White Horse Village, Mount Buller: Rehabilitation Plan

Prepared for Grollo Group Pty Ltd

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- Louise Perrin Mount Buller Resort Management

Biosis staff involved in this project were:

- Matt Looby (Field)
- Ben Howells (Planning)
- Hannah Harbourd (Planning)
- Ewan Kelly (Ecology)
- Rachel Clancy (Field)
- Sally Mitchell, Lachlan Milne & James Shepherd (Mapping)

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1 Introduction

1.1 Project background

Biosis Pty Ltd was commissioned by Grollo Group to develop a Rehabilitation Plan (The Plan) to assist in the rehabilitation of native vegetation at the White Horse Village development site, Mount Buller. This document is intended to be used in conjunction with the approved Site Environmental Management Plan (SEMP).

This Plan and accompanying documentation support an application to amend planning permit 201529926-1 (amended application).

The amended application relates to land at Crown Allotment 2017, Crown Allotment 2031 (Parcel D), Crown Allotment 2032 (Parcel B), part of Crown Allotment 2033 (Parcel A) (collectively described as 'White Horse Village') and Crown Allotments 2034 and 2035 (leased) and Crown Allotments 2020 and 2036 (unleased) (collectively described as 'White Horse Road').

The whole of the application land is described as the 'White Horse Village Precinct or WHV Precinct'.

The purpose of the amended application is to provide an integrated framework for the development of White Horse Village Precinct. The works and activities proposed as part of the amended application and covered by this rehabilitation plan include the following:

- **Crown Allotment 2017** – Construction of 10 chalets, cafe/restaurant and a dwelling, a new vehicle access connecting to Standard Lane, works to Standard Land, the removal of vegetation and reduction in the car parking requirements. Note: Planning permit 201529926-1(2015 Permit) already approves the above mentioned works. Since approval was granted seven (7) of the chalets and White Horse Road have been constructed in accordance with the endorsed plans. This amended application does not alter the configuration or design of the remaining chalets to be constructed or the associated rehabilitation requirements.
- **Crown Allotment 2031 (Parcel D)** – Construction of 5 cabins, a pick-up & drop-off zone connected to White Horse Road, the removal of non-native and native vegetation and reduction in the car parking requirements.
- **Crown Allotment 2032 (Parcel B)** – Construction of 9 cabins, new vehicle access connecting to White Horse Road, car parking and the removal of non-native and native vegetation.
- **Part of Crown Allotment 2033 (Parcel A)** – Installation of four (4) sub-surface stormwater detention tanks and car parking at ground level.
- **White Horse Village Road –** Works associated with the construction of the road (completed under the 2015 Permit) on land including Crown allotments 2034 and 2035 (leased) and Crown allotments 2020 and 2036 (unleased).

1.2 Objectives of the project

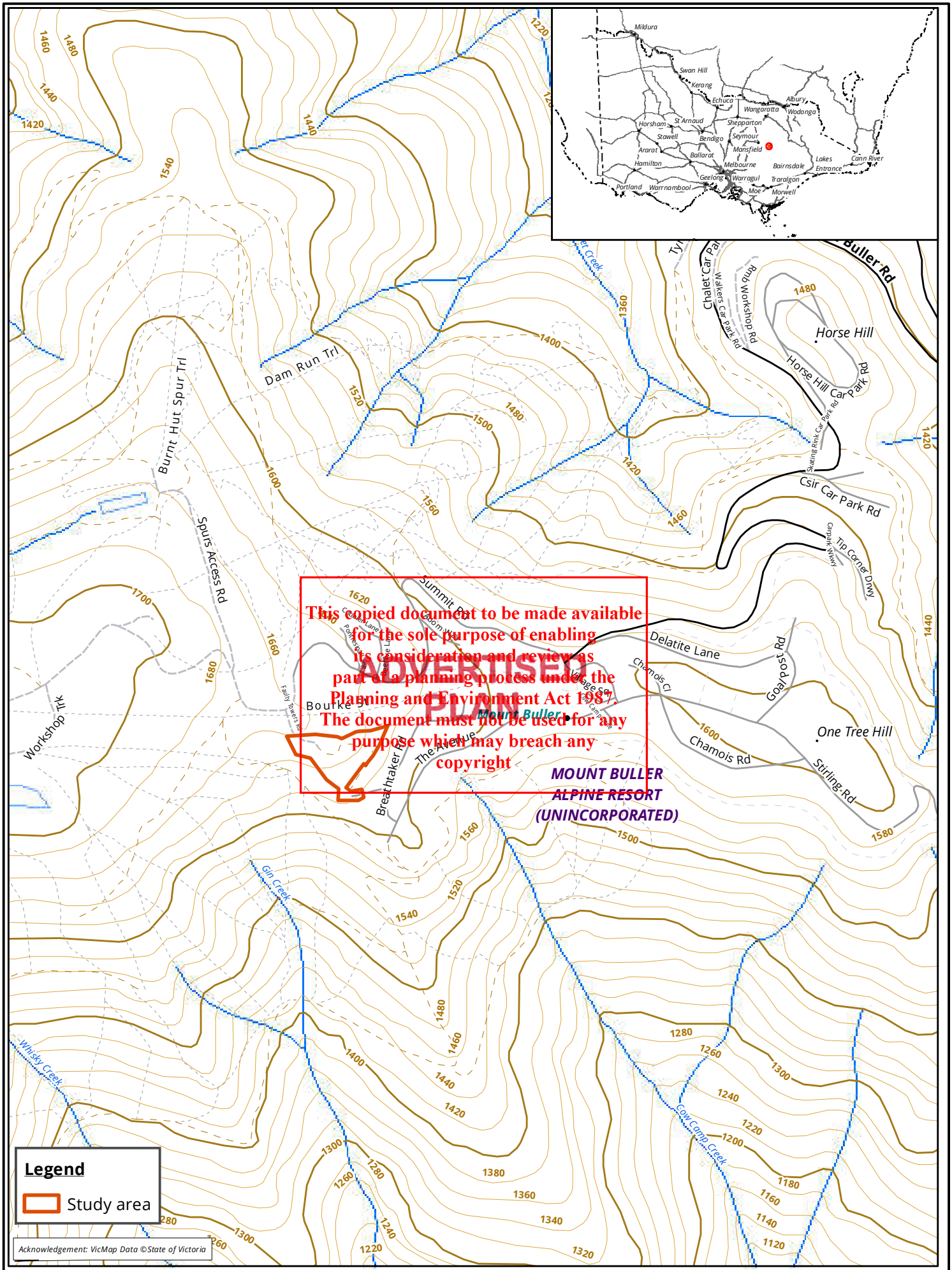
This Plan has been developed to provide a three year rehabilitation and revegetation schedule for the White Horse Village site. The objectives of this Rehabilitation Plan are:

- To protect existing native vegetation.
- To revegetate the site with indigenous species.
- To prevent the degradation and erosion of the site.

- To provide habitat for native species.

1.3 Location of the site

The Site is situated at the White Horse Village precinct in the Mount Buller Alpine Resort in north east Victoria. The land is bound by Standard Lane to the south, Standard Run to the west, Bourke Street (ski run) to the north and Breathtaker and Pension Grimus to the east.



MOUNT BULLER ALPINE RESORT (UNINCORPORATED)

Figure 1 Location of the study area - Mount Buller, Victoria

Matter: 31101,
Date: 17 December 2019,
Checked by: MD, EK, Drawn by: SKM, Last edited by: smitchell
Location:P:\31100s\31101\Mapping\31101_F1_Locality

0 100 200 300 400
Metres

Scale 1:10,000 @ A4, GDA 1994 MGA Zone 55

N

1.4 Ecological features of the site

The study area consists of Sub-alpine Woodland containing many of the understorey species that define this vegetation type and all structural habitat components including large old trees, logs, rocky outcrops and leaf litter present. The vegetation in the study area may provide a very occasional foraging or dispersal resource for the Mountain Pygmy Possum and a more regular resource for the Broad-toothed Rat, both species are listed under the EPBC Act, however it is considered that the proposed development is unlikely to have a significant impact on either species.

See SEMP and Whitehorse Village: FFA (Biosis 2019) for detailed outline of environmental values associated with the site.

1.5 Staging

Rehabilitation of the site will occur in disturbed areas around the buildings and in disturbed areas along White Horse Road, the gabion wall and detention tanks.

On completion of all buildings and infrastructure in each stage, rehabilitation will occur in accordance with the rehabilitation plan.

In order to ensure that rehabilitation works are undertaken during optimal environmental conditions work will commence in the first February after construction has ceased and finish no later than mid-April of the same year. Should work begin outside of this time watering may be required during the summer months or alternatively if works extend past April work may cease over the winter months and recommence in February of the following year.

1.6 Sourcing of plant material

Tubestock used in this project should be grown from plant material sourced from the Mt Buller area and be of sufficient size and quality to successfully establish. This plan recommends Victorian Alpine Nursery be contacted immediately and contracted as the plant material supplier, this will allow Victorian Alpine Nursery enough time to ensure plant stock is of sufficient size and quality to successfully establish. Plants should be grown in 7.5cm pots with sufficient shoot and root establishment. This size pot should allow species to cope with transplant shock as well as being small enough to be efficiently handled and planted. See T**able 1** for recommended species.

The Victorian Alpine Nursery is recommended as they have the experience in being able to provide the necessary species, however it is not a requirement of this plan that the necessary tube stock be sole sourced from the Victorian Alpine Nursery.

Table 1 Flora species recommended for revegetation of the site.

Scientific name	Common name	Lifeform
Graminoids		
Aceana nova-zelendiae	Bidgee-widgee	Forb
Brachyscome rigidula	Leafy Daisy	Forb
Craspedia glauca	Billy Buttons	Forb
Dianella tasmanica	Tasmanian Flax-lily	Forb
Microseris sp.	Yam Daisy	Forb
Ranunculus graniticola	Granite Buttercup	Forb
Stylidium armeria	Thrift-leaved Triggerplant	Forb
Grasses		
Poa costiniana	Bog Snow Grass	Grass
Poa fawcettiae	Horny Snow Grass	Grass
Poa hothamensis	Ledge Grass	Grass
Shrubs		
Sennecio linearifolius	Fire Groundsell	Shrub
Hovea montana	Alpine Hovea	Shrub
Olearia phlogopappa	Alpine Daisy Bush	Shrub
Pimelea ligustrina	Tall Rice Flower	Shrub
Podolobium alpestre	Alpine Shaggy Pea	Shrub

1.7 Resource management

Table 2 outlines recommended roles and responsibilities of the works crew and project managers.

Table 2 Project roles and responsibilities

Task	Project manager	Works crew	Project auditor
Oversee rehabilitation project; ensure works are completed as set out in the rehabilitation plan	X		
Source seed and tubestock	X		
Quality control of rehabilitation materials including tube stock	X		
Induct work crews	X		

Task	Project manager	Works crew	Project auditor
Maintain erosion and sediment controls as per SEMP		X	
Prepare site for planting including weed control		X	
Undertake planting		X	
Carry out follow-up maintenance including watering, weed control and maintenance of mulch and plant protection		X	
Replace failed plants		X	
Oversee ongoing maintenance and monitoring	X		
Report results to project manager three months after planting			X
Act on results	X		

1.8 Induction of staff and contractors

All staff and contactors must participate in a site induction prior to commencing any revegetation works. This should include issues raised in the rehabilitation plan and SEMPs.

2 Protection of site resources and values

2.1 Weed management

Weeds must be managed prior to rehabilitation work commencing on each stage at the White Horse Village precinct. Weeds must be sprayed and removed in areas where soil is scheduled to be disturbed. In areas where soil is not to be disturbed weed control should be delayed until just prior to rehabilitation works commencing in each stage. This will enable weeds to assist in soil stabilisation.

2.2 Protection of natural and cultural values

Sediment and erosion control areas are outlined in the SEMP. Where possible all batters should be terraced or laddered to assist in stabilisation runoff control and planting results (see Plate 1). Access points and storage sites have been designed to utilise existing tracks or disturbed areas. Any areas of bare ground should be covered with mulch or straw to reduce nutrient runoff and topsoil erosion as outlined in the SEMP.

Plate 1 Example of laddered batters, Mount Buller (Photo courtesy Louise Perrin, Mount Buller Resort Management).

2.3 Designated areas

The SEMP outlines vehicle and pedestrian access points, as well as soil storage sites. These guidelines should be adhered to and included in the site induction process.

3 Rehabilitation

3.1 Extent of rehabilitation area

The area to be rehabilitated is shown in the site landscape rehabilitation plan (Appendix 1). All disturbances should be restricted to this area and the designated access and stockpiling sites.

3.2 Site preparation and soil protection

3.2.1 Site preparation

Prior to planting, the following steps should be taken:

- Site specific weed control.
- Soil cultivation, break up compacted areas.
- Measures to improve drainage should be taken, particularly in snow-dump areas to the south-west of the site.
- Mulch should be spread over any bare ground on site.
- All batters should be terraced or laddered where feasible.

3.2.2 Maintenance of erosion and sediment control

As set out in the SEMP all erosion and sediment controls should be regularly inspected. Inspections should occur after any rainfall events and sediment traps should be cleared or replaced where necessary.

3.2.3 Batters

All batters should be terraced or laddered during the construction stage where feasible. This will allow for nutrient and sediment capture points that can be planted with native vegetation. This process will improve plant establishment, resource capture and bank stabilisation.

3.2.4 Management of bare ground

Bare ground should be minimized where possible. Once weed eradication has occurred the areas should be covered with weed free straw or mulch. If work on the site is halted for commencement of the snow season then all bare ground should be mulched to avoid nutrient leaching. Geotextile mesh can be used on steep slopes where bare ground has been created but must be removed prior to planting or after the snow season.

3.2.5 Mulch

Mulch performs a number of beneficial actions including weed inhibition, erosion control and soil nutrient improvements. All mulch should be weed free and stored in as sterile an environment as possible.

3.3 Planting requirements

3.3.1 Timing of planting

Planting should begin in February after construction of the relevant stage within the White Horse Village precinct has been completed. Planting should continue no later than mid-April. Planting outside of these times risks failure of rehabilitation due to inappropriate environmental conditions.

3.3.2 Layout and density of planting

See landscape plan (Appendix 1). The aim of the planting is to incorporate grasses, forbs and shrubs to provide habitat and maintain soil stability. The Landscape rehabilitation plan provides an overview of species composition and density. Site specific factors will cause slight modifications to the layout of planting but where possible densities and compositions should be maintained.

Flat areas

Planting density of grasses and forbs should be between 5-7 seedlings per square metre to create ground cover structural diversity in flat areas and on battered terraces. In flat areas shrub species should be avoided. In moist drainage areas *Poa costiniana*, D*ianella tasmanica*, *Microseris* spp., and *Stylidium armeria* should be favoured.

Sloping areas

Sloping areas need to be planted with shrubs to create bank stabilization at three seedlings per square metre. These areas can be back filled with grass species to create multi-level structural complexity. Batters should be terraced where possible and terraced areas should be planted with Poa species. Some slopping areas and batters will need to use rock material for bank stabilisation, where practical shrubs should be incorporated in and around these rocks.

Snow dump areas

Snow dump areas are to be planted with species that can cope with snow impact and interspersed among rocks saved from the site. This will help break up snow impact. Suggested snow dump species are *Stylidium armeria*, *Poa costiniana* and *Aceana nova-zelendiae* at a density of 5-7 seedlings per square metre, subject to the drainage treatment of these areas.

Pathways

The area around White Horse Village will be accessed outside of the snow season, foot traffic is to be kept to existing hard surfaces and pathways so to avoid impacts to rehabilitated areas.

3.3.3 Fertilizer

Due to the level of soil disturbance at the site, it is recommended that nutritional planting additives be used in the planting holes of each individual seedling. This will improve establishment and promote growth. Slow released fertiliser mixed in with the planting material is suggested to aid in nutrient uptake.

3.4 Protection of rehabilitation

Initial monitoring will be required. Mesh fencing or low slung12v fencing will need to be constructed to deter native and introduced herbivorous grazers in the first 6 months post planting. Plants should be planted with biodegradable tree guards.

4 Post rehabilitation

4.1 Maintenance of rehabilitation

Once rehabilitation works in each stage in the White Horse Village precinct has been completed it is important to monitor rehabilitated areas. Mortality is inevitable during mass rehabilitation works. Follow up work should include:

- Weekly watering during dry periods.
- Replacement planting and follow up programs, see planting schedule but approximately a year after planting.
- Weed control will need to be maintained by hand or by chemical if safe to do so.
- Re-mulching of bare ground.

4.2 Monitoring of rehabilitation

It is recommended that monitoring of the site be carried out one week post planting and then on every three months for the first year. This process should identify follow up work and areas where active management is required.

4.3 Auditing

It is recommended that auditing be carried out immediately after planting and then at three months. This will ensure work is carried out to a required level. If rehabilitation of the site is inadequate or fails then contingency plans need to be provided to resort management.

5 Summary and planting schedule

Table 3 sets out the three year planting and maintenance schedule for the White Horse Village landscape rehabilitation plan.

Table 3 Rehabilitation schedule, White Horse Village precinct, Mount Buller

Year	Weed management	Revegetation	Mulch	Vegetation maintenance	Other activities
Year 1	• Remove weeds prior to commencing revegetation works. • Continue weed removal frequently as required or appropriate.	• Replacement plants (from planting schedule Table 1) to be planted as outlined in the landscape plan beginning in February and finishing no later then April. • Replacement planting 2-3 shrubs per square metre and 5-7 grasses and forbs. • Gradual and on-going infill planting on slopes.	• Mulch planted areas with weed-free material. • Mulch bare ground and any high pedestrian traffic areas/steep slopes with weed-free material.	• Fertilise all native vegetation with slow release organic fertiliser to enhance plant growth and health. • Keep garden moist (particularly in hotter months) to increase growth and establishment.	• Protect retained vegetation (including root zones) during construction activities. • Monitor site post planting and every three months thereafter. • Control grazers if required. • Construct pathways.
Year 2	• Remove or spray weeds – continue frequently as required or appropriate.	• Continue infill planting to achieve multi-level structural diversity. • Replace plants that have died in previous 12 months to achieve proposed revegetation.	• Top up mulch to planted areas and other areas as required.	• Fertilise all native vegetation with slow release organic fertiliser to enhance plant growth and health. • Irrigate revegetated areas in dry weather as required.	• Monitor grazing pressures.

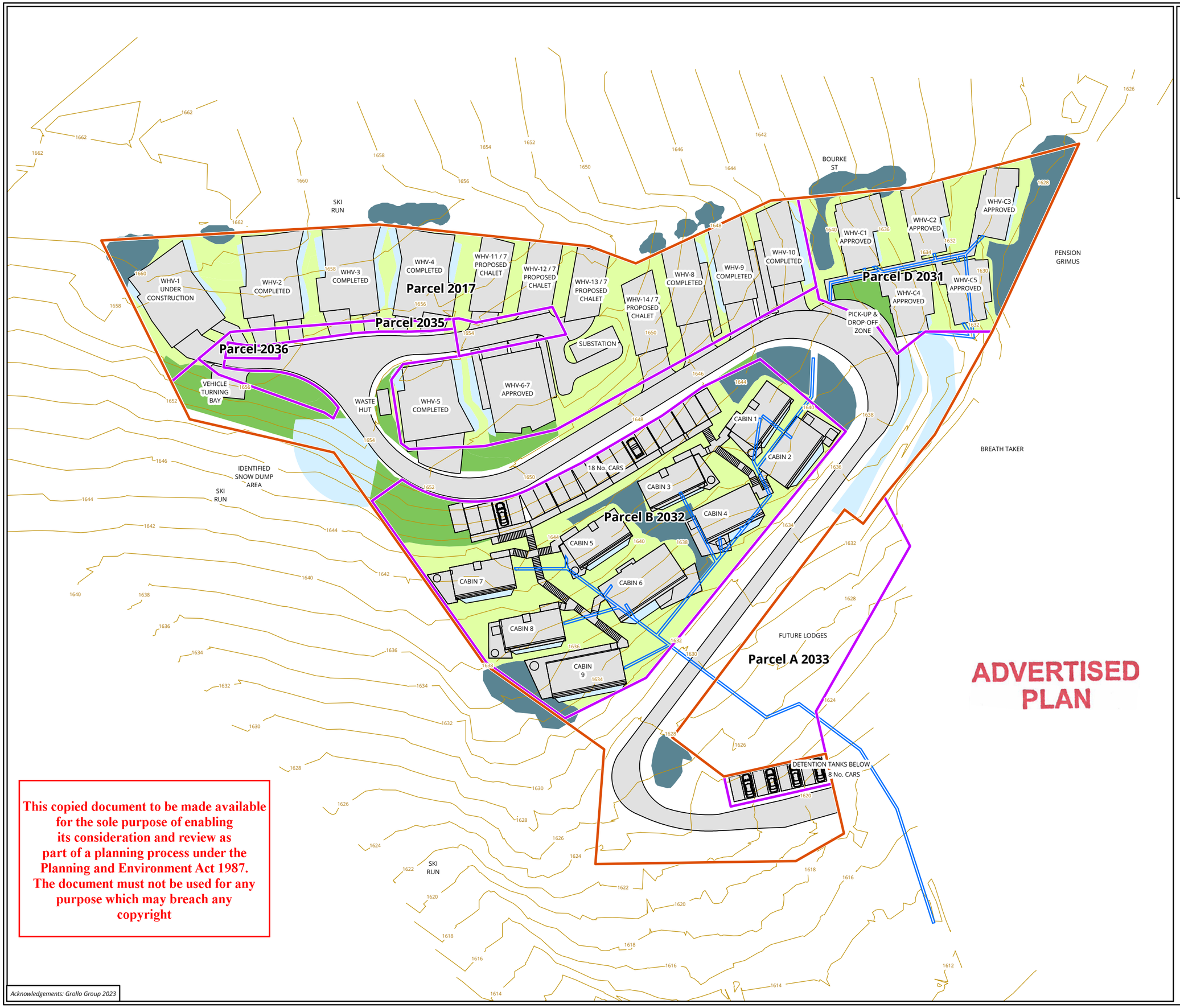
Year	Weed management	Revegetation	Mulch	Vegetation maintenance	Other activities
Year 3	• Continue weed removal at 2 month intervals.	• Replace plants that have died in the 3 year monitoring period.	• Top up mulch.	• Fertilise all native vegetation with slow release organic fertiliser to enhance plant growth and health. • Irrigate revegetated areas in dry weather as required.	
Ongoing after Year 3	• Monitor weed invasion (suggest 2 monthly intervals) and remove as required.	• Any necessary on-going planting should reinforce and enhance the existing indigenous vegetation.	• Continue to mulch to protect vegetation and soil as required.	• Fertilise and irrigate if required.	

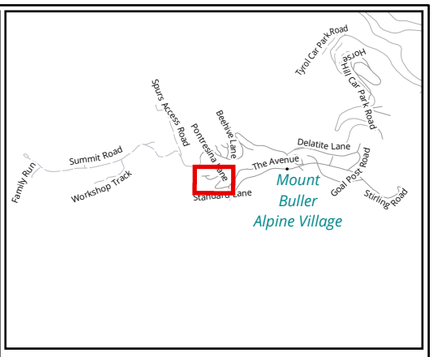
6 References

Biosis 2019. *White Horse Village: Flora and Fauna Assessment*, Prepared for Grollo Group. Authors: Kelly. E. Biosis Pty Ltd, Wangaratta, Victoria.

Appendix 1: Site landscape plan

A1.1 White Horse Village landscape rehabilitation plan.





Legend

- Study area
- Parcel
- Footprint
- Service trenches

Landscaping

- Retained vegetation
- Grasses and forbs 5-7 seedlings per m^2
- Shrub species 3 seedlings per m^2
- Snow dump species and rocks

ADVERTISED PLAN

Figure A.1.1 White Horse Village landscape rehabilitation plan

0 10 20 30 40 N

Metres

Scale: 1:750 @ A3

Coordinate System: GDA 1994 MGA Zone 55

biosis

Matter: 31101,
Date: 09 June 2023,
Checked by: GHG, Drawn by: SP, Last edited by: spanter
Location: P:\31100s\31101\Mapping\31101_WhitehorseVillageMtBuller

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