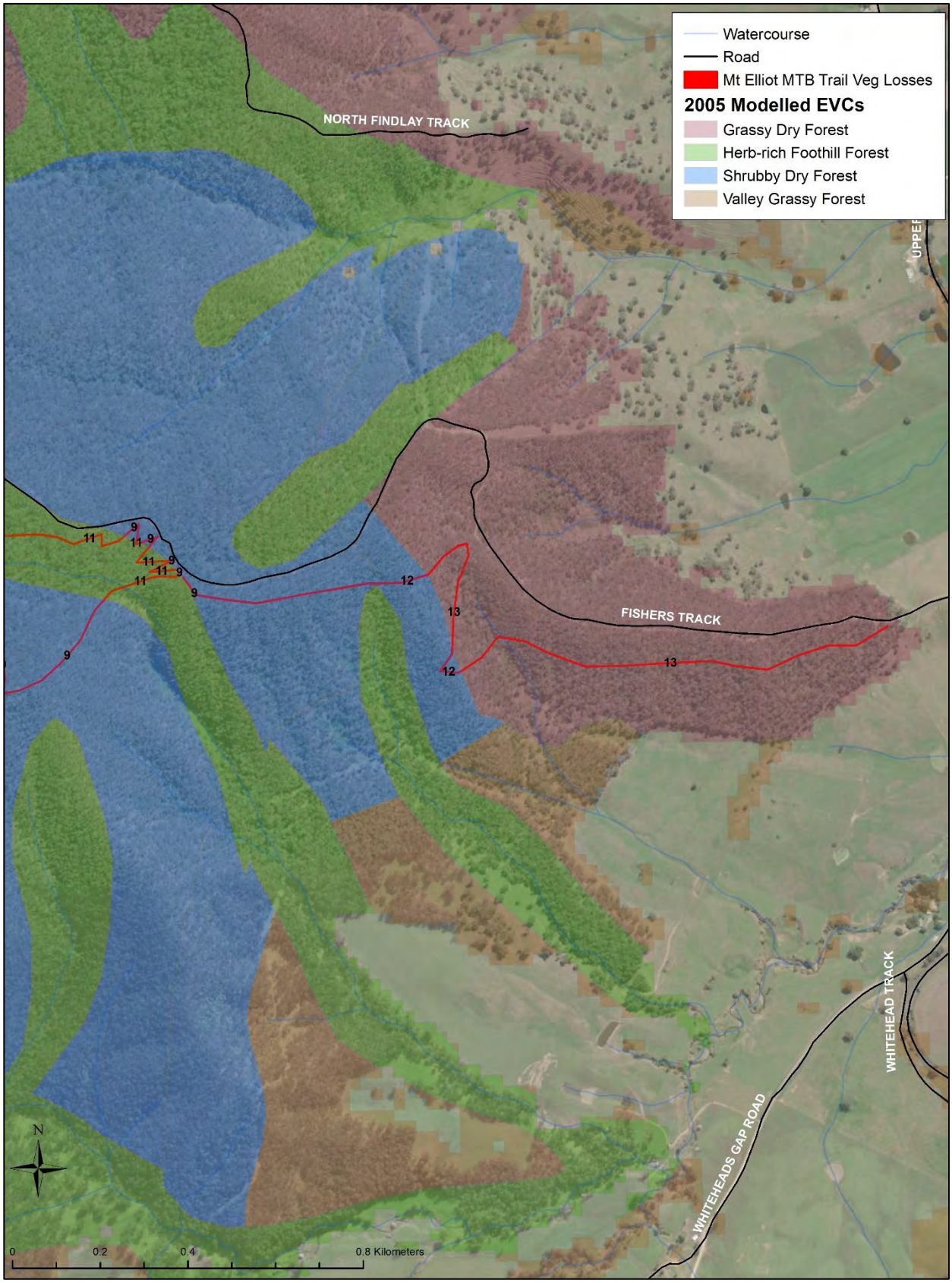
Map 8: Proposed Losses – Full Trail. Losses labelled according to Site Names (HH_SI) in the NVR report in Appendix 6.



Map 9: Proposed Losses – Trail Section 1 (north). Losses labelled according to Site Names (HH_SI) in the NVR report in Appendix 6.



Map 10: Proposed losses in Trail Section 2 (Central). Losses labelled according to Site Names (HH_SI) in the NVR report in Appendix 6.

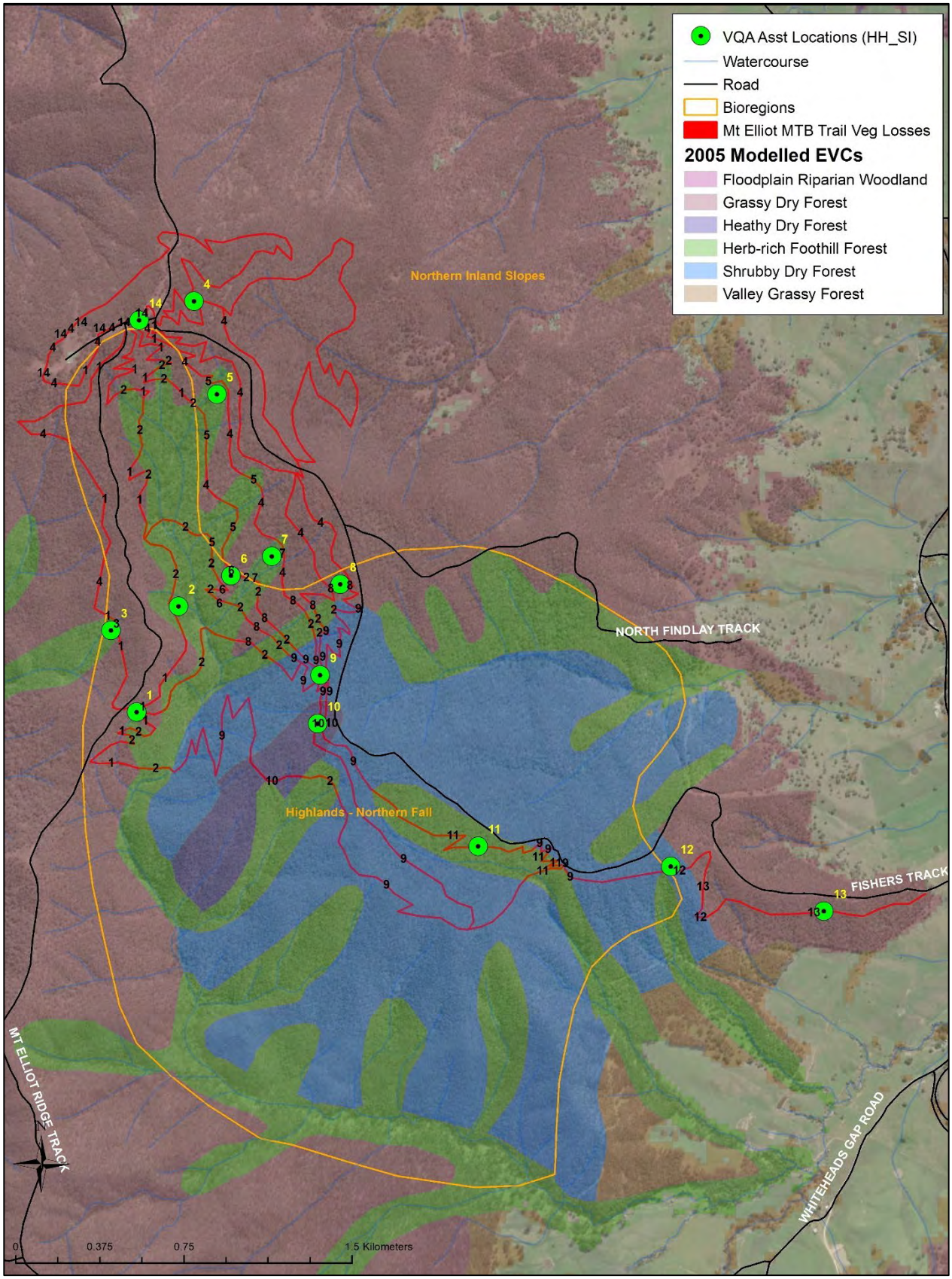


Map 11: Proposed losses in Trail Section 3 (South). Losses labelled according to Site Names (HH_SI) in the NVR report in Appendix 6.

5.2.1 Habitat Hectares

As per the Guidelines, areas of native vegetation that meet the definition are called a 'patch'. Within a patch, areas of relatively uniform quality for each EVC within the patches are termed 'habitat zones' (HZ). Where there are habitat zones of the same EVC on the same tenure, and undergoing the same management regime, but separated by roads or have other EVCs in between, these are given a separate habitat zone and assessment. Where large habitat zones (>1 hectare) occur and have varying conditions across the zone, these are treated as one habitat zone UNLESS any of the different condition areas score 15 points higher or lower in the habitat hectare assessment method, in which case they would be broken up into two or more separate habitat zones (i.e. high quality zone and low quality zone of the same EVC). Condition was generally fairly uniform, and the 15 point rule was not used to split any habitat zones.

Fourteen sites (HH_SI in **Appendix 6**) and a total of 123 habitat zones (HH_ZI HH_SI in **Appendix 6**) are identified across the study area. VQA assessments were conducted by qualified VQA assessors in each site, ensuring one assessment was conducted in a representative part of each EVC, and if EVCs were separated by another EVC, or within a different Bioregion, then another VQA assessment was undertaken, as per the Guidelines. Habitat zones that were located within each site were allocated the same VQA score for that site. The results of the condition assessment are provided in **Table 15,** with the number of habitat hectares listed for each site (and habitat zone); all of which are to be partially removed (understorey removal only) as part of the project. Representative photos of the areas with proposed losses are provided in **Appendix 4**. The locations of the 14 habitat hectare assessments are provided in **Map 12**.



Map 12: Map of habitat hectare (VQA) assessments. For details, see the NVR report in Appendix 6.

5.3 Assessment Pathway of Application

In Victoria, applications to impact or remove native vegetation are categorised into three assessment pathway categories: basic, intermediate or detailed. The category of the pathway is determined by the location of the site and extent of the native vegetation that is proposed to be impacted or removed. The location classification is divided into three categories and has been mapped across the entire state by DEECA's NatureKit interactive mapping system. The mapping system can be accessed here: (NatureKit Victoria (biodiversity.vic.gov.au)).

The second part of the calculation to determine the assessment pathway, is the extent of the vegetation proposed to be impacted/removed. This calculation considers the total area (hectares) of native vegetation proposed to be removed, which is made up of patch size and scattered tree areas which are turned into hectares, with both combining to give an overall loss size. The second part of this calculation is the assessment of whether any large trees are proposed to be removed, either as scattered trees or those occurring in patches.

The proposal will require the removal of ≥ 0.5 hectares therefore the application for removal of this native vegetation must meet the requirements of, and be assessed in, the **detailed assessment pathway**. The NVR in **Appendix 6** outlines the patch, scattered tree and large tree components of the native vegetation being lost.

Table 15: Habitat hectare results for the native vegetation HZs within the study area

Site ID (HH_SI)			1	2	3	4	5	6	7	8	9	10	11	12	13	14
Habitat Zone ID (HH_ZI)			A-T	A-AA	A	A-O	A-E	A-C	A-B	A-G	A-T	A-C	A-E	A-B	A-B	A-G
Bioregion			HNF	HNF	HNF	NIS	NIS	HNF	NIS	HNF	HNF	HNF	HNF	NIS	NIS	NIS
EVC #: Name			GDF 22	HRFF 23	HRFF 23	GDF 23	HRFF 23	GDF 22	HRFF 23	GDF 22	SDF 21	HDF 20	HRFF 23	SDF 21	GDF 22	GDF 22 Derived
VQA Component		Max Score	Score	Score	Score	Score	Score	Score	Score	Score	Score	Score	Score	Score	Score	Score
Site Condition	Large Trees	10	7	8	5	8	10	8	10	4	3	2	3	2	0	0
	Canopy Cover	5	5	5	3	5	5	5	5	5	5	4	5	5	5	0
	Lack of Weeds	15	7	11	11	13	11	13	11	13	13	15	13	13	11	7
	Understorey	25	25	25	25	25	25	20	20	25	25	15	15	25	25	15
	Recruitment	10	10	10	10	10	10	10	10	10	10	10	5	10	10	5
	Organic Matter	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3
	Logs	5	5	5	5	5	5	5	5	5	5	4	5	5	5	0
	Total Site Score		64	69	64	71	71	66	66	67	65	55	51	65	61	30
Landscape Value	Patch Size	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	Neighbourhood	10	7	7	7	7	7	7	7	6	5	6	6	5	4	7
	Distance to Core	5	4	4	4	4	4	4	4	4	4	4	4	5	4	4
	Total Landscape Score		19	19	19	19	19	19	19	18	17	18	18	18	16	19
Habitat Score		100	83	88	83	90	90	85	85	85	83	73	69	83	77	49
Habitat points = #/100		1	0.83	0.88	0.83	0.90	0.90	0.85	0.85	0.85	0.83	0.73	0.69	0.83	0.77	0.49
Condition Score Applied (i.e. partial)			0.415	0.44	0.415	0.45	0.45	0.425	0.425	0.425	0.415	0.365	0.345	0.415	0.385	0.245
Habitat Zone (HH_SI) impacted (loss) area (ha)			0.503	0.396	0.009	1.2	0.103	0.028	0.015	0.115	0.709	0.077	0.149	0.02	0.141	0.022
General Habitat Units (from NVR)			0.321	0.202	0.004	0.65	0.053	0.14	0.008	0.055	0.346	0.033	0.061	0.010	0.063	0.006

5.4 Offset Requirements

To ensure a gain to Victoria's biodiversity that is equivalent to the loss resulting from the proposed removal of native vegetation, compensatory offsets are required. Losses and gains are measured in general and/or species habitat scores or units. The offset must also include at least one large tree for every large tree removed.

For a detailed assessment pathway application, the species-general offset test will determine if a general offset, species offset or combination of both is required. The results of the species-general offset test are provided in **Appendix 6** and summarized below in **Table 16**.

Table 16: Summary of the DEECA Native Vegetation Removal Report

Site Attribute	Outcome
Location category	3
Extent of native vegetation loss	3.488 hectares
Assessment pathway	Detailed
Strategic Biodiversity Value score	See **Appendix 6**
Modelled habitat for any threatened species	Modelled habitat for 50 species, however all are well below the species offset thresholds.
Type of offset required	General
Offset amount (general habitat units)	1.746
Offset vicinity	North East CMA or Towong Shire Council
Minimum Strategic Biodiversity Value score for offset	0.456
Large tree requirements for offset	0

5.5 Proposed Offset Strategy

The proponent intends to purchase the offset credits from the Victorian Native Vegetation Credit Register (NVCR) through a registered offset broker. A search of the Native Vegetation Credit Register (NVCR) has been completed and there are suitable general habitat unit offset options available for purchase (see **Appendix 7**). Once this report is approved, a quote will be sought from Vegetation Link, and payment of the offset obligation must take place prior to any work starting on the trail construction.

6 Key Ecological Values and Recommendations

This section identifies the key ecological features of the study area and provides a summary of the potential implications of the proposed development on these values, including recommendations to assist the proponent to design and implement the project to minimise impacts on biodiversity.

The primary measure to reduce impacts to biodiversity values within the study area is to avoid and minimise removal of native vegetation and terrestrial habitat. Impacts to native vegetation have been avoided and minimised to the greatest extent possible, while still retaining features of the project that make it viable to undertake for the proponent. Close liaison with the proponent occurred throughout the design stage of the project. The results of this assessment should therefore be incorporated into the final project design, by adding the flora and fauna mapping information into the planning maps, ensuring that all retained vegetation is appropriately protected from development impacts.

Final design plans and on-ground works should aim to retain as much of the mapped vegetation and habitat values as possible, even if these values have already been considered 'lost' for the purposes of calculating vegetation impacts and offset obligations required for the project. All areas of native vegetation and sensitive habitats beyond those in the impact zone (construction area) in this report are to be appropriately treated as no-go zones during construction, and are not to be encroached upon as the development progresses.

A summary of the potential development implications of the study area and recommendations to minimise ecological impacts during the construction phase of the project is provided below in **Table 17**.

Table 17: Summary of key ecological values, potential implications and recommendations to minimise impacts arising from the project.

Site feature	Implications of the proposed development	Recommendations
Native vegetation	The permanent removal of a maximum of 3.488 hectares of native vegetation. The application is being assessed via the detailed assessment pathway. NB: Impacts to native flora and fauna are all below the specific offset threshold for the threatened species habitats modelled within the study area.	Avoid and minimise removal of native vegetation and terrestrial habitat in accordance with the Guidelines. Refer to **Section 5.** Identify and implement appropriate general offsets for native vegetation losses as outlined in **Section 5.4**. Despite the native vegetation loss figures being accounted for and offset, all efforts should be made to retain as much native vegetation as possible during construction. Wet areas, wet grassland, wetlands and swamps must be avoided by the final alignment. Final route must be micro-sited to select existing disturbed areas, trails, game trails and weedier areas for the trail, and avoid any higher quality native vegetation areas wherever possible. Grey Grass Tree must also be avoided. All retained vegetation is to be avoided, with native vegetation beyond the one metre-wide impact area to be treated as no-go areas. All construction works and vehicles must be kept within existing parking or track areas, or for small machinery kept within the one metre-wide construction loss zones. Works must use the lightest weight and smallest construction machinery possible. Absolutely no laydown areas within native vegetation areas including tree TPZ/SRZ.
Trees and logs	Impacts associated with the construction and ongoing operation of the trail.	Avoid and minimise excavation within tree TPZs and strictly no excavation within SRZs. Large habitat trees, especially those with hollows, must be avoided and no works to occur within their SRZ. If a tree has hollows, low noise and vibration works must be conducted within their vicinity. If the SRZ of large trees is breached, no excavation is to take place, instead use small volumes of clean local fill to create a level surface for the trail without disturbance being made to the tree or shrub roots. Note this is a last report option and SRZ impacts should not be required. Trail to avoid large hollow logs. No fallen timber is to be removed from the study area, but instead can be moved to a location out of the work zone. As a precaution, where any track clearing is required that involves removing large stumps (these should be avoided during micro siting), or moving hollow or large areas of fallen timber, an ecologist or wildlife handler should be present to ensure there are no listed fauna present in the works area. If located, work must stop until the specimen can be safely relocated away from the work site.

Site feature	Implications of the proposed development	Recommendations
Threatened Species		Protection of trees and avoidance of high quality native vegetation, where possible, will keep potential impacts to threatened species very low to negligible. If works are in the vicinity of large habitat trees that contain large hollows (potential nesting and glider habitat), low noise and vibration works must be conducted within their vicinity, and if possible, construct the trail in the vicinity of the tree by hand to reduce potential disruption to threatened mammals. If any threatened species are identified (or if suspected to be a threatened species), work is to stop within 200 metres of the detection and contact is to be made with DEECA or with Red-Gum to seek further guidance and conclusive identification. Any confirmed records must be recorded with GPS, and photographs are to be taken where possible. Records must be provided to DEECA to be added to their database. Construction workers must be educated about the threatened species and sensitive environments which have been recorded in the study area. Any new threatened species records must be captured with GPS. If any sightings are made in the works zone, works must stop in that area until DEECA have been engaged with about the options available to avoid impacts to the threatened species.
Threatened ecological communities	Presence or potential presence of threatened ecological communities in the path of the trail alignment.	There was one FFG Act threatened ecological community, the Victorian Temperate Woodland Bird Community, identified within the study area. Due to the trail predominantly following existing tracks and trails, impact minimisation measures and micro-siting for the avoidance of trees and high quality vegetation, the impacts to this community will be low to negligible. No other threatened ecological communities were identified during site assessments. If potential threatened ecological communities are identified during construction, works in that community must halt immediately and advice must be sought from Red-Gum or DEECA.
Orchids and wildflowers	Loss of native vegetation and rare orchid species as a result of ongoing reserve recreational use.	The final route should be micro-sited to avoid as much high quality vegetation as possible, including patches of orchids and other native wildflowers. Following tracks and game trails will ensure very few orchid species are encountered during construction. It is recommended that Council erect signage at the trail heads, educating trail users about the significance of the native flora and fauna they are riding through. Signage should also warn users of the importance of not taking flora species and also the implication for people who choose to ignore the laws prohibiting their removal.
Waterways/ aquatic environs	Impacts associated with the construction of the trail and bridges across creeks. Works on named waterways or in the vicinity of named waterways. Waterway impacts in general.	Wetlands, swamps and other wet areas are to be avoided. Where any significant creeks are crossed, installation of fibreglass boardwalks are to be installed with low impact techniques, including screw piles which can be installed by hand. Crossing points must be selected where existing disturbance exists, such as game trails or other vegetation clearings. Erosion and sedimentation, and pollution controls must be detailed in a project CEMP. There are no works taking place on and near named waterways, therefore there are no requirements for a Works on Waterways

Site feature	Implications of the proposed development	Recommendations
		(WoW) permit for the trail project. Despite this, it is recommended that Council liaise with North East Catchment Management Authority about their expectations around works on/near minor waterways)creeks) and should adopt any risk mitigation measures that are specified.
Other habitat features	Retained vegetation and habitats beyond the immediate works area footprint.	Install barriers near high use areas (such as trailheads) to help protect sensitive features and areas of high biodiversity value from being encroached upon by trail users. Install interpretative signage to inform trail users about the Crown reserve assets and to educate people about the need to keep to the trail and to stay out of sensitive areas.
Soils	Soil quality impacts throughout the impact zone.	CEMP to have a detailed erosion and sediment plan to ensure best practice measures are implemented to mitigate these risk factors for the local environment. All construction takes place when the soil is relatively dry, to ensure any minor movement of plant past the one-metre loss area occurs upon dry soil to minimise the impacts to soil and vegetation from the passage of these vehicles and equipment.
Pest plants	Introduction into or spread within the study area of declared or environmental weeds.	The recommendations of this report include measures to control to introduction of weeds into the study area during construction and maintenance and to prevent weeds from leaving the site on construction machinery. The project will also include a CEMP that will have more specific detail on how the risks associated with noxious weeds and pest animals will be controlled before, during and after construction. Efforts should be made to control the noxious and environmental weeds prior to the construction phase starting. Priority should be on Blackberry control, given the status of this species as a Weed of National Significance (WoNS)(DCCEEW 2023c). These are predominantly an issue in creeks and gullies located on the south and east facing slopes. Some mechanical removal of Blackberry (i.e. via a specialised mulcher) may be required to facilitate access for the trail if thick Blackberry growth is encountered during final micro-siting. Consideration must also be given to managing the risk of weed and disease incursion from ongoing bicycle use, as well as potential undesirable use of the trail by trail bike riders. At Minimum, signage should be set up at trail heads informing people about pest and disease spread, and a hygiene station to help riders decontaminate their bikes would be a valuable (but rarely applied) mitigation measure. Trail bikes pose a significant erosion risk for trails, and if issues with these trail users emerge, patrols and trail cameras may be required to help deter this use.
Pest animals	Introduction or creation of favourable conditions for pest animals in the study area.	As above. There are no pest animal implications expected to arise from the proposed development. Council should consider engaging DEECA and local landholders, to develop a cooperative pest animal control program, targeting foxes, cats and rabbits.
Diseases	Introduction into or spread within the study	All machinery must arrive on site clean and soil free. If machinery has recently been working in creeks, wetlands or other frog habitat,

Site feature	Implications of the proposed development	Recommendations
	area of diseases.	machinery must be hot-washed with detergent to remove any potential Chytrid Fungus contamination. Develop hygiene controls for vehicle and machinery movement to minimise the spread of pathogens and weeds, and particularly diseases such as Cinnamon Fungus (*Phytophthora*), to be included in the CEMP. **Important:** All machinery must arrive on site clean and having been thoroughly decontaminated with Phytoclean or a similar antifungal registered for Cinnamon Fungus. Grey Grass Tree is highly susceptible to the fungus, and all efforts must be taken to protect this population of the critically endangered species from the introduction of this devastating disease.
Biodiversity	Biodiversity within and adjoining the study area and the requirements of the FFG Act's public authority duty.	Towong Shire Council is a 'public authority' and therefore the FFG Act public authority duty applies to this development. This assessment and report is considering the impacts to biodiversity on the authority's (Council's) behalf; however, the findings and recommendations of this report should be reviewed by Council to ensure they are satisfied with the assessment of biodiversity impacts and the recommendations being put in place to minimise impacts to biodiversity that result from the walking trail development.

6.1 Construction and Post-Construction Management

The project will have its own Construction Environmental Management Plan (CEMP). An Erosion and Sediment Management Plan (ESMP) may also be developed and put in place to ensure site values, soils, waterways and retained habitat and vegetation are protected from the direct and indirect impacts of construction. Alternatively, and especially due to the low risks of erosion from construction, the CEMP could incorporate these erosion and sediment protection measures within its contents.

The CEMP is to include training and inductions for contractors and other people visiting the site, daily toolbox sessions on protecting environmental values, installation of temporary fences and signage (if required), designated no-go areas, erosion and sedimentation control measures (provided with greater site-specific detail in the ESMP if employed), and other impact measures including but not limited to:

- Site environmental inductions covering off on all the key components in this report and the actions to protect site values such as large trees and Grey Grass Trees, and other important features as per the CEMP.
- Processes to monitor trees and other habitat during construction and having systems in place (fauna salvage protocol) to address any inadvertent impacts to fauna during construction.
- Have protections in place including barriers and regular monitoring to ensure fauna are not trapped for extended periods in open trenches or other structures during construction.
- Have a system in place for unexpected finds during construction (including reporting to the appropriate authority) which relate to threatened species, European heritage, toxic substances, or Aboriginal cultural heritage.
- Erosion and sediment controls and monitoring, and have systems in place where erosion or sedimentation is detected as a result of construction.
- Measures to minimise the risks associated with flood events, high winds, storms, or extreme heat events.
- Noise and air pollution controls and monitoring.

- Light pollution and excess vibration monitoring and controls.
- Waste and pollution monitoring and controls, including a protocol for rapid response to accidental spills.
- Hygiene protocols to address pest plants, animals and disease introductions to or from the study area as a result of construction.
- Fire management processes and response plans in the event of a wildfire entering the site or starting as a result of construction works.
- Rehabilitation processes to ensure all areas of earthworks are adequately rehabilitated or completed to trail building standards, including revegetation with locally indigenous plants, if and where appropriate.
- A process for allocation of roles and responsibilities for actions within the CEMP and the dedicated monitoring and reporting of the implementation of CEMP actions.

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8 Appendices

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Appendix 1A: Flora Species Recorded in Study Area

Notes to Tables.

EPBC Act:
CR - Critically Endangered
EN - Endangered
VU - Vulnerable

FFG Act:
ex - extinct
ex – in the wild
cr – critically endangered
en - endangered
vu - vulnerable
cd – conservation dependent

FFG Act Permits:
P = Protected Flora
PC = Protected Flora of a Listed Community

CALP Act - Noxious weed status:
SP - State prohibited species
RP - Regionally prohibited species
RC - Regionally controlled species
RR - Regionally restricted species

Other
- Non-indigenous native species or native with weedy tendencies
*- Exotic species
WONS - Weed of National Significance

Table A1.1 Flora species recorded from the study area (2024).

Scientific Name	Common Name	Status	EPBC	FFG
Acacia dealbata	Silver Wattle			
Acacia gunnii	Ploughshare Wattle			
Acaena echinata	Sheep's Burr			
Acaena Novae-hollandiae	Bidgee-widgee			
Acrotriche serrulata	Honeypots			
Adiantum aethiopicum	Maidenhair Fern			
Ajuga australis	Austral Bugle			
Amyema sp.	Mistletoe			
Anthosachne scabra	Wheat Grass			
Anthoxanthum odoratum	Sweet Vernal-grass	Introduced		
Arthropodium millflorum	Pale Vanilla Lily			
Asperula conferta	Common Woodruff			
Asperula scoparia subsp. scoparia	Prickly Woodruff			
Astroloma humifusum	Cranberry Heath			
Austrostipa sp.	Spear Grass			
Bothriochloa macra	Red-leg Grass			
Brachychiton populneus	Kurrajong			
Briza maxima	Quaking Grass	Introduced		
Bursaria spinosa	Spiny Bursaria			
Calytrix tetragona	Fringe Myrtle			
Carex appressa	Tall Sedge			
Carex breviculmis	Common Grass-sedge			
Cassinia aculeata subsp. aculeata	Common Cassinia			
Cassinia longifolia	Shiny Cassinia			
Cassytha sp.	Dodder			
Centaurium erythraea	Common Centaury	Introduced		
Cerastium glomeratum	Mouse-ear Chickweed	Introduced		
Cheilanthes austrotenifolia	Green Rock-fern			
Chrysocephalum semipapposum	Clustered Everlasting			
Cirsium vulgare	Spear Thistle	Introduced		
Clematis aristata	Old Man's Beard			
Coprosma hirtella	Rough Coprosma			
Coprosma quadrifida	Prickly Currant-bush			
Cymbonotus preissianus	Austral Bear's Ear			
Cynodon dactylon	Couch			
Cynoglossum australe	Australian Hound's Tongue			
Daviesia latifolia	Hop Bitter-pea			
Desmodium varians	Slender-tick Trefoil			
Dianella revoluta var. revoluta	Black-anther Flax-lily			
Dianella tasmanica	Tasman Flax-lily			
Dichelachne sp.	Plume Grass			
Dichondra repens	Kidney-weed			
Dillwynia phyllicoides	Small-leaf Parrot-pea			
Dillwynia sericea	Parrot Pea			

Scientific Name	Common Name	Status	EPBC	FFG
Dipodium roseum	Rosy Hyacinth Orchid			
Duacus glochidiatus	Native Carrot			
Echinopogon ovatus	Common Hedgehog Grass			
Epilobium billardierianum	Variable Willow-herb			
Erigeron bonariensis	Flaxleaf Fleabane	Introduced		
Erigeron sp.	Fleabane	Introduced		
Eriochillus culcalatus	Parson's Bands			
Erodium sp.	Crane's Bill			
Eucalyptus blakelyi	Blakely's Red-gum			
Eucalyptus dives	Broad-leaf Peppermint			
Eucalyptus globulus subsp. bicostata	Eurabbie			
Eucalyptus goniocalyx	Long-leaf Box			
Eucalyptus macrorhyncha	Red Stringybark			
Eucalyptus mannifera	Brittle Gum			
Eucalyptus obliqua	Messmate Stringybark			
Eucalyptus polyanthemos	Red Box			
Eucalyptus radiata s.l.	Narrow-leaf Peppermint			
Euchiton involucratus s.l.	Common Cudweed			
Euchiton japonicus	Creeping Cudweed			
Euchiton sp.	Cudweed			
Euchiton sphaericus	Annual Cudweed			
Exocarpos cupressiformis	Cherry Ballart			
Gahnia sp.	Saw Sedge			
Galium gaudichaudii	Rough Bedstraw			
Geranium potentilloides	Soft Crane's-bill			
Geranium solanderi s.l.	Austral Crane's-bill			
Geranium sp. 2	Variable Crane's-bill			
Glycine clandestina	Twining Glycine			
Gonocarpus tetragynus	Common Raspwort			
Grevillea alpina	Cat's Claw Grevillea			
Hardenbergia violacea	Purple Coral-pea			
Hedera helix	English Ivy	Introduced		
Hibbertia obtusifolia	Grey Guinea-flower			
Holcus lanatus	Yorkshire Fog	Introduced		
Hovea heterophylla	Common Hovea			
Hydrocotyle hirta	Hairy Pennywort			
Hydrocotyle laxiflora	Stinking Pennywort			
Hypericum gramineum	Small St John's Wort			
Hypericum perforatum subsp. veronense	St John's Wort	Introduced		
Hypochaeris radicata	Flatweed	Introduced		
Indigofera australis	Austral Indigo			
Juncus sp.	Rush			
Lagenophora stipitata	Common Bottle Daisy			
Leontodon sp.	Hawkbit	Introduced		
Lepidosperma laterale	Variable Sword Sedge			
Leucopogon virgatus	Common Beard Heath			
Lomandra filiformis	Wattle Mat-rush			

Scientific Name	Common Name	Status	EPBC	FFG
Lomandra longifolia	Spiny-headed Mat-rush			
Lomandra multiflora	Many-flowered Mat-rush			
Lomatia fraseri	Tree Lomatia			
Luzula meridionalis	Common Woodrush			
Lycopus australis	Australian Gypsywort			
Melicytus angustifolius subsp. divaricatus	Tree Violet			
Melicytus dentatus	Tree Violet			
Microlaena stipoides var. stipoides	Weeping Grass			
Microseris walteri	Yam Daisy			
Oxalis perennans	Grassland Wood-sorrel			
Phalaris minor	Canary Grass			
Pimelea linifolia	Slender Rice-flower			
Pimelea sp.	Rice Flower			
Plantago varia	Variable Plantain			
Platylobium formosum s.l.	Handsome Flat-pea			
Platylobium montanum	Mountain Flat-pea			
Platylobium montanum	Handsome Flat-pea			
Poa ensiformis	Sword Tussock Grass			
Poa labillardierei	Common Tussock-grass			
Poa sieberiana	Grey Tussock-grass			
Poa sieberiana	Snowgrass			
Polystichum proliferum	Mother Shield-fern			
Poranthera microphylla s.l.	Small Poranthera			
Prasophyllum sp.	Leek Orchid			
Prunella vulgaris	Self Heal	Introduced		
Pteridium esculentum subsp. esculentum	Austral Bracken			
Pterostylis sp. 1	Greenhood			
Pterostylis sp. 2	Greenhood			
Rubus fruticosus spp. agg.	Blackberry	Introduced		
Rubus parvifolius	Small-leaf Bramble			
Rytidosperma pallidum	Red-anther wallaby grass			
Rytidosperma pilosum	Velvet Wallaby-grass			
Rytidosperma racemosum var. racemosum	Slender Wallaby-grass			
Rytidosperma sp.1	Wallaby Grass			
Senecio hispidulus s.l.	Rough Fireweed			
Senecio linearifolius	Fireweed Groundsel			
Senecio phellus	Woodland Groundsel			
Senecio prenanthoides	Beaked Fireweed			
Senecio quadridentatus	Cotton Fireweed			
Senecio sp.1	Groundsel			
Senecio sp.2	Toothed Senecio			
Senecio tenuiflorus s.l.	Slender Fireweed			
Solenogyne dominii	Smooth Solenogyne			
Stackhousia monogyna	Creamy Candles			
Stellaria pungens	Prickly Starwort			
Stylidium graminifolium	Grass Trigger-plant			
Tetrarrhena juncea	Forest Wire-grass			

Scientific Name	Common Name	Status	EPBC	FFG
Tetratheca ciliata	Pink-bells			
Themeda triandra	Kangaroo Grass			
Trifolium repens var. repens	White Clover	Introduced		
Unknown	Unidentifed herb			
Urtica incisa	Scrub Nettle			
Veronica spp.	Speedwell			
Viola betonicifolia	Showy Violet			
Viola hederacea sensu Entwisle (1996)	Ivy-leaf Violet			
Whalenbergia sp.	Bluebell			
Xanthorrhoea glauca subsp. angustifolia				
Xerochrysum viscosum	Shiny Everlasting			

Appendix 1B: Listed Flora Species

The following table includes the listed flora species that have potential to occur within the study area. The list of species is sourced from the Victorian Nature Kit and the Protected Matters Search Tool (accessed February 2024).

Table A1.2 Listed flora species recorded/predicted to occur within 10 kilometres of the study area with likelihood of occurrence: No, Negligible, Low, Medium, High or Recorded.

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat	Likelihood	Justification
Threatened Ecological Communities						
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland		CE		NA	No	The key indicator species for this TEC are not present in the study area.
Alpine Sphagnum Bogs and Associated Fens		EN		NA	**No**	This community tends to occupy higher altitudes. The key indicator species are not present in the study area.
Natural Temperate Grassland of the South-Eastern Highlands		CR			**No**	This community is known from the high plains at higher altitudes further east. The key indicator species are not present, and the study area is dominated by forests.
Alpine Bog Community		NA	**TEC**	NA	**No**	As above.
Fen (bog pool) Community		NA	**TEC**	NA	**No**	This community tends to occupy higher altitudes. The key indicator species are not present in the study area.
Granite Foothills Spring Wetland (NE Victoria) Community		NA	**TEC**	NA	**Low**	No suitable granitic soak areas observed during site assessments.
Victorian Temperate Woodland Bird Community		NA	**TEC**	NA	**Present**	TEC is known from dry forests and woodlands. The study area contains suitable habitat and some or many of the TEC species may frequent the site, or be resident. This TEC is considered present. However, trees are being avoided, and high value vegetation are being avoided, where possible, and no significant impact to this TEC is expected.
Threatened Flora						
Amphibromus fluitans	River Swamp Wallaby-grass, Floating Swamp Wallaby-grass		VU	Permanent swamps and wetlands, most often along the Murray River between Wodonga and Echuca, rarer in the south.	**Negligible**	No local records and very few records in the Towong Shire LGA. There is some suitable swampy/wetland habitat, but these are unlikely to be permanently wet, which is required for this species.

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat	Likelihood	Justification
Banksia canei	Mountain Banksia	cr		Open forests and woodlands, most often on dry rocky rides, occasionally in sub-alpine scrub.	**Low**	Very few local records, and rarely recorded in the broader region. There is a low likelihood that this species is present.
Bossiaea heterophylla	Variable Bossiaea	en		Sandy soils in a diversity of habitats, especially heathland and open woodland.	**Negligible**	One isolated 2021 record from Mount Mittamatite, and no other records for a considerable distance in all directions. Site is forest, and has limited to suitable habitat. Unlikely to be present in the study area.
Brachyscome ptychocarpa	Tiny Daisy	en		Granite outcrops, with plants most commonly found utilising microhabitats in mossy hollows within rocks.	**Low**	A cluster of records from Mount Mittamatite, and also Pine Mountain. Few records beyond that. Study area is shale dominated, different habitat to those two granite dominated regions. Species unlikely to be present.
Cassinia ozothamnoides	Cottony Cassinia	en		Disturbed sites (pioneer plant) in dry open forests on poor shaly or rocky soils.	**Medium**	A cluster of records from Mount Mittamatite, and single records from Burrowa-Pine Mountain and Pine Mountain. Few records beyond that. Cannot be ruled out, but presence is unlikely.
Cassinia venusta	Elegant Cassinia	vu		Grey sandy, clay or loam soils over the top of granite. Records centred around Pine Mountain and Mt Mittamatite.	**Medium**	Numerous records from Mount Mittamatite, and Burrowa-Pine Mountain and Pine Mountain, and some just over the NSW border. This species may be present in the study area.
Dampiera purpurea	Mountain Dampiera	vu		Dry forests and scrub, preferring rock outcrops and cliffs. A rare plant.	**Low**	Numerous records from Pine Mountain, lone record from Mount Mittamatite. There are few suitable rock outcrops and no cliffs in the study area. Species unlikely to be present based on limited local records and habitat requirements.
Dodonaea rhombifolia	Broad-leaf Hop-bush	en		Tend to grow in rocky ground in valleys and gorges, but from personal experience rock substrates is not a necessity.	**Medium**	Numerous records from Mount Mittamatite, and Burrowa-Pine Mountain and Pine Mountain, and some just over the NSW border. Suitable habitat present. This species may be present in the study area.
Eucalyptus cinerea subsp. victoriensis	Beechworth Silver Stringybark	en		Near Beechworth on clay loam soils that are derived from granite.	**Low**	One lone isolated record from Mt Mittamatite, and no other records for considerable distances beyond that in all directions, with most centred around Beechworth. Unlikely to be present.

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat	Likelihood	Justification
Grevillea jephcottii	Green Grevillea / Pine Mountain Grevillea	en	EN	Restricted to the area around Walwa and Corryong, with most records in Burrowa-Pine Mountain NP. Prefers rocky granitic situations in dry forest.	**Low**	Numerous records from Burrowa-Pine Mountain and Pine Mountain, and two from Mount Mittamatite. There is limited granitic rock in the study area and this species is unlikely to be present in the study area.
Grevillea polybractea	Crimson Grevillea	en		Dry sclerophyll forests on granitic soils, preferring well drained soils in sheltered scrubby areas.	**High**	Numerous records on the same mountain range to the south and into Biggara Valley. Suitable habitat present and species highly likely to be present in study area.
Grevillea ramosissima subsp. hypargyrea	Fan Grevillea	en		Grows in dry sclerophyll woodlands, preferring granite areas. Only known from Pine Mountain, Cudgewa Bluff and Mt Mittamatite.	**Low**	Numerous records in just north-west, on Mount Mittamatite. Although records generally from granite outcrops. Limited graite outcrops on Mt Elliot. Species may be present in the study area, but being conspicuous, this is unlikely, otherwise there would be records nearby.
Grevillea willisii	Rock Grevillea, Omeo Grevillea	en		Grows in rocky environments, prefers granite, near streams and other waterways. Mitta Mitta River and Nariel Creek catchments.	**Low**	Other than a 1973 record in Corryong, no other local records, with the next closest being from Nariel Creek area. There are limited granite rock lined waterways in the study area.
Haloragis exalata var. *exalata* (listed as a subsp. in VBA)	Wingless Raspwort, Square Raspwort		VU	Wide range of habitats, especially those with regular disturbance. *Haloragis exalata subsp. exalata* occurs in New South Wales and Victoria to as far north as the NSW north-western slopes (near Narrabri).	**Low**	Nearest records are from Geehi, a considerable distance to the south-east. Although possible, this is a conspicuous species, hence there is a relatively low likelihood that this species persists in the study area.
Lepidium aschersonii	Spiny Peppercress		VU	Prefers heavy clay soils often near salt lakes on volcanic plains. Seasonally wet sites such as Gilgai formations, as well as the edge of wetlands, marshes and shallow lakes.	**Negligible**	Nearest records are from near Omeo, well to the south. There are few suitable wet habitats in the study area, aside from some small creeks that lack the species' preferred soil type.
Persoonia asperula	Mountain Geebung	cr	EN	Montane heath and wet forest. Formerly only known in VIC from a population on	**Low**	A lone 2021 record from the northern side of Mount Mittamatite, to the north-west. Mt Elliot lacks the rocky habitats

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat	Likelihood	Justification
				a rocky ridge above the Moroka River, but there is now a lone 2021 record from north of Corryong.		that seem to be preferred by this species. Low likelihood of occurring.
Pimelea pauciflora	Poison Rice-flower	en		Mountainous streams are the preferred habitat. In NSW it is found also in open scrubland and forests, sometimes forming dense thickets.	**Low**	Three records from 1928 in Biggara Valley. The next nearest records are from Mt Kosciuszko area, well to the east. This species is unlikely to be present.
Polygala japonica	Dwarf Milkwort	en		Grasslands and grassy woodlands from varying altitudes, including lowland plains and alpine areas.	**Medium**	There is a 1922 record at Towong, and a record from 2000 a short distance east towards Khancoban. There is a possibility this species may be persisting in grassy woodland areas of the study area.
Prasophyllum bagoense	Bago Leek-orchid		CE	Preferred habitat is sub-alpine grasslands at approximately 1200 metres ASL.	**Negligible**	Nearest records are east of Tumbarumba, >60km away. There are no sub-alpine grasslands present in the study area.
Prasophyllum morganii	Mignonette Leek-orchid, Cobungra Leek-orchid, Dense Leek-orchid		VU	Sub-alpine herbfields. Extinct in Victoria, although there are records from 2020 in VicFlora. Nomenclature issues likely for this species.	**Negligible**	Nearest records are from east of Kiandra, in the alpine region of NSW. No suitable sub-alpine herbfield habitats in the study area.
Prasophyllum petilum	Tarengo Leek Orchid		EN	Grassy woodlands and grasslands on fertile soils with low relief. Other Prasophyllum species are known to prefer moist sites in depressions and swamps.	**Low**	Nearest records are from Boorhaman, over 100km to the west. There are some grassy woodland areas, but limited wet areas. The lack of any nearby records and limited suitable habitat means the species is unlikely to be present.
Pterostylis laxa	Antelope Greenhood	en		Grassy areas in montane sclerophyll forests on the ranges and tablelands, preferring well-drained soils.	**Medium**	There is a 2011 record from the same range, further south towards Gray's campground, plus records on Mt Mittamatite. This species could be present.

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat	Likelihood	Justification
Pterostylis oreophila	Blue-tongued Orchid, Kiandra Greenhood		CE	Montane and sub-alpine habitats, mainly within higher quality vegetation in protected areas.	**Low**	No nearby records, with the closest being near Mt Kosciuszko. Site is relatively disturbed with historical logging and weed levels. Unlikely to be in study area.
Pultenaea vrolandii	Cupped Bush-pea	en		Woodlands and forests, often growing along drainage lines and on the margins of swamps and streams.	**Medium**	Numerous records from Mt Mittamitite, Burrowa-Pine and Mount Lawson. There is suitable habitat and the possibility that this species could be present in the study area.
Senecio distalilobatus	Distal-lobe Fireweed	vu		Wet sclerophyll forests usually at altitudes over 800 metres. Prefers loam soils.	**Medium**	Several records south, up the Nariel Creek valley. One 1971 record from the same range, 12 km south. There is a possibility that this species may be present, particularly in the wet gullies.
Swainsona recta	Small Purple-pea, Mountain Swainson-pea, Small Purple Pea		EN	Grassy understorey of woodlands and open-forests dominated by Blakely's Red Gum, Yellow Box, Candlebark and Long-leaf box. Grows in association with an understorey dominated by Kangaroo Grass, poa tussocks and spear-grasses.	**Low**	The only nearby record in the region is a 1885 record from Pine Mountain. The next nearest recent records are from Albury and further west. Species unlikely to be present.
Thesium australe	Austral Toadflax, Toadflax		VU	Extinct across most of its range. Grows in grasslands, woodlands and herbfields, preferring damp habitats.	**Low**	Two records 12km to the east, north of Khancoban, in similar habitat to the study area. Although believed to be extinct in most parts of the state. Given this, and no close records, unlikely to be present in the study area.
Viola caleyana	Swamp Violet	vu		Wet sclerophyll forest, prefers to grow in moist areas near streams and swampy areas.	**Low**	Two local records are from the 1870s. A single record near Tooma, well to the north. Given the scarcity of recent records nearby, and lack of swampy habitat, this species is unlikely to be present in the study area.
Wurmbea biglandulosa subsp. biglandulosa	Glandular Early Nancy	en		Forests, particularly disturbed moist grasslands, rocky ridges and creek banks. Limited habitat preferences known for the VIC sites.	**Low**	No local records, five records further afield from the 1990s and 2001. There are limited waterway habitats that would be suitable in the study area, and few rocky areas. There is a low likelihood of this species being present.

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat	Likelihood	Justification
Xanthorrhoea glauca subsp. angustifolia	Grey Grass-tree	cr		Rocky northern slopes through northeastern and central Victoria.	**Present**	There are numerous records in the local area including a 2018 record in the study area at the end of Mt Elliot Ridge Track. The species was also recorded during the site assessment.

Appendix 2A: Fauna Species Recorded in Study Area

Table A2.1 Vertebrate fauna recorded from the study area.

Common Name	Scientific Name	Status	EPBC	FFG
Australian King-Parrot	*Alisterus scapularis*			
Australian Magpie	*Gymnorhina tibicen*			
Australian Raven	*Corvus coronoides*			
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*			
Black-tailed Wallaby	*Wallabia bicolor*			
Brown Thornbill	*Acanthiza pusilla*			
Brown Treecreeper	*Climacteris picumnus*		VU	
Common Wombat	*Vambatus ursinus*			
Crimson Rosella	*Platycercus elegans*			
Eastern Grey Kangaroo	*Macropus giganteus*			
Eastern Rosella	*Platycercus eximius*			
Fan-tailed Cuckoo	*Cacomantis flabelliformis*			
Galah	*Eolophus roseicapilla*			
Gerygone	*Gerygone sp.*			
Grey Fantail	*Rhipidura albiscapa*			
Grey Shrike-thrush	*Colluricincia harmonica*			
Laughing Kookaburra	*Dacelo novaeguineae*			
Magpie-lark	*Grallina cyanoleuca*			
Olive-backed Oriole	*Oriolus sagittatus*			
Pied Currawong	*Strepera graculina*			
Red Wattlebird	*Anthochaera carunculata*			
Red-necked Wallaby	*Notamacropus rufogriseus*			
Rufous Whistler	*Pachycephala rufiventris*			
Samba Deer	*Rusa unicolor*	*		
Short-beaked Echidna	*Tacchyglossus aculeatus*			
Spotted Pardalote	*Pardalotus punccatus*			
Spotted Quail-thrush	*Cinclosoma punctatum*			
Striated Pardalote	*Pardalotus striatus*			
Sulphur-crested Cockatoo	*Cactua galerita*			
Superb Fairy-wren	*Malurus cyaneus*			
Superb Lyrebird	*Menura novaeehollandiae*			
Varied Sittella	*Dapheonsitta chrysoptera*			
Wedge-tailed Eagle	*Aquila audax*			

Appendix 2B: Listed Fauna Species

The following table includes a list of the listed fauna species that have potential to occur within 10 kilometres of the study area. The list of species is sourced from the Victorian Nature Kit and the Protected Matters Search Tool (accessed February 2024).

Table A2.2 Listed fauna species recorded or predicted to occur within 10 kilometres of the study area with likelihood of occurrence (No, Negligible, Low, Medium, High or Recorded) and justification.

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat description	Likelihood	Justification
Birds						
Anthochaera phrygia	Regent Honeyeater	cr	CR	Found in box-ironbark eucalypt associations. Flowering eucalyptus and mistletoe in forests and woodlands, with a preference for the box-ironbark forests and wet lowland coastal forests.	**Low**	Recorded around Corryong township in 1956, 1983 and 1984. Very few recent records in the region. No preferred box-ironbark habitat. At best would be a very infrequent visitor to the study area during its annual migration.
Antigone rubicunda	Brolga	en		Open wetlands, shallow marshes (especially when breeding), grassy plains and waterlogged farmland, sometimes also found on coastal mudflats.	**Negligible**	No recent local records in the area, with records increasingly common further west into plains country. Unlikely to be suitable habitat in the study area and may be a very rare visitor to the area, at best.
Aphelocephala leucopsis	Southern Whiteface		VU	Arid and semi-arid acacia and eucalypt woodland and shrubland. Prefers relatively undisturbed open woodland and shrubland with grassy and shrubby understorey, including herbaceous species with low tree densities and numerous tree hollows.	**Low**	No records in the local area, with records increasingly common further west into plains country, and further east in the alpine region and Monaro Plains. Unlikely to be preferred habitat in the study area and may be a very infrequent visitor to the area at best.
Aythya australis	Hardhead	vu		Deeper, permanent freshwater swamps and lagoons of the Murray-Darling Basin and occasionally sheltered estuaries.	**Negligible**	Very few local records, with most concentrated around Corryong township. The site lacks preferred open water suitable habitat. Very rare visitor to the waterways in the study area, at best.
Biziura lobata	Musk Duck	vu		Deep water wetlands, river systems, and coastal waters of temperate regions with dense vegetation cover.	**Negligible**	Very few local records. The site lacks preferred open water suitable habitat. Very rare visitor to the waterways in the study area, at best.

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat description	Likelihood	Justification
Botaurus poiciloptilus	Australasian Bittern	cr	EN	Open forests and woodlands with a sparse grassy ground layer and fallen timber.	**Negligible**	Very few records in the broader local region. Limited suitable open forest or open woodland habitat in the study area.
Burhinus grallarius	Bush Stone-curlew	cr		Open forests and woodlands with a sparse grassy ground layer and fallen timber.	**Negligible**	Very few records in the broader local region. Limited suitable open forest or open woodland habitat in the study area. Fox and wild dog predation has devastated this species.
Calamanthus pyrrhopygius (Hyacola pyrrhopygius parkeri)	Chestnut-rumped Heathwren	vu		Prefers heathlands in coastal, mountainous and hinterland areas, and forests and woodlands with dense undergrowth. Potential nomenclature issues.	**Medium**	One record in Burrowa-Pine to the north, from 1997, and one from near Corryong in 2001. There is suitable habitat and this species may be present in the study area.
Calidris acuminata	Sharp-tailed Sandpiper		VU	Fresh to hypersaline environments, along the edges of waterbodies such as mudflats, estuaries, wetlands and sewage ponds.	**Negligible**	The species would be a very rare visitor to the site, at best. There are more suitable wetland and open water habitats in the region that would be preferred by this species.
Calidris ferruginea	Curlew Sandpiper		CR	Occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets. Estuaries, mudflats, swamps, lakes and lagoons on the coast but also sometimes occuring inland.	**Negligible**	The species would be a very rare visitor to the site, at best. There are more suitable wetland and open water habitats in the region that would be preferred by this species.
Callocephalon fimbriatum	Gang-gang Cockatoo	en	EN	Found in tall mountain forests and woodlands, with dense shrubby understoreys in summer. In winter, will move to lower altitudes into drier, more open forests and woodlands.	**High**	Many local and regional records. Study area contains abundant suitable habitat. May be a very frequent visitor to the study area during its transition between warm and cool season habitats.
Climacteris picumnus	Brown Treecreeper		VU	Prefers Eucalyptus woodlands and open forests, particularly those containing box species and dominated by stringybarks for their foraging habitat, with fallen timber, and not too thick shrub	**Recorded**	Few local records, but was seen and heard during fieldwork. There is abundant suitable habitat, and this species has responded well after millennial drought. It is likely to frequent site or be resident in the bushland.

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat description	Likelihood	Justification
				cover and an open grassy understorey.		
Falco hypoleucos	Grey Falcon		VU	Prefers shrubland, grassland and tree-lined watercourses of arid and semi-arid regions.	**Negligible**	Very few records in the north-east of Victoria. Much more commonly associated with the semi-arid and arid regions further west.
Gallinago hardwickii	Latham's Snipe, Japanese Snipe		VU	Inhabits freshwater wetlands on or near the coast, generally among dense cover.	**Low**	Several records in the local area, including two in similar habitat to the east. However, there are no suitable densely vegetated wetland or other waterbodies in the study area, other than small ephemeral creeks.
Grantiella picta	Painted Honeyeater		VU	Prefers Boree/Weeping Myall, Brigalow and Box-Gum woodlands and Ironbark forests. Feeds on Mistletoe species (fruits) that grow on Eucalypts and Acacias.	**Negligible**	Not preferred habitat. Much more common in the drier habitat on the plains to the west. Unlikely to frequent the study area other than the very rare occasion, at best.
Hieraaetus morphnoides	Little Eagle	vu		Wide habitat range including wooded farmlands and dry woodlands and open forests, nesting in mature trees on hillsides in open woodland and along tree-lined watercourses.	**Low**	Very sparse records from the broader region. No major watercourses in the study area. Site does not represent important habitat for this species.
Hirundapus caudacutus	White-throated Needletail	vu	VU	Wide habitat range including wooded farmlands and dry woodlands and open forests, nesting in mature trees on hillsides in open woodland and along tree-lined watercourses.	**Low**	Occasional records from the broader region, but the vast majority are old, from the 1970s and 80s. No major watercourses in the study area. Site does not represent important habitat for this species.
Hydroprogne caspia	Caspian Tern	vu		Occurs in a broad range of forest and woodland habitats dominated by winter flowering Eucalypts, and sometimes urban areas with abundant large trees.	**Negligible**	The only two local records are from 1976. Species does not tend to frequent the high country. Most regional sightings associated with Hume Weir.
Lathamus discolor	Swift Parrot		CR	Occurs in a broad range of forest and woodland habitats	**Negligible**	No local records and very few records from Towong Shire. Nearest of the few

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat description	Likelihood	Justification
				dominated by winter flowering Eucalypts, and sometimes urban areas with abundant large trees.		local records from 1955. Species does not tend to frequent the high country. A very rare visitor, at best.
Lewinia pectoralis	Lewin's Rail	vu		Outskirts of eucalypt woodlands adjoining timbered ridges, clearings and farmland creeks.	**Low**	Four 2001 records in the Indi Valley, just to the southeast. Few local or regional records beyond those. Species tends to inhabit the plains country further west.
Melanodryas cucullata	Hooded Robin	vu	EN	Forests, woodlands and grasslands. Grasslands and grassy woodlands including box-gum woodlands and Snow Gum (*Eucalyptus pauciflora*) woodlands.	**Medium**	Few local records, most of which are from the 1970s. Suitable grassland habitat, especially around the summit area, and species may be present on occasion or may reside in area.
Neophema chrysostoma	Blue-winged Parrot		VU	Outskirts of eucalypt woodlands adjoining timbered ridges, clearings and farmland creeks.	**Low**	No recent local records, with the nearest from Tintaldra being from 1979. Species tends to inhabit the plains country further west.
Ninox connivens	Barking Owl	cr		Woodland and open forest, fragmented remnants and partially cleared farmland.	**Medium**	Suitable areas of open forest. Despite being rarely recorded, this species has the potential to use the study area for hunting prey, or may reside in the area.
Ninox strenua	Powerful Owl	vu		Wet and hilly sclerophyll forests with densely vegetated gullies that are adjacent to areas of open forest. Large tree hollows are an essential requirement.	**Medium**	Suitable areas of open forest. Numerous large trees with large hollows. Despite being rarely recorded, this species has the potential to use the study area for hunting prey, or may reside in the area.
Polytelis swainsonii	Superb Parrot		VU	Occurs (nests) in large River Red-gum forests along the Murray River and its nearby major river tributaries, but main foraging habitat is Mallee woodland within 20 km of riverine nesting habitat.	**Negligible**	No suitable habitat in the study area. No records from the broader regional area. Species tends to occupy riparian areas in the flatter plains country.
Pycnoptilus floccosus	Pilotbird	vu	VU	Found in the ground level of wet forests on coastal mountain ranges and in moist gullies timbered with	**High**	Closest three records are form the 1970s and early 80s. However, there are numerous records in the region, many from similar

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat description	Likelihood	Justification
				mature gumtrees and with a dense understorey of bracken, low shrubs or tree ferns.		habitat. Likely to be occasionally present or resident in the study area.
Pyrrholaemus sagittatus	Speckled Warbler	en		Occurs in a broad range of eucalypt dominated environments with a grassy understorey, often on rocky ridges or in gullies.	**Medium**	Few recent records from the local region, but there are records in similar habitats further afield. There may be suitable habitat for this species, and it may be present.
Rostratula australis	Australian Painted Snipe		EN	Fringes of swamps, lakes, dams, ponds, estuaries, waterlogged grasslands/pastures and marsh areas with a good cover of native grasses, Lignum, shrubs or open timber areas.	**Negligible**	No records in the broader regional area. No suitable habitat. At best the species may be a very infrequent visitor to the study area.
Spatula rhynchotis	Australasian Shoveler	vu		Prefers heavily vegetated swamps, periodically inundated and flooded areas.	**Negligible**	No suitable large open waterbodies in the study area. At best the species may be a very infrequent visitor to the study area.
Stagonopleura guttata	Diamond Firetail	vu	VU	Forests, woodlands and grasslands. Grasslands and grassy woodlands including box-gum woodlands and Snow Gum (*Eucalyptus pauciflora*) woodlands.	**High**	Suitable grassland habitat, especially along the interface with farmland, and around the summit area. Species is likely to be present on occasion or may reside in area.
Mammals						
Dasyurus maculatus maculatus	Spot-tailed Quoll	en	EN	Primarily forest-dependent species that occupies a wide range of habitat types, although all appear to be characterised by relatively high (> 600mm/yr) rainfall.	**Low**	No recent records in the local region. Nearest recent records are Jindabyne 1993, Tallangatta Valley 2005. Site does not contain any substantial areas of rocky habitat.
Ornithorhynchus anatinus	Platypus	vu		Rivers, streams and lakes of eastern Australia. Major permanent river systems.	**No**	No permanent water habitat in the study area. There are numerous recent records on the west, north and eastern sides. CEMP must ensure erosion and sedimentation is controlled.
Petauroides volans	Southern Greater Glider	en	EN	Territorial, prefer large core forested areas. Abundant hollows required.	**High**	1986 record on the same range to the south. Numerous local records from similar forested

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat description	Likelihood	Justification
						habitats. Study area contains numerous large trees with hollows. The species is likely to use the study area in home range or be resident in the study area.
Crustaceans						
Euastacus armatus	Murray Spiny Crayfish	th		Permanent rivers and large streams with moderately fast-flowing waters.	**No**	This species is known from the larger local waterways. The study area lacks significant waterways. CEMP must ensure erosion and sedimentation is controlled to protect nearby waterways.
Insects						
Keyacris scurra	Key's Matchstick Grasshopper	en	EN	Prefers lightly wooded, open landscapes, usually Eucalypt woodlands, Acacia scrub and mallee formations, often found in or near clearings in these landscapes.	**Negligible**	One lone local record north of Cudgewa. Not suitable habitat. Study area contains dense woodland and forested areas. Potential open habitat at summit is disconnected from other suitable habitat, and the area is unlikely to be important habitat.
Frogs						
Litoria raniformis	Growling Grass Frog	vu	VU	Still or slow-flowing water bodies such as lagoons, amongst emergent vegetation. Prefers swamps and wetlands in and around Black Box / Lignum / Typha / River Red-gum / Nitre Goosefoot vegetation on floodplains.	**Negligible**	Nearby records are all old, with the most recent being 1965. Likely to be extinct from the north-east region. No suitable permanent waterways in study area. Conspicuous loud calling frog, highly unlikely to still be present in the study area.
Pseudophryne bibronii	Brown Toadlet	en		Wide variety of habitats in dry forests woodlands, shrubland, heathland, grassland, sub-alpine areas and coastal swamps.	**Low**	No recent local records, with those nearby being from the 1960s. Lack of significant waterways and local/regional records means this species may be present in the grassland, creeks and wetlands in the study area, but it is unlikely.
Fish						
Maccullochella macquariensis	Trout Cod	en	EN	Prefer rapidly flowing waterways with rocky or gravel beds, containing deep pools.	**No**	No suitable waterways in the study area. CEMP must ensure erosion and sedimentation is controlled to protect nearby waterways.

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat description	Likelihood	Justification
Maccullochella peelii	Murray Cod	en	VU	Occurs in a range of aquatic habitats from clear shallow rocky streams to deeper, turbid slow moving rivers and billabongs.	**No**	No suitable waterways in the study area. CEMP must ensure erosion and sedimentation is controlled to protect nearby waterways.
Migratory Species						
Actitis hypoleucos	Common Sandpiper		MI	Migrates to Australia over winter and prefers coastal and inland wetland habitats with mudflat margins, both saline and fresh.	**Negligible**	Very few records in the north east. The site lacks preferred open water habitat. Very rare visitor to the ephemeral creeks in the study area, at best.
Apus pacificus	Fork-tailed Swift		MI	Almost exclusively an airborne species, roosting on cliffs and rock walls. Arid areas, inland plains and coastal areas.	**Negligible**	Not suitable habitat. At best an occasional visitor to the airspace above the study area.
Calidris acuminata	Sharp-tailed Sandpiper		VU	See Birds section above	**Negligible**	
Calidris ferruginea	Curlew Sandpiper		CE	See Birds section above	**Negligible**	
Calidris melanotos	Pectoral Sandpiper		MI	Shallow, grassy, vegetated fringes of inland freshwater wetlands and marshes. Also occurs on coasts on mudflats, mangroves, rocky shores and beaches.	**Negligible**	Very few records in the north east. The site lacks preferred open water habitat. Very rare visitor to the ephemeral creeks in the study area, at best.
Gallinago hardwickii	Latham's Snipe, Japanese Snipe		VU	See Birds section above	**Low**	
Hirundapus caudacutus	White-throated Needletail		VU	See Birds section above	**Low**	
Motacilla flava (tschutchensis)	Yellow Wagtail		MI	Damp habitats with low vegetation, favouring wet meadows, marshland, grassy and muddy lakeshores. Occurs in fields and often near livestock during migration.	**Low**	There may be some suitable habitat, however, there are no records in the broader regional area. At best the species may be a very infrequent visitor to the study area.
Myiagra cyanoleuca	Satin Flycatcher		MI	Prefers taller forested environments, most commonly wetter habitats such as wet	**High**	Numerous records in close proximity to the study area, in similar vegetation just south. The species is likely

Scientific Name	Common Name	FFG Act	EPBC Act	Habitat description	Likelihood	Justification
				gullies and sheltered forested areas.		to frequent the study area on a fairly regular basis.
Rhipidura rufifrons	Rufous Fantail		MI	Rainforests and wet sclerophyll forests.	**Medium**	Records in close proximity to the study area, in similar vegetation. The species is likely to frequent the study area on an occasional or regular basis.

Appendix 3: EPBC Act Significant Impact Assessments

A3.1 Gang-gang Cockatoo (Endangered)

EPBC Significant Impact Criteria (for Critically and Endangered species)	Significant impact likely?	Justification of decision
Lead to a long-term decrease in the size of a population.	Unlikely	The narrow footprint, low impact nature of the trail construction, and low impact maintenance associated with the project will be highly unlikely to impact on the extent of the species or the size of a population. Efforts are being made to tailor the designs to avoid trees and higher quality areas of vegetation. Given there are no tree impacts, the impacts from the development on the species will be very low to negligible.
Reduce the area of occupancy of the species.	Unlikely	As above. The project study area is in the preferred area of habitation, and the study area is likely to be frequented by Gang Gang Cockatoo during their migration into and out of the alpine regions. However, efforts are being taken to avoid tree impacts and avoid higher quality bushland areas, where possible, meaning there will be minimal to no impacts to the species' feeding or breeding habitat. Given the narrow footprint and the very small scale of disturbance involved with the creation of the trail, the project will be unlikely to cause any reduction to the area of occupancy for the Gang-gang Cockatoo.
Fragment an existing population into two or more populations.	Highly unlikely	As above. The project is avoiding impacts to trees and where possible the trail is designed to avoid higher quality vegetation by following existing disturbed or lower quality areas for the majority of the route. The narrow linear impacts from the project will not fragment any populations of Gang-gang Cockatoo into two or more populations.
Adversely affect habitat critical to the survival of a species.	Unlikely	As above. The project is not impacting on areas that are considered core habitat for the species, and rather is an area that would be frequented on their migration between the alpine areas in summer and low lying area in winter. Lack of tree impacts and avoidance of higher quality areas, where possible, will mean habitat impacts will be minimal to negligible. The project is therefore not expected to affect any habitat that is critical to the survival of the species.
Disrupt the breeding cycle of a population.	Highly unlikely	As above. The impacts of the project upon the receiving environment are low, and no impact is expected to occur for native vegetation that provide breeding habitat (tree hollows). No significant impacts to large habitat trees are expected (no tree impacts for trees of any significant size) and therefore no change to the species ability to complete its breeding cycle are expected to result from the project. The project CEMP will also ensure that if Gang-gang Cockatoos are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	As above. The low impact nature of the trail construction and low impact maintenance associated with the project will be highly unlikely to impact on the extent of the species habitat, or the quality of habitat to the extent that the species would decline or be at risk of decline. Efforts are being made to tailor the designs to avoid trees and, given the tree impacts contain no preferred hollow-bearing trees, and the project not removing trees, the impacts on the species habitat will be very low to negligible.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure no invasive species are introduced by project equipment or machinery, and that monitoring will take place to ensure any accidental introductions are adequately eradicated from the project area. Controls will also be put in place to ensure no pollutants are introduced or spilled during all stages of the project, and that ongoing

EPBC Significant Impact Criteria (for Critically and Endangered species)	Significant impact likely?	Justification of decision
critically endangered species' habitat.		maintenance of the area will utilise the lowest impact methods for pest control that are available to do the job successfully.
Introduce disease that may cause the species to decline.	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure all machinery and equipment arrives clean on site, and that any machinery or equipment previously working in a disease risk zone are appropriately decontaminated in a specific manner that will treat the disease being dealt with. Therefore, no diseases are likely to be introduced by project equipment or machinery and the Gang-gang Cockatoo will not be at risk of decline from introduced diseases.
Summary of Gang-gang Cockatoo Significant Impact Assessment		
The project is occurring within the species' known preferred range, however it will have minimal direct or indirect impacts for the Gang-gang Cockatoo or its habitat. The works associated with the project construction will be completed with low impact techniques and will not impact on any significant areas of habitat. No impacts are occurring to any significant trees, meaning roosting and breeding (tree-hollows) will not be impacted. If Gang-gang Cockatoos are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area. There will be a project CEMP put in place to help minimise noise and vibration issues and other measures to minimise environmental disturbance. As a result of the above measures, it is highly unlikely that a significant impact to the Gang-gang Cockatoo will occur from the development.		

A3.2 Southern Greater Glider (Endangered)

EPBC Significant Impact Criteria (for Critically and Endangered species)	Significant impact likely?	Justification of decision
Lead to a long-term decrease in the size of a population.	Unlikely	The species has been recorded in close proximity to the study area, and parts of the study area are likely to be part of the territory of Greater Glider, or the species may be resident in the forests in the study area. However, the narrow footprint, low impact nature of the trail construction and low impact maintenance associated with the project will be highly unlikely to impact on the extent of the species or the size of a population. Efforts are being made to tailor the designs to avoid trees and higher quality areas of bushland, therefore the impacts on the species will be very low to negligible.
Reduce the area of occupancy of the species.	Unlikely	As above. The project study area is likely to be occasional or permanent habitat for the species. However, significant disturbances to the vegetation or environment as a result of the works are not expected. Efforts have been made to avoid all trees and given the very small scale of disturbance involved with the creation of the trail, the project will be unlikely to cause any reduction to the area of occupancy for the Greater Glider.
Fragment an existing population into two or more populations.	Highly unlikely	As above. The project is avoiding impacts to trees and where possible the trail is designed to avoid higher quality vegetation by following existing disturbed areas such as trails, game trails and more cleared areas, wherever possible. The impacts from the project will not fragment any populations of Greater Glider into two or more populations.
Adversely affect habitat critical to the survival of a species.	Unlikely	As above. The project is not impacting on habitat to the extent that it will have a detrimental effect on Greater Glider. Additionally, efforts have been made to avoid all significant trees and the project is therefore not expected to affect any habitat that is critical to the survival of the species.
Disrupt the breeding cycle of a population.	Highly unlikely	As above. The impacts of the project upon the receiving environment are low, and little to no impact is expected to occur for native vegetation that provides breeding habitat (tree hollows). No significant impacts to large habitat trees is expected and therefore no change to the species ability to complete its breeding cycle are expected to result from the project. The project CEMP will also ensure that noise and vibration is limited in the vicinity of large habitat trees as much as possible.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	As above. The low impact nature of the trail construction and low impact maintenance associated with the project will be highly unlikely to impact on the extent of the species habitat, or the quality of habitat to the extent that the species would decline or be at risk of decline. Efforts are being made to tailor the designs to avoid trees and, given the impacts contain no preferred hollow-bearing trees, and the project is not removing any significant trees (trees greater than sapling size), the impacts on the species habitat will be very low to negligible.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure no invasive species are introduced by project equipment or machinery, and that monitoring will take place to ensure any accidental introductions are adequately eradicated from the project area. Controls will also be put in place to ensure no pollutants are introduced or spilled during all stages of the project, and that ongoing maintenance of the area will utilise the lowest impact methods for pest control that are available to do the job successfully.

EPBC Significant Impact Criteria (for Critically and Endangered species)	Significant impact likely?	Justification of decision
Introduce disease that may cause the species to decline.	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure all machinery and equipment arrives clean on site, and that any machinery or equipment previously working in a disease risk zone are appropriately decontaminated in a specific manner that will treat the disease being dealt with. Therefore, no diseases are likely to be introduced by project equipment or machinery and the Greater Glider will not be at risk of decline from introduced diseases.
Summary of Greater Glider Significant Impact Assessment		
The project is occurring in the Greater Glider's known preferred range. However, the project will have minimal direct or indirect impacts for the Greater Glider or its habitat. The works associated with the project construction will be completed with low impact techniques and will not impact on any trees or significant areas of habitat. If large trees with sufficient large hollows are identified within the study area during construction, all construction within the vicinity of the tree must be conducted with minimal noise and vibration disturbances from machinery, or the trail must be installed using hand tools in that vicinity. There will also be a project CEMP put in place to help minimise noise and vibration issues and other measures to minimise environmental disturbance. As a result of the above measures, it is highly unlikely that a significant impact to the Greater Glider will occur from the development.		

A3.3 Brown Treecreeper (south-eastern spp.) (Vulnerable)

EPBC Significant Impact Criteria (for Vulnerable species)	Significant impact likely?	Justification of decision
Lead to a long-term decrease in the size of an important population of a species.	Highly unlikely	This species has been recorded in the vicinity of the study area and was detected during field assessments. However, the low impact nature of the trail construction and low impact ongoing maintenance associated with the project will be highly unlikely to impact on the extent of the species or the size of a population. Efforts are being made to tailor the designs to avoid trees and, given the project is avoiding higher quality areas of bushland wherever possible, the impacts on the species will be very low to negligible.
Reduce the area of occupancy of an important population.	Highly unlikely	As above. The project study area is in the preferred area of habitation, and the study area is likely to be part of the species foraging habitat, or may be resident. However, efforts are being taken to avoid tree impacts and avoid higher quality bushland areas, where possible, meaning there will be minimal impacts to the species' feeding or breeding habitat. Given the narrow footprint and the very small scale of disturbance involved with the creation of the trail, the project will be unlikely to cause any reduction to the area of occupancy for the Brown Treecreeper.
Fragment an existing important population into two or more populations.	Highly unlikely	As above. The project is avoiding impacts to trees and where possible the trail is designed to avoid higher quality vegetation by following existing disturbed or lower quality areas for the majority of the route. The narrow linear impacts from the project and short-term construction processes will not fragment any populations of Brown Treecreeper into two or more populations.
Adversely affect habitat critical to the survival of a species.	Highly unlikely	As above. Given the low numbers of records in the local area, the project is not impacting on areas that are considered core habitat. Lack of tree impacts and avoidance of higher quality areas, where possible, will mean habitat impacts will be minimal to negligible. The project is therefore not expected to affect any habitat that is critical to the survival of the species.
Disrupt the breeding cycle of an important population.	Unlikely	As above. The impacts of the project upon the receiving environment are low, and no impact is expected to occur for native vegetation that provide breeding habitat (tree hollows). No significant impacts to large habitat trees is expected (no tree impacts for trees of any significant size) and therefore no change to the species ability to complete its breeding cycle are expected to result from the project. The project CEMP will also ensure that if Brown Treecreeper are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area, or if breeding, construction to halt until fledglings leave the nest.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Highly unlikely	As above. The low impact nature of the trail construction and low impact maintenance associated with the project will be highly unlikely to impact on the extent of the species habitat, or the quality of habitat to the extent that the species would decline or be at risk of decline. Efforts are being made to tailor the designs to avoid trees and, given the tree impacts contain no preferred hollow-bearing trees, and the project not removing trees, the impacts on the species habitat will be very low to negligible.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable specie's habitat.	Highly unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure no invasive species are introduced by project equipment or machinery, and that monitoring will take place to ensure any accidental introductions are adequately eradicated from the project area. Controls will also be put in place to ensure no pollutants are introduced or spilled during all stages of the project, and that ongoing maintenance of the area will utilise the lowest impact methods for pest control that are available to do the job successfully.

EPBC Significant Impact Criteria (for Vulnerable species)	Significant impact likely?	Justification of decision
Introduce disease that may cause the species to decline.	Highly unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure all machinery and equipment arrives clean on site, and that any machinery or equipment previously working in a disease risk zone are appropriately decontaminated in a specific manner that will treat the disease being dealt with. Therefore, no diseases are likely to be introduced by project equipment or machinery and the Brown Treecreeper will not be at risk of decline from introduced diseases.
Interfere substantially with the recovery of the species.	Highly unlikely	As above. The project study area is in the preferred area of habitation, and the study area is likely to be area of refuge for the species in between a matrix of cleared and pine forested areas. However, efforts are being taken to avoid tree impacts and avoid higher quality bushland areas, where possible, meaning there will be minimal to no impacts to the species' feeding or breeding habitat. Given narrow footprint and the very small scale of disturbance involved with the creation of the trail, the project will be unlikely to interfere with the recovery of Brown Treecreeper.
Summary of Brown Treecreeper Significant Impact Assessment		
The project is occurring within a suitable refuge area in a disturbed (cleared and forested) part of the species' known range. However, it will have minimal direct or indirect impacts for the Brown Treecreeper or its habitat. The works associated with the project construction will be completed with low impact techniques and will not impact on any significant areas of habitat. No impacts are occurring to trees, meaning roosting and breeding (tree-hollows) will not be significantly impacted. If Brown Treecreeper are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area. If breeding, construction will halt until fledglings leave the nest. There will be a project CEMP put in place to help minimise noise and vibration issues and other measures to minimise environmental disturbance. As a result of the above measures, it is highly unlikely that a significant impact to the Brown Treecreeper will occur from the development.		

A3.4 Hooded Robin (Endangered)

EPBC Significant Impact Criteria (for Critically and Endangered species)	Significant impact likely?	Justification of decision
Lead to a long-term decrease in the size of a population.	Unlikely	The narrow footprint, low impact nature of the trail construction, and low impact maintenance associated with the project will be highly unlikely to impact on the extent of the species or the size of a population. Efforts are being made to tailor the designs to trees and higher quality areas of vegetation. Given there are no tree impacts, the impacts from the development on the species will be very low to negligible.
Reduce the area of occupancy of the species.	Unlikely	As above. The project study area is in the preferred area of habitation, and the study area is likely to be an area of refuge for the species in between a matrix of farmland and forested areas. However, efforts are being taken to avoid tree impacts and avoid higher quality bushland areas, where possible, meaning there will be minimal to no impacts to the species' feeding or breeding habitat. Given the narrow footprint and the very small scale of disturbance involved with the creation of the trail, the project will be unlikely to cause any reduction to the area of occupancy for the Hooded Robin.
Fragment an existing population into two or more populations.	Highly unlikely	As above. The project is avoiding impacts to trees and where possible the trail is designed to avoid higher quality vegetation by following existing disturbed or lower quality areas for the majority of the route. The narrow linear impacts from the project will not fragment any populations of Hooded Robin into two or more populations.
Adversely affect habitat critical to the survival of a species.	Unlikely	As above. The project is not impacting on areas that are considered core habitat for the species, and rather is a refuge in a disturbed area within their known range. Lack of tree impacts and avoidance of higher quality areas, where possible, will mean habitat impacts will be minimal to negligible. The project is therefore not expected to affect any habitat that is critical to the survival of the species.
Disrupt the breeding cycle of a population.	Highly unlikely	As above. The impacts of the project upon the receiving environment are low, and no impact is expected to occur for native vegetation that provide breeding habitat (tree hollows). No significant impacts to large habitat trees is expected (no tree impacts for trees of any significant size) and therefore no change to the species ability to complete its breeding cycle are expected to result from the project. The project CEMP will also ensure that if Hooded Robin are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely	As above. The low impact nature of the trail construction and low impact maintenance associated with the project will be highly unlikely to impact on the extent of the species habitat, or the quality of habitat to the extent that the species would decline or be at risk of decline. Efforts are being made to tailor the designs to avoid trees and, given the tree impacts contain no preferred hollow-bearing trees, and the project not removing trees, the impacts on the species habitat will be very low to negligible.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure no invasive species are introduced by project equipment or machinery, and that monitoring will take place to ensure any accidental introductions are adequately eradicated from the project area. Controls will also be put in place to ensure no pollutants are introduced or spilled during all stages of the project, and that ongoing maintenance of the area will utilise the lowest impact methods for pest control that are available to do the job successfully.

EPBC Significant Impact Criteria (for Critically and Endangered species)	Significant impact likely?	Justification of decision
Introduce disease that may cause the species to decline.	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure all machinery and equipment arrives clean on site, and that any machinery or equipment previously working in a disease risk zone are appropriately decontaminated in a specific manner that will treat the disease being dealt with. Therefore, no diseases are likely to be introduced by project equipment or machinery and the Hooded Robin will not be at risk of decline from introduced diseases.
Summary of Hooded Robin Significant Impact Assessment		
The project is occurring within a part of the species' known preferred range, however it will have minimal direct or indirect impacts for the Hooded Robin or its habitat. The works associated with the project construction will be completed with low impact techniques and will not impact on any significant areas of habitat. No impacts are occurring to trees, meaning roosting and breeding (tree-hollows) will not be significantly impacted. If Hooded Robin are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area. There will be a project CEMP put in place to help minimise noise and vibration issues and other measures to minimise environmental disturbance. As a result of the above measures, it is highly unlikely that a significant impact to the Hooded Robin will occur from the development.		

A3.5 Pilotbird (Vulnerable)

EPBC Significant Impact Criteria (for Vulnerable species)	Significant impact likely?	Justification of decision
Lead to a long-term decrease in the size of an important population of a species.	Highly unlikely	This species has been recorded in very close proximity to the study area but was not detected during field assessments. The low impact nature of the trail construction and low impact ongoing maintenance associated with the project will be highly unlikely to impact on the extent of the species or the size of a population. Efforts are being made to tailor the designs to avoid trees and, given the project is avoiding higher quality areas of bushland wherever possible, the impacts on the species will be very low to negligible.
Reduce the area of occupancy of an important population.	Unlikely	As above. The project study area is in the preferred area of habitation, and the study area is likely to be an area of refuge for the species in between a matrix of cleared and pine forested areas. However, efforts are being taken to avoid tree impacts and avoid higher quality bushland areas, where possible, meaning there will be minimal impacts to the species' feeding or breeding habitat. Given the narrow footprint and the very small scale of disturbance involved with the creation of the trail, the project will be unlikely to cause any reduction to the area of occupancy for the Pilotbird.
Fragment an existing important population into two or more populations.	Unlikely	As above. The project is avoiding impacts to trees and where possible the trail is designed to avoid higher quality vegetation by following existing disturbed or lower quality areas for the majority of the route. The narrow linear impacts from the project and short-term construction processes will not fragment any populations of Pilotbird into two or more populations.
Adversely affect habitat critical to the survival of a species.	Highly unlikely	As above. The project is not impacting on areas that are considered core habitat for the species, and rather is a refuge in a disturbed area within their known range. Lack of tree impacts and avoidance of higher quality areas, where possible, will mean habitat impacts will be minimal to negligible. The project is therefore not expected to affect any habitat that is critical to the survival of the species.
Disrupt the breeding cycle of an important population.	Highly unlikely	As above. The impacts of the project upon the receiving environment are low, and no impact is expected to occur for native vegetation that provide breeding habitat (tree hollows). No significant impacts to large habitat trees is expected (no tree impacts for trees of any significant size) and therefore no change to the species ability to complete its breeding cycle are expected to result from the project. The project CEMP will also ensure that if Pilotbird are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area, or if breeding, construction to halt until fledglings leave the nest.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Highly unlikely	As above. The low impact nature of the trail construction and low impact maintenance associated with the project will be highly unlikely to impact on the extent of the species habitat, or the quality of habitat to the extent that the species would decline or be at risk of decline. Efforts are being made to tailor the designs to avoid trees and, given the project is not removing trees, the impacts on the species habitat will be very low to negligible.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable specie's habitat.	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure no invasive species are introduced by project equipment or machinery, and that monitoring will take place to ensure any accidental introductions are adequately eradicated from the project area. Controls will also be put in place to ensure no pollutants are introduced or spilled during all stages of the project, and that ongoing maintenance of the area will utilise the lowest impact methods for pest control that are available to do the job successfully.

EPBC Significant Impact Criteria (for Vulnerable species)	Significant impact likely?	Justification of decision
Introduce disease that may cause the species to decline.	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure all machinery and equipment arrives clean on site, and that any machinery or equipment previously working in a disease risk zone are appropriately decontaminated in a specific manner that will treat the disease being dealt with. Therefore, no diseases are likely to be introduced by project equipment or machinery and the Pilotbird will not be at risk of decline from introduced diseases.
Interfere substantially with the recovery of the species.	Unlikely	As above. The project study area is in the preferred area of habitation, and the study area is likely to be area of refuge for the species in between a matrix of cleared and pine forested areas. However, efforts are being taken to avoid tree impacts and avoid higher quality bushland areas, where possible, meaning there will be minimal to no impacts to the species' feeding or breeding habitat. Given the narrow footprint and the very small scale of disturbance involved with the creation of the trail, the project will be unlikely to interfere with the recovery of Pilotbird.
Summary of Pilotbird Significant Impact Assessment		
The project is occurring within a part of the species' known preferred range. However, it will have minimal direct or indirect impacts for the Pilotbird or its habitat. The works associated with the project construction will be completed with low impact techniques and will not impact on any significant areas of habitat. No impacts are occurring to trees, meaning roosting and breeding (tree-hollows) will not be significantly impacted. If Pilotbird are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area. If breeding, construction will halt until fledglings leave the nest. There will be a project CEMP put in place to help minimise noise and vibration issues and other measures to minimise environmental disturbance. As a result of the above measures, it is highly unlikely that a significant impact to the Pilotbird will occur from the development.		

A3.6 Diamond Firetail (Vulnerable)

EPBC Significant Impact Criteria (for Vulnerable species)	Significant impact likely?	Justification of decision
Lead to a long-term decrease in the size of an important population of a species.	Highly unlikely	This species was not detected during field assessments, although may frequent the forest edges and grasslands within the study area, especially those around the summit. The low impact nature of the trail construction and low impact ongoing maintenance associated with the project will be highly unlikely to impact on the extent of the species or the size of a population. Efforts are being made to tailor the designs to avoid trees and given the project is avoiding higher quality areas of bushland, wherever possible, the impacts on the species will be very low to negligible.
Reduce the area of occupancy of an important population.	Unlikely	As above. The project study area is in the species' area of habitation, but is not preferred habitat as the species tends to occupy grasslands and grassy woodlands, rather than forested areas. Efforts are being taken to avoid tree impacts and avoid higher quality bushland areas, where possible, meaning there will be minimal impacts to the species' feeding or breeding habitat. Given the narrow footprint and the very small scale of disturbance involved with the creation of the trail, the project will be unlikely to cause any reduction to the area of occupancy for the Diamond Firetail.
Fragment an existing important population into two or more populations.	Unlikely	As above. The project is avoiding impacts to trees and where possible the trail is designed to avoid higher quality vegetation by following existing disturbed or lower quality areas for the majority of the route. The narrow linear impacts from the project and short-term construction processes will not fragment any populations of Pilotbird into two or more populations.
Adversely affect habitat critical to the survival of a species.	Highly unlikely	As above. The project is not impacting on areas that are considered core habitat for the species. Lack of tree impacts and avoidance of higher quality areas, where possible, will mean habitat impacts will be minimal to negligible. The project is therefore not expected to affect any habitat that is critical to the survival of the species.
Disrupt the breeding cycle of an important population.	Highly unlikely	As above. The impacts of the project upon the receiving environment are low, and no impact is expected to occur for native vegetation that provide breeding habitat. No significant impacts to large habitat trees is expected (no tree impacts for trees of any significant size) and therefore no change to the species ability to complete its breeding cycle are expected to result from the project. The project CEMP will also ensure that if Diamond Firetail are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area, or if breeding, construction to halt until fledglings leave the nest.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Highly unlikely	As above. The low impact nature of the trail construction and low impact maintenance associated with the project will be highly unlikely to impact on the extent of the species habitat, or the quality of habitat to the extent that the species would decline or be at risk of decline. Efforts are being made to tailor the designs to avoid trees and, given the project is not removing trees, the impacts on the species habitat will be very low to negligible.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable specie's habitat.	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure no invasive species are introduced by project equipment or machinery, and that monitoring will take place to ensure any accidental introductions are adequately eradicated from the project area. Controls will also be put in place to ensure no pollutants are introduced or spilled during all stages of the project, and that ongoing maintenance of the area will utilise the lowest impact methods for pest control that are available to do the job successfully.

EPBC Significant Impact Criteria (for Vulnerable species)	Significant impact likely?	Justification of decision
Introduce disease that may cause the species to decline.	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure all machinery and equipment arrives clean on site, and that any machinery or equipment previously working in a disease risk zone are appropriately decontaminated in a specific manner that will treat the disease being dealt with. Therefore, no diseases are likely to be introduced by project equipment or machinery and the Diamond Firetail will not be at risk of decline from introduced diseases.
Interfere substantially with the recovery of the species.	Unlikely	As above. The project study area is in the known area of habitation. However, efforts are being taken to avoid tree impacts and avoid higher quality bushland areas, where possible, meaning there will be minimal to no impacts to the species' feeding or breeding habitat. Given the narrow footprint and the very small scale of disturbance involved with the creation of the trail, the project will be unlikely to interfere with the recovery of Diamond Firetail.
Summary of Diamond Firetail Significant Impact Assessment		
The project is occurring within part of the species' known range. However, it will have minimal direct or indirect impacts for the Diamond Firetail or its habitat. The works associated with the project construction will be completed with low impact techniques and will not impact on any significant areas of habitat. No impacts are occurring to trees, meaning roosting and breeding will not be significantly impacted. If Diamond Firetail are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area. If breeding, construction will halt until fledglings leave the nest. There will be a project CEMP put in place to help minimise noise and vibration issues and other measures to minimise environmental disturbance. As a result of the above measures, it is highly unlikely that a significant impact to the Diamond Firetail will occur from the development.		

A3.7 Satin Flycatcher (Migratory)

EPBC Significant Impact Criteria (for Migratory species)	Significant impact likely?	Justification of decision
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	Highly unlikely	The low impact nature of the trail construction and low impact ongoing maintenance associated with the project will be highly unlikely to impact, destroy or modify any areas of important habitat of the species. The narrow footprint, low impact nature of the trail construction and low impact ongoing maintenance associated with the project will be highly unlikely to isolate, impact on the extent of the species or change the size of a population. Efforts are being made to tailor the designs to avoid trees and given the project is avoiding higher quality areas of bushland, wherever possible, the impacts on the species will be very low to negligible.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure no invasive species are introduced by project equipment or machinery, and that monitoring will take place to ensure any accidental introductions are adequately eradicated from the project area. Controls will also be put in place to ensure no pollutants are introduced or spilled during all stages of the project, and that ongoing maintenance of the area will utilise the lowest impact methods for pest control that are available to do the job successfully.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	Unlikely	As above. The project is avoiding impacts to trees and minimising impacts to areas of high quality vegetation, where possible. The project CEMP will also ensure that if Satin Flycatcher are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area, or if breeding, construction to halt until fledglings leave the nest. The works are of a short-term and low impact nature, and the impacts from the project will not disrupt the lifecycle of an ecologically significant proportion of a population of Satin Flycatcher.
Summary of Satin Flycatcher Significant Impact Assessment		
The project is occurring within a suitable refuge area in a disturbed (cleared and forested) part of the species' known preferred range. The works associated with the project construction will be completed with low impact techniques and will not impact on any significant areas of habitat. No impacts are occurring to trees, meaning roosting and breeding will not be significantly impacted. If Satin Flycatcher are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area. If breeding, construction will halt until fledglings leave the nest. There will be a project CEMP put in place to help minimise noise and vibration issues and other measures to minimise environmental disturbance. As a result of the above measures, it is highly unlikely that a significant impact to the Satin Flycatcher will occur from the development.		

A3.8 Rufous Fantail (Migratory)

EPBC Significant Impact Criteria (for Migratory species)	Significant impact likely?	Justification of decision
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	Highly unlikely	The low impact nature of the trail construction and low impact ongoing maintenance associated with the project will be highly unlikely to impact, destroy or modify any areas of important habitat of the species. The narrow footprint, low impact nature of the trail construction and low impact ongoing maintenance associated with the project will be highly unlikely to isolate, impact on the extent of the species or change the size of a population. Efforts are being made to tailor the designs to avoid trees and given the project is avoiding higher quality areas of bushland, wherever possible, the impacts on the species will be very low to negligible.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	Unlikely	Through a project CEMP, controls will be in place during construction, rehabilitation and maintenance phases to ensure no invasive species are introduced by project equipment or machinery, and that monitoring will take place to ensure any accidental introductions are adequately eradicated from the project area. Controls will also be put in place to ensure no pollutants are introduced or spilled during all stages of the project, and that ongoing maintenance of the area will utilise the lowest impact methods for pest control that are available to do the job successfully.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	Unlikely	As above. The project is avoiding impacts to trees and minimising impacts to areas of high quality vegetation, where possible. The project CEMP will also ensure that if Rufous Fantail are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area, or if breeding, construction to halt until fledglings leave the nest. The works are of a short-term and low impact nature, and the impacts from the project will not disrupt the lifecycle of an ecologically significant proportion of a population of Rufous Fantail.
Summary of Rufous Fantail Significant Impact Assessment		
The project is occurring within a suitable refuge area in a disturbed (cleared and forested) part of the species' known preferred range. The works associated with the project construction will be completed with low impact techniques and will not impact on any significant areas of habitat. No impacts are occurring to trees, meaning roosting and breeding will not be significantly impacted. If Rufous Fantail are identified within the study area during construction, all construction within 200 metres of the birds will be halted until the birds move on from the area. If breeding, construction will halt until fledglings leave the nest. There will be a project CEMP put in place to help minimise noise and vibration issues and other measures to minimise environmental disturbance. As a result of the above measures, it is highly unlikely that a significant impact to the Rufous Fantail will occur from the development.		

Appendix 4: Site Photos

Photo 1: The views looking west from the launch area at the summit of Mount Elliot. Photo: S. Mendham 2024

Photo 2: Trailhead area at the summit of Mount Elliot, looking west. Photo: S. Mendham 2024

Photo 3: Example of an existing trail, which are to be utilised where available for a significant length of the alignment, looking west. Photo: S. Mendham 2024

Photo 4: Example of an existing dirt-bike trail, which are to be utilised where available for a significant length of the alignment, looking south. Photo: S. Mendham 2024

Photo 5: Two large critically endangered Grey Grass Trees, which are to be avoided during micro-siting. Photo: S. Mendham 2024.

Photo 6: Habitat Zone 1 – Grassy Dry Forest in Highlands Northern Fall Bioregion, looking south-east. Photo: S. Mendham 2024.

Photo 7: Habitat Zone 2 – Herb-rich Foothill Forest in Highlands Northern Fall Bioregion, looking north-east. Photo: S. Mendham 2024.

Photo 8: Habitat Zone 3 – Herb-rich Foothill Forest in Highlands Northern Fall Bioregion, looking south-west. Photo: S. Mendham 2024.

Photo 9: Habitat Zone 4 – Grassy Dry Forest in Northern Inland Slopes Bioregion, looking north-east. Photo: S. Mendham 2024.

Photo 10: Habitat Zone 5 – Herb-rich Foothill Forest in Northern Inland Slopes Bioregion, looking north-east. Photo: S. Mendham 2024.

Photo 11: Habitat Zone 6 – Grassy Dry Forest in Highlands Northern Fall Bioregion, looking north-east. Photo: S. Mendham 2024.

Photo 12: Habitat Zone 7 – Herb-rich Foothill Forest in Northern Inland Slopes Bioregion, looking west. Photo: S. Mendham 2024.

Photo 13: Habitat Zone 8 – Grassy Dry Forest in Highlands Northern Fall Bioregion, looking south. Photo: K. Hill 2024.

Photo 14: Habitat Zone 9 – Shrubby Dry Forest in Highlands Northern Fall Bioregion, looking south-east. Photo: K. Hill 2024.

Photo 15: Habitat Zone 10 – Heathy Dry Forest in Highlands Northern Fall Bioregion, looking west. Photo: K. Hill 2024.

Photo 16: Habitat Zone 11 – Herb-rich Foothill Forest in Highlands Northern Fall Bioregion, looking south. Photo: K. Hill 2024.

Photo 17: Habitat Zone 12 – Shrubby Dry Forest in Northern Inland Slopes Bioregion, with Grey Grass Tree prominent throughout, looking south. Photo: K. Hill 2024.

Photo 18: Habitat Zone 13 – Grassy Dry Forest in Northern Inland Slopes Bioregion, looking north. Photo: K. Hill 2024.

Photo 19: Habitat Zone 14 – Grassy Dry Forest (derived Grassland) in Northern Inland Slopes Bioregion, with summit track visible, looking north-west. Photo: S. Mendham 2024.

Appendix 5: Photos of Lost Vegetation

Not applicable to this linear development as it is being micro-sited based on minimising impacts by following the most disturbed areas, and there are no scattered tree or large tree losses. See representative photographs in **Appendix 4** which give an indication of the typical vegetation being lost through each of the 14 habitat zones.

Appendix 6: Native Vegetation Removal Report

Native vegetation removal report

This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*. The report **is not an assessment by DELWP** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

Date of issue: **14/05/2024**
Time of issue: **12:26 pm**

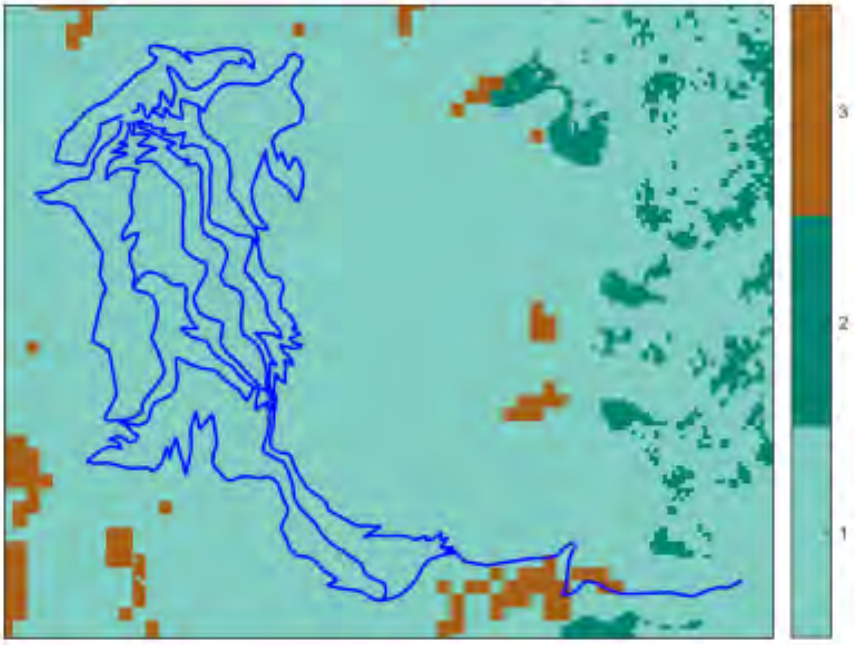
Report ID: RGE_2024_006

Project ID	VICGrid94_MtElliot_VegLosses

Assessment pathway

Assessment pathway	**Detailed Assessment Pathway**
Extent including past and proposed	3.488 ha
Extent of past removal	0.000 ha
Extent of proposed removal	3.488 ha
No. Large trees proposed to be removed	0
Location category of proposed removal	Location 3 The native vegetation is in an area where the removal of less than 0.5 hectares could have a significant impact on habitat for one or more rare or threatened species.

1. Location map



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Native vegetation removal report

Offset requirements if a permit is granted

Any approval granted will include a condition to obtain an offset that meets the following requirements:

General offset amount[1]	1.746 general habitat units
Vicinity	North East Catchment Management Authority (CMA) or Towong Shire Council
Minimum strategic biodiversity value score[2]	0.456
Large trees	0 large trees

NB: values within tables in this document may not add to the totals shown above due to rounding

Appendix 1 includes information about the native vegetation to be removed

Appendix 2 includes information about the rare or threatened species mapped at the site.

Appendix 3 includes maps showing native vegetation to be removed and extracts of relevant species habitat importance maps

1 The general offset amount required is the sum of all general habitat units in Appendix 1.

2 Minimum strategic biodiversity score is 80 per cent of the weighted average score across habitat zones where a general offset is required

Native vegetation removal report

Next steps

Any proposal to remove native vegetation must meet the application requirements of the Detailed Assessment Pathway and it will be assessed under the Detailed Assessment Pathway.

If you wish to remove the mapped native vegetation you are required to apply for a permit from your local council. Council will refer your application to DELWP for assessment, as required. **This report is not a referral assessment by DELWP.**

This *Native vegetation removal report* must be submitted with your application for a permit to remove, destroy or lop native vegetation.

Refer to the *Guidelines for the removal, destruction or lopping of native* vegetation (the Guidelines) for a full list of application requirements This report provides information that meets the following application requirements:

- The assessment pathway and reason for the assessment pathway
- A description of the native vegetation to be removed (partly met)
- Maps showing the native vegetation and property (partly met)
- Information about the impacts on rare or threatened species.
- The offset requirements determined in accordance with section 5 of the Guidelines that apply if approval is granted to remove native vegetation.

Additional application requirements must be met including:

- Topographical and land information
- Recent dated photographs
- Details of past native vegetation removal
- An avoid and minimise statement
- A copy of any Property Vegetation Plan that applies
- A defendable space statement as applicable
- A statement about the Native Vegetation Precinct Plan as applicable
- A site assessment report including a habitat hectare assessment of any patches of native vegetation and details of trees
- An offset statement that explains that an offset has been identified and how it will be secured.

Appendix 1: Description of native vegetation to be removed

The species-general offset test was applied to your proposal. This test determines if the proposed removal of native vegetation has a proportional impact on any rare or threatened species habitats above the species offset threshold. The threshold is set at 0.005 per cent of the mapped habitat value for a species. When the proportional impact is above the species offset threshold a species offset is required. This test is done for all species mapped at the site. Multiple species offsets will be required if the species offset threshold is exceeded for multiple species.

Where a zone requires species offset(s), the species habitat units for each species in that zone is calculated by the following equation in accordance with the Guidelines:

Species habitat units = extent x condition x species landscape factor x 2, where the species landscape factor = 0.5 + (habitat importance score/2)

The species offset amount(s) required is the sum of all species habitat units per zone

Where a zone does not require a species offset, the general habitat units in that zone is calculated by the following equation in accordance with the Guidelines:

General habitat units = extent x condition x general landscape factor x 1.5, where the general landscape factor = 0.5 + (strategic biodiversity value score/2)

The general offset amount required is the sum of all general habitat units per zone.

Native vegetation to be removed

Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
3-A	Patch	hnf_0023	Least Concern	0	yes	0.415	0.009	0.009	0.550		0.004	General
14-A	Patch	nis_0022	Depleted	0	yes	0.245	0.003	0.003	0.570		0.001	General
14-B	Patch	nis_0022	Depleted	0	yes	0.245	0.001	0.001	0.630		0.000	General
14-C	Patch	nis_0022	Depleted	0	yes	0.245	0.004	0.004	0.570		0.001	General
14-D	Patch	nis_0022	Depleted	0	yes	0.245	0.003	0.003	0.570		0.001	General
14-E	Patch	nis_0022	Depleted	0	yes	0.245	0.002	0.002	0.630		0.001	General
14-F	Patch	nis_0022	Depleted	0	yes	0.245	0.001	0.001	0.470		0.000	General
14-G	Patch	nis_0022	Depleted	0	yes	0.245	0.008	0.008	0.472		0.002	General
9-A	Patch	hnf_0021	Least Concern	0	yes	0.415	0.049	0.049	0.523		0.023	General
9-B	Patch	hnf_0021	Least Concern	0	yes	0.415	0.000	0.000	0.480		0.000	General
9-C	Patch	hnf_0021	Least Concern	0	yes	0.415	0.000	0.000	0.480		0.000	General

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Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
9-D	Patch	hnf_0021	Least Concern	0	yes	0.415	0.001	0.001	0.480		0.000	General
9-E	Patch	hnf_0021	Least Concern	0	yes	0.415	0.007	0.007	0.490		0.003	General
9-F	Patch	hnf_0021	Least Concern	0	yes	0.415	0.008	0.008	0.490		0.004	General
9-G	Patch	hnf_0021	Least Concern	0	yes	0.415	0.108	0.108	0.550		0.052	General
9-H	Patch	hnf_0021	Least Concern	0	yes	0.415	0.146	0.146	0.583		0.072	General
9-I	Patch	hnf_0021	Least Concern	0	yes	0.415	0.031	0.031	0.644		0.016	General
9-J	Patch	hnf_0021	Least Concern	0	yes	0.415	0.145	0.145	0.546		0.070	General
9-K	Patch	hnf_0021	Least Concern	0	yes	0.415	0.009	0.009	0.650		0.005	General
9-L	Patch	hnf_0021	Least Concern	0	yes	0.415	0.008	0.008	0.650		0.004	General
9-M	Patch	hnf_0021	Least Concern	0	yes	0.415	0.056	0.056	0.598		0.028	General
9-N	Patch	hnf_0021	Least Concern	0	yes	0.415	0.006	0.006	0.508		0.003	General
9-O	Patch	hnf_0021	Least Concern	0	yes	0.415	0.012	0.012	0.602		0.006	General
9-P	Patch	hnf_0021	Least Concern	0	yes	0.415	0.021	0.021	0.589		0.010	General
9-Q	Patch	hnf_0021	Least Concern	0	yes	0.415	0.021	0.021	0.577		0.010	General
9-R	Patch	hnf_0021	Least Concern	0	yes	0.415	0.006	0.006	0.490		0.003	General
9-S	Patch	hnf_0021	Least Concern	0	yes	0.415	0.055	0.055	0.541		0.027	General
9-T	Patch	hnf_0021	Least Concern	0	yes	0.415	0.020	0.020	0.592		0.010	General
12-A	Patch	nis_0021	Least Concern	0	yes	0.415	0.011	0.011	0.550		0.005	General
12-B	Patch	nis_0021	Least Concern	0	yes	0.415	0.010	0.010	0.530		0.005	General
11-A	Patch	hnf_0023	Least Concern	0	yes	0.345	0.019	0.019	0.488		0.007	General
11-B	Patch	hnf_0023	Least Concern	0	yes	0.345	0.011	0.011	0.486		0.004	General
11-C	Patch	hnf_0023	Least Concern	0	yes	0.345	0.012	0.012	0.489		0.005	General

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Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
11-D	Patch	hnf_0023	Least Concern	0	yes	0.345	0.002	0.002	0.490		0.001	General
11-E	Patch	hnf_0023	Least Concern	0	yes	0.345	0.106	0.106	0.618		0.044	General
10-A	Patch	hnf_0020	Least Concern	0	yes	0.365	0.030	0.030	0.502		0.012	General
10-B	Patch	hnf_0020	Least Concern	0	yes	0.365	0.020	0.020	0.650		0.009	General
10-C	Patch	hnf_0020	Least Concern	0	yes	0.365	0.026	0.026	0.650		0.012	General
1-A	Patch	hnf_0022	Least Concern	0	yes	0.415	0.041	0.041	0.565		0.020	General
1-B	Patch	hnf_0022	Least Concern	0	yes	0.415	0.008	0.008	0.530		0.004	General
1-C	Patch	hnf_0022	Least Concern	0	yes	0.415	0.018	0.018	0.564		0.009	General
1-D	Patch	hnf_0022	Least Concern	0	yes	0.415	0.014	0.014	0.569		0.007	General
1-E	Patch	hnf_0022	Least Concern	0	yes	0.415	0.045	0.045	0.534		0.022	General
1-F	Patch	hnf_0022	Least Concern	0	yes	0.415	0.042	0.042	0.557		0.021	General
1-G	Patch	hnf_0022	Least Concern	0	yes	0.415	0.002	0.002	0.550		0.001	General
1-H	Patch	hnf_0022	Least Concern	0	yes	0.415	0.018	0.018	0.589		0.009	General
1-I	Patch	hnf_0022	Least Concern	0	yes	0.415	0.018	0.018	0.633		0.009	General
1-J	Patch	hnf_0022	Least Concern	0	yes	0.415	0.056	0.056	0.545		0.027	General
1-K	Patch	hnf_0022	Least Concern	0	yes	0.415	0.011	0.011	0.470		0.005	General
1-L	Patch	hnf_0022	Least Concern	0	yes	0.415	0.012	0.012	0.470		0.006	General
1-M	Patch	hnf_0022	Least Concern	0	yes	0.415	0.013	0.013	0.470		0.006	General
1-N	Patch	hnf_0022	Least Concern	0	yes	0.415	0.001	0.001	0.470		0.001	General
1-O	Patch	hnf_0022	Least Concern	0	yes	0.415	0.024	0.024	0.557		0.012	General
1-P	Patch	hnf_0022	Least Concern	0	yes	0.415	0.071	0.071	0.491		0.033	General
1-Q	Patch	hnf_0022	Least Concern	0	yes	0.415	0.047	0.047	0.530		0.023	General

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Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
1-R	Patch	hnf_0022	Least Concern	0	yes	0.415	0.036	0.036	0.477		0.017	General
1-S	Patch	hnf_0022	Least Concern	0	yes	0.415	0.019	0.019	0.470		0.009	General
1-T	Patch	hnf_0022	Least Concern	0	yes	0.415	0.005	0.005	0.470		0.002	General
2-A	Patch	hnf_0023	Least Concern	0	yes	0.440	0.020	0.020	0.480		0.010	General
2-B	Patch	hnf_0023	Least Concern	0	yes	0.440	0.016	0.016	0.573		0.008	General
2-C	Patch	hnf_0023	Least Concern	0	yes	0.440	0.009	0.009	0.530		0.005	General
2-D	Patch	hnf_0023	Least Concern	0	yes	0.440	0.013	0.013	0.539		0.006	General
2-E	Patch	hnf_0023	Least Concern	0	yes	0.440	0.012	0.012	0.486		0.006	General
2-F	Patch	hnf_0023	Least Concern	0	yes	0.440	0.012	0.012	0.490		0.006	General
2-G	Patch	hnf_0023	Least Concern	0	yes	0.440	0.003	0.003	0.490		0.001	General
2-H	Patch	hnf_0023	Least Concern	0	yes	0.440	0.012	0.012	0.490		0.006	General
2-I	Patch	hnf_0023	Least Concern	0	yes	0.440	0.062	0.062	0.501		0.031	General
2-J	Patch	hnf_0023	Least Concern	0	yes	0.440	0.013	0.013	0.490		0.006	General
2-K	Patch	hnf_0023	Least Concern	0	yes	0.440	0.004	0.004	0.490		0.002	General
2-L	Patch	hnf_0023	Least Concern	0	yes	0.440	0.011	0.011	0.490		0.005	General
2-M	Patch	hnf_0023	Least Concern	0	yes	0.440	0.013	0.013	0.573		0.007	General
2-N	Patch	hnf_0023	Least Concern	0	yes	0.440	0.002	0.002	0.490		0.001	General
2-O	Patch	hnf_0023	Least Concern	0	yes	0.440	0.011	0.011	0.630		0.006	General
2-P	Patch	hnf_0023	Least Concern	0	yes	0.440	0.007	0.007	0.500		0.003	General
2-Q	Patch	hnf_0023	Least Concern	0	yes	0.440	0.002	0.002	0.550		0.001	General
2-R	Patch	hnf_0023	Least Concern	0	yes	0.440	0.015	0.015	0.627		0.008	General
2-S	Patch	hnf_0023	Least Concern	0	yes	0.440	0.062	0.062	0.626		0.033	General

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Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
2-T	Patch	hnf_0023	Least Concern	0	yes	0.440	0.031	0.031	0.629		0.017	General
2-U	Patch	hnf_0023	Least Concern	0	yes	0.440	0.008	0.008	0.500		0.004	General
2-V	Patch	hnf_0023	Least Concern	0	yes	0.440	0.001	0.001	0.470		0.001	General
2-W	Patch	hnf_0023	Least Concern	0	yes	0.440	0.028	0.028	0.581		0.015	General
2-X	Patch	hnf_0023	Least Concern	0	yes	0.440	0.007	0.007	0.470		0.004	General
2-Y	Patch	hnf_0023	Least Concern	0	yes	0.440	0.008	0.008	0.470		0.004	General
2-Z	Patch	hnf_0023	Least Concern	0	yes	0.440	0.008	0.008	0.470		0.004	General
2-AA	Patch	hnf_0023	Least Concern	0	yes	0.440	0.004	0.004	0.470		0.002	General
4-A	Patch	nis_0022	Depleted	0	yes	0.450	0.029	0.029	0.572		0.016	General
4-B	Patch	nis_0022	Depleted	0	yes	0.450	0.015	0.015	0.500		0.008	General
4-C	Patch	nis_0022	Depleted	0	yes	0.450	0.027	0.027	0.596		0.015	General
4-D	Patch	nis_0022	Depleted	0	yes	0.450	0.054	0.054	0.612		0.029	General
4-E	Patch	nis_0022	Depleted	0	yes	0.450	0.053	0.053	0.575		0.028	General
4-F	Patch	nis_0022	Depleted	0	yes	0.450	0.016	0.016	0.630		0.009	General
4-G	Patch	nis_0022	Depleted	0	yes	0.450	0.050	0.050	0.511		0.026	General
4-H	Patch	nis_0022	Depleted	0	yes	0.450	0.040	0.040	0.524		0.021	General
4-I	Patch	nis_0022	Depleted	0	yes	0.450	0.014	0.014	0.570		0.007	General
4-J	Patch	nis_0022	Depleted	0	yes	0.450	0.030	0.030	0.475		0.015	General
4-K	Patch	nis_0022	Depleted	0	yes	0.450	0.004	0.004	0.570		0.002	General
4-L	Patch	nis_0022	Depleted	0	yes	0.450	0.019	0.019	0.612		0.010	General
4-M	Patch	nis_0022	Depleted	0	yes	0.450	0.122	0.122	0.490		0.061	General
4-N	Patch	nis_0022	Depleted	0	yes	0.450	0.001	0.001	0.570		0.000	General

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Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
4-O	Patch	nis_0022	Depleted	0	yes	0.450	0.003	0.003	0.470		0.001	General
4-P	Patch	nis_0022	Depleted	0	yes	0.450	0.009	0.009	0.570		0.005	General
4-Q	Patch	nis_0022	Depleted	0	yes	0.450	0.006	0.006	0.630		0.003	General
4-R	Patch	nis_0022	Depleted	0	yes	0.450	0.004	0.004	0.470		0.002	General
4-S	Patch	nis_0022	Depleted	0	yes	0.450	0.705	0.705	0.646		0.392	General
5-A	Patch	nis_0023	Least Concern	0	yes	0.450	0.009	0.009	0.620		0.005	General
5-B	Patch	nis_0023	Least Concern	0	yes	0.450	0.034	0.034	0.622		0.018	General
5-C	Patch	nis_0023	Least Concern	0	yes	0.450	0.012	0.012	0.489		0.006	General
5-D	Patch	nis_0023	Least Concern	0	yes	0.450	0.031	0.031	0.518		0.016	General
5-E	Patch	nis_0023	Least Concern	0	yes	0.450	0.017	0.017	0.470		0.008	General
6-A	Patch	hnf_0022	Least Concern	0	yes	0.425	0.004	0.004	0.630		0.002	General
6-B	Patch	hnf_0022	Least Concern	0	yes	0.425	0.012	0.012	0.630		0.006	General
6-C	Patch	hnf_0022	Least Concern	0	yes	0.425	0.011	0.011	0.630		0.006	General
7-A	Patch	nis_0023	Least Concern	0	yes	0.425	0.006	0.006	0.500		0.003	General
7-B	Patch	nis_0023	Least Concern	0	yes	0.425	0.009	0.009	0.626		0.005	General
8-A	Patch	hnf_0022	Least Concern	0	yes	0.425	0.009	0.009	0.496		0.004	General
8-B	Patch	hnf_0022	Least Concern	0	yes	0.425	0.014	0.014	0.491		0.006	General
8-C	Patch	hnf_0022	Least Concern	0	yes	0.425	0.017	0.017	0.492		0.008	General
8-D	Patch	hnf_0022	Least Concern	0	yes	0.425	0.023	0.023	0.490		0.011	General
8-E	Patch	hnf_0022	Least Concern	0	yes	0.425	0.014	0.014	0.496		0.007	General
8-F	Patch	hnf_0022	Least Concern	0	yes	0.425	0.011	0.011	0.490		0.005	General
8-G	Patch	hnf_0022	Least Concern	0	yes	0.425	0.027	0.027	0.598		0.014	General

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Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
13-A	Patch	nis_0022	Depleted	0	yes	0.385	0.104	0.104	0.549		0.047	General
13-B	Patch	nis_0022	Depleted	0	yes	0.385	0.036	0.036	0.560		0.016	General

Appendix 2: Information about impacts to rare or threatened species' habitats on site

This table lists all rare or threatened species' habitats mapped at the site.

Species common name	Species scientific name	Species number	Conservation status	Group	Habitat impacted	% habitat value affected
Benambra Club-sedge	*Isolepis gaudichaudiana*	504676	Vulnerable	Dispersed	Habitat importance map	0.0007
Austral Toad-flax	*Thesium australe*	503389	Vulnerable	Dispersed	Habitat importance map	0.0004
Glandular Early Nancy	*Wurmbea biglandulosa subsp. biglandulosa*	503580	Rare	Dispersed	Habitat importance map	0.0004
Slender Fireweed	*Senecio microbasis*	507171	Rare	Dispersed	Habitat importance map	0.0004
Poison Rice-flower	*Pimelea pauciflora*	502528	Rare	Dispersed	Habitat importance map	0.0004
Common Spleenwort	*Asplenium trichomanes subsp. quadrivalens*	504214	Rare	Dispersed	Habitat importance map	0.0004
Snow Fescue	*Hookerochloa eriopoda*	501359	Rare	Dispersed	Habitat importance map	0.0004
Crimson Grevillea	*Grevillea polybractea*	501546	Rare	Dispersed	Top ranking map	0.0003
Dark-flower Rush	*Juncus phaeanthus*	501832	Rare	Dispersed	Habitat importance map	0.0003
Western Rat-tail Grass	*Sporobolus creber*	503228	Vulnerable	Dispersed	Top ranking map	0.0003
Large-flower Crane's-bill	*Geranium sp. 1*	505342	Endangered	Dispersed	Habitat importance map	0.0003
Long Podolepis	*Podolepis hieracioides*	502616	Rare	Dispersed	Habitat importance map	0.0003
Alpine Bush-pea	*Pultenaea fasciculata*	502847	Rare	Dispersed	Habitat importance map	0.0002
Dwarf Milkwort	*Polygala japonica*	502623	Vulnerable	Dispersed	Habitat importance map	0.0002
Crimson Grevillea	*Grevillea polybractea*	501546	Rare	Dispersed	Habitat importance map	0.0002
Austral Crane's-bill	*Geranium solanderi var. solanderi s.s.*	505337	Vulnerable	Dispersed	Habitat importance map	0.0002
Slender Pomaderris	*Pomaderris phylicifolia subsp. ericoides*	504836	Rare	Dispersed	Habitat importance map	0.0002
Slender Violet-bush	*Hybanthus monopetalus*	501711	Rare	Dispersed	Habitat importance map	0.0002

Tufted Knawel	*Scleranthus diander*	503061	Rare	Dispersed	Habitat importance map	0.0002
Large-head Club-sedge	*Scirpus polystachyus*	503058	Rare	Dispersed	Habitat importance map	0.0002
Blunt-leaf Pomaderris	*Pomaderris helianthemifolia subsp. hispida*	505427	Rare	Dispersed	Habitat importance map	0.0002
Spreading Knawel	*Scleranthus fasciculatus*	503062	Rare	Dispersed	Habitat importance map	0.0001
Mountain Banksia	*Banksia canei*	500361	Rare	Dispersed	Habitat importance map	0.0001
Spiked Mint-bush	*Prostanthera phylicifolia*	502747	Rare	Dispersed	Habitat importance map	0.0001
Distal-lobe Fireweed	*Senecio distalilobatus*	507028	Rare	Dispersed	Habitat importance map	0.0001
Fisch's Greenhood	*Pterostylis fischii*	502795	Rare	Dispersed	Habitat importance map	0.0001
Golden Pomaderris	*Pomaderris aurea*	502651	Rare	Dispersed	Habitat importance map	0.0001
Lanky Buttons	*Leptorhynchos elongatus*	501941	Endangered	Dispersed	Habitat importance map	0.0001
Grey Grass-tree	*Xanthorrhoea glauca subsp. angustifolia*	507229	Endangered	Dispersed	Habitat importance map	0.0001
Convex Pomaderris	*Pomaderris subcapitata*	502674	Rare	Dispersed	Habitat importance map	0.0001
Rosenberg's Goanna	*Varanus rosenbergi*	12287	Endangered	Dispersed	Habitat importance map	0.0001
Strawberry Buttercup	*Ranunculus collinus*	502887	Rare	Dispersed	Habitat importance map	0.0001
Greater Glider	*Petauroides volans*	11133	Vulnerable	Dispersed	Habitat importance map	0.0000
Mountain Willow-herb	*Epilobium sarmentaceum*	501181	Rare	Dispersed	Habitat importance map	0.0000
Fine-leaf Snow-grass	*Poa clivicola*	502585	Rare	Dispersed	Habitat importance map	0.0000
Mountain Phebalium	*Phebalium squamulosum subsp. ozothamnoides*	502488	Rare	Dispersed	Habitat importance map	0.0000
Western Rat-tail Grass	*Sporobolus creber*	503228	Vulnerable	Dispersed	Habitat importance map	0.0000
Purple Eyebright	*Euphrasia collina subsp. muelleri*	504468	Endangered	Dispersed	Habitat importance map	0.0000
Australian Anchor Plant	*Discaria pubescens*	501072	Rare	Dispersed	Habitat importance map	0.0000
Clover Glycine	*Glycine latrobeana*	501456	Vulnerable	Dispersed	Habitat importance map	0.0000
Omeo Gum	*Eucalyptus neglecta*	501301	Rare	Dispersed	Habitat importance map	0.0000

Sickle-leaf Rush	*Juncus falcatus subsp. falcatus*	501816	Rare	Dispersed	Habitat importance map	0.0000
Tremont Bundy	*Eucalyptus aff. goniocalyx (Dandenong Ranges)*	507008	Vulnerable	Dispersed	Habitat importance map	0.0000
Grey Goshawk	*Accipiter novaehollandiae novaehollandiae*	10220	Vulnerable	Dispersed	Habitat importance map	0.0000
Hooker's Tussock-grass	*Poa hookeri*	502596	Rare	Dispersed	Habitat importance map	0.0000
Chestnut-rumped Heathwren	*Calamanthus pyrrhopygius*	10498	Vulnerable	Dispersed	Habitat importance map	0.0000
White-throated Needletail	*Hirundapus caudacutus*	10334	Vulnerable	Dispersed	Habitat importance map	0.0000
Spot-tailed Quoll	*Dasyurus maculatus maculatus*	11008	Endangered	Dispersed	Habitat importance map	0.0000
Matted Lignum	*Muehlenbeckia axillaris*	502226	Rare	Dispersed	Habitat importance map	0.0000
Port Lincoln Snake	*Parasuta spectabilis*	12813	Vulnerable	Dispersed	Habitat importance map	0.0000

Habitat group

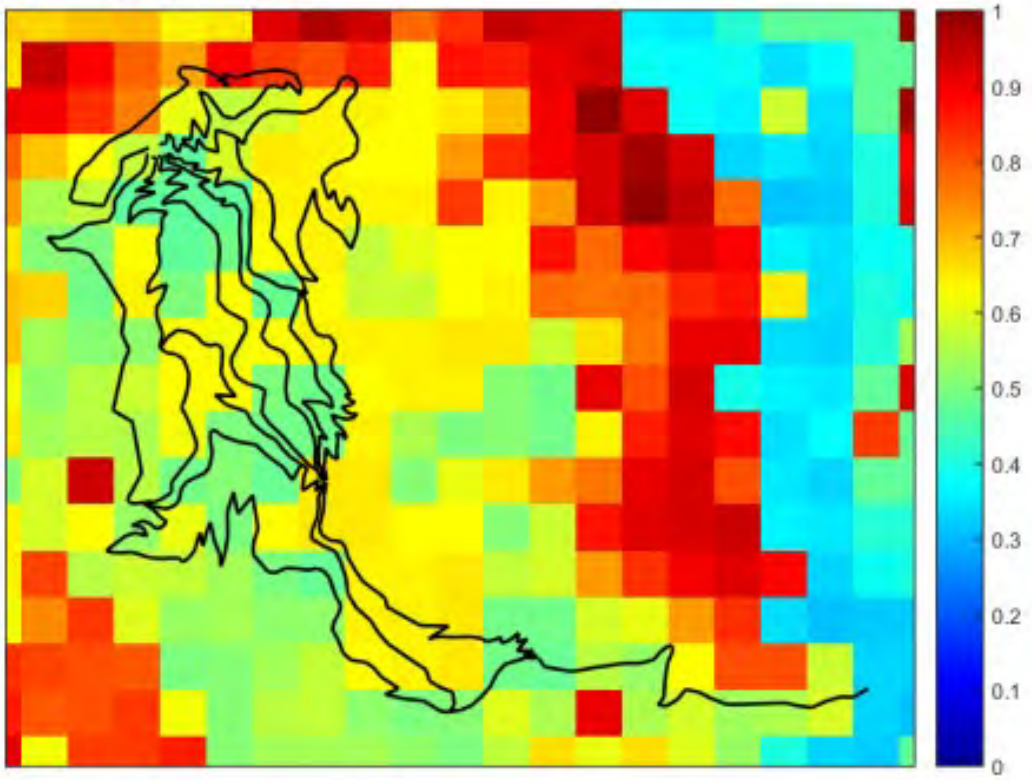
- Highly localised habitat means there is 2000 hectares or less mapped habitat for the species
- Dispersed habitat means there is more than 2000 hectares of mapped habitat for the species

Habitat impacted

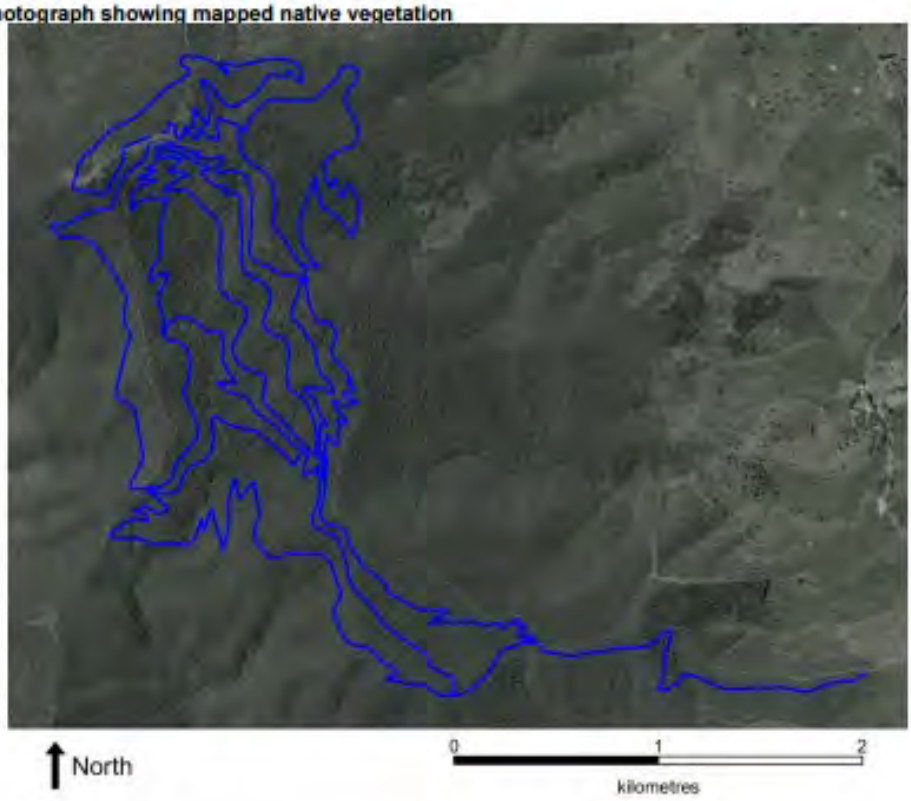
- Habitat importance maps are the maps defined in the Guidelines that include all the mapped habitat for a rare or threatened species
- Top ranking maps are the maps defined in the Guidelines that depict the important areas of a dispersed species habitat, developed from the highest habitat importance scores in dispersed species habitat maps and selected VBA records
- Selected VBA record is an area in Victoria that represents a large population, roosting or breeding site etc.

Appendix 3 – Images of mapped native vegetation

2. Strategic biodiversity values map



3. Aerial photograph showing mapped native vegetation



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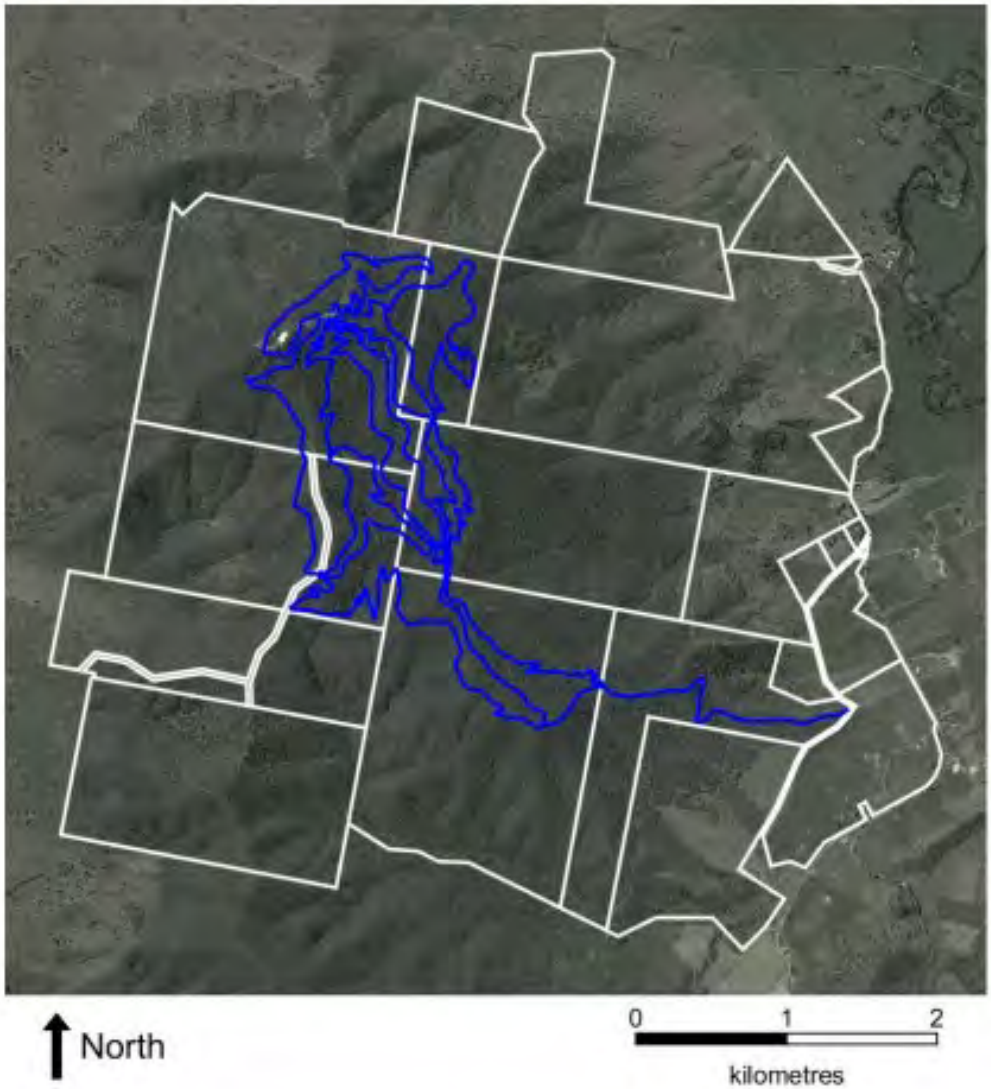
4. Map of the property in context



Yellow boundaries denote areas of proposed native vegetation removal.

Blue boundaries denote zones of partial removal with a halved condition score.

Appendix 7: Evidence of Available Native Vegetation Credits

Report of available native vegetation credits

This report lists native vegetation credits available to purchase through the Native Vegetation Credit Register.

This report is **not evidence** that an offset has been secured. An offset is only secured when the units have been purchased and allocated to a permit or other approval and an allocated credit extract is provided by the Native Vegetation Credit Register.

Date and time: 09/05/2024 10:16 **Report ID: 24171**

What was searched for?

General offset

General habitat units	Strategic biodiversity value	Large trees	Vicinity (Catchment Management Authority or Municipal district)	
1.746	0.456	0	CMA	North East
			or LGA	Towong Shire

Details of available native vegetation credits on 09 May 2024 10:16

These sites meet your requirements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)
VC_CFL-3074_01	15.284	2890	North East	Towong Shire	Yes	Yes	No	VegLink
VC_CFL-3789_01	15.367	608	North East	Towong Shire	Yes	Yes	No	VegLink

These sites meet your requirements using alternative arrangements for general offsets.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)

There are no sites listed in the Native Vegetation Credit Register that meet your offset requirements when applying the alternative arrangements as listed in section 11.2 of the Guidelines for the removal, destruction or lopping of native vegetation.

These potential sites are not yet available, land owners may finalise them once a buyer is confirmed.

Credit Site ID	GHU	LT	CMA	LGA	Land owner	Trader	Fixed price	Broker(s)

There are no potential sites listed in the Native Vegetation Credit Register that meet your offset requirements.

LT - Large Trees *CMA - Catchment Management Authority* *LGA - Municipal District or Local Government Authority*

Next steps

If applying for approval to remove native vegetation
Attach this report to an application to remove native vegetation as evidence that your offset requirement is currently available.

If you have approval to remove native vegetation
Below are the contact details for all brokers. Contact the broker(s) listed for the credit site(s) that meet your offset requirements. These are shown in the above tables. If more than one broker or site is listed, you should get more than one quote before deciding which offset to secure.

Broker contact details

Broker Abbreviation	Broker Name	Phone	Email	Website
Abezco	Abzeco Pty. Ltd.	(03) 9431 5444	offsets@abzeco.com.au	www.abzeco.com.au
Baw Baw SC	Baw Baw Shire Council	(03) 5624 2411	bawbaw@bawbawshire.vic.gov.au	www.bawbawshire.vic.gov.au
Bio Offsets	Biodiversity Offsets Victoria	0452 161 013	info@offsetsvictoria.com.au	www.offsetsvictoria.com.au
Contact NVOR	Native Vegetation Offset Register	136 186	nativevegetation.offsetregister@delwp.vic.gov.au	www.environment.vic.gov.au/native-vegetation
Ecocentric	Ecocentric Environmental Consulting	0410 564 139	ecocentric@me.com	Not available
Ethos	Ethos NRM Pty Ltd	(03) 5153 0037	offsets@ethosnrm.com.au	www.ethosnrm.com.au
Nillumbik SC	Nillumbik Shire Council	(03) 9433 3316	offsets@nillumbik.vic.gov.au	www.nillumbik.vic.gov.au
TFN	Trust for Nature	8631 5888	offsets@tfn.org.au	www.trustfornature.org.au
VegLink	Vegetation Link Pty Ltd	(03) 8578 4250 or 1300 834 546	offsets@vegetationlink.com.au	www.vegetationlink.com.au
Yarra Ranges SC	Yarra Ranges Shire Council	1300 368 333	biodiversityoffsets@yarraranges.vic.gov.au	www.yarraranges.vic.gov.au

For more information contact the DEECA Customer Service Centre 136 186 or the Native Vegetation Credit Register at nativevegetation.offsetregister@delwp.vic.gov.au