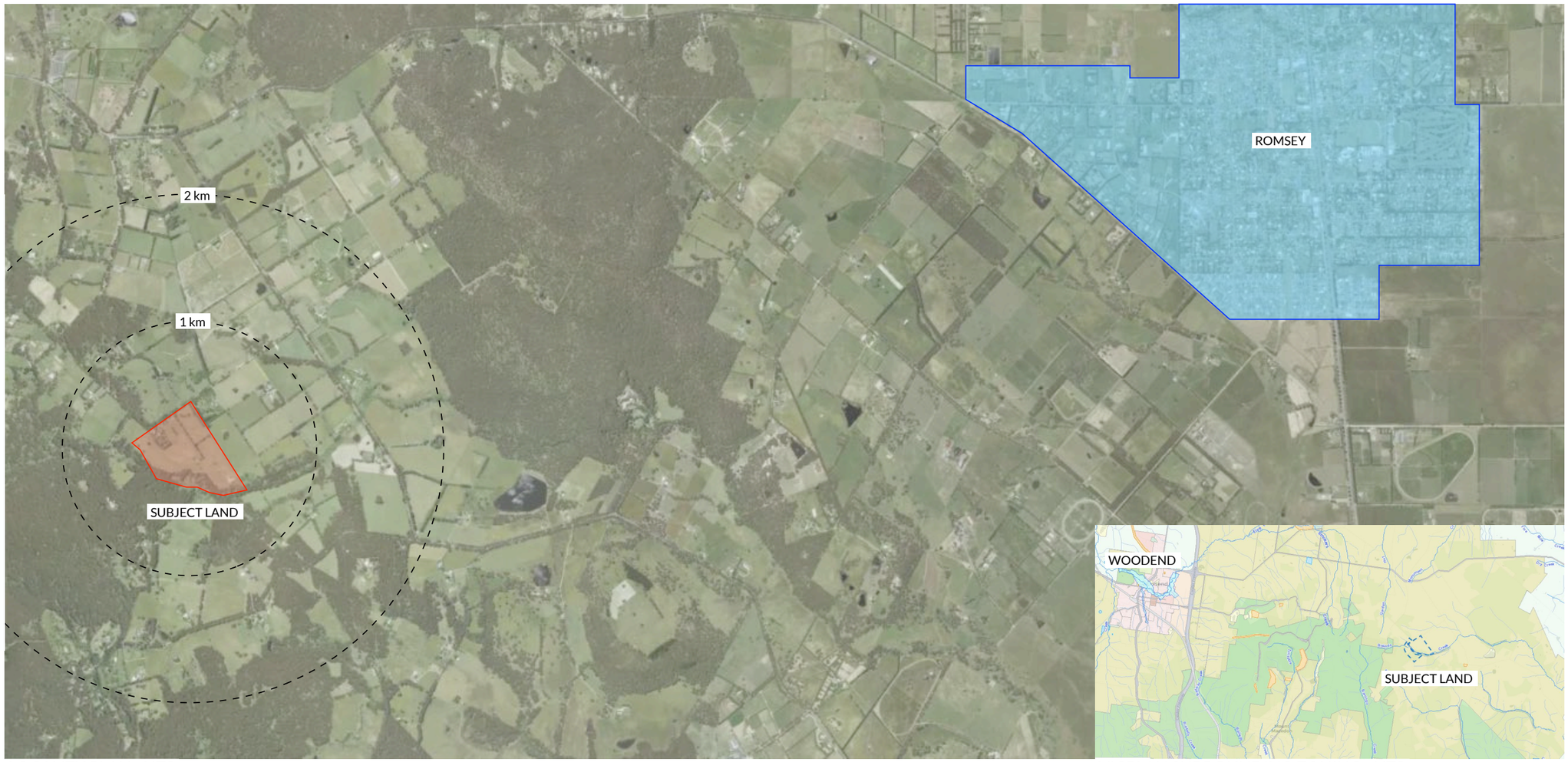
Macedon Ranges Shire Council

ATTACHMENTS

Planning Delegated Committee Meeting
Under Separate Cover

Wednesday 9 April 2025

Table of Contents



LOCALITY PLAN - NTS

VICPLAN SURROUNDING ZONING - NTS

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REVISION:	DRAWN
REV 1	JC

DRAWING:
PA - 01 - LOCALITY PLAN

ADDRESS:
131 SHANNONS LANE, KERRIE

PROJECT:
SHACKY

DRAWING DATE:
August 31, 2023

SOLVE TOWN PLANNING

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REVISION:	DRAWN
REV 1	JC

DRAWING:
PA - 02 - EXISTING CONDITIONS

ADDRESS:
131 SHANNONS LANE, KERRIE

PROJECT:
SHACKY

DRAWING DATE:
August 31, 2023

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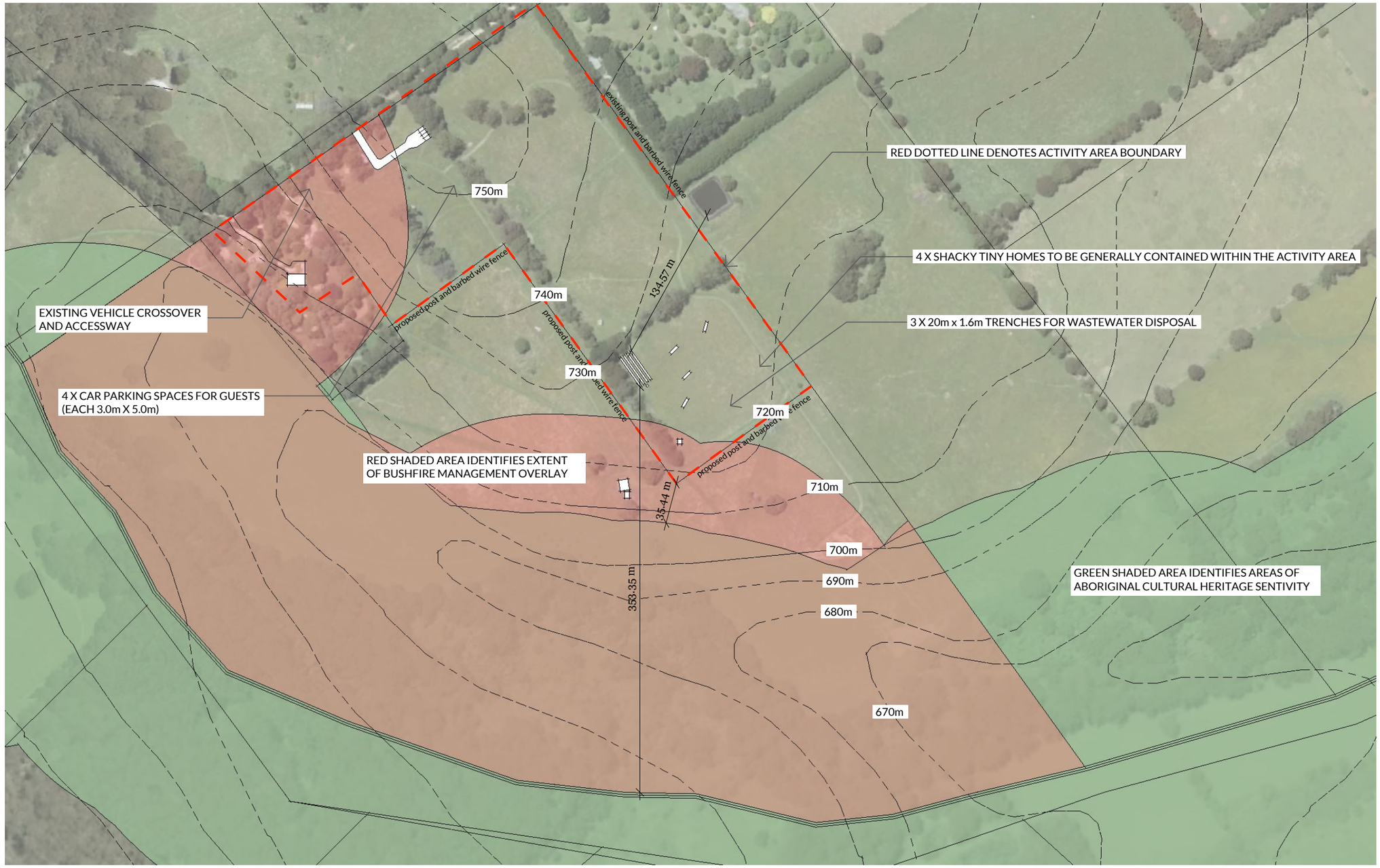

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DRAWING:
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ADDRESS:
131 SHANNONS LANE, KERRIE

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SHACKY

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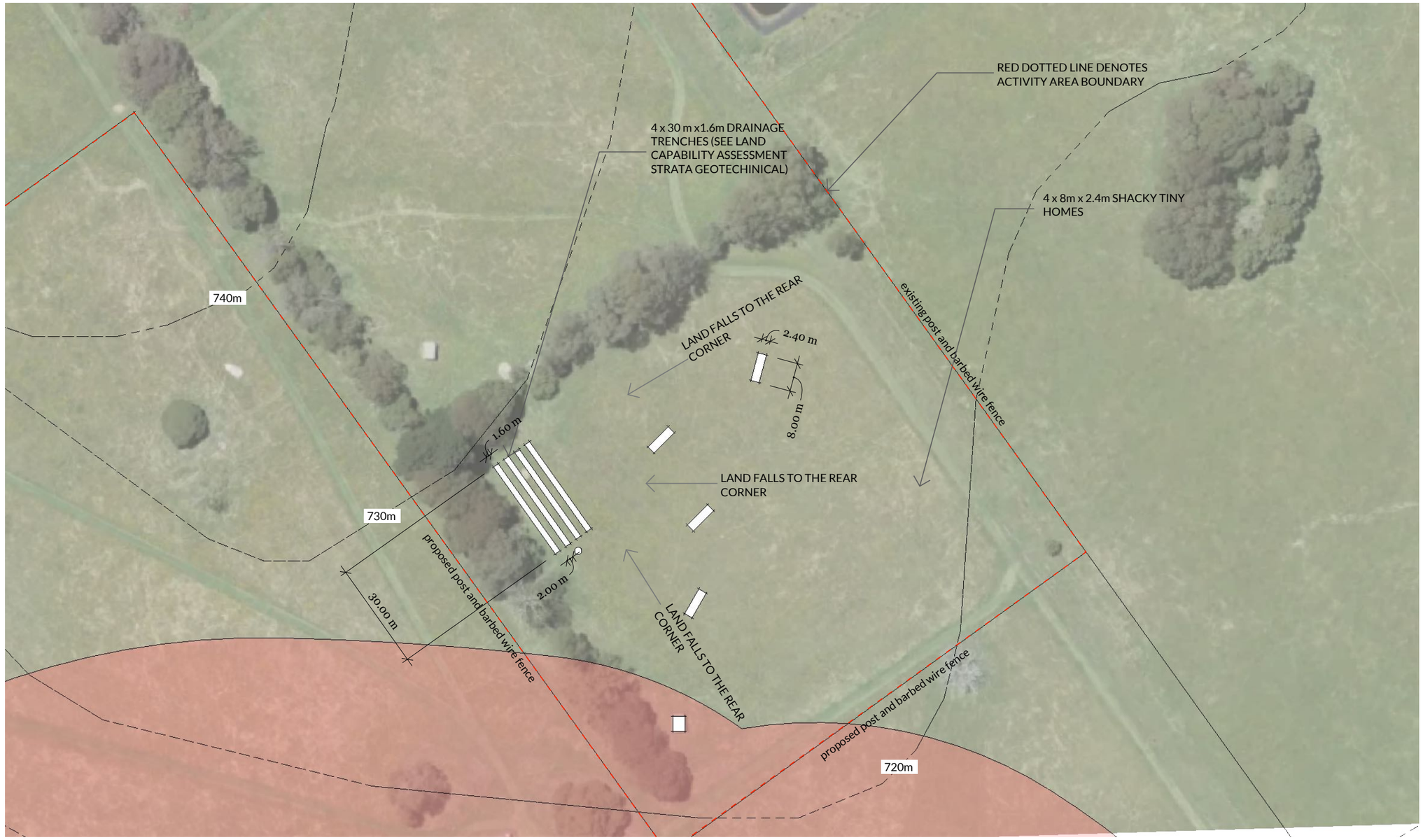

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ADDRESS:
131 SHANNONS LANE, KERRIE

PROJECT:
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August 31, 2023

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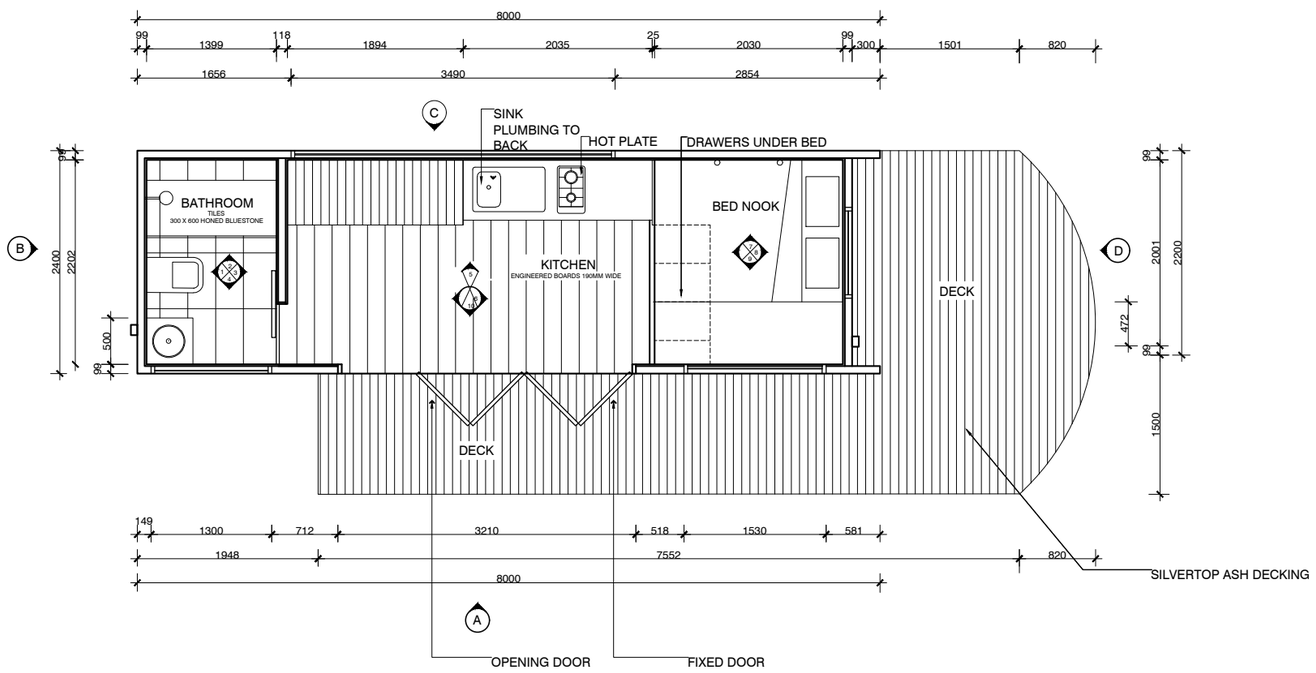

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RAW&CO. DEVELOPMENTS

REVISIONS BY:

TANJUN

E : hello@tanjun.com.au
W : www.tanjun.com.au
P : Level 1, 161 Burke Road,
Glen Iris, VIC 3146

PROJECT

TINY HOME

DRAWING TITLE

PROPOSED FLOOR PLAN

NORTH DIRECTION

Job No.	22/08
Drawn	JN
Checked	AG
Issue	P1
Date	15.10.2022

Revisions

No	Date	Revision

Sheet 02

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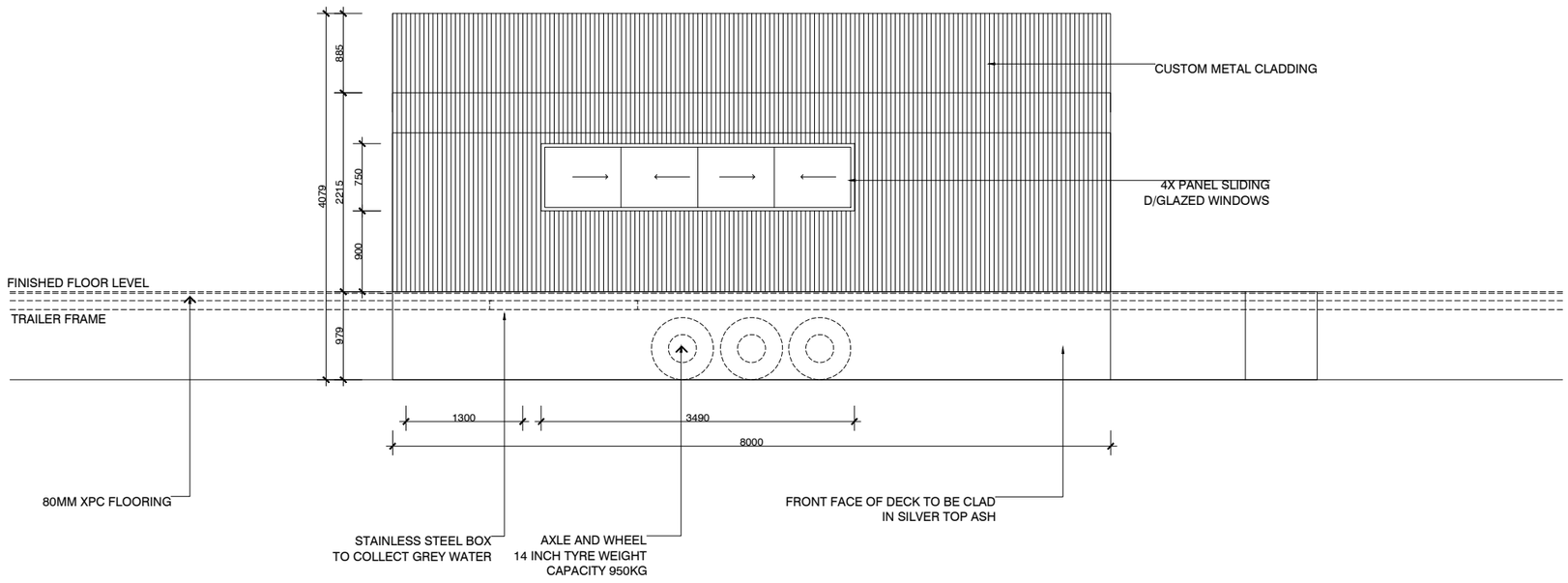
Client

Notes



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REVISIONS BY:

TANJUN

E : hello@tanjun.com.au
W : www.tanjun.com.au
P : Level 1, 161 Burke Road,
Glen Iris, VIC 3146

PROJECT

TINY HOME

DRAWING TITLE

EXTERNAL ELEVATIONS - ELE C

NORTH DIRECTION

Job No.	22/08
Drawn	JN
Checked	AG
Issue	P1
Date	15.10.2022

Revisions

No	Date	Revision

Sheet 03

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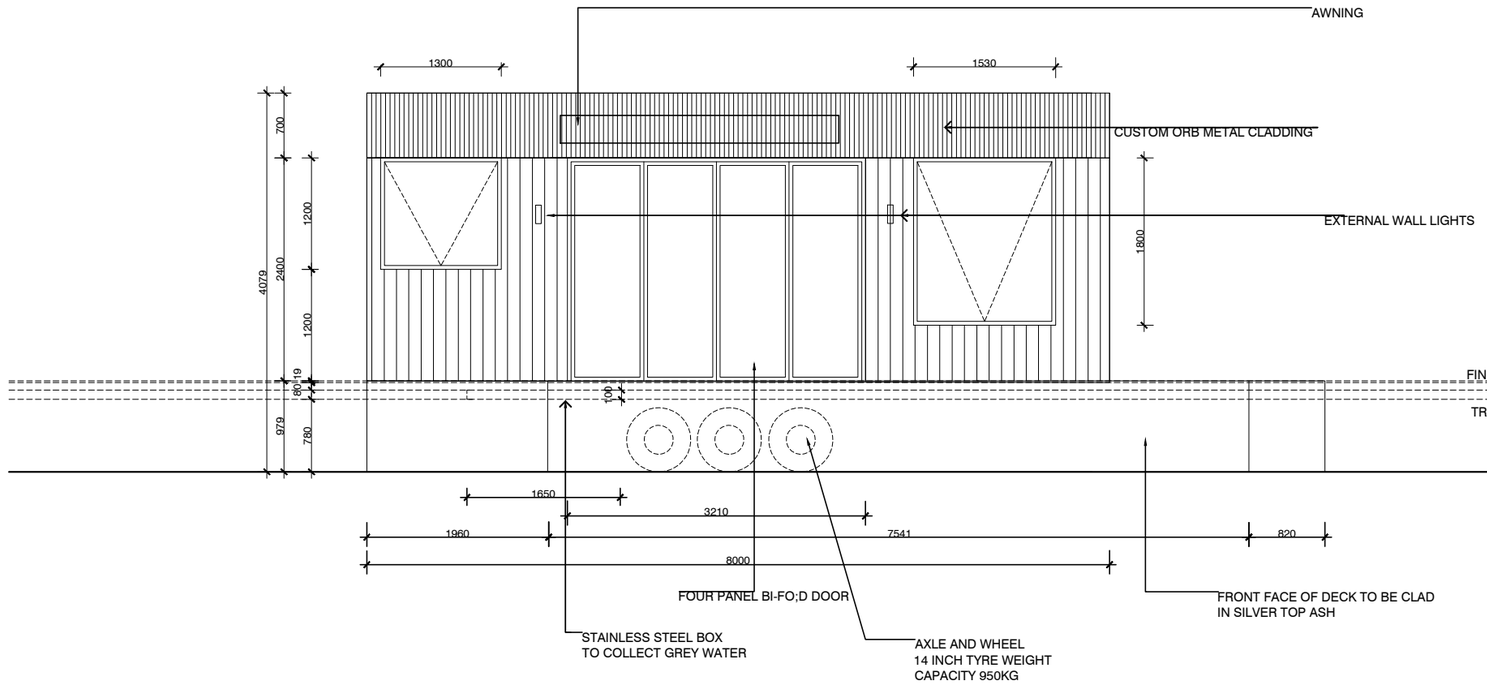

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TANJUN

E : hello@tanjun.com.au
W : www.tanjun.com.au
P : Level 1, 161 Burke Road,
Glen Iris, VIC 3146

PROJECT

TINY HOME

DRAWING TITLE

EXTERNAL ELEVATIONS - ELE A

NORTH DIRECTION

Job No.	22/08
Drawn	JN
Checked	AG
Issue	P1
Date	15.10.2022

Revisions

No	Date	Revision

Sheet 04

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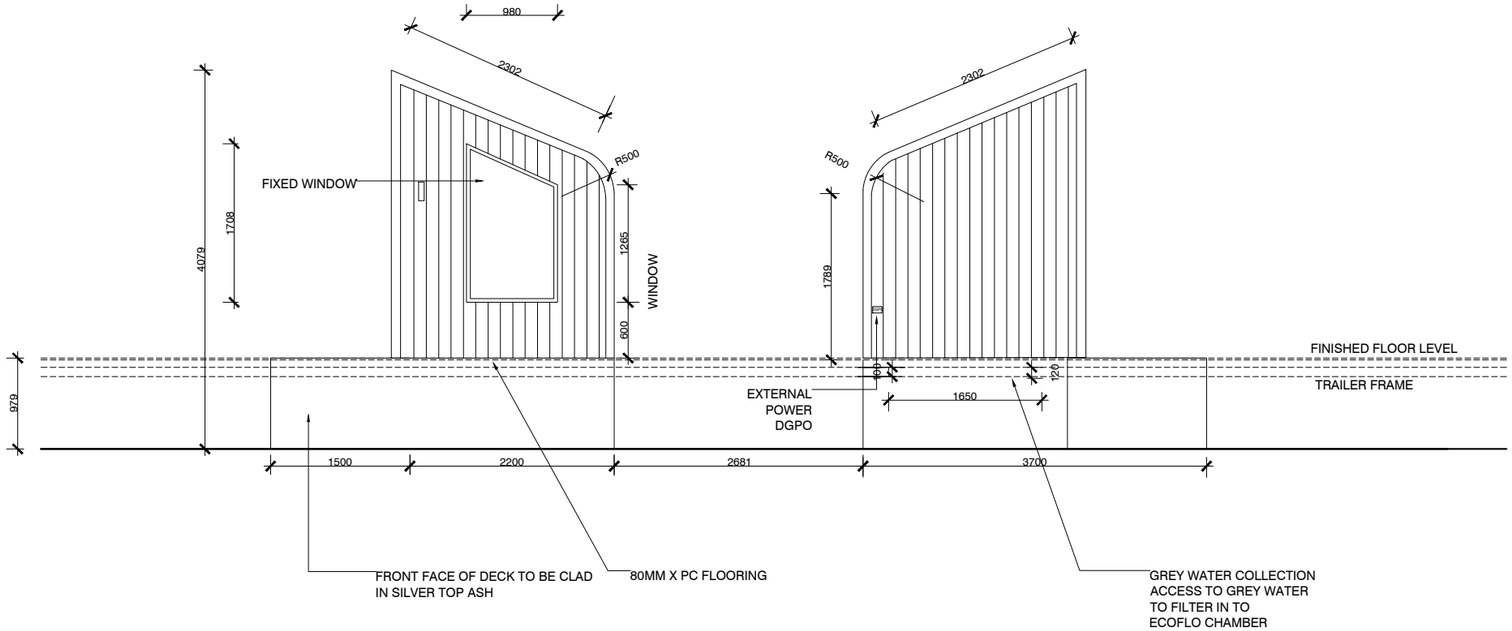

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REVISIONS BY:

TANJUN
E : hello@tanjun.com.au
W : www.tanjun.com.au
P : Level 1, 161 Burke Road,
Glen Iris, VIC 3146

PROJECT
TINY HOME

DRAWING TITLE
EXTERNAL ELEVATIONS - ELE D

NORTH DIRECTION

Job No.	22/08
Drawn	JN
Checked	AG
Issue	P1
Date	15.10.2022

Revisions

No	Date	Revision

Sheet 06

Scale 1:50

Client

Notes

Wednesday, 16 August 2023

SITE VEGETATION ASSESMENT

To whom it may concern

The proposed site at 131 Shannons Lane is approximately 5 hectares of degraded pasture. This site we have selected from the area not under the various overlays is a relatively sandy knoll. It has on two sides a single line of windbreak trees and some shrubs.

Please see below a list of flora species identified at proposed site at 131 Shannons Lane Kerrie:

Grass and Herb species identified:
Agrostis sap. (Bent grass) Plantago (Plantain), Taraxcum (Dandelion), Achillea Millefolium (yarrow), Onopordom Acantium (Scotch Thistle) and White Clover Trifolium Repens are the predominant species. The Bent grass has developed a thatched root system over much of the area. There was no native grasses identified.

The windbreaks consist of Acacia, Eucalypt and Radiata Pine. There are no remnant forest trees in the windbreaks. I estimate the windbreaks were planted within the last 30 to 50 years.

The property has not been grazed by sheep, cattle or horses for the past five years with no significant native regrowth observed. I would see no disruption to the area by developing the site as proposed.

Author’s Background

Dr Barry holds a Diploma of Farm Management (Dip FM 1976) from Marcus Oldham Farm Agricultural College (MOFAC) in Geelong VIC

1

Bachelor of Science in Resource & Environmental Management (BSc REM 1992) Australian National University (ANU)

Master of Arts International Relations (MAIR 1994) Australian National University (ANU)

I hold a PHD in Resource and Environmental Management (PhD 2001 ANU) completed under a full ANU Scholarship at the then Centre for Resource & Environmental Management (CRES) Australian National University (ANU)

I have work experience in over a dozen countries from Australia to the Middle East, Europe, North Africa & the USA.

I have the relative qualifications & expertise to assess this site whilst acknowledging my vested interest in the application.

I believe you can rely on my assessment to be accurate and without bias.

Yours sincerely

Trent P Barry DipFM; BScREM; MAIR; PhD

APPENDIX

Picture 1 & 2: Degraded pasture

3

4

Picture 3 & 4 tree lanes

5

Solve Town Planning
james@solvetp.com.au
0410 706 993

SOLVE TOWN PLANNING

PLANNING
REPORT

Use and development of the land for Group Accommodation

131 Shannons Lane, Kerrie

Table of Contents

Table of Figures

Document Control

Version	Date	Issue
V1	21/09/2023	Draft

1. Application Summary

1.1 Application Summary

Application Summary	
Subject Land	131 Shannons Lane, Kerrie
Proposal	Use and development of the land for Group Accommodation
Land Description	Lot 1 on Plan of Subdivision 083026 Parent Title Volume 02619, Folio 773
Land Use	Group Accommodation
Land Use Definition	"Land, in one ownership, containing a number of dwellings used to accommodate persons away from their normal place of residence."
Zone	• Rural Conservation Zone - Schedule 1 to the RCZ
Overlays	• Environmental Significance Overlay - Schedule 5 to the ESO • Bushfire Management Overlay • Vegetation Protection Overlay - Schedule 9 to the VPO • Significant Landscape Overlay - Schedule 1 to the SLO
Permit Triggers	• Clause 35.06-1 (RCZ) – Use of the land for Group Accommodation • Clause 35.06-5 (RCZ) – Buildings and works for a Section 2 use • Clause 42.01-2 (ESO) – Buildings and Works • Clause 42.03-2 (SLO) – Buildings and Works

1.2 The Proposal and Relevant Background

This report is prepared in support of an application for the use and development of part of the land for "Group Accommodation"/short stay accommodation provided for in four tiny homes.

This report is to be read in conjunction with the following supporting material:

- Application Plans (Solve Town Planning)
- Bushfire Management Statement (Terralogic)
- Land Capability Assessment (Strata Geoscience and Environmental)
- Native Vegetation Assessment (Trent Barry)

The subject land is a part of a rural tenement containing a number of contiguous parcels of land. The proposed use would be contained within a part of one of those allotments, being lot 1 on Plan of Subdivision 083026.

The proposed Group Accommodation consists of four "tiny homes" that would be contained within a contained portion of the subject land. The proposed use would be operated and managed by an experienced short stay accommodation provider "Shacky".

The proponents are the permanent residents of the subject land and would be on site for the duration of the use. The residents would be available as emergency contacts and on site managers should they be required. There would be no guests permitted on the land when the residents are not in occupation.

The proponents have taken a very active role in the environmental management of the land and increasing its biodiversity values. One of the proponents is a PHD graduate from the ANU Centre for Resource and Environmental Studies and another holds a Bachelor of Environmental Management.

As a consequence the proponents have recently removed stock from the land to allow for regeneration and resting and are actively planting out a number of locations on the land with native and indigenous species of trees. A professional hunter is regularly retained to control the prevalence of pest species on the land.

Operations

Visitors to the site would park their vehicles in a car park in proximity to the sites frontage and walk to their tiny home in which they would stay. No visitors' vehicles would be parked in the location of the tiny homes.

The proposed use would not be in operation during catastrophic or extreme fire danger days. A 40,000 litre static water supply for the purposes of fire fighting would be provided on site in accordance with the appended Bushfire Management Overlay.

The proposal requires no removal of any native vegetation. A Native Vegetation Assessment has been prepared and appended to this application.

Arrival of guests would generally occur between 11:00am and 5:00pm with no guests permitted for arrival prior to these times.

Check out would generally occur at 10.00am on the day of departure.

Cleaning would be undertaken by a third party contractor. Linen and washing would be undertaken by a third party off site.

Garbage and rubbish disposal would be undertaken by the third party cleaner and disposed of offsite.

Services

Each of the tiny homes is fitted with independent photovoltaic panels and a battery storage system that provides power to the tiny homes.

Each of the tiny homes is fitted with a water tank from water harvested from the roofs of each of the homes. In the event that the water tanks run dry, the tanks would be supplemented from the existing bore water supply available already in the paddock. Drinking water would be supplied separately in this event.

The tiny homes would each be connected to waterless composting toilets which would be emptied by a third party contractor on an as required basis.

On site drainage for showers and general waste water would be constructed in 4 x 30m x 1.6m wide trenches. A Land Capability Assessment has been prepared and is appended to this application.

1.3 Planning Controls

The subject land is affected by the following zones and overlays:

- Rural Conservation Zone
  - Schedule 1 to the RCZ
- Environmental Significance Overlay
  - Schedule 5 to the ESO
- Bushfire Management Overlay
- Vegetation Protection Overlay
  - Schedule 9 to the VPO
- Significant Landscape Overlay
  - Schedule 1 to the SLO

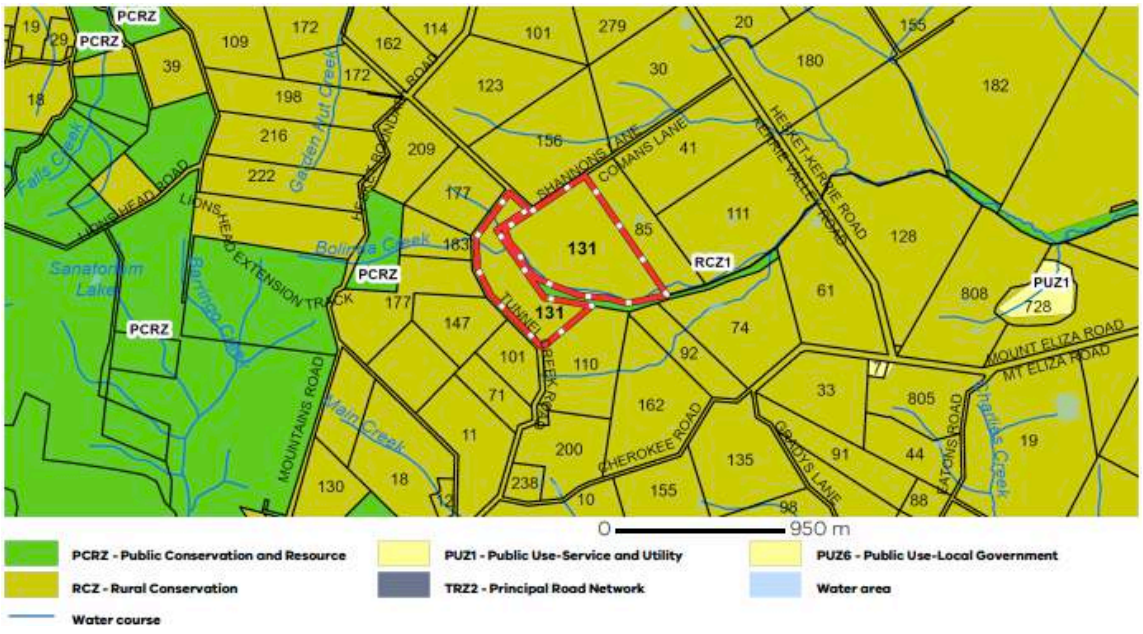

Figure 1. Subject land within surrounding zoning

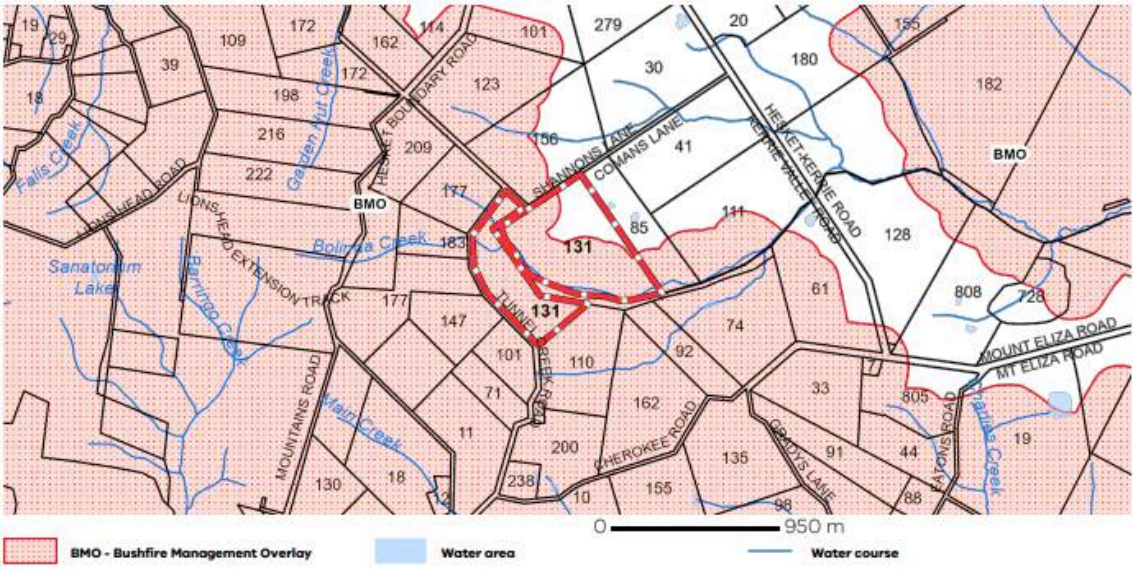

Figure 2. Subject land within surrounding Bushfire Management Overlay

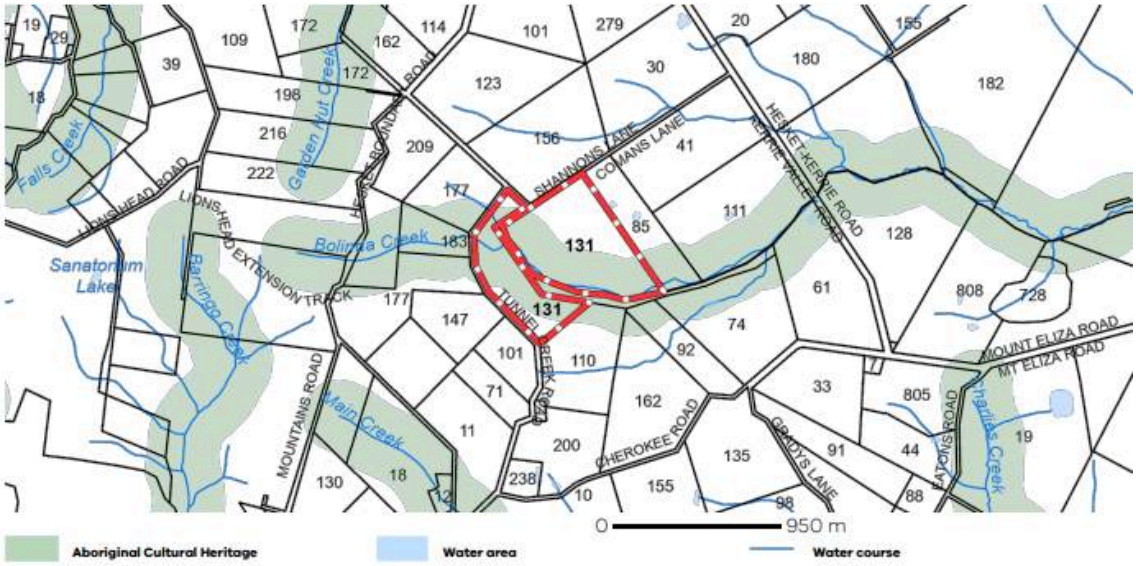

Figure 3. Areas of Aboriginal Cultural Heritage Sensitivity

1.4 Aboriginal Cultural Heritage Sensitivity

Part of the subject land is affected by areas of Aboriginal Cultural Heritage Sensitivity. Regulation 7 of the Aboriginal Heritage Regulations 2018 states that:

"A cultural heritage management plan is required for an activity if—

*a) All or part of the activity area for the activity is an area of cultural heritage sensitivity; **and***

b) all or part of the activity is a high impact activity."

An "Activity Area" is a self defined area in which all parts of the proposed use are contained within. This includes ancillary areas such as managers residence, accessways and footpaths. The application is for the use and development of "**part**" of the land for "Group Accommodation" within a defined activity area. The activity area would be fenced with a post and barbed wire fence which is intended to confine the guests to only that part of the property intended for use.

The proposed use and development does not pass item a) above and therefore does not require a mandatory Cultural Heritage Management Plan.

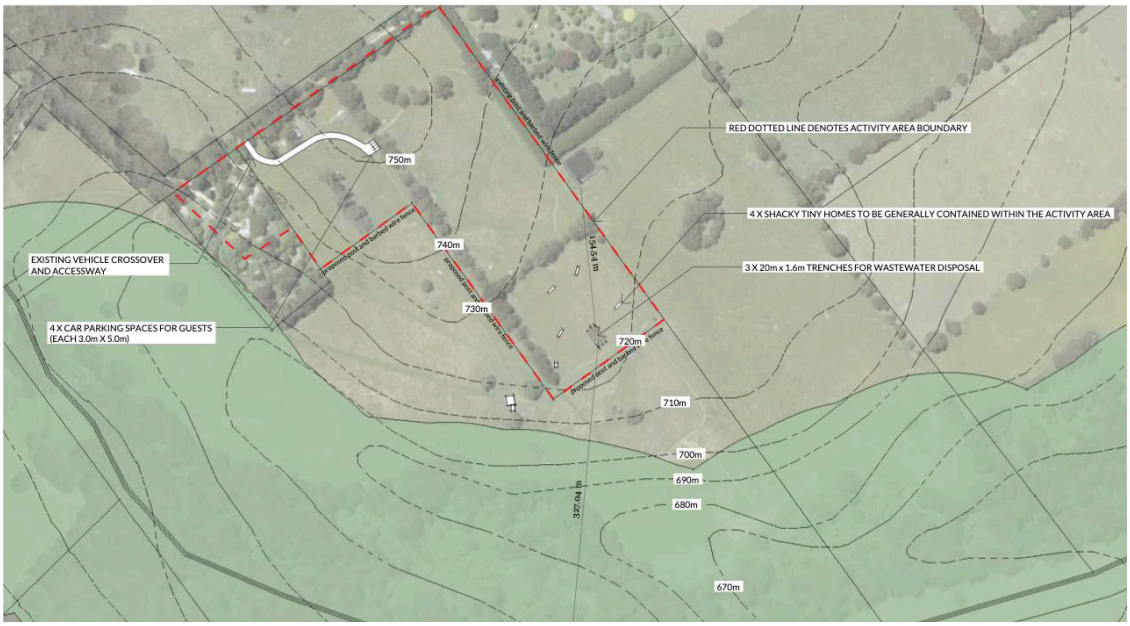

Figure 4. Areas of Aboriginal Cultural Heritage Sensitivity and Activity Area

1.5 Permit Triggers – The reason a permit application is required

Provision	Permit Trigger	Reason
Clause 35.06 Rural Conservation Zone	Yes	Group Accommodation" is a Section 2 use requiring a planning permit (Clause 35.06-1). A permit is required for buildings and works associated with a Section 2 use. (Clause 35.06-5)
Clause 42.01-1 Environmental Significance Overlay	Yes	A permit is required to construct a building or construct or carry out works. This does not apply if a schedule to this overlay specifically states that a permit is not required. The schedule specifically states a permit is required for buildings and works for "accommodation" not connected to reticulated sewerage.
Clause 43.02 Vegetation Protection Overlay	No	The proposal involves no removal of any native vegetation. See Native Vegetation Assessment appended to this application.
Clause 42.03 Significant Landscape Overlay	Yes	A permit is required to construct a building or construct or carry out works. This does not apply: If a schedule to this overlay specifically states that a permit is not required. The schedule to the overlay does not specifically state that a permit is not required.
Clause 44.06 Bushfire Management Overlay	No	No buildings and works would be located within the extent of the Bushfire Management Overlay.

2. Site and Locality Analysis

2.1 Site Analysis

The subject land is a single irregular shaped parcel of land located at the southern corner of Shannon's Lane.

There is an existing dwelling and well vegetated "house block" located in the north western corner of the land. The balance of the land is cleared pasture with the exception of a few planted stands of shelter trees.

The highest point of the land is the north eastern corner and falls generally to the south eastern corner to Bolinda Creek and the Tunnel Creek reserve. The land also falls to the south east beyond the existing dwelling.

The location of the proposed group accommodation units lies on land approximately between 720m and 730m.

Shannon's Lane is a dual lane unsealed accessway.

Figure 5. Subject Land identified by red boundaries (Metromap 2022)

2.2 Locality and Context Analysis

The subject land is located approximately 8.8km north east of the Macedon Township and 9.0km south west of Romsey.

The subject land lies at the north eastern foothills of the Macedon Regional Park amongst cleared rolling rural holdings used sparingly for genuine agriculture.

The Tunnel Creek Nature Reserve bounds the subject land to the south.

Neighbouring land uses are predominately rural residential. There are little genuine agricultural enterprises in the surrounding locality.

Vehicle access to the land is available via Kerrie Valley Rd to the east and Gap Road to the south.

The location of the proposed use on the land is obscured from view from the public realm. There are no immediate views to the proposed location of the tiny homes from Shannon's Lane due to the elevation drop.

The neighbouring property to the north east is contained within a heavily vegetated and tree lined corner of the allotment and is approximately 260m from the nearest tiny home.

Figure 6. Photograph of the Activity Area beyond the tree line

3. The Planning Provisions

The following section reviews and assesses the relevant provisions of the Scheme as they specifically relate to the proposal.

3.1 Planning Policy Framework

The relevant provisions of the Planning Policy Framework that support or are relevant to the proposal are identified below in shaded grey.

Clause 12 Environmental and Landscape Values

Clause 12.05-1S Environmentally Sensitive Areas

Objective

To protect and conserve environmentally sensitive areas.

Strategies

Protect environmentally sensitive areas with significant recreational value from development that would diminish their environmental conservation or recreational values. These areas include the Macedon Ranges…

Clause 12.05-2S Landscapes

Objective

To protect and enhance significant landscapes and open spaces that contribute to character, identity and sustainable environments.

Strategies

Ensure development does not detract from the natural qualities of significant landscape areas.

Policy Response:

There is an imperative to maintain and protect the unique landscape and the connecting environmental features which lie on the land. Including its scenic and visual qualities. The proposed use is situated on a portion of land that is currently vacant, unused and devoid of indigenous and remnant native vegetation. The shacky units themselves would not require any excavation or the need for permanent structures that would have a lasting impact on the landscape.

Notwithstanding the above, the location of the proposed activity area is not readily visible from the public realm or from the broader landscape. The level of impact proposed is minimal and manageable at the scale proposed. The proposal is sensitive to the potential for environmental and landscape impact consistent with the policy above.

Clause 13 Environmental Risks and Amenity

Clause 13.02-1S Bushfire Planning

Objective

To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.

Strategies

Protection of human life

Give priority to the protection of human life by:

- *Prioritising the protection of human life over all other policy considerations.*

Use and Development Control in a Bushfire Prone Area

In a bushfire prone area designated in accordance with regulations made under the Building Act 1993, bushfire risk should be considered when assessing planning applications for the following uses and development:

- *Accommodation.*

Policy Response:

The application is accompanied by a Bushfire Management Statement including a bushfire hazard identification and assessment.

The application has been informed by this assessment and includes the provision for a 40,000 litre static water supply for firefighting, defendable space requirements and operational constraints such as closure during Catastrophic or Extreme Fire Danger periods.

"It is considered that the proposal is consistent with the State policy objectives at clause 13.02-1S, the purpose of the BMO and the objectives at Clause 53.02 of the Planning Scheme." (Terralogic, 2023)

Clause 14 Natural Resource Management

Clause 14.01-1S Protection of agricultural land

Objective

To protect the state's agricultural base by preserving productive farmland.

Clause 17 Economic Development

Clause 17.04 Tourism

Clause 17.04-1S Facilitatine tourism

Objective

To encourage tourism development to maximise the economic, social and cultural benefits of developing the state as a competitive domestic and international tourist destination.

Strategies

Encourage the development of a range of well-designed and sited tourist facilities, including integrated resorts, accommodation, host farm, bed and breakfast and retail opportunities.

Seek to ensure that tourism facilities have access to suitable transport.

Promote tourism facilities that preserve, are compatible with and build on the assets and qualities of surrounding activities and attractions.

Create innovative tourism experiences.

Encourage investment that meets demand and supports growth in tourism

Policy Response:

We would note that the subject land is not zoned farming nor is it used for agriculture and agriculture is a Section 2 use in the zone. The proposal removes no land from the states agricultural base.

The proposal is well supported by the policy above which calls upon "*support*", "*facilitation*" and "*promotion*" of tourism based facilities that are built upon the surrounding attractions and activities. The subject land is located in proximity to a number of local natural resources and assets that attract tourism and use.

This policy is built upon in Clause 02.03 of the Municipal Strategic Statement later in this report.

3.2 Municipal Planning Strategy

The relevant provisions of the Municipal Planning Strategy that support or are relevant to the proposal are identified below:

Macedon Ranges Statement of Planning Policy

The Macedon Ranges Statement of Planning Policy, 2019 provides the basis for strategic planning of the Macedon Ranges declared area in accordance with Part 3AAB - Distinctive Areas and Landscapes of the Planning and Environment Act 1987.

Clause 02.03-7 Economic Development - Tourism

Tourism is a growing industry in the Shire and will continue to provide employment opportunities. Tourism development draws on many aspects of the Shire including recreation, leisure activities, environment, wineries, heritage and landscape features. An increase in the supply of accommodation would deliver increased potential to capitalise on the tourist market.

Strategic directions for tourism are to:

- *Encourage sustainable tourism growth compatible with the cultural and natural values of the shire.*
- *Increase the supply of tourist accommodation.*

Policy Response:

The Strategy above recognises the highly valued landscape and character of its rural areas and the role they can play in support of the municipality. Use and development for tourism is particularly identified as a preferred land use outcome for proposals that complement the nature and character of the rural landscape.

The siting of the proposed use has been carefully selected. The location of existing infrastructure, the location of native vegetation and views from and to the proposed site have informed the proposal.

The proposed use is to be situated on a portion of the subject land that is devoid of native vegetation as a result of historical clearing.

The proposed use and buildings are situated below the public interface at Shannon's Lane by some 20-30m in elevation and are not directly visible from Shannon's Lane or the public realm beyond the immediately adjoining Tunnel Creek Reserve.

The proposal is in direct achievement of and contributes positively to the above vision.

Clause 02.03-5 Built Environment and Heritage

The significant landscape qualities of the shire and highly valued built form of towns necessitate that development is sustainable and respects character. Respecting landscape values in the rural areas, so that built form is submissive to the environment, is a priority…

Promote development that respects the rural character and high landscape values of the municipality.

Aboriginal cultural heritage is prevalent within the shire. Council recognises Aboriginal people as the primary guardians, keepers and knowledge holders of all Aboriginal cultural heritage in Macedon Ranges Shire.

Strategic directions for heritage are to:

- *Protect and enhance important heritage features and values for residents, visitors and future generations.*
- *Protect Aboriginal cultural heritage places and values within the shire.*

Policy Response:

Areas of Aboriginal Cultural Heritage Significance on the land have been avoided and so too has any conflict and loss of significance that may arise. New fencing would be installed to keep guests off those portions of the land that are of significance.

The proposal accords with the strategies above and would protect areas of Aboriginal Cultural Heritage Significance

Clause 02.03-2 Environmental and Landscape Values

Clause 21.05-2 Significant environments and landscapes

Macedon Ranges Shire has many and varied rural and township landscapes which are highly valued by residents and visitors…

Landscape character within Macedon Ranges Shire is also defined by:

Significant views and vistas from and to the undulating wooded hills, which also form major visual edges to the Shire…

Key Issues

As a growing municipality on the fringe of Melbourne, these landscapes face many challenges and threats which could have a detrimental effect on the Shire's visual and landscape qualities. Competing demands on natural areas may also erode the significant landscapes; they include fire risk, nature conservation, recreation, vegetation protection and bushland living environments.

Policy Response:

By virtue of the proposed units size and their moveability, their consequence to and their impact on the landscape are minimal. Intended to be self-contained, generating their own power, harnessing their own water and disposing of and treating of waste water, the Shacky units have no lasting impact on the landscape consistent with the objectives above.

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3.1 Local Planning Policy

The relevant Local Planning Provisions that are relevant and speak to the proposal are identified in shaded grey below:

Clause 17.04-1L Facilitating Tourism – Macedon Ranges

Strategies

Encourage tourism developments related to food and wine, holistic well-being, arts and crafts, viticulture and other agricultural based tourism.

Ensure tourism development does not adversely impact on water quality in Special Water Supply Catchments.

Encourage accommodation, tourism developments and tourist related industries that protect the natural environment, heritage and town character.

Enable accommodation and tourism developments in non-urban areas that enhance environmental values and protect significant landscapes.

Strategies – Mount Macedon

Promote tourism development in Mount Macedon that retains the area's key characteristics such as Macedon Regional Park, private historic gardens, significant landscapes and heritage values.

Policy Response:

In Macedon Ranges, tourism supports an estimated 925 jobs, which is 5.6% of total employment. By comparison jobs supported by tourism across Victoria is just 3.9% of employment (Remplan, 2023). Supporting the notion that the Municipality by virtue of its proximity to Melbourne and its unique landscape values is a highly valued tourism asset.

The average expenditure per visitor, per dollar on accommodation and food services is just 36% with the remaining expenditure spent in retail, arts and recreation, transport and other industries (Remplan, 2023). This would suggest that the increase of visitation expected as a result of the proposal would contribute significantly to the support of local businesses through ancillary spending.

The subject land is located proximate a number of wineries, eateries and restaurants such as Hesket Estate, Mount Charlie Winery, Mount Towrong Vineyard and a collection of many more. Additionally, within a short drive or even walk from the land is located the Macedon Regional Park consisting of any number of outdoor walking and hiking trails. This accords with objectives and strategies above which call upon well sited and designed tourism destinations.

The policy above calls upon the Responsible Authority to actively "*promote*", "*encourage*", "*facilitate*" and "*enable*" developments that meet the stated criteria. This language requires more than a simple passive assessment of the proposal it requires positive action toward support of these development proposals that accord with the policy and achieve the preferred strategic direction. Strategies that seek an increase in the provision of accommodation rooms, particularly small scale operations within a rural context - proposals such as these.

3.2 Rural Conservation Zone

The subject land is contained wholly within the surrounding Rural Conservation Zone.

Clause 35.06 Rural Conservation Zone

Purpose

To protect and enhance the natural environment and natural processes for their historic, archaeological and scientific interest, landscape, faunal habitat and cultural values.

To protect and enhance natural resources and the biodiversity of the area.

To encourage development and use of land which is consistent with sustainable land management and land capability practices, and which takes into account the conservation values and environmental sensitivity of the locality.

To provide for agricultural use consistent with the conservation of environmental and landscape values of the area.

To conserve and enhance the cultural significance and character of open rural and scenic non urban landscapes.

Clause 35.06-1 Table of uses – Section 2 use Requiring a permit

Use	***Condition***
Group Accommodation	

Clause 35.06-5 Buildings and Works

A permit is required to construct or carry out works for a Section 2 use.

Schedule 1 to Clause 35.06 Rural Conservation Zone

Conservation Values

To ensure that the existing forest mosaic is protected and that any development does not compromise native vegetation, but provides for its enhancement.

To ensure that land use within water supply catchments, most particularly proclaimed catchments, will not compromise water quality.

To protect the unique flora, fauna and landscapes that are fundamental to the character and biodiversity of the area from inappropriate land use and development.

To protect the conservation and landscape values of adjoining public land.

To ensure that the character and landscape values of the area are protected.

To achieve sustainable agricultural practice.

Policy Response:

The above identifies the relevant permit triggers in the zone.

The proposal accords with the purposes of the zone. The proposal requires no native vegetation removal, is sensitively sited on portions of the land not readily available for view from the public realm and has considered holistically matters relating to bushfire hazard and land capability.

The character of the landscape and environmental values of the land would be protected by the proposal

3.3 Environmental Significance Overlay

Clause 42.01 Environmental Significance Overlay

Clause 42.01-2 Buildings and Works

Permit requirement

A permit is required to:

- *Construct a building or construct or carry out works*

Schedule 5 to the Environmental Significance Overlay

Other Water Supply Catchments

1.0 Statement of Environmental Significance

Regional water catchments are located throughout the Shire. The protection of catchments from inappropriate development and the protection of water quality is paramount to the health of the surrounding environment, habitat, vegetation and all urban and rural communities.

2.0 Environmental objective to be achieved

To protect and utilise the resources of the area as a water catchment for urban and local supply.

To ensure the protection and maintenance of water quality and water yield within the catchment areas.

To ensure that land use activities and land management practices are consistent with the conservation of natural resources.

To control land use and development adjacent to water courses and water storages.

To maintain and enhance the quantity and quality of water produced within the catchment.

To minimise the threat of pest plants and pest animals to agricultural land and to water catchment areas.

5.0 Decision Guidelines

The following decision guidelines apply to an application for a permit under Clause 42.01, in addition to those specified in Clause 42.01 and elsewhere in the scheme which must be considered, as appropriate, by the responsible authority:

- *The impact of the development on the water catchment.*
- *Whether the proposed development provides a net benefit to the stability and health of the waterway.*
- *The need to protect vegetation and habitat and the role these attributes play in improving and assisting in the maintenance of water quality. In particular, the need to maintain and revegetate land within 30 metres of a watercourse.*
- *The need to retain vegetation which prevents or limits adverse effects on ground water recharge.*

Schedule 5 to the Environmental Significance Overlay

- *The need to address any existing land degradation and prevent further land degradation as a result of the proposal.*
- *Whether any proposed effluent and irrigation fields are within 100 metres of any watercourse.*
- *How any proposed septic tank or other form of wastewater treatment may impact the quality of water in the catchment. This should include demonstration that the proposed density of septic tanks in the area:*
- *Will not overload the natural environment with effluent and lead to pollution of watercourses or other properties.*
- *That the design and location of septic tanks is appropriate to the site and environmental characteristics of the allotment.*

That the disposal of effluent will not result in the discharge of wastewater from the site.

Policy Response:

The proposed use would utilise waterless composting toilets for all effluent. Other waste water from showers and taps would be collected, treated and disposed of in accordance with EPA guidelines.

Appended to this application is a Land Capability Assessment prepared by a suitably qualified geotechnical engineer and demonstrates best practice waste water disposal in a declared potable water catchment.

“The LCA has found that the proposed lot is suitable for acceptance of primary effluent disposal of greywater”. (Strata Geoscience)

3.4 Significant Landscape Overlay

Clause 42.03 Significant Landscape Overlay

Clause 42.03-2 Buildings and Works

Permit requirement

A permit is required to:

- *Construct a building or construct or carry out works*

Schedule 1 to the Significant Landscape Overlay

Other Water Supply Catchments

2.0 Statement of Nature and Key Elements of Landscape

The Macedon Ranges form a significant natural landmark feature of Victoria. They provide for recreation, tourism, forestry, and water catchments. They also contain a large collection of gardens which represents an important cultural asset at a national level and must be protected. The ranges also represent a prime conservation and recreational tourism resource for the Melbourne region

Mount Macedon

The Macedon Massif rises abruptly from the rolling plains of Gisborne and surrounding areas as a major physical and cultural feature in the landscape region. The Massif was formed through volcanic action during the Pliocene Era, which resulted in an early erosion surface known as the Baw Baw surface. The natural beauty of Macedon Massif is significant as an area of spectacular physical qualities and dense vegetation within a sea of pastoral development.

2.0 Landscape Character to be achieved

To preserve and enhance significant landscape features.

To promote the siting and design of buildings and works including the choice of building materials, that are responsive to the landscape character of the site.

5.0 Decision Guidelines

The following decision guidelines apply to an application for a permit under Clause 42.03, in addition to those specified in Clause 42.03 and elsewhere in the scheme which must be considered, as appropriate, by the responsible authority:

- *The extent of tree clearing and earthworks and whether there is a more suitable alternative siting to minimise the impact on the environment.*
- *The "Macedon Ranges Cultural Heritage and Landscape Study – June 1994".*
- *The threat of soil erosion and land slip from the proposed works.*
- *The need to minimise the impact on prominent ridgelines from proposed buildings and works.*
- *Whether the proposal is located on land where slope is greater than 20 per cent.*
- *The need to site and design any proposed structure to minimise visual intrusion including methods such as landscaping, and tree planting to screen the buildings and works.*

Policy Response:

The subject land is located within the cleared western foothills of Mount Macedon and immediately north of Mount Charlie within the landscape. Bolinda Creek bounds the land to the south. The significance of the site and the surrounding landscape has been a central consideration of the proposal and has guided the siting and considerations relating to servicing and visual impact. The underlying impetus has clearly and demonstrably been to limit the impact of the proposal on the surrounding landscape and its environment. This consideration extends beyond the third party impacts and to the guest experience.

No vegetation removal is proposed (see appended Native Vegetation Assessment).

Construction of accessways and creating scars on the landscape has been avoided. The proposal utilises existing constructed accessways and has provided a car parking area proximate the sites frontage to avoid creating needless and sightly vehicle accessways.

The proposed tiny homes are situated on a flatter plateau and do not require any site cuts or earthworks to be accommodated. The site is not located on a ridgeline and would not be silhouetted on the landscape or highly visible from the broader landscape.

The location of the proposed homes is predominately obscured from public view.

The proposal responds positively to and is consistent with the landscape and its scenic and environmental values

3.1 Macedon Ranges Distinctive Areas and Landscapes

The subject land is located within the Macedon Ranges Distinctive Areas and Landscapes (Part 3AAB, Section 46AO , The Planning and Environment Act 1987). A Statement of Planning Policy has been prepared and Gazetted for the DAL. This section provides a high level review of the Policy with specific regard to the proposal.

Landscape Significance

The subject land has been identified in the DAL framework plan as being a "significant landscape area" (see figure 7 below).

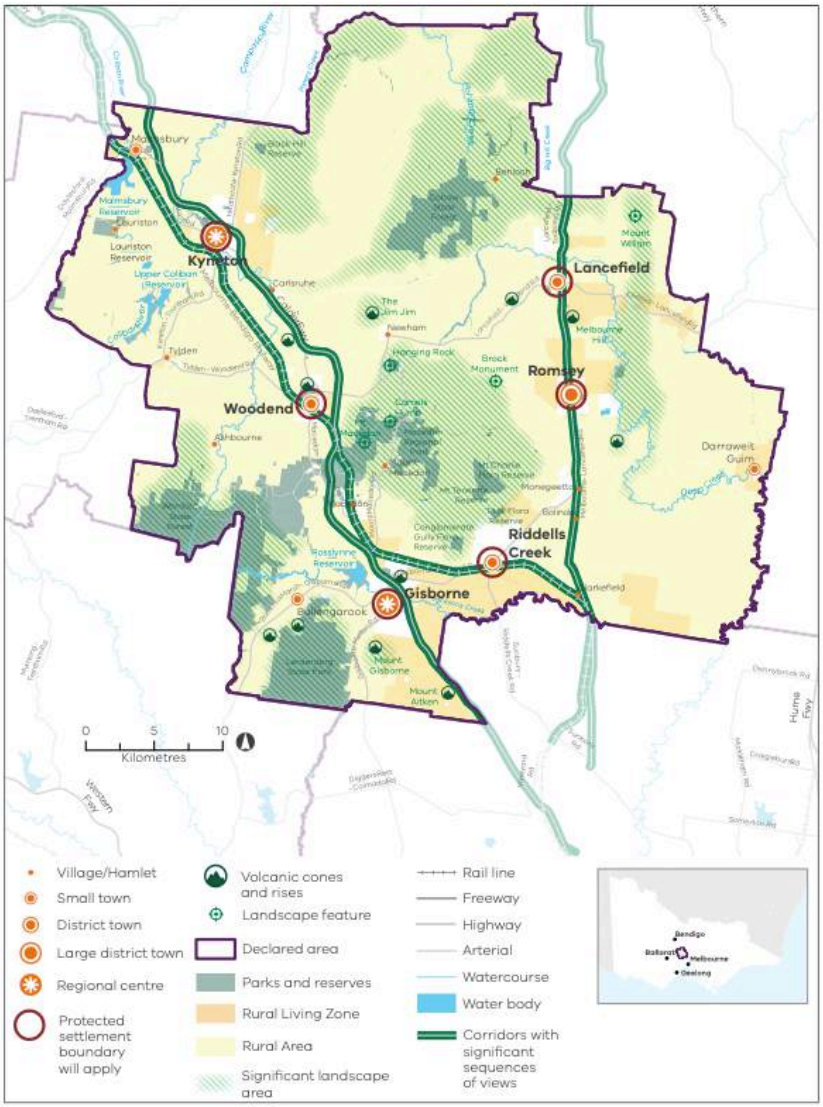


Figure 7. Distinctive Areas Map

The subject land is located at a junction between two visually contrasting landscapes. One characterised for its densely vegetated and sloping features and the other for its rolling cleared plains that lie between them. The catalyst for the proposal was the desire to highlight these landscape features and share them with guests. The challenge was then to highlight these natural features to the guests but to protect the public landscape and amenity of the locality. The proposed siting manages this balance whilst also managing a buffer from neighbouring sensitive land uses. This is consistent with the objectives of the Statement of Planning Policy to:

- *"ensure the declared area's natural and cultural landscapes are conserved and enhanced."*
- *"Manage land use, development and infrastructure to ensure that significant landscapes, views, and vantage points are conserved and enhanced."*
- *"Manage development and infrastructure provision to ensure sequences of views from key road and rail corridors are maintained for current and future users."*

Tourism and Recreation

The Statement of Planning Policy recognises the value of the landscape as a tourism attraction and seeks to expand and implement opportunities to further promote and encourage visitation in the long term. The policy actively *promotes*, *facilitates* and *encourages* tourism within the declared area. These statements are not merely passive recognition but seek to direct Responsible Authorities to an identified outcome:

- *"Support and facilitate sustainable and responsible tourism and recreation-related land uses and developments (such as agri- tourism) in keeping with the declared area's significant landscapes, environmental and cultural values.*
- *Facilitate tourism-related land use and development that encourages people to recognise and understand Aboriginal and post-contact cultural heritage. "*

The qualifying criteria for support of course being the sustained protection and enhancement of the landscape qualities that attract tourism and visitation in the first place. The proposal is of a scale and intensity that would achieve this balance and provides a tangible opportunity for the Responsible Authority to "promote" and "encourage" a preferred outcome.

3.2 Clause 65 Decision Guidelines

Clause 65 Decision Guidelines

Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate:

- The matters set out in section 60 of the Act.
- Any significant effects the environment, including the contamination of land, may have on the use or development.
- The Municipal Planning Strategy and the Planning Policy Framework.
- The purpose of the zone, overlay or other provision.
- Any matter required to be considered in the zone, overlay or other provision.
- The orderly planning of the area.
- The effect on the environment, human health and amenity of the area.
- The proximity of the land to any public land.
- Factors likely to cause or contribute to land degradation, salinity or reduce water quality.
- Whether the proposed development is designed to maintain or improve the quality of stormwater within and exiting the site.
- The extent and character of native vegetation and the likelihood of its destruction.
- Whether native vegetation is to be or can be protected, planted or allowed to regenerate.
- The degree of flood, erosion or fire hazard associated with the location of the land and the use, development or management of the land so as to minimise any such hazard.
- The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.
- The impact the use or development will have on the current and future development and operation of the transport system.

Policy Response:

The Section above has considered all relevant planning policy and the provisions of the scheme.

The proposal would have a negligible affect on the environment. There is no vegetation removal proposed, native or otherwise. Matters relating to the treatment of stormwater and protection of the potable water catchment have been holistically considered.

Factors relating to land degradation, flooding, fire hazard, stormwater and native vegetation loss have been duly considered and deemed acceptable.

The proposal would see a modest increase in traffic. Access to the subject land is fully constructed and available from a number of directions.

4. Analysis and Conclusion

The previous section of this report reviewed and assessed the relevant provisions of the Planning Scheme and policy as it applies to the proposal. It is clear and self evident that the proposal is well supported by the relevant provisions of the scheme that call upon the Responsible Authority to "*support*" "*facilitate*", "*ensure*", "*promote*" and actively work toward the achievement of proposals such as this. Language that calls upon the Responsible Authority to do more than simple passive assessment. It requires them to adopt a role of positive action toward the stated objectives.

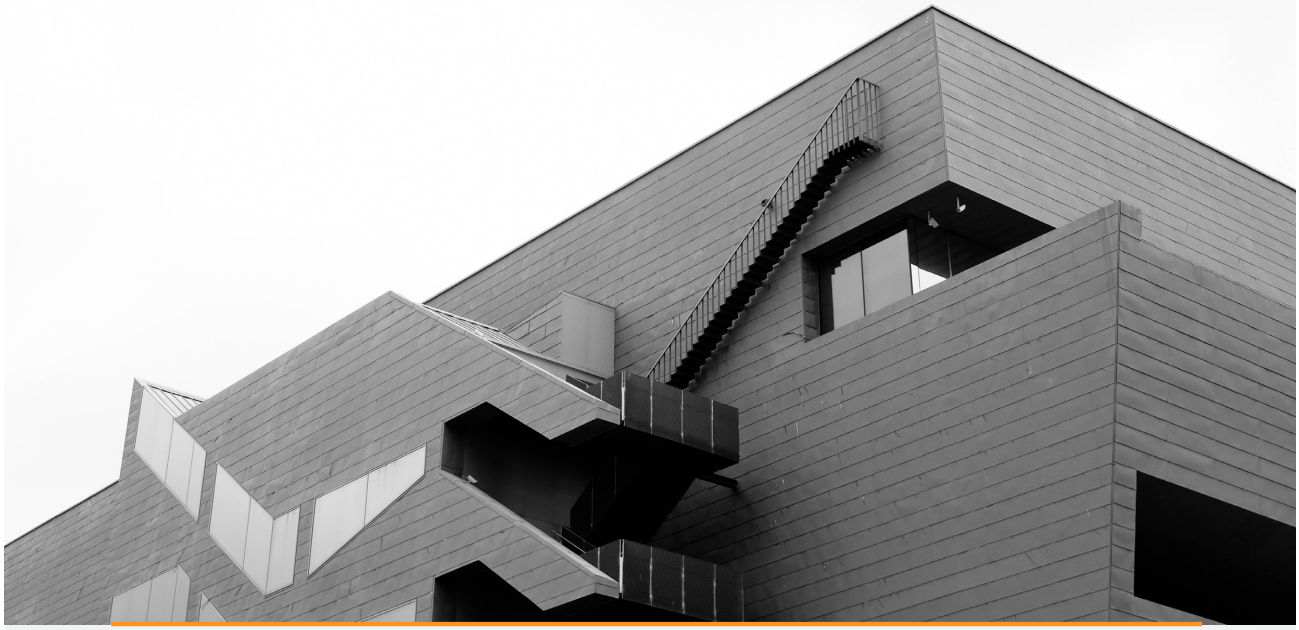
4.1 Should a permit be granted?

The proposal responds positively to the relevant provisions of the Macedon Ranges Planning Scheme and consistent with the objectives of the zone.

All relevant matters such as amenity impacts, landscape character and environmental impacts have been considered. The proposal achieves a high level of accordance with the scheme and is representative of a positive and orderly planning outcome.

The proposal achieves an outcome which is directly consistent with policy objectives.

It is submitted that the proposal achieves a good planning outcome and is recommended that a permit be granted



CONTACT US

It all begins with an idea.
Contact us for an obligation free consultation

Solve Town Planning
james@solvetp.com.au
0410 706 993

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strata
geoscience and environmental

Land Capability Assessment and Onsite Wastewater System Design for

131 Shannons Lane
Kerrie

October 2023

Important Notes:

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1. Introduction

Strata Geoscience and Environmental Pty Ltd was commissioned to perform a limited scope Land Capability Assessment for:

Table 1 : Site and Client Details	
Client/Agent	Solve Planning
Site Address	131 Shannons Lane Kerrie (see Site Plan)
Nature of Development	Proposed dwellings

The investigation was conducted based upon specific development plans supplied by the client (Figures 2&3) and with reference to the following documents:

1. EPA Victoria (2016) Code of Practice for Onsite Wastewater Management
2. Australian Standard AS1547-2012 Onsite Wastewater Management

The investigation also follows the principles outlined in:

1. MAV & DSE 2006 (as amended) Model LCA Report
2. AS1726-1993 Geotechnical Site Investigations.

2. Description of the Development

Table 2 Site Description	
Site Address	131 Shannons Lane Kerrie
Owner/Developer/Agent	Solve Planning
Postal Address	As Above
Council Area	Macedon Ranges
Zoning	RCZ
Allotment Size	35 Ha approx
Anticipated Wastewater Load	Up to 1200 L/D (See Section 6)
Availability of Sewer	Unsewered and unlikely to be unsewered in mid term

3. Site Plans and Key Site Features

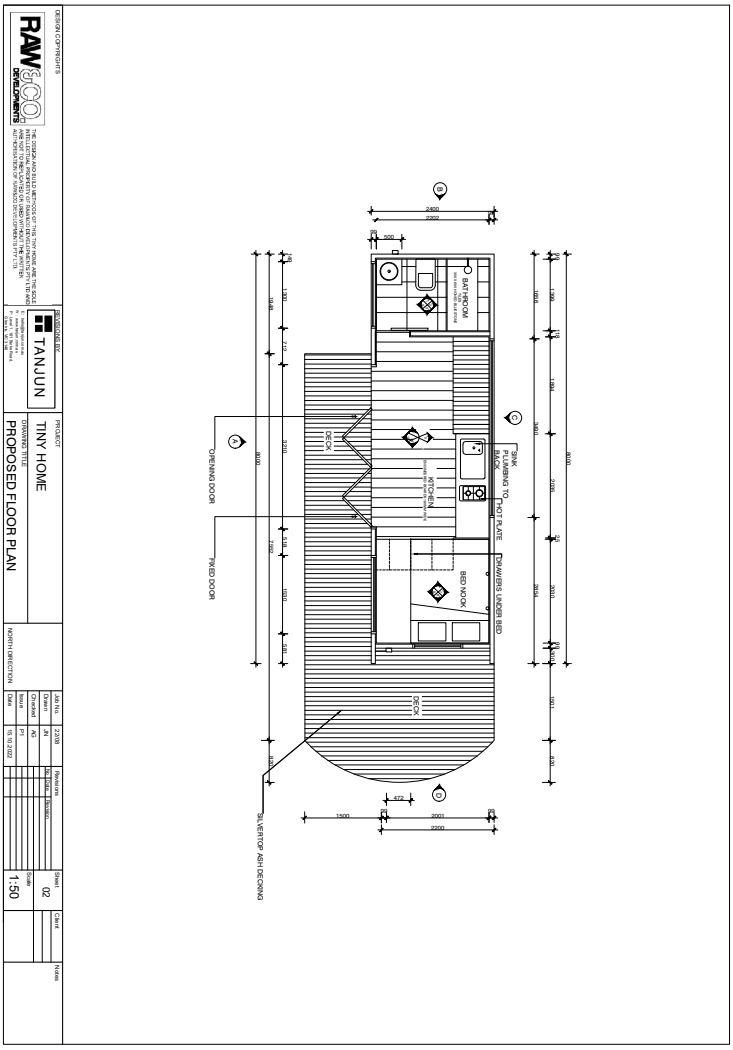
A range of soil and landscape features were assessed for their potential to impact upon land application area siting and level of wastewater treatment required. Figures 1-2 give locality and proposed site plans respectively whilst Table 3 summarises key features as in relation to effluent management over the site.

LCA and Onsite System Design for
131 Shannons Lane Kerrie

Figure 1 Locality Plan

LCA and Onsite System Design for
131 Shannons Lane Kerrie

Figure 2 Site/Floor Plan



LCA and Onsite System Design for
131 Shannons Lane Kerrie

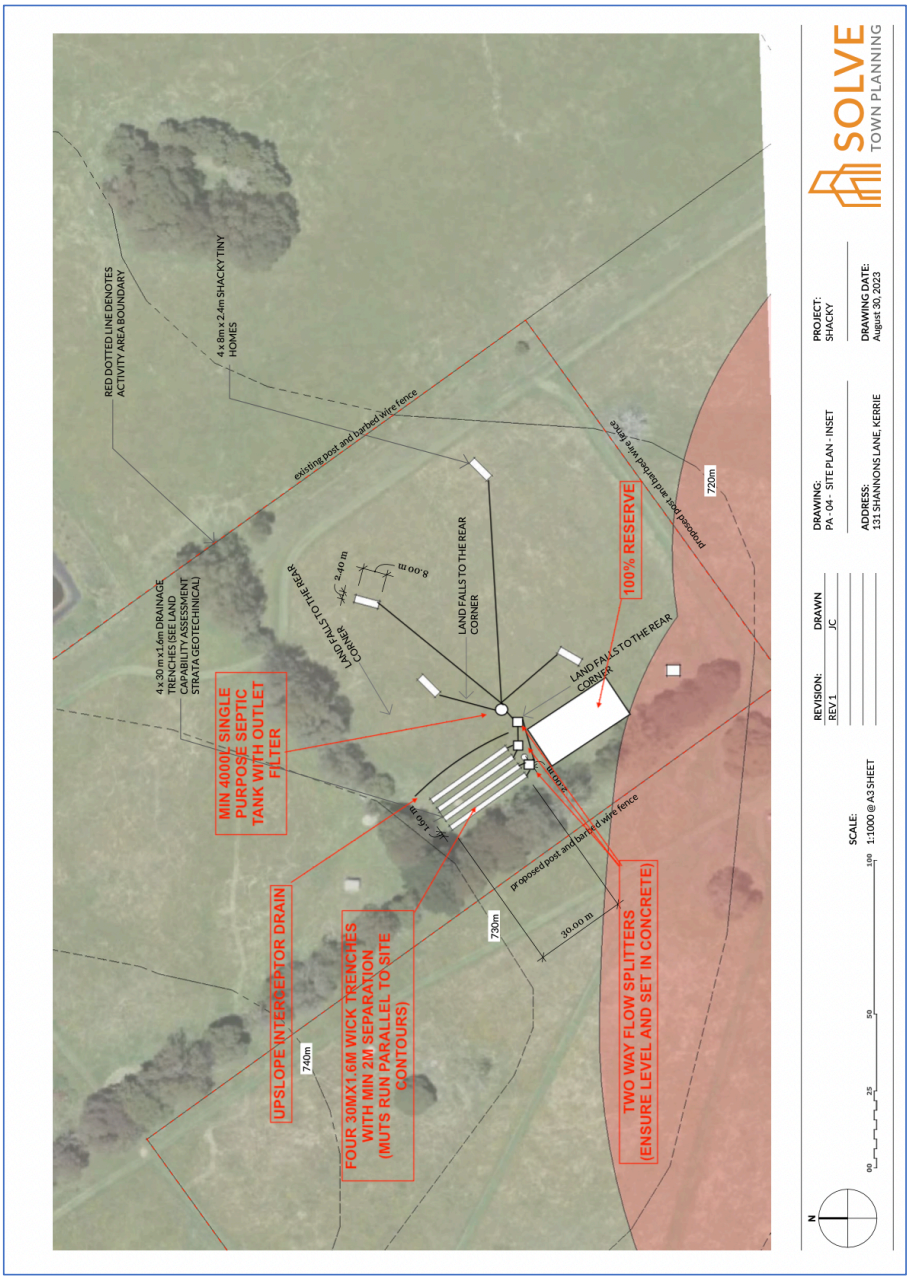


Table 3 Site Features	
Climate	The nearest weather station with long term data is the Heskett Station with a mean annual rainfall of 895.1 mm (BOM 2023). The region has a near Mediterranean climate with maximum temperatures and minimum rainfall in the summer.
Exposure	The site is relatively unshielded with exposure to winds which predominate from the NW/SW directions
Vegetation	Pasture
Landform	Undulating Plain
Slope	Slight slopes
Fill	No fill evident in proposed land application areas
Rocks and Rock Outcrops	Not observed – near surface rock unlikely
Erosion Potential	No evidence of erosion, erosion potential considered low
Surface Water	**SITE IN DECLARED WATER CATCHMENT**
Flood Potential	Unknown
Stormwater Run-on and Upslope Seepage	None
Groundwater	No groundwater was encountered throughout site reconnaissance and is likely to be several meters under the ground surface contained within rock.
Site Drainage and Subsurface Drainage	The site receives minimal run on and does not show signs of springs or other areas of ephemeral subsurface water retention. Given clay subsoils perched watertable may exist in some areas of the site
Recommended Buffer Distances	Given the significant land area, all buffer distances as stipulated in EPA (2016) are achievable.
Available Land Application Area	There is surplus space to land application area requirements (including reserves).

4. Soil Assessment and Constraints

Soils have been assessed for their suitability for onsite wastewater management through both desktop review and intrusive field investigation.

4.1 Desktop Review

No published information could be obtained for the subject site.

With reference to the classification system of Isbell (2002) soils are classified as Brown **Sodosols** being structured clayey SILT/Silty CLAY soils with B horizons containing potential sodic phases. Subsoils clays will exhibit a moderate structure and will show the existence of vertical macropores throughout drier periods, significantly increasing their unsaturated hydraulic conductivities. Subsoils will show moderate to high cation exchange complex for the absorption of nutrients, are likely to have dispersive phases and a slightly acidic pH trend.

Table 4 Typical Soil Characteristics	
Soil Depth (m)	1.5m+ (variable)
Depth to Water Table (m)	2.5m+
Coarse Fragments (%)	0-5 %
Soil Permeability and Concept Design Loading Rates	Approximately 0.5m/d DIR of 3.0mm/d appropriate

	Topsoils	Subsoils
Description	Clayey SILTS(ML)	Silty CLAY (CL)
Soil Category (AS1547-2011)	1	5
DIR (mm/d)/DLR (L/D)	5/30	3.0/12
pH	5.5	5.6
EC	0.7	2.3
EMMERSON	8	4

5. Land Capability Assessment Matrix

Referring to MAV & DSE (2006), EPA Victoria Publication 746.1 Land Capability Assessment for Onsite Domestic Wastewater Management and MAV DEPI & EPA 2014 Land Capability Assessment Framework, qualitative LCA assessment tables have been produced for the site.

Table 6: Risk Assessment of Site Characteristics (MAV, DEPI, EPA 2014)				
Characteristic	**Level of Constraint**			**Assessed Level of Constraint for Site and Mitigation if required**
	Nil or Minor	**Moderate**	**Major**	
Aspect (affects solar radiation received)	North / North-East / North-West	East / West / South-East / South-West	South	Minor
Climate (difference between annual rainfall and pan evaporation)	Excess of evaporation over rainfall in the wettest months	Rainfall approximates to evaporation	Excess of rainfall over evaporation in the wettest months	Moderate
Erosion [1] (or potential for erosion)	Nil or minor	Moderate	Severe	Moderate
Exposure to sun and wind	Full sun and/or high wind or minimal shading	Dappled light	Limited patches of light and little wind to heavily shaded all day	Minor
Fill [2] (imported)	No fill or minimal fill, or fill is good quality topsoil	Moderate coverage and fill is good quality	Extensive poor quality fill and variable quality fill	Minor
Flood frequency (ARI) [3]	Less than 1 in 100 years	Between 100 and 20 years	More than 1 in 20 years	Minor
Groundwater bores [4]	No bores onsite or on neighbouring properties	Setback distance from bore complies with requirements in EPA Code of Practice 891.3 (as amended)	Setback distance from bore does not comply with requirements in EPA Code of Practice 891.3 (as amended)	Minor

Characteristic	Level of Constraint			Assessed Level of Constraint for Site and Mitigation if required
	Nil or Minor	**Moderate**	**Major**	
Land area available for LAA	Exceeds LAA and duplicate LAA and buffer distance requirements	Meets LAA and duplicate LAA and buffer distance requirements	Insufficient area for LAA	Minor
Landslip (or landslip potential) [5]	Nil	Minor to moderate	High or Severe	Minor
Rock outcrops (% of surface)	<10%	10-20%	>20%	Minor
Slope Form (affects water shedding ability)	Convex or divergent side-slopes	Straight side-slopes	Concave or convergent side-slopes	Minor
Slope gradient [6] (%)				
(a) for absorption trenches and beds	<6%	6-15%	>15%	Minor
(b) for surface irrigation	<6%	6-10%	>10%	Minor
(c) for subsurface irrigation	<10%	10-30%	>30%	Minor
Soil Drainage [7] (qualitative)	No visible signs or likelihood of dampness, even in wet season	Some signs or likelihood of dampness	Wet soil, moisture-loving plants, standing water in pit; water ponding on surface, soil pit fills	Moderate

Characteristic	Level of Constraint					Assessed Level of Constraint for Site and Mitigation if required
	Nil or Minor		Moderate	Major		
Stormwater run-on	Low likelihood of stormwater run-on			High likelihood of inundation by stormwater run-on		Minor
Surface waters - setback distance (m) [9]	Setback distance complies with requirements in EPA Code of Practice 891.3 (as amended)			Setback distance does not comply with requirements in EPA Code of Practice 891.3 (as amended)		Minor
Vegetation coverage over the site	Plentiful vegetation with healthy growth and good potential for nutrient uptake		Limited variety of vegetation	Sparse vegetation or no vegetation		Moderate
Soil Drainage [8] **(Field Handbook definitions)**	Rapidly drained. Water removed from soil rapidly in relation to supply, excess water flows downward rapidly. No horizon remains wet for more than a few hours after addition	Well drained. Water removed from the soil readily, excess flows downward. Some horizons may remain wet for several days after addition	Moderately well drained. Water removed somewhat slowly in relation to supply, some horizons may remain wet for a week or more after addition	Imperfectly drained. Water removed very slowly in relation to supply, seasonal ponding, all horizons wet for periods of several months, some mottling	Poorly/Very poorly drained. Water remains at or near the surface for most of the year, strong gleying. All horizons wet for several months	Moderate

Table 7: Risk Assessment of Soil Characteristics				
Characteristic	**Level of Constraint**			**Assessed Level of Constraint for Site and Mitigation if required**
	Nil or Minor	**Moderate**	**Major**	
Electrical Conductivity (ECe) (dS/m) as a measure of soil salinity [1]	<0.8	0.8 - 2	>2	Minor
Emerson Aggregate Class (consider in context of sodicity)	4, 5, 6, 8	7	1, 2, 3	Minor
Gleying [2] **(see Munsell Soil Colour Chart)**	Nil	Some evidence of greenish grey / black or bluish grey / black soil colours	Predominant greenish grey / black, bluish grey / black colours	Minor
Mottling (see Munsell Soil Colour Chart)	Very well to well-drained soils generally have uniform brownish or reddish colour	Moderately well to imperfectly drained soils have grey and/or yellow brown mottles and in the mottled areas occur higher in the profile the less well-drained the soil	Poorly drained soils have predominant grey colours with yellow brown or reddish brown mottles located along root channels, large pores and cracks	Minor
pH [3] **(favoured range for plants)**	5.5 - 8 is the optimum range for a wide range of plants; 4.5 - 5.5 suitable for many acid-loving plants		<4.5, >8	Minor

Characteristic	Level of Constraint			Assessed Level of Constraint for Site and Mitigation if required
	Nil or Minor	Moderate	Major	
Rock Fragments (size & volume %)	0 – 10%	10 – 20 %	>20%	Minor
Sodicity [4] (ESP %)	<6%	6 – 8%	>8%	Minor
Soil Depth to Rock or other impermeable layer (m) [5]	>1.5 m	1.5 – 1 m	<1 m	Minor
Soil Structure (pedality)	Highly or Moderately structured	Weakly-structured	Structureless, Massive or hardpan	Minor
Soil Texture, [6] Indicative Permeability	Cat. 2b, 3a, 3b, 4a	Cat. 4b, 4c, 5a	Cat. 1, 2a, 5b, 5c, 6	Moderate
Watertable Depth (m) below the base of the LAA	>2 m	2 – 1.5 m	<1.5 m	Minor

Legend:

Nil or Minor: If all constraints are minor, conventional/standard designs are generally satisfactory.
Moderate: For each moderate constraint an appropriate design modification over and above that of a standard design, should be outlined.
Major: Any major constraint might prove an impediment to successful on-site wastewater management, or alternatively will require in-depth investigation and incorporation of sophisticated mitigation measures in the design to permit compliant onsite wastewater management.

5.2 LCA Conclusions and Design Implications

Qualitative LCA matrix have identified the following site constraints:

- **Site in a Declared Water Catchment**
- **Low permeability clay soils**
- **Vegetation**
- **Soil drainage**
- **Excess of rainfall over evaporation in wetter months – use water balance**

These site limitations may be overcome with specific system design considerations. Please refer to See Section 6 and Appendices for specific system recommendations.

6. Proposed Onsite Wastewater Concept System Designs

6.1 General System Recommendations

Given the results of the LCA, the following recommendations are made for a suitable wastewater treatment system:

- Treated Greywater application with dry composting toilets a suitable strategy to minimise risk over the site.

Adoption of designs considering these recommendations will limit the public and environmental health risks associated with effluent treatment and disposal over the site will provide for a sustainable long term solution to effluent treatment and land application.

6.2 Onsite Wastewater Flow and Land Application Area Modelling

For modelling purposes, it is proposed that up to FOUR 1 bedroom equivalent dwellings will be constructed. Each dwelling is assumed to have the following:

- full water savings fixtures
- a design flow allowance under AS1547-2012 of 100L per person per day FOR COMPOSTING TOILETS ON TANK WATER NOTING SECTION 3.3.5 OF EPA (2016):

¨**Where Council is satisfied a household or premises is unlikely to be provided with a reliable water supply (e.g. a rural farming property where groundwater or surface water is unavailable), the design flow rates for Onsite Roof Water Tank Supply listed in the most current version of AS/NZS 1547 may be used instead of the flow rates in Table 4.**¨

Therefore the calculated effluent flows and required disposal area for is as follows:

The calculated empirical effluent flows and required wick trench area is as follows:

Wastewater System Modeling	
Proposed Number of Bedrooms	1
Number of Equivalent Persons (EP)	2
Water Source (Tank/Reticulated Mains)	T
Water Saving Fixtures (None/Standard/Full)	FULL
Total Daily Loading	200
Soil Category (AS1547-2012)	5
Indicative Permeability (m/d)	0.5
Design Irrigation Rate/ Design Loading Rate (DIR/DLR)	5
Required Effluent Dipsosal Area (m^2)	40

As a result of these calculations, at least **40 m^2** of area is required dispose of these flows on a daily basis via wick trenching. Please see the VLCAF trench and bed calculator in Appendix 2 for further details and note that water/nutrient balancing IS NOT required with this approach.

Given that the minimum land application area of 40 m^2 is required, the required length of 'Wick' trench can be calculated using the daily design wastewater load (L/day) and the design loading rates (DLR) from Appendix 1 of EPA 2016.

L = Q / DLR x (W/1.2)
Where: L = total length of 'Wick' trench required in metres
Q = design daily wastewater load in litres a day
DLR = design loading rate for trenches in mm per m^2 per day
W = total width of trench and bed in the combined 'Wick' trench

Q = 200 L
DLR = 5mm/m^2/day for PRIMARY treated effluent dosing into Cat 5a soils (EPA 2016)
W = 1.6m

Therefore:

L = 200 / (5 x (1.6/1.2))
L = 30 m

Given that ONE wick trench is proposed, the minimum wick length is 30 m

Area Of Wick Trenches = 30 m x 1.6 m

= 48m^2

This is greater than the VLCAF Calculator value of 40 m^2 and should be adopted.

Total area of required for wick trenches with a 2m separation between trenches

= Total wick trench width + total separation between trenches x wick trench length

= ((1.6mx4) + (2mx3)) x30m

=(6.4m+6m) x 30m

= 372m^2

Based upon the above modelling, the Minimum Land Application Area Dimensions are:

Minimum Land Application Area Requirements – 4 Bedroom, Wick Trenches	
Width (m)	**6.4**
Length (m)	**30**
LAA Area (m2)	**372**
Reserve Area (m2)	**372**
Total Area (m2)	**744**

6.3 System Design

6.3.1 Treatment System

Given the above modelling with a maximum of a four 1 bedroom dwellings being constructed the following treatment system would be appropriate:

- Approved dry composting toilets
- Min DN100 gravity fed sewer pipe
- Min 4000L Single Purpose Septic Tank

6.3.2 Land Application Areas

The land application areas could consist of:

- Min Four 30m x 1.6m Wick Trenches
- Min 100% reserve

6.3.3 Provision of Adequate Setback Distances

Given the minimum land application areas modelled above combined with the current development plan, setback distances complying with the minimum requirements of EPA Vic (2016) are achievable (see Figure 2 and Appendix 4).

7. Conclusions and Further Recommendations

In conclusion the following comments and recommendations are made:

- The LCA has found the proposed lot is suitable for acceptance of primary effluent disposal of greywater
- The maximum wastewater flow rate (MWWF) modelling shows that the generated flows is likely to be no more than 800 L/day.
- Modelled flows will likely require a land application area comprising:
    - Min Four 30m x 1.6m Wick Trenches
    - Min 100% reserve
- It is likely that peak flows associated with the modelled development on each lot should be within the buffering capacity of proposed systems both in terms of the system sizing as well as for their acceptance into the disposal area.
- It is likely that earthworks and drainage installation associated with future site development will alter conditions of the site and as a result the recommendations of this report MUST be reconfirmed after these works have occurred. Stormwater diversion or interceptor drain installation may be appropriate at this time.

- **If the prescriptions of this report are followed the likely human and environmental health risks associated with effluent disposal over the site is low.**

S Nielsen MEngSc CPSS
Director
Strata Geoscience and Environmental Pty Ltd
P: 0413545358
E: sven@strataconsulting.com.au
W: www.strataconsulting.com.au

8. References

- AS1726-1993- Geotechnical Site Investigations
- AS 1547-2012 Onsite Wastewater Disposal
- Bureau of Meteorology Website- Monthly Climate Statistics
- EPA (2016) Vic Code of Practice for Onsite Wastewater Management
- MAV & DSE 2006 (as amended) Model LCA Report
- VLCAF (2013) Victorian Land Capability Assessment Framework – Calculation of Water and Nutrient Balances
- Isbell (2002) Australian Soil Classification (Revised Edn) CSIRO Publishing

LCA and Onsite System Design for
131 Shannons Lane Kerrie

Appendix 1 Bore Logs, Percolation Test Results and Site Photos

SOIL TEST MELBOURNE

PROJECT NO.: 012077
DATE: 8/8/23
HOLE LOCATION: *Per Sketch*

HOLE NO.: 1
METHOD: Mechanical Push Tube
WEATHER CONDITIONS: Fine

DEPTH (mm)	SOIL & ROCK DESCRIPTION	GROUND WATER	TREE ROOTS	SHEAR VANE READING	POCKET PENETROMETER (1kg per 1cm²)	EXISTING FOOTING (mm)	DEPTH (mm)
	FILL *Grass, silt, clay, slightly moist, medium compact*						
600	***SILTY CLAY (CL)*** *Slightly moist, firm, brown, low plasticity*				*1.2*		
1000					*1.3*		
1500		*GNO*			*1.4*		
1800	***END OF BOREHOLE***				*1.5*		

LCA and Onsite System Design for
131 Shannons Lane Kerrie

SOIL TEST MELBOURNE

PROJECT NO.: 012077
DATE: 8/8/23
HOLE LOCATION: *Per Sketch*

HOLE NO.: 2
METHOD: Mechanical Push Tube
WEATHER CONDITIONS: Fine

DEPTH (mm)	SOIL & ROCK DESCRIPTION	GROUND WATER	TREE ROOTS	SHEAR VANE READING	POCKET PENETROMETER (1kg per 1cm²)	EXISTING FOOTING (mm)	DEPTH (mm)
	FILL *Grass, silt, clay, slightly moist, medium compact*						
600	***SILTY CLAY (CL)*** *Slightly moist, firm, brown, low plasticity*				*1.2*		
1000					*1.3*		
1500		*GNO*			*1.4*		
1800	***END OF BOREHOLE***				*1.5*		

LCA and Onsite System Design for
131 Shannons Lane Kerrie

SOIL TEST MELBOURNE

PROJECT NO.: 012077
DATE: 8/8/23
HOLE LOCATION: *Per Sketch*

HOLE NO.: 3
METHOD: Mechanical Push Tube
WEATHER CONDITIONS: Fine

DEPTH (mm)	SOIL & ROCK DESCRIPTION	GROUND WATER	TREE ROOTS	SHEAR VANE READING	POCKET PENETROMETER (1kg per 1 cm²)	EXISTING FOOTING (mm)	DEPTH (mm)
	FILL *Grass, silt, clay, slightly moist, medium compact*						
400	***SILTY CLAY (CL)*** *Slightly moist, firm, brown, low plasticity*				*1.2*		
1000					*1.4*		
1500		*GNO*			*1.4*		
1800	***END OF BOREHOLE***				*1.4*		

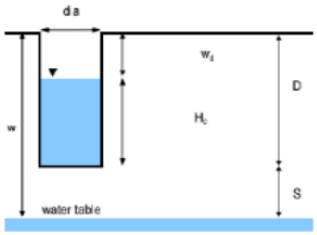
ABBREVIATIONS PER APPENDIX

LCA and Onsite System Design for
131 Shannons Lane Kerrie

PERCOLATION TEST REPORT

SOIL TEST MELBOURNE

Test Fluid:	Potable Water
Holes Radius, R:	8.3cm
Hole Depth, D:	80cm
Depth to Water, Wd:	60cm
Constant Head, Hc:	20cm
Depth to Water Table (if known)	NA



sat/unsat flow ratio (cm-1) = α* = 0.01

Time (min)	Change in Time (min) (A)	Reservoir Level (cm) (WL)	Change in WL (cm) (B)	Rate of Fall (B)÷(A)
1	1	30		
5	5	29	1	0.2
20	15	29	0	0
35	15	29	0	0
3	0.5	10	5	0
3.5	0.5	5	5	0

Hydraulic Conductivity, $K = CQ/[2\pi H^2 + C\pi a^2 + (2\pi H/\alpha^*)]$

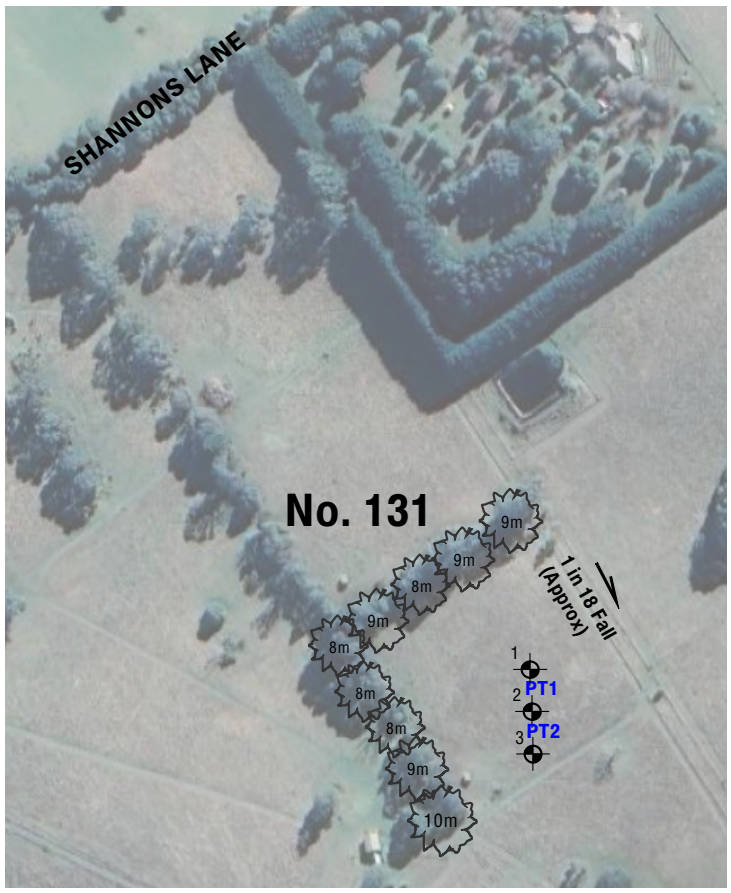
m/sec	m/day	Liter/minute
0.000001	0.0864	0.06

Site conditions	
Vegetation	grass
Slope	1:26
Surface Cracks	no
Water Logging	no

LCA and Onsite System Design for
131 Shannons Lane Kerrie

SITE SKETCH

SKETCH ONLY :- Not To Scale



Appendix IC

JOB NUMBER: 012077

DATE: 08/08/2023

TEST LOCATION (Approx)
FENCED BOUNDARY
UNFENCED BOUNDARY
Y:X SLOPE
m TREE

Appendix 2 VLCAF Trench and Bed Calculator and BOM Data

Victorian Land Capability Assessment Framework

VLCAF Trench & Bed Sizing

FORMULA FOR TRENCH AND BED SIZING				
L = Q/DLR x W			From AS/NZS 1547:2012	
Where:	Units			
L = Trench or bed length	m		Total trench or bed length required	
Q = Design Wastewater Flow	L/day		Based on maximum potential occupancy and derived from Table 4 in the EPA Code of Practice (2013)	
DLR = Design Loading Rate	mm/day		Based on soil texture class/permeability and derived from Table 9 in the EPA Code of Practice (2013)	
W = Trench or bed width	m		As selected by designer/installer	
INPUT DATA				
Design Wastewater Flow	Q	200	L/day	Based on maximum potential occupancy and derived from Table 4 in the EPA Code of Practice (2
Design Loading Rate	DLR	5.0	mm/day	Based on soil texture class/permeability and derived from Table 9 in the EPA Code of Practice (20
Trench basal area required	B	40.0	m^2	
Selected trench or bed width	W	1.6		As selected by designer/installer
OUTPUT				
Required trench or bed lengt	L	25.0	m	

Monthly Rainfall (millimetres)

HESKET (STRAWS LANE)

Station Number: 087118 · State: VIC · Opened: 1968 · Status: Open · Latitude: 37.35°S · Longitude: 144.61°E · Elevation: 650 m

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1968											60.7	47.5	
1969	24.8	61.6	76.0	58.4	116.6	22.5	155.5	76.9	113.7	25.0	47.0	44.9	822.9
1970	182.7	14.2	206.2	107.0	87.6	54.6	47.7	134.2	106.9	36.4	114.8	58.2	1150.5
1971	70.1	70.4	15.6	103.0	121.8	68.3	43.5	57.7	70.3	141.3	238.7	65.9	1066.6
1972	37.9	138.3	51.3	53.1	43.6	38.6	63.7	82.1	47.0	48.7	47.4	0.0	651.7
1973	115.0	196.4	71.6	63.4	90.5	112.0	68.9	148.4	110.5	111.0	66.5	83.8	1238.0
1974	82.6	35.2	67.9	158.4	200.6	45.8	174.0	125.7	124.6	135.4	76.7	18.4	1245.3
1975	37.2	9.2	73.2	32.2	93.4	55.1	105.4	174.6	171.0	254.1	53.0	75.3	1133.7
1976	24.0	64.2	32.2	22.4	29.2	104.9	43.6	133.4	139.8	138.0	124.1	53.5	909.3
1977	78.5	82.0	49.4	96.2	93.2	192.0	78.0	53.6	78.8	28.0	50.4	18.8	898.9
1978	67.0	15.0	59.4	64.0	85.2	144.4	113.8	161.0	130.4	88.9	103.8	105.4	1138.3
1979	51.2	45.0	30.4	68.7	111.4	34.4	44.6	120.9	132.1	126.6	48.8	14.4	828.5
1980	70.7	6.7	18.0	88.8	42.2	106.0	81.0	89.2	75.7	104.1	50.7	53.2	786.3
1981	52.4	29.2	44.4	8.0	115.5	148.0	154.3	167.8	30.3	55.8	52.8	25.8	884.3
1982	57.6	23.7	67.2	43.4	54.9	52.8	38.4	26.5	52.8	38.7	14.0	86.5	556.5
1983	12.1	4.8	91.0	103.3	122.4	72.1	161.6	101.9	144.8	106.2	122.0	24.2	1066.4
1984	94.0	7.0	127.6	93.6	28.0	49.9	80.6	161.0	166.2	59.2	82.8	39.8	989.7
1985	34.0	12.6	76.0	83.0	97.0	109.0	99.6	185.6	90.8	125.7	66.5	175.8	1155.6
1986	20.6	12.2	7.1	93.7	93.0	44.5	144.0	92.2	104.1	140.2	39.1	76.7	867.4
1987	74.4	32.5	42.4	62.0	89.9	154.7	162.8	68.8	57.9	66.8	55.9	87.6	955.7
1988	89.4	18.5	21.1	49.3	106.4	98.0	144.3	85.2	102.4	41.2	190.9	74.2	1020.9
1989	35.8	21.2	131.0	94.9	108.2	173.5	114.0	99.2	94.3	129.0	25.2	28.2	1054.5
1990	8.2	116.4	47.2	109.4	28.2	74.4	162.6	97.8	49.4	92.2	37.3	19.8	842.9
1991	61.5	3.8	13.5	74.9	14.7	205.7	94.5	86.9	82.3	23.1	29.7	119.6	810.2
1992	40.1	13.2	21.6	51.6	130.0	105.9	43.9	129.5	204.0	106.4	130.8	118.7	1095.7
1993	99.8	42.4	48.6	12.6	61.2	55.8	124.2	92.0	335.2	94.4	92.6	143.4	1202.2
1994	34.8	101.0	47.4	55.0	81.6	99.2	15.4	44.3	53.6	26.8	42.8	10.0	611.9
1995	63.2	30.4	51.0	100.2	122.0	172.6	108.6	65.4	59.6	118.6	139.2	44.0	1074.8
1996	103.2	123.6	55.4	74.4	76.4	169.0	101.8	102.0	130.4	49.2	89.2	26.6	1101.2
1997	35.2	3.4	17.9	14.2	92.6	74.6	39.8	77.4	107.8	38.8	89.2	29.2	620.1
1998	40.4	33.0	6.8	78.2	32.4	98.4	114.2	39.0	77.0	77.0	101.2	33.8	731.4
1999	37.6	34.0	68.8	20.4	79.8	83.8	55.2	132.0	51.0	85.4	41.4	136.2	825.6
2000	59.4	79.2	25.4	64.0	145.3	82.0	95.2	64.6	110.4	143.8	99.4	31.0	999.7
2001	21.0	8.6	90.4	101.2	25.4	59.6	46.4	98.0	45.2	120.4	80.4	36.8	733.4
2002	57.2	69.8	82.8	44.6	29.6	111.4	32.4	61.0	61.6	36.2	27.4	26.8	640.8
2003	30.6	36.0	39.4	73.8	40.8	80.6	105.8	115.8	59.8	112.0	43.6	75.6	813.8
2004	22.6	9.6	19.4	67.8	50.8	78.4	93.2	95.4	88.2	44.8	108.6	102.6	781.4
2005	42.6	162.2	13.4	22.6	18.6	111.2	74.6	106.6	50.4	67.2	85.2	55.8	810.4
2006		25.6	18.4	55.0	57.6	32.0	114.0	38.0	78.4	10.0	35.0	27.0	
2007	79.4	25.6	40.4	49.4	94.4	141.4	121.2	32.2	42.0	11.2	95.8	98.8	831.8
2008	40.2	40.4	26.2	19.6	40.4	65.6	104.8	82.0	32.8	17.2	77.4	114.2	660.8
2009	0.0	4.2	51.2	33.4	30.2	59.0	76.2	97.2	108.2	54.8	96.4	37.8	648.6
2010	91.2	74.2	99.4	44.6	45.6	105.2	83.8	153.6	96.0	178.4	158.4	83.8	1214.2
2011	210.6	125.0	44.8	90.2	81.6	83.6	88.4	58.0	114.6	83.6	83.8	68.8	1133.0
2012	28.8	154.6	87.8	38.0	65.8	144.2	115.6	135.2	47.6		27.8	20.0	
2013	11.6	88.4	48.4	21.2		140.8	101.4	101.8	84.8	76.8	84.2	42.2	
2014	17.8	18.6	41.2	100.2	43.8	109.2	57.2	30.2	64.2	57.0	47.6	47.2	634.2
2015	51.4	48.8	37.0	64.6	65.2	49.4	103.4	59.0	42.0	26.8	43.6	40.6	631.8

Quality control: 12.3 Done & acceptable, *12.3* Not completed or unknown

Monthly Rainfall (millimetres)

HESKET (STRAWS LANE)

Station Number: 087118 · State: VIC · Opened: 1968 · Status: Open · Latitude: 37.35°S · Longitude: 144.61°E · Elevation: 650 m

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2016		15.4	41.6	39.8	88.4	97.4	164.2	108.4	168.6	90.0	70.8	94.6	
2017	27.4	26.4	33.6	165.6	41.4	16.8	62.4	127.8	49.0	45.2	83.8	82.2	761.6
2018	78.0	3.4	41.0	20.0	145.0	81.2	72.0	73.6	25.8	70.6	72.6	88.8	772.0
2019	16.6	12.4	19.4	6.6	117.8	188.4	*53.4*	*82.6*	*33.6*	*31.8*	74.8	8.2	*645.6*
2020	*94.0*	*59.0*	90.6	*131.6*	95.4	57.0	*36.8*	89.7	*62.5*	102.2	*54.6*	*43.6*	*917.0*
2021	*120.8*	*15.6*	*66.4*		*75.7*	*236.4*	90.5	52.0	80.4	*86.8*	104.0	51.4	
2022	54.6	1.4	103.8	89.2	*37.4*			123.2	135.0	*217.8*	*125.8*		
2023	*18.8*	*25.4*	*47.2*	*92.8*	*63.4*								

Quality control: 12.3 Done & acceptable, *12.3* Not completed or unknown

Monthly Rainfall (millimetres)

HESKET (STRAWS LANE)

Station Number: 087118 · State: VIC · Opened: 1968 · Status: Open · Latitude: 37.35°S · Longitude: 144.61°E · Elevation: 650 m

Statistics for this station calculated over all years of data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	56.8	46.0	53.6	66.2	76.8	97.2	91.9	96.3	92.1	83.0	78.3	59.6	895.1
Lowest	0.0	1.4	6.8	6.6	14.7	16.8	15.4	26.5	25.8	10.0	14.0	0.0	556.5
5th percentile	11.9	3.7	13.5	13.6	27.1	33.4	37.8	36.0	33.3	20.7	27.7	12.9	624.2
10th percentile	18.0	5.6	17.9	20.1	29.3	44.8	43.5	46.6	43.0	26.8	35.9	19.1	638.8
Median	51.2	29.2	47.2	64.0	80.7	83.8	93.2	93.8	81.3	77.0	74.8	49.5	855.2
90th percentile	98.6	120.7	90.8	103.2	121.9	171.9	155.3	152.0	143.3	139.8	125.1	111.6	1152.0
95th percentile	117.3	143.2	110.9	117.2	135.2	189.8	162.7	163.4	169.4	157.6	145.0	125.4	1210.0
Highest	210.6	196.4	206.2	165.6	200.6	236.4	174.0	185.6	335.2	254.1	238.7	175.8	1245.3

Statistics calculated over the period 1961-1990

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	60.0	46.2	63.9	75.3	89.0	88.9	103.7	111.1	99.7	95.1	76.9	55.6	966.5
Lowest	8.2	4.8	7.1	8.0	28.0	22.5	38.4	26.5	30.3	25.0	14.0	0.0	556.5
5th Percentile	12.5	6.7	15.7	22.9	28.2	34.6	43.5	53.8	47.1	28.4	26.4	14.8	658.4
10th percentile	20.9	7.2	18.3	33.3	30.5	39.2	43.7	58.8	49.7	36.6	37.7	18.5	790.0
Median	55.0	26.5	55.3	75.8	93.1	73.2	102.5	100.6	103.2	98.2	55.9	53.2	972.7
90th percentile	93.5	113.0	123.9	106.6	121.3	154.0	162.5	167.1	144.3	140.0	123.7	87.4	1155.1
95th percentile	113.9	137.2	130.8	109.3	122.4	172.6	162.8	174.3	165.1	141.2	184.2	103.6	1233.9
Highest	182.7	196.4	206.2	158.4	200.6	192.0	174.0	185.6	171.0	254.1	238.7	175.8	1245.3

1) Calculation of statistics

Summary statistics, other than the Highest and Lowest values, are only calculated if there are at least 20 years of data available.

2) Gaps and missing data

Gaps may be caused by a damaged instrument, a temporary change to the site operation, or due to the absence or illness of an observer.

3) Further information

http://www.bom.gov.au/climate/cdo/about/about-rain-data.shtml.

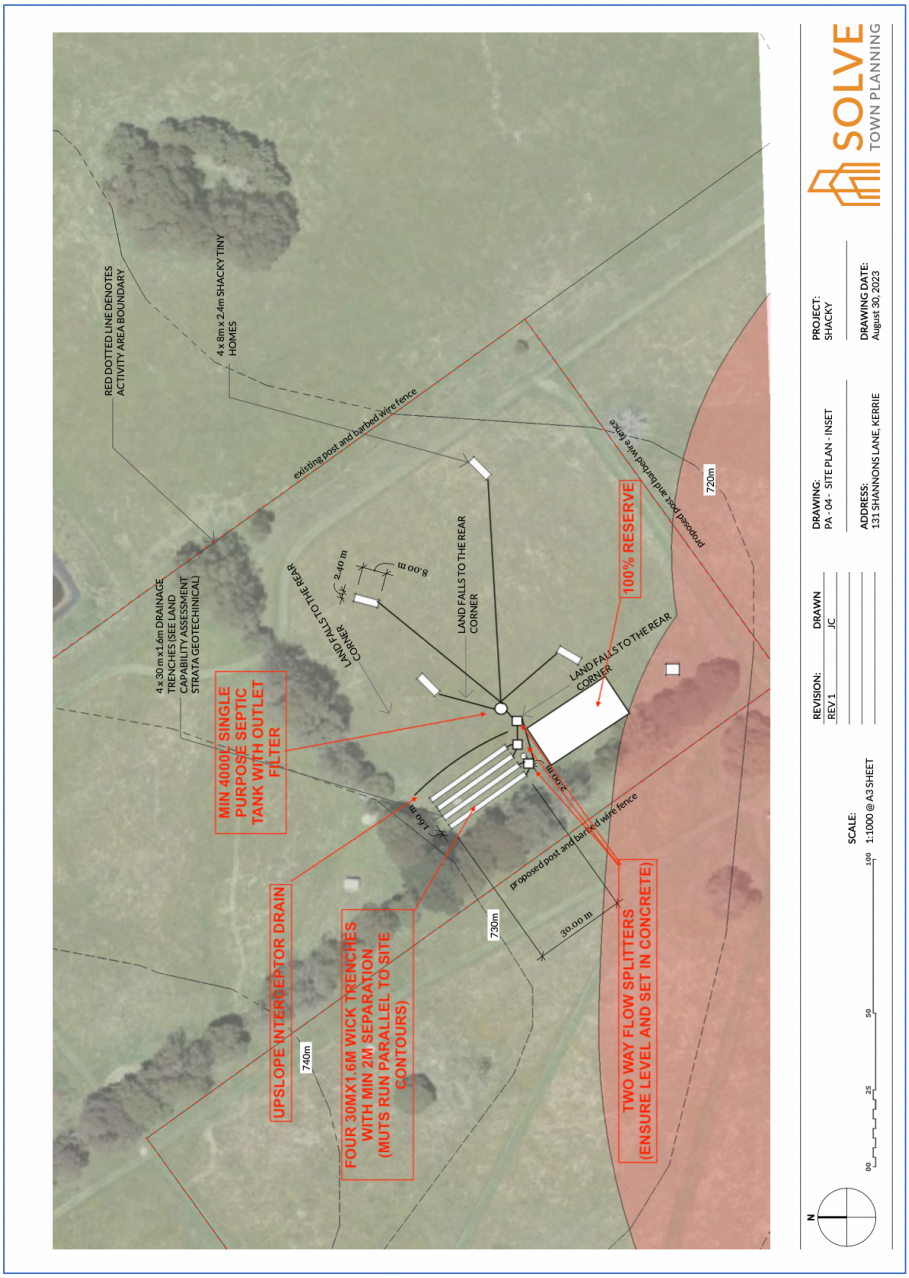
Australian Government
Bureau of Meteorology

Product code: IDCJAC0001 reference: 97416542 Created on Tue 04 Jul 2023 13:16:13 PM AEST

Page 3 of 3

LCA and Onsite System Design for
131 Shannons Lane Kerrie

Appendix 3 Wastewater System Design



Wick Trench Design and Construction Notes (Extract from SCA, 2012)

Wick trenches

'Wick' trenches are an emerging technology that may be suitable for small sites with limited space for land application and where low hydraulic conductivity soils need extensive trench lengths. The 'Wick' trench combines absorption and evapotranspiration to best use the available space between trenches in the land application area.

These trenches were developed by Kerry Flanagan Wastewater to use in clay soil areas. The design is provided as an alternative to standard absorption trenches. The non-woven, needle punched geotextile fabric (250 g/m^2 minimum weight) acts as a wick to distribute effluent over a transpiration bed adjacent to the trench. This provides a larger surface area with more potential for evapotranspiration and greater infiltration capacity than would be available using a standard absorption trench. The 'Wick trench also allows reserve in the design. It can be used on sloping sites by creating terraces for each trench.

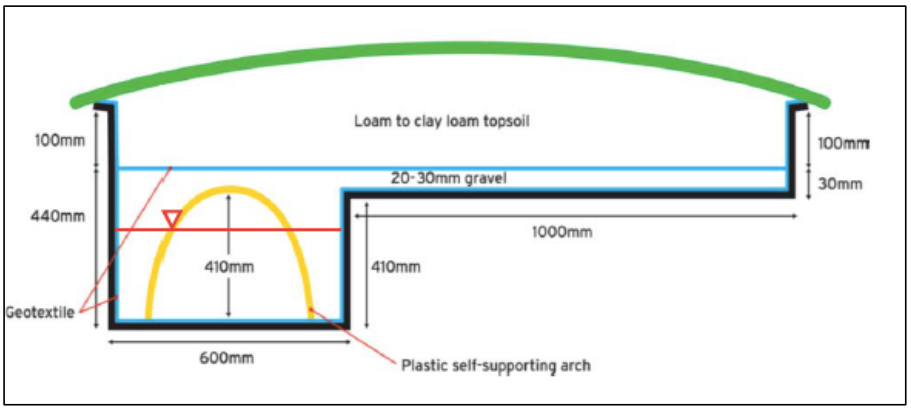


Figure 1 Cross section of a "Wick" trench

The following points should be noted when installing a 'Wick' trench:

• NSW Health non-disinfected effluent to be disposed of at a soil depth of more than 300 millimetres for both trenches and beds (NSW Health, 2008).

• Avoid uneven areas when choosing where to put the trench. If a level area cannot be used, terrace the area for the trench.

• Ensure the trench has a uniform depth of soil across the finished surface for even, uniform performance along the trench.

• Avoid filling hollows across the contour as this may interfere with effluent distribution.

• The original ground level of the land application area should be 100 to 150 millimetres below the invert of the tank outlet. If the tank outlet invert is 400 millimetres from the top of the tank, the ground level where the trench will be built must be at least 550 millimetres lower than the ground where the tank is located.

• Where it is impossible to achieve 550 millimetres height separation between the tank and trench, use a pump and pump well to load the trench

• The septic tank must be desludged at appropriate intervals to ensure that sludge does not flow into the trench, reducing trench performance.

Wick Trench installation

1. Set out the trench area and instruct the excavator operator where to cut (Figures 2).

Figure 2 Excavation of the bed of the "Wick" trench

2. Excavate the transpiration pan while digging the trench for the self supporting drain.
3. Excavate the pan 300 millimetres deep and the trench 600 millimetres deep. Levels need to be continuously checked.
4. Apply Gypsum at a rate of 1kg/m^2.
5. After excavation is complete, lay the liner fabric (not geotextile fabric) in the trench and position the self-supporting arch trench
6. Lay the geotextile fabric only on the side of the trench and then so it continues across into the pan area (Figure 3). This is the 'wick'. Do not use geotextile fabric on the bottom of the trench as it will clog.

Figure 10.3 Laying the liner in the trench and then the geotextile fabric as the 'wick' across the pan

7. Spread clean recycled 20 millimetre gravel across the pan and into the trench (Figure 4). Gravel should be as clean as possible. Some recycled gravel may not be washed (check with your supplier).

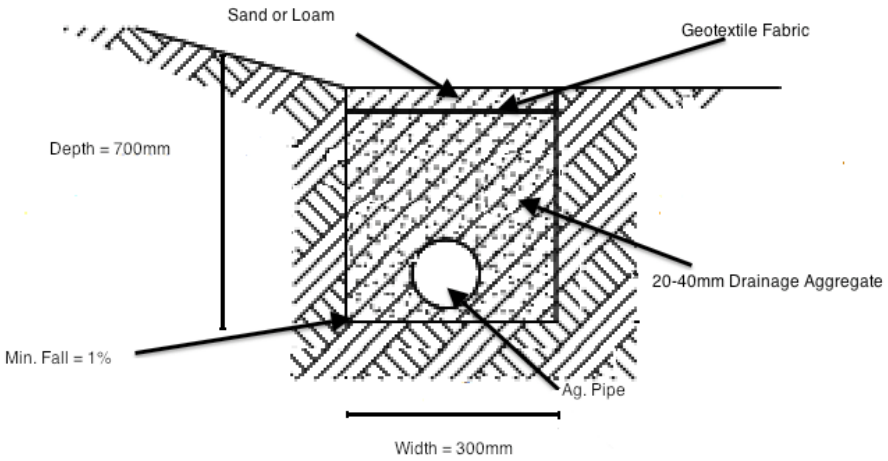
8. Place another layer of geotextile fabric over the top of the trench (Figure 5).

Figure 4 Backfilling gravel layer. Figure 5 Adding the second geotextile fabric layer

8. Select a good permeable soil for back filling. Never backfill with the clay soil from the lower soil horizons.
9. Ensure that connection points can be inspected whether pumped or gravity fed. Use inspection openings at trench entry points and connection points to other trenches (Figure 5).
10. Install a mica-flap vent at ground level, at the end of the trench to allow air to flow through the trench, up the drain line into the tank, and continue up the drainage and expel through the roof vent. This will improve the environment in the system by increased aeration.

Figure 5 Backfilling and the inspection ports

Interceptor Ag Drain Design and Construction Notes



Ag drain cross section showing key dimensions

Interceptor Drain Construction Notes

1. Ag drain should be located upslope of the proposed irrigation area/trenches/beds as shown in site plan.
2. Ag drain should be 300mm wide and 700mm deep. The base of the trench **MUST** be excavated evenly with a minimum fall to the discharge point of 1%. In clay soils smearing of walls and floors of bed **MUST** be avoided.
3. Ag drains are best employed for areas where significant subsurface groundwater recharge is anticipated.
4. Ag. drains should be constructed to ensure adequate fall to appropriate stormwater discharge points or other suitable areas provided that any water is not disposed of over site boundaries.

Appendix 4 Extract from EPAV 2016

Code of practice – onsite wastewater management

Table 4: Minimum daily wastewater flow rates and organic loading rates [1, 10]

Source	Design hydraulic flow rates for all water supplies [2, 4, 5] (L/person.day)	Organic material loading design rates (g BOD/person.day) [7]
Households with extra wastewater producing facilities [6]	220	60
Households with standard water fixtures	180	60
Households with full water-reduction fixtures [3]	150	60
Motels/hotels/guesthouse		
- per bar attendant	1000	120
- bar meals per diner	10	10
- per resident guest and staff with in-house laundry	150	80
- per resident guest and staff with out-sourced laundry	100	80
Restaurants (per potential diner) [9]		
- premises <50 seats	40	50
- premises >50 seats	30	40
- tearooms, cafés per seat	10	10
- conference facilities per seat	25	30
- function centre per seat	30	35
- take-away food shop per customer	10	40
Public areas (with toilet, but no showers and no café) [8]		
- public toilets	6	3
- theatres, art galleries, museum	3	2
- meeting halls with kitchenette	10	5
Premises with showers and toilets		
- golf clubs, gyms, pools etc. (per person)	50	10
Hospitals - per bed	350	150
Shops/shopping centres		
- per employee	15	10
- public access	5	3
School – child care	20	20
- per day pupil and staff	20	20
- resident staff and boarders	150	80
Factories, offices, day training centres, medical centres	20	15
Camping grounds		
- fully serviced	150	60
- recreation areas with showers and toilets	100	40

1. Based on EPA Code of Practice for Small Wastewater Treatment Plants, Publication 500 (1997).
2. When calculating the flow rate for an existing commercial premise, use this table or metered water usage data from the premise's actual or pro-rata indoor use.
3. WELS-rated water-reduction fixtures and fittings - minimum 4 Stars for dual-flush toilets, shower-flow restrictors, aerator taps, flow/pressure control valves and minimum 3 Stars for all appliances (e.g. water-conserving automatic clothes washing machines).
4. These flow rates take into consideration the likelihood of a reliable water supply being currently provided to a premises or in the future (e.g. from groundwater, surface water or reticulated water supply, or a tankered water supply).
5. Where Council is satisfied a household or premises is unlikely to be provided with a reliable water supply (e.g. a rural farming property where groundwater or surface water is unavailable or used only for stock) the design flow rates for Onsite Roof Water Tank Supply listed in the most current version of AS/NZS 1547 may be used.
6. Extra water producing fixtures include, but are not limited to, spa baths.
7. Based on Crites & Tchobanoglous (1998) and EPA Publication 500 (1997).
8. For premises such as public areas, factories or offices that have showers and toilets, use the flow rates for 'Premises with showers and toilets' in the calculations.
9. Number of seats multiplied by the number of seatings i.e., may include multiple seatings for breakfast, morning and afternoon teas, lunch and/or dinner.
10. The organic loading rate must be considered as well as the hydraulic flow rate when selecting the most suitable treatment system.

33

Code of practice – onsite wastewater management

Table 5: Setback distances for primary and secondary treatment plants and effluent disposal/irrigation areas in sewered and unsewered areas (where applicable) [1, 2, 6, 10]

Landscape feature or structure	Setback distances (m)		
	Primary sewage and greywater systems	Secondary sewage and greywater systems	Advanced secondary greywater systems [3]
Building			
Wastewater field up-slope of building [7]	6	3	3
Wastewater field down-slope of building	3	1.5	1.5
Wastewater up-slope of cutting/escarpment [12]	15	15	15
Allotment boundary			
Wastewater field up-slope of adjacent lot	6	3	1
Wastewater field down-slope of adjacent lot	3	1.5	0.5
Services			
Water supply pipe	3	1.5	1.5
Wastewater up-slope of potable supply channel	300	150	150
Wastewater field down-slope of potable supply channel	20	10	10
Gas supply pipe	3	1.5	1.5
In-ground water tank [14]	15	7.5	3
Stormwater drain	6	3	2
Recreational areas			
Children's grassed playground [15]	6	3 [16]	2 [16]
In-ground swimming pool	6	3 [16]	2 [16]
Surface waters (up-slope of:)			
Dam, lake or reservoir (potable water supply) [8, 13]	300	300 [4]	150
Waterways (potable water supply) [9, 13]	100	100 [4, 5, 17]	50
Waterways, wetlands (continuous or ephemeral, non-potable); estuaries, ocean beach at high-tide mark; dams, reservoirs or lakes (stock and domestic, non-potable) [8, 9]	60	30	30
Groundwater bores			
Category 1 and 2a soils	NA [11]	50 [19]	20
Category 2b to 6 soils	20	20	20
Watertable			
Vertical depth from base of trench to the highest seasonal water table [18]	1.5	1.5	1.5
Vertical depth from irrigation pipes to the highest seasonal water table [18]	NA	1.5	1.5

1. Distances must be measured horizontally from the external wall of the treatment system and the boundary of the disposal/irrigation area, except for the 'Watertable' category which is measured vertically through the soil profile. For surface waters, the measuring point shall be from the 'bank-full level'.
2. Primary water-based sewerage systems must only be installed in unsewered areas; secondary sewerage systems must only be installed and managed in sewered areas by Water Corporations; secondary greywater systems can be installed in sewered and unsewered areas (see Section 3.12.3).
3. Advanced secondary greywater systems treating effluent to ≤10/10/10 standard.
4. The setback distance in a Special Water Supply Catchment area may be reduced by up to a maximum of 50% conditional on the following requirements (otherwise the setback distances for primary treatment systems apply):
   - effluent is secondary treated to 20/30 standard as a minimum
   - a maintenance and service contract, with a service technician accredited by the manufacturer, is in place to ensure the system is regularly serviced in accordance with Council Septic Tank Permit conditions and
   - Council is satisfied the reduction in set-back distance is necessary to permit the appropriate development of the site and that risks to public health and the environment are minimised.

41

Code of practice – onsite wastewater management

Appendix A:

Table 9: Soil Categories and Recommended Maximum Design Loading/Irrigation Rates (DLR/DIR) for Land Application Systems [1, 2, 5]

Soil texture	Soil structure	Soil category	Indicative permeability (Ksat) (m/d)	Design Loading Rates and Design Irrigation Rates (DLR / DIR) (mm/day)					
				Absorption trenches/beds and Wick Trench & Bed Systems 6 for primary effluent (see Table L1 in AS/NZS 1547:2012)	(ETA) Evapo-transpiration absorption beds and trenches (see Table L1 in AS/NZS 1547: 2012)	Secondary treated effluent applied to Wick Trench & Bed System [4]	Sub-surface and surface irrigation (see Table M1 in AS/NZS 1547: 2012)	LPED (see Table M1 in AS/NZS 1547: 2012)	Mounds (basal area) (see Table N1 in AS/NZS 1547: 2012)
Gravels and sands	Structureless (massive)	1	>3.0	NA [3]	NA [3]	25	5 [6] (see Note 2 in Table M1)	NA [3]	24
Sandy loams	Weakly structured	2a	>3.0						24
	Massive	2b	1.4 - 3.0	15	15	30		4	24
Loams	High / moderate structured	3a	1.5 - 3.0	15	15	30	4 (see Note 1 in Table M1)	3.5	24
	Weakly structured or massive	3b	0.5 - 1.5	10	10	30			16
Clay loams	High / moderate structured	4a	0.5 - 1.5	10	12	30	3.5 (see Note 1 in Table M1)	3	16
	Weakly structured	4b	0.12 - 0.5	6	8	20			8
	Massive	4c	0.06 - 0.12	4	5	10			5 (see Note to Table N1)
Light clays	Strongly structured	5a	0.12 - 0.5	5	8	12	3 (see Note 1 in Table M1)	2.5 (see Note 4 in Table M1)	8
	Moderately structured	5b	0.06 - 0.12	(see Notes 2 and 3 in Table L1)	5 (see Notes 2, 3 & 5 in Table L1)	10			5 (see Note to Table N1)
	Weakly structured or massive	5c	<0.06			8			
Medium to heavy clays	Strongly structured	6a	0.06 - 0.5			5 (see Notes 2 and 3 in Table L1)	2 (see Note 2 in Table M1)	NA	
	Moderately structured	6b	<0.06						
	Weakly structured or massive	6c	<0.06						

1. Adapted from Australian Standard AS/NZS 1547: 2012 - On-site domestic wastewater management.
2. The DIR and DLR are recommended maximum application rates for treated effluent. A water balance may indicate that a reduced application rate is required for a specific site.
3. The exception is where the soil does not have a high perched or high seasonal (winter) watertable (see AS/NZS 1547).
4. See Appendix E for design, installation and maintenance details.
5. Lower application rates may be required for reduced soil permeability in sodic and dispersive soils, soils with a perched or seasonally high watertable or soils with a limiting layer.
6. The application rate may be increased in sandy soils with a high watertable where an advanced secondary treatment system with disinfection replaces a primary treatment system on an existing lot that is too small to accommodate the maximum DIR for category 1 to 2b soils.

51

Appendix 5 Permeability Test Methodology (AS1547-2012)

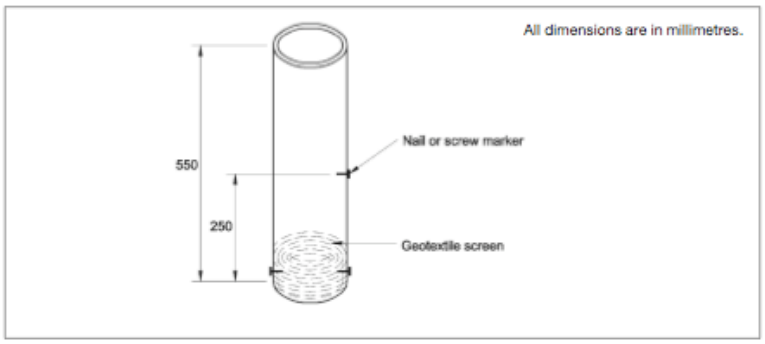


FIGURE G2 ANTI-SCOURING DEVICE

G4 TEST PROCEDURE

G4.1 Single test holes

The test method for single test holes is as follows:

(a) Excavate a cylindrical hole to the soil absorption zone using an auger;

(b) Measure the final depth of the hole. Erect the permeameter by adjusting the tripod so that the air inlet will be approximately 250 mm above the bottom of the test hole. Remove permeameter from the hole;

(c) Insert the anti-scouring device. Fill the hole to approximately 250 mm deep with water, sufficient to cover the soil absorption zone or to a level that matches the height of the invert of the delivery pipe. This is the level of water to be maintained in the test hole during testing. Remove anti-scouring device;

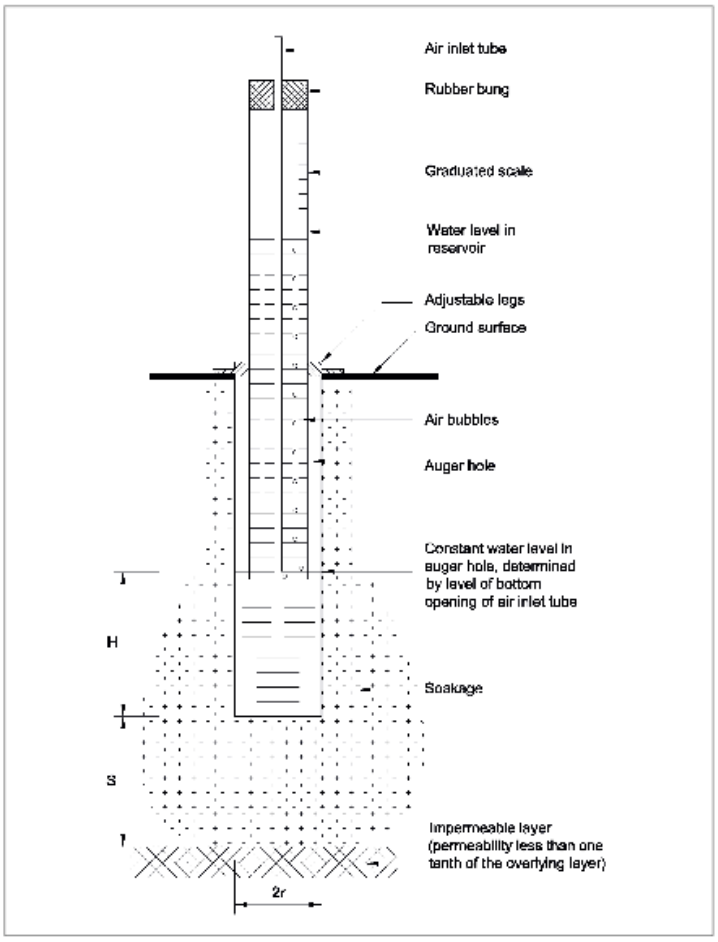
(d) Invert the permeameter and fill it with water. Temporarily close/cover the bottom end of the reservoir and turn it upright. Place the bottom of the reservoir directly over the test hole, while keeping the outlet closed. Quickly remove temporary cover and immediately lower the reservoir to rest on its stand (see (c) above) and fix in place;

(e) The suction flask is used to remove excess water from the test hole;

(f) When the water level in the hole drops sufficiently, air will enter the reservoir from the air inlet tube. Once the first air-bubble rises in the reservoir the test measurements commence;

(g) Read the level of water in the reservoir at predetermined fixed-time intervals;

(h) The drop in water level in the reservoir is recorded until it becomes 'constant' over three successive readings, that is, until the last drop of level differs by less than 10% from the preceding drop.



where:
H = depth of water in test hole
S = the depth to an underlying impermeable layer
r = radius of the test hole

FIGURE G1 PERMEAMETER ASSEMBLY

Appendix 6 Terms and Conditions

Scope of Work
These Terms and Conditions apply to any services provided to you ("the Client") by Strata Geoscience and Environmental Pty Ltd ("Strata"). By continuing to instruct Strata to act after receiving the Terms and Conditions or by using this report and its findings for design and/or permit application processes and not objecting to any of the Terms and Conditions the Client agrees to be bound by these Terms and Conditions, and any other terms and conditions supplied by Strata from time to time at Strata's sole and absolute discretion. The scope of the services provided to the Client by Strata is limited to the services and specified purpose agreed between Strata and the Client and set out in the correspondence to which this document is enclosed or annexed ("the Services"). Strata does not purport to advise beyond the Services.

Third Parties
The Services are supplied to the Client for the sole benefit of the Client and must not be relied upon by any person or entity other than the Client. Strata is not responsible or liable to any third party. All parties other than the Client are advised to seek their own advice before proceeding with any course of action.

Provision of Information
The Client is responsible for the provision of all legal, survey and other particulars concerning the site on which Strata is providing the Services, including particulars of existing structures and services and features for the site and for adjoining sites and structures. The Client is also responsible for the provision of specialised services not provided by Strata. If Strata obtains these particulars or specialised services on the instruction of the Client, Strata does so as agent of the Client and at the Client's expense. Strata is not obliged to confirm the accuracy and completeness of information supplied by the Client or any third party service provider. The Client is responsible for the accuracy and completeness of all particulars or services provided by the Client or obtained on the Client's behalf. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever suffered by the Client or any other person or entity resulting from the failure of the Client or third party to provide accurate and complete information. In the event additional information becomes available to the Client, the Client must inform Strata in writing of that information as soon as possible. Further advice will be provided at the Client's cost. Any report is prepared on the assumption that the instructions and information supplied to Strata has been provided in good faith and is all of the information relevant to the provision of the Services by Strata. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if Strata has been supplied with insufficient, incorrect, incomplete, false or misleading information.

Integrity
While all reasonable care is taken reporting to the Client, Strata does not warrant that the information contained in any report is free from errors or omissions. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from errors in a report. Any report should be read in its entirety, inclusive of any summary and annexures.. Strata does not accept any responsibility where part of any report is relied upon without reference to the full report. Latter versions of any report invalidate any recommendations, assumptions, or designs contained in former reports. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever based upon the use of older versions of any report.

Project Specific Criteria
Any report provided by Strata will be prepared on the basis of unique project development plans which apply only to the site that is being investigated. Reports provided by Strata do not apply to any project other than that originally specified by the Client to Strata. The Report must not be used or relied upon if any changes to the project are made. The Client should engage Strata to further advise on the effect of any change to the project. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever where any change to the project is made without obtaining a further written report from Strata. Changes to the project may include, but are not limited to, changes to the investigated site or neighbouring sites, for instance, variation of the location of proposed building envelopes/footprints, changes to building design which may impact upon sewage treatment plant system design, specification and performance.

Interpretation

Strata is not responsible for the interpretation of site data or report findings by other parties, including parties involved in the design and construction process. The Client must seek advice from Strata about the interpretation of the site data or report.

Design/Report Recommendations

Where sewage treatment plant and/or application system designs are provided by Strata, reasonable effort will be made to minimise environmental, public health and commercial risks associated with the disposal of effluent within site boundaries with respect to relevant Australian guidelines and industry best practise at the time of investigation. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from:

(i) changes to either the project or site conditions that affect the onsite wastewater land application system's ability to safely dispose of modelled wastewater flows; or
(ii) changes to original use of site infrastructure or changes from original modelled loadings as a result of change of use or incorrect loading information supplied by the client: or
(iii) seepage, pollution or contamination or the cost of removing, nullifying or clearing up seepage, polluting or contaminating substances; or
(iv) poor system performance where septic tanks have not been de-sludged at maximum intervals of 3 years or sewage treatment plants have not been serviced in compliance with the manufacturers recommendations; or

(v) system /component failure of any recommended system/component; or
(vi) poor contractor construction/installation practice; or
(vii) Inferior product/component selection by installing contractor ; or
(viii) any treatment plant , treatment plant component or land application area breakdown of any kind; or
(ix) failure of the client to commission both interim and final inspections by the designer throughout the system construction; or
(x) the selection of inappropriate plants for irrigation areas or any increased cost associated with upkeep of recommended plants or their replacement; or
(xi) damage to any infrastructure by seepage/effluent including but not limited to foundations, walls, driveways and pavements; or
(xii) land instability, soil erosion or dispersion caused by seepage/effluent or the installation of sewage plant infrastructure; or
(xiii) Excavation difficulties given hard rock, watertables, collapsing soils or other difficult conditions; or
(xiv) Dammages to underground services via excavation or system installation; or
(xv) design changes requested by the Permit Authority;or
(xvi) time delays associated with any of the above, or to strata or any of its representatives being able to mobilise to site for any reason.

Furthermore Strata does not guarantee land application design life beyond 2 years from installation,. Strata does not warrant EPA sand filter designs.

Strata does not consider site contamination, unless the Client specifically instructs Strata to consider the site contamination in writing. If a request is made by the Client to consider site contamination, Strata will provide additional terms and conditions that will apply to the engagement.

Copyright and Use of Documents
Copyright in all drawings, reports, specifications, calculations and other documents provided by Strata or its employees in connection with the Services remain vested in Strata. The Client has a licence to use the documents for the purpose of completing the project. However, the Client must not otherwise use the documents, make copies of the documents or amend the documents unless express approval in writing is given in advance by Strata. The Client must not publish or allow to be published, in whole or in part, any document provided by Strata or the name or professional affiliations of Strata, without first obtaining the written consent of Strata as to the form and context in which it is to appear.

If, nhaming the course of providing the Services, Strata develops, discovers or first reduces to practice a concept, product or process which is capable of being patented then such concept, product or process is and remains the property of Strata and:

(i) the Client must not use, infringe or otherwise appropriate the same other than for the purpose of the project without first obtaining the written consent of Strata; and

(ii) the Client is entitled to a royalty free licence to use the same during the life of the works comprising the project.

Digital Copies of Report
If any report is provided to the Client in an electronic copy except directly from Strata, the Client should verify the report contents with Strata to ensure they have not been altered in any way from the original provide by Strata.

Covenant Number: C0073 Date of Plan: 31/01/2018

Management Plan

- Mr Trent & Mrs Rosemary Barry
- 131 Shannons Lane, Kerrie, VIC, 3442

TRUST FOR NATURE
Habitat forever

www.trustfornature.org.au

Front cover: View to Bolinda Creek from the covenant Photo: Andrew Kuhlmann

Plan prepared by: Andrew Kuhlmann
Published by Trust for Nature
Level 5/379 Collins Street, Melbourne 3000
For more information contact Trust for Nature on 1800 99 99 33 or visit: www.trustfornature.org.au

Contents

1 Trust for Nature's vision

Your conservation covenant represents your unique story and vision, but it is also an integral part of Trust for Nature's vision, that Victoria's most threatened native plants and wildlife are conserved for future generations. Your covenant is part of a network of over 1300 areas within Victoria, collectively protecting over 61,000ha, which are helping to conserve our natural heritage and native plants and animals forever.

1.1 Scope of plan

The land for which this management plan applies is the whole of the covenant as described within the deed of the covenant registered on title over Certificate Title Volume 6262 Folio 333 and Title Volume 1243 Folio 440.

Trent Barry on the covenant

2 Introduction

This management plan has been developed to help you manage your property, as set out in your conservation covenant.

This plan will help you to identify the:

- conservation assets to be targeted for conservation on your land;
- current condition of those assets in terms of habitat quality or abundance;
- threats to the conservation assets;
- management actions needed to help conserve those assets; and
- health of each asset that will help us evaluate ecological trends over time and revise management as needed.

This plan aims to provide relevant management guidance for the landowner for up to a period of 10 years, recognizing that adaptive management is an acceptable, and often necessary, approach. Trust for Nature acknowledges that an adaption to management may be required at a more frequent period than identified in the Management Plan. Where the landowner believes that an event (fire, flood etc.) or situation (new weed, unseasonal event, native faunal boom, etc.) has arisen that requires a change in approach to that prescribed within this management plan, the landholder can initiate a review of the actions by informing Trust for Nature of the situation and any proposed modification to the actions highlighted within this plan. The Trust will then inform the landowner of any of the following:

- acceptance of this modification to the plan in writing (or email) ;
- the need for a Trust for Nature staff member to review the plan and visit the site; or
- provide an alternative approach to dealing with the newly emerged issue.

3 Landowner and property details

Covenant File No:	C0073
Covenant address:	131 Shannons Lane, Kerrie, VIC
Title holder/s:	Trent & Rosemary Barry
Main contact name:	Trent & Rosemary Barry
Postal address:	“Isness” PO Box 822, Woodend, VIC, 3442
E-mail:	trentpatrickbarry@gmail.com
Telephone (h):	Not supplied
Telephone (m):	0418 697 606 (Trent Barry)

Covenant area

Tier 1:	9.35 Hectares
Tier 2:	0 Hectares
Domestic area:	0 Hectares
Total covenant area:	9.35 Hectares
Date of registration:	3/12/1996

Existing infrastructure

No existing infrastructure in this property

Land and vegetation classification

IBRA Region: Victorian Midlands

Victorian Bioregion: Central Victorian Uplands

Ecological Vegetation Class (EVC)

Description	Conservation Status	Total Area	Protected Area
Damp Forest	Least Concern	9.35	9.35

3.1 Statement of landowner achievements and recognition

Trent and Rosemary have gained a good understanding of the property since they bought it 5 years ago. They regularly walk through and monitor its condition and the changes that are occurring with the vegetation and make observations of threats that are present such as foxes and weeds. Large infestations of Spear Thistle and Blackberry on grazing land to the east and west of the covenant have been controlled. Although it is harder to access, the landowners have also been controlling thistles and blackberries that have penetrated into the covenant from grazing land to the northwest. Vigilant weed control around the perimeter of this covenant has high value because there is very little weed within the covenant beyond 10 meters of any boundary.

For the last 2 years the landowners have worked with Melbourne Water to help implement the Stream Frontage Management Program. This has largely focused on removing weeds from riparian vegetation along Bolinda creek but has also concentrated on sections of the covenant that are close to the creek.

With the level of maintenance this property is receiving it is likely that important ecological processes such as understorey regeneration and the maturing of large trees into old growth will continue occurring.

3.2 Statement of conservation significance

The covenanted area protects Damp Forest EVC that has been regenerating since stock was excluded 45-50 years ago. A forest dominated by fine leaf Messmate has established which provides a valuable link between very high quality remnant Riparian Forest vegetation on Bolinda Creek to the east with Macedon Regional Park to the west. The vegetation next to the covenant on Bolinda Creek is seen as high priority for Melbourne Water due to the diverse understorey of ground ferns and old growth Messmate and Manna Gum trees found there.

The canopy on the property has now reached a mature height of around 40m with well-spaced trees that allow for understorey development while preventing high threat weeds from establishing due to the lack of light. The diversity of flora species is higher towards the northeast and southwest facing boundaries of the covenant where it abuts existing patches of remnant vegetation. There is also an older cohort of Messmate trees that pre-date the time when stock was removed which will soon begin developing hollows and add significant habitat value to the property.

3.3 Covenant history, ecological events and processes

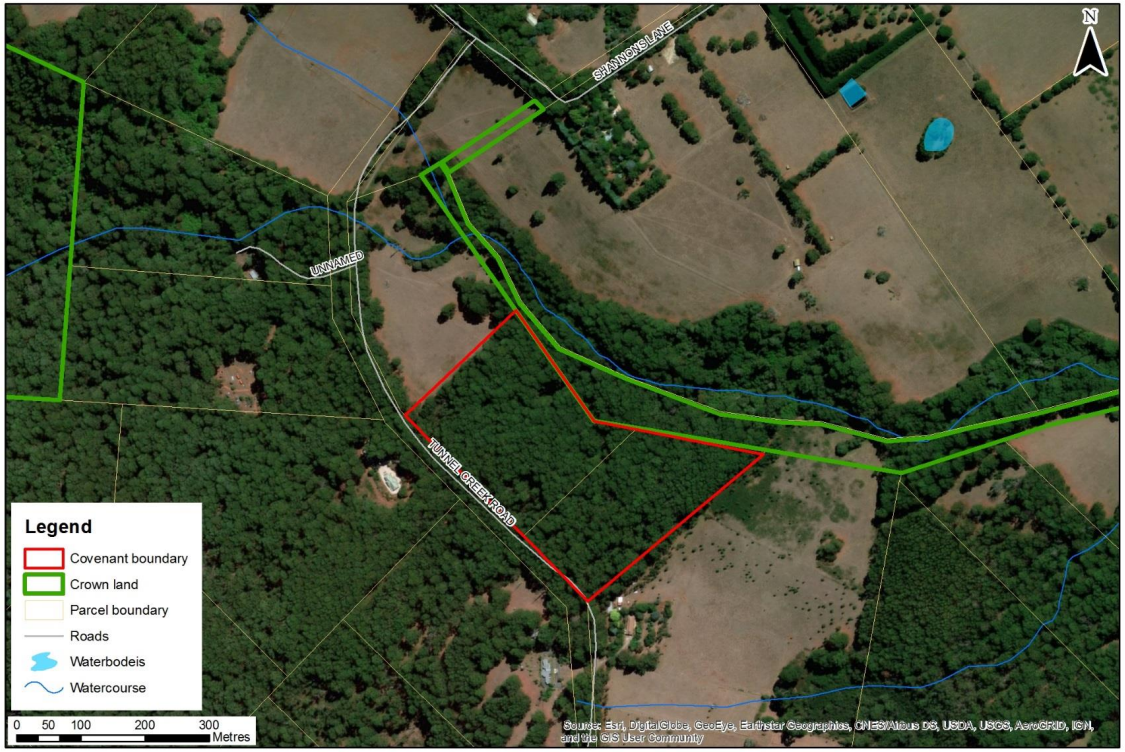
The protected land was formerly grazed until John Elder excluded stock around 1970 and then covenanted the land in 1996.

The entire covenant was burnt during the 1983 Ash Wednesday bushfires.

Recently spring/summer seasons with higher rainfall have initiated increases in the number of species regenerating in the understorey. Particularly as the canopy cover matures and provides increased protection from wind and summer heat.

Understorey vegetation along Bolinda Creek next to the covenant

3.4 Covenant map



10

4 Conservation assets

Not all rare or threatened species recorded on your property will necessarily be listed as a specific conservation asset in the table below. This may be the case where specific and direct management actions will not be carried out for that particular species, but rather broader management actions undertaken within its environment that will benefit its health, long-term survival and conservation status. These species, may, however, be listed as associated assets to a particular conservation asset in the table. Discrete species listed below as conservation assets will be those that require special management attention for example close monitoring, structural protection measures, propagation, etc.

4.1 Asset description

Asset Name	Asset Description	Associated Assets
Damp Forest	Well established forest vegetation with very little weed infestation. The canopy is dominated by Messmate trees largely around 50 years old with some larger trees over 100 years old. The diversity of the understorey is slowly increasing and structural elements such as fallen logs and a deep layer of organic matter is beginning to develop, providing a range of habitats for native fauna species. Ferns and mosses are establishing in gullies and moist areas and long lived understorey species such as Tall Sword-sedge are becoming more prominent. One interesting feature are the very old Wombat holes that are still used and likely to pre-date when the covenanted land was excluded from grazing.	Mature Messmate trees *Eucalyptus obliqua*

4.2 Asset condition

Asset Name	Date	Condition	Trend	Comment
Damp Forest	30/01/2018	Stable	Good	This is the first assessment of this conservation asset. It is expected to improve if high threat weeds continue to be controlled and stock is kept out of the covenanted area.

5 Threats

A threat level is assigned to each listed threat based on knowledge of the threat's extent, magnitude, frequency, and consequence (scale from low to very high). Very high threats will typically require immediate attention to reduce the likelihood of long-term damage to a conservation asset or general environment. The potential threat level, placed in brackets, is a view of the threat forecast within the timeframe of this plan, up to10 years, in the absence of any management intervention to reduce the threat, or following an unplanned ecological event such as fire, flood, disease, etc.

Asset Name	Threat Name	Threat Description	Class Name	Current Level	Potential Level
Damp Forest	Introduced predators (fauna)	Red Fox *Vulpes vulpes*. Commonly seen by the landowners. Since arriving in Australia 130 years ago they have contributed to the extinction of many ground-dwelling native species. Fox predation has been listed as a key threatening process under the Environment Protection and Biodiversity Conservation Act 1999.	Predation	Medium	High
Damp Forest	Introduced fauna - trample plants/native vegetation causing vegetative damage and loss	Cattle from the neighbouring property to the southeast are able to access the covenanted land. They currently cause little to no damage however have the potential to cause significant damage if they were to access the covenant regularly in large numbers	Trampling	Low	High
Damp Forest	Introduced flora-compete for light, water, nutrients and space	Spear Thistle *Cirsium vulgare*. A spiny, large headed, purple flowered annual or biennial to 1.5 m tall. It typically spreads from pastures, and roadsides into areas of disturbed native vegetation. Reproduces by seed which can be dispersed by the wind over a large area.	Competition	Low	Medium

Asset Name	Threat Name	Threat Description	Class Name	Current Level	Potential Level
Damp Forest	Introduced flora-compete for light, water, nutrients and space	Blackberry *Rubus fruticosus spp. agg*. A semi deciduous, perennial shrub with prickly canes that form clumping thickets up to 4 m high. Once blackberry is established very few native species are able to compete or regenerate. Grows vigorously where there is access to sunlight and fertile moist soil, especially where there has been soil disturbance.	Competition	Low	Very High
Damp Forest	Introduced flora-compete for light, water, nutrients and space	Woody weed species restricted to English Holly *Ilex aquifolium* and Sweet Pittosporum *Pittosporum undulatum*. These sub-canopy tree species have the capacity to establish and spread in high quality bushland with low light levels. They reproduce by seed which is spread by birds who are very attracted to the fruits produced by these trees.	Competition	Low	High

6 Management actions

The priority assigned to each management action will most commonly relate to any threats that the particular management action aims to address. However, the Trust also acknowledges the circumstances of landowners and their capacity to undertake various works, including financial capacity and physical health. Please discuss your thoughts on the above management actions with a Trust officer, whom may also be seeking funding to assist with management.

Management Action	Management Action Description	Priority
Blackberry control	Use glyphosate herbicide control. Spot spray seedlings and cut and paint larger plants. Larger thickets of dead material ideally burnt in Autumn. Apply herbicide when plants are actively growing.	High
Exclude Cattle	Repair/replace fence on the southeast boundary to ensure stock cannot enter the protected land	High
Fox control	Annually monitor for evidence of Foxes throughout the covenant. Bait or shoot foxes, especially if they are using the protected land for breeding.	High
Spear Thistle control	Hand remove individuals. Use glyphosate control by cutting and painting isolated plants and spraying larger infestations during budding and early flowering period	Medium
Control English Holly & Sweet Pittosporum	Use glyphosate herbicide control. Spot spray or hand remove seedlings and cut and paint larger plants. Apply herbicide when plants are actively growing.	Medium

6.1 Work plan

Action	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Blackberry control	X	X	X	X					X	X	X	X
Exclude Cattle	X	X	X	X	X	X	X	X	X	X	X	X
Spear Thistle control	X						X	X	X	X	X	X
Fox control – Shooting and/or baiting	X	X	X	X	X	X	X	X	X	X	X	X
English Holly & Sweet Pittosporum control				X	X	X	X	X	X			

X = month suitable for undertaking activity.

7 Important information about your covenant and plan

7.1 Legal framework

This management plan has been developed to guide your management actions, which are based on the conditions set out in your conservation covenant. The purpose of this management plan is to help protect and enhance the conservation values of your property in perpetuity. To this end, by carrying out the actions in your management plan you will be meeting some of the conditions and obligations of your conservation covenant.

You may not achieve all of the actions in the life of the plan, but we encourage you to take note especially of the high priority actions. If an action is permitted in the Deed or by an instrument made under the Deed, such as a 'letter of approval', and is permitted subject to a management plan, then the conditions in this management plan form part of the conditions under the Deed or instrument.

If your protected property is not managed in accordance with your management plan, it may constitute a breach of your covenant.

7.2 Commencement and review

This plan commences on the day it is signed by both you and the Trust, and it remains in effect until a new plan is signed. We will work with you to review your management plan every five years.

Our staff may visit you, with your approval, at other times to maintain contact and help identify any new issues that may need to be addressed. You are free to contact our regional staff at any time to get additional land management information, assistance and advice. Contact our Melbourne office on **(03) 8631 5888** or www.trustfornature.org.au to find out the contact details for our regional staff.

7.3 Change of ownership

We want to ensure that when your property changes hands, that it continues to be managed in accordance with the conservation values of the covenant. You have a duty under the deed to inform potential purchasers of your property that a covenant and management plan exists. You also have a duty under the covenant to inform us when you enter into a contract of sale of your property and provide the contact information of the new owners. This means we can contact the new owners and let them know of their obligations under the covenant and management plan.

7.4 Participation in tender, incentive or offset agreements

Prior to participation in any tender, incentive or offset agreement please contact Trust for Nature so we can determine if the management actions under the tender, incentive or offset agreement are appropriate for your covenanted land. We will work with you to update your management plan to reflect any new management actions agreed to as a condition of a tender, incentive or offset agreement. When the agreement has ended, you must resume management of your property as per the most current covenant management plan. Please note, that regardless of your involvement in a tender, incentive or offset agreement, you must ensure that you adhere to the obligations of the deed of covenant. These obligations are not waived during the period in which a covenanted property is subject to a tender, incentive or offset agreement.

7.5 Cultural heritage considerations

The identification and preservation of indigenous cultural heritage on land in Victoria is regulated under the *Aboriginal Heritage Act 2006*. It is an offence to unlawfully disturb or remove indigenous cultural heritage (artifacts or sites). If artifacts or sites are identified or suspected on the land, please contact Aboriginal Affairs Victoria for further information.

7.6 Wildfire management

We direct you to the Vic Emergency website (www.emergency.vic.gov.au) or the Victorian Bushfire Information Line on 1800 240 667 for important information about:

- warnings and fire danger ratings;
- fire restrictions;
- total fire ban days; and
- vegetation clearance for fire prevention (including any requirements for a planning permit).

The Department of Environment, Land, Water and Planning (DELWP) website also has useful information on current fires at www.delwp.vic.gov.au.

Please do not undertake any clearance of vegetation or soil disturbance for wildfire management without first consulting the relevant authorities and advising us.

You have a duty under your covenant to ensure that any vegetation clearance for wildfire management first avoids, and then minimizes the loss of the conservation values of your covenanted property.

7.7 Record of landholder consent

1. Would you allow Trust for Nature to use your property details, including photos, for promotion?

Landowner response: □YES □NO

2. Would you allow Trust for Nature to provide DELWP, CMA, or other government agency with flora/fauna information from your property for use in the Victorian Biodiversity Atlas?

Landowner response: □YES □NO

8 Signatures

This management plan has been agreed to pursuant to the deed of covenant on Certificate of Title Volume 6262 Folio 333 Title Volume 1243 Folio 440.

Agreed on ..... **(execution date)**

On behalf of the landowner(s);

....

Print name Signature

On behalf of Trust for Nature (Victoria);

....

Print name of authorised officer Signature

.....

Position of authorised officer

9 Appendices

Appendix 1a: Vegetation Quality Assessment (VQA)

Vegetation Description for Damp Forest EVC

Grows on a wide range of geologies on well-developed generally colluvial soils on a variety of aspects, from sea level to montane elevations. Dominated by a tall eucalypt tree layer to 30 m tall over a medium to tall dense shrub layer of broad-leaved species typical of wet forest mixed with elements from dry forest types. The ground layer includes herbs and grasses as well as a variety of moisture-dependent ferns.

Vegetation quality assessment for Damp Forest EVC

Attribute	**Score**	**Notes (relating to benchmarks as per VQA criteria)**
Large Trees	1/2	Present but not common: Up to 12/ha >70cm DBH
Canopy Cover	1/1	Comparable to benchmark, although maybe reduced >50% benchmark
Understorey	3/5	Native cover somewhat reduced, low diversity 25-75% total expected cover, <50% diversity
Lack of weeds	2/3	Weeds present but not common: 5-25% cover
Recruitment	1/2	Recruitment common but not for all species - 25-75% cover. Some small herbs observable
Organic Litter	1/1	Present and not significantly reduced from benchmark >50%
Logs	0/1	Logs and/or cut stumps absent or significantly reduced from benchmark <50%

Vegetation is assessed against a benchmark level representing 'long-undisturbed' remnant vegetation. All attributes may not be applicable to all vegetation types

Appendix 1b: Vegetation Quality Assessment criteria

Attribute	Benchmark	Quality Measurement	
LARGE TREES	Number of trees over 60 cm DBH (diameter at breast height): Woodlands - 10-15/ha Forests - 20/ha Wetlands - 10-15%	No large trees	0
		Present but not common: Woodlands & Wetlands up to 7/ha Forests up to 12/ha	1
		Common: - Woodlands & Wetlands more than 7/ha - Forests more than 12/ha	2
CANOPY COVER	50+% in Rainforests 10-20% in Woodlands & Wetlands 20-50% in Forests 50% in Scrubs 20% in Shrublands	Very substantially reduced < 25% of benchmark	0
		Significantly reduced: 25-50% of benchmark	0.5
		Comparable to benchmark, although maybe reduced > 50% benchmark	1
UNDERSTOREY	Cover of Indigenous Species: 90-100% in Woodlands, Forests and Grasslands 70-85% in Wetlands Diversity of Lifeforms: 25-35 species in Woodlands, Forests, Shrublands, Grasslands 15-20 species in Wetlands	Absent or virtually so < 10% total expected cover	0
		Indigenous cover greatly reduced 10-25% total expected cover	2
		Indigenous cover somewhat reduced, low diversity 25-75% total expected cover, < 50% diversity	3
		Indigenous cover somewhat reduced, high diversity 25-75% total expected cover, > 50% diversity	4
		Indigenous cover little reduced, high diversity > 75% total expected cover, > 50% diversity	5
LACK OF WEEDS	% Cover	Dominated by exotic species > 50% cover	0
		Weeds common but not dominant 25-50% cover	1
		Weeds present but not common 5-25% cover	2
		Weeds absent or very rare < 5% cover	3
RECRUITMENT	Woodlands, Forests, Shrublands, Scrubs & Heathlands - Percentage of woody species present on site Grasslands & Wetlands - Diversity of Herbs within inter-tussock spaces	Recruitment absent or, if present then only for a minority of species, < 25% of species Small herbs few or absent	0
		Recruitment common but not for all species: 25-75% Some small herbs observable	1
		Very common for most life forms, 75% of species Diverse number of small herbs	2
ORGANIC LITTER	60% cover in Rainforests 40% cover in Forests 20% cover in Woodlands & Shrublands 10% cover in Grasslands & Wetlands	Absent or significantly reduced from benchmark < 50%	0
		Present and not significantly reduced from benchmark > 50%	1
LOGS	Length of fallen trees/branches >10cm diameter 100 m/ha in Woodlands 150 m/ha in Forests 50 m/ha in Red Gum Wetlands	Logs and/or cut stumps absent or significantly reduced from benchmark < 50%	0
		Logs and/or cut stumps present and not significantly reduced from benchmark > 50%	1

Appendix 2a: Flora species record

EPBC Act = status under the Federal Environment Protection and Biodiversity Conservation Act 1999
CE = Critically Endangered EN = Endangered VU = Vulnerable NT = Near Threatened

FFG Act = listed as threatened under the Victorian Flora and Fauna Guarantee Act 1988
L = listed N = nominated for listing

DELWP = status on the Advisory List of Rare and Threatened (Plants, Fauna, Invertebrates) in Victoria.
r = rare v = vulnerable e = endangered c = critically endangered k = poorly known in Victoria n = near threatened

Origin * = Not native to Australia # = Native not indigenous to the local area.

Family	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Adiantaceae	*Adiantum aethiopicum*	Common Maidenhair					Ben Cullen	16/09/2009
Adoxaceae	*Sambucus gaudichaudiana*	White Elderberry					Ben Cullen	16/09/2009
Anthericaceae	*Arthropodium milleflorum s.l.*	Pale Vanilla-lily					Ben Cullen	16/09/2009
Anthericaceae	*Arthropodium strictum s.l.*	Chocolate Lily					Ben Cullen	16/09/2009
Aquifoliaceae	*Ilex aquifolium*	English Holly	*				Andrew Kuhlmann	30/01/2018
Araliaceae	*Hydrocotyle spp.*	Pennywort					Ben Cullen	16/09/2009

Family	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Asteraceae	*Arctotheca calendula*	Cape weed	*				Ben Cullen	16/09/2009
Asteraceae	*Cassinia aculeata*	Common Cassinia					Ben Cullen	16/09/2009
Asteraceae	*Cirsium vulgare*	Spear Thistle	*				Ben Cullen	16/09/2009
Asteraceae	*Helminthotheca echioides*	Ox-tongue	*				Andrew Kuhlmann	30/01/2018
Asteraceae	*Hypochaeris radicata*	Flatweed	*				Andrew Kuhlmann	30/01/2018
Asteraceae	*Lagenophora stipitata*	Common Bottle-daisy					Andrew Kuhlmann	30/01/2018
Asteraceae	*Olearia argophylla*	Musk Daisy-bush					Ben Cullen	16/09/2009
Asteraceae	*Olearia lirata*	Snowy Daisy-bush					Ben Cullen	16/09/2009
Asteraceae	*Ozothamnus ferrugineus*	Tree Everlasting					Ben Cullen	16/09/2009
Asteraceae	*Senecio linearifolius var. linearifolius*	Fireweed Groundsel (type variant)					Andrew Kuhlmann	30/01/2018
Bignoniaceae	*Pandorea pandorana subsp. pandorana*	Wonga Vine					Ben Cullen	16/09/2009
Blechnaceae	*Blechnum minus*	Soft Water-fern					Ben Cullen	16/09/2009
Blechnaceae	*Blechnum nudum*	Fishbone Water-fern					Ben Cullen	16/09/2009

Family	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Blechnaceae	*Blechnum wattsii*	Hard Water-fern					Ben Cullen	16/09/2009
Campanulaceae	*Lobelia anceps*	Angled Lobelia					Ben Cullen	16/09/2009
Campanulaceae	*Wahlenbergia gracilis*	Sprawling Bluebell					Ben Cullen	16/09/2009
Caryophyllaceae	*Petrorhagia spp.*	Pink	*				Andrew Kuhlmann	30/01/2018
Caryophyllaceae	*Stellaria pungens*	Prickly Starwort					Andrew Kuhlmann	30/01/2018
Convolvulaceae	*Dichondra repens*	Kidney-weed					Ben Cullen	16/09/2009
Cyatheaceae	*Cyathea australis*	Rough Tree-fern					Ben Cullen	16/09/2009
Cyperaceae	*Carex appressa*	Tall Sedge					Ben Cullen	16/09/2009
Cyperaceae	*Gahnia radula*	Thatch Saw-sedge					Ben Cullen	16/09/2009
Cyperaceae	*Gahnia sieberiana*	Red-fruit Saw-sedge					Andrew Kuhlmann	30/01/2018
Cyperaceae	*Lepidosperma elatius*	Tall Sword-sedge					Ben Cullen	16/09/2009
Dennstaedtiaceae	*Pteridium esculentum*	Austral Bracken					Ben Cullen	16/09/2009
Dicksoniaceae	*Dicksonia antarctica*	Soft Tree-fern					Ben Cullen	16/09/2009

Family	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Droseraceae	*Drosera aberrans*	Scented Sundew					Ben Cullen	16/09/2009
Droseraceae	*Drosera auriculata*	Tall Sundew					Ben Cullen	16/09/2009
Ericaceae	*Acrotriche prostrata*	Trailing Ground-berry					Ben Cullen	16/09/2009
Ericaceae	*Astroloma humifusum*	Cranberry Heath					Ben Cullen	16/09/2009
Fabaceae	*Hovea heterophylla*	Common Hovea					Ben Cullen	16/09/2009
Geraniaceae	*Geranium potentilloides var. potentilloides*	Soft Crane's-bill					Andrew Kuhlmann	30/01/2018
Geraniaceae	*Geranium spp.*	Crane's Bill					Ben Cullen	16/09/2009
Goodeniaceae	*Goodenia geniculata*	Bent Goodenia					Ben Cullen	16/09/2009
Goodeniaceae	*Goodenia ovata*	Hop Goodenia					Ben Cullen	16/09/2009
Haloragaceae	*Gonocarpus tetragynus*	Common Raspwort					Ben Cullen	16/09/2009
Hemerocallidaceae	*Dianella tasmanica*	Tasman Flax-lily					Ben Cullen	16/09/2009
Juncaceae	*Luzula spp.*	Woodrush					Ben Cullen	16/09/2009
Lamiaceae	*Prostanthera lasianthos*	Victorian Christmas-bush					Ben Cullen	16/09/2009
Lamiaceae	*Prunella vulgaris*	Self-heal	*				Ben Cullen	16/09/2009

Family	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Mimosaceae	*Acacia dealbata*	Silver Wattle					Ben Cullen	16/09/2009
Mimosaceae	*Acacia mearnsii*	Black Wattle					Ben Cullen	16/09/2009
Mimosaceae	*Acacia melanoxylon*	Blackwood					Bill Middleton	30/11/1994
Mimosaceae	*Acacia verticillata*	Prickly Moses					Bill Middleton	30/11/1994
Myrsinaceae	*Lysimachia arvensis (Red-flowered variant)*	Scarlet Pimpernel	*				Ben Cullen	16/09/2009
Myrtaceae	*Eucalyptus dives*	Broad-leaf Peppermint					Ben Cullen	16/09/2009
Myrtaceae	*Eucalyptus obliqua*	Messmate Stringybark					Bill Middleton	30/11/1994
Myrtaceae	*Eucalyptus radiata s.l.*	Narrow-leaf Peppermint					Bill Middleton	30/11/1994
Myrtaceae	*Eucalyptus viminalis*	Manna Gum					Bill Middleton	30/11/1994
Myrtaceae	*Kunzea ericoides spp. agg.*	Burgan					Ben Cullen	16/09/2009
Orchidaceae	*Chiloglottis valida*	Common Bird-orchid					Ben Cullen	16/09/2009
Orchidaceae	*Corybas dilatatus s.s.*	Veined Helmet-orchid					Ben Cullen	16/09/2009
Orchidaceae	*Dipodium punctatum s.l.*	Hyacinth Orchid					Ben Cullen	16/09/2009
Orchidaceae	*Pterostylis nutans*	Nodding Greenhood					Ben Cullen	16/09/2009
Orchidaceae	*Pterostylis spp.*	Greenhood					Ben Cullen	16/09/2009

Family	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Oxalidaceae	*Oxalis spp.*	Wood Sorrel					Ben Cullen	16/09/2009
Pittosporaceae	*Billardiera scandens s.l.*	Common Apple-berry					Ben Cullen	16/09/2009
Pittosporaceae	*Bursaria spinosa*	Sweet Bursaria					Ben Cullen	16/09/2009
Pittosporaceae	*Pittosporum undulatum*	Sweet Pittosporum	#				Ben Cullen	16/09/2009
Plantaginaceae	*Veronica gracilis*	Slender Speedwell					Ben Cullen	16/09/2009
Poaceae	*Agrostis capillaris*	Brown-top Bent	*				Ben Cullen	16/09/2009
Poaceae	*Anthoxanthum odoratum*	Sweet Vernal-grass	*				Ben Cullen	16/09/2009
Poaceae	*Anthoxanthum odoratum*	Sweet Vernal-grass	*				Andrew Kuhlmann	30/01/2018
Poaceae	*Deyeuxia quadriseta*	Reed Bent-grass					Ben Cullen	16/09/2009
Poaceae	*Holcus lanatus*	Yorkshire Fog	*				Ben Cullen	16/09/2009
Poaceae	*Microlaena stipoides var. stipoides*	Weeping Grass					Andrew Kuhlmann	30/01/2018
Poaceae	*Rytidosperma geniculatum*	Kneed Wallaby-grass					Ben Cullen	16/09/2009
Poaceae	*Rytidosperma pallidum*	Silvertop Wallaby-grass					Ben Cullen	16/09/2009
Poaceae	*Rytidosperma spp.*	Wallaby Grass					Ben Cullen	16/09/2009

Family	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Poaceae	*Tetrarrhena juncea*	Forest Wire-grass					Ben Cullen	16/09/2009
Poeae	*Briza minor*	Lesser Quaking-grass	*				Ben Cullen	16/09/2009
Poeae	*Poa annua*	Annual Meadow-grass	*				Ben Cullen	16/09/2009
Poeae	*Poa labillardierei*	Common Tussock-grass					Ben Cullen	16/09/2009
Poeae	*Poa morrisii*	Soft Tussock-grass					Bill Middleton	30/11/1994
Poeae	*Poa tenera*	Slender Tussock-grass					Ben Cullen	16/09/2009
Polygalaceae	*Comesperma volubile*	Love Creeper					Ben Cullen	16/09/2009
Polygonaceae	*Acetosella vulgaris*	Sheep Sorrel	*				Ben Cullen	16/09/2009
Ranunculaceae	*Clematis aristata*	Mountain Clematis					Ben Cullen	16/09/2009
Ranunculaceae	*Ranunculus spp.*	Buttercup					Ben Cullen	16/09/2009
Rhamnaceae	*Pomaderris aspera*	Hazel Pomaderris					Ben Cullen	16/09/2009
Rosaceae	*Rubus fruticosus spp. agg.*	Blackberry	*				Ben Cullen	16/09/2009
Rosaceae	*Rubus parvifolius*	Small-leaf Bramble					Ben Cullen	16/09/2009
Rubiaceae	*Asperula conferta*	Common Woodruff					Ben Cullen	16/09/2009
Rubiaceae	*Coprosma quadrifida*	Prickly Currant-bush					Ben Cullen	16/09/2009

Family	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Rubiaceae	*Galium australe s.l.*	Tangled Bedstraw					Ben Cullen	16/09/2009
Ruppiaceae	*Ruppia spp.*	Tassel					Ben Cullen	16/09/2009
Sanguisorbeae	*Acaena novae-zelandiae*	Bidgee-widgee					Ben Cullen	16/09/2009
Santalaceae	*Exocarpos cupressiformis*	Cherry Ballart					Ben Cullen	16/09/2009
Stylidiaceae	*Stylidium graminifolium s.l.*	Grass Triggerplant					Ben Cullen	16/09/2009
Thymelaeaceae	*Pimelea axiflora*	Bootlace Bush					Bill Middleton	30/11/1994
Urticaceae	*Urtica incisa*	Scrub Nettle					Ben Cullen	16/09/2009
Violaceae	*Viola hederacea sensu Willis (1972)*	Ivy-leaf Violet					Ben Cullen	16/09/2009
Xanthorrhoeaceae	*Lomandra filiformis*	Wattle Mat-rush					Ben Cullen	16/09/2009

Appendix 2b: Fauna species records

EPBC Act = status under the Federal Environment Protection and Biodiversity Conservation Act 1999.
CE = Critically Endangered EN = Endangered VU = Vulnerable NT = Near Threatened

FFG Act = listed as threatened under the Victorian Flora and Fauna Guarantee Act 1988.
L = listed N = nominated for listing

DELWP = status on the Advisory List of Rare and Threatened (Plants, Fauna, Invertebrates) in Victoria.
r = rare v = vulnerable e = endangered c = critically endangered k = poorly known in Victoria n = near threatened

Origin * = Not native to Australia.

Group	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Birds	*Acanthorhynchus tenuirostris*	Eastern Spinebill					Bill Middleton	30/11/1994
Birds	*Cacomantis flabelliformis*	Fan-tailed Cuckoo					Bill Middleton	30/11/1994
Birds	*Colluricincla harmonica*	Grey Shrike-thrush					Bill Middleton	30/11/1994
Birds	*Cormobates leucophaeus*	White-throated Treecreeper					Bill Middleton	30/11/1994
Birds	*Corvus mellori*	Little Raven					Bill Middleton	30/11/1994
Birds	*Dacelo novaeguineae*	Laughing Kookaburra					Bill Middleton	30/11/1994

Group	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Birds	*Eopsaltria australis*	Eastern Yellow Robin					Bill Middleton	30/11/1994
Birds	*Gymnorhina tibicen*	Australian Magpie					Bill Middleton	30/11/1994
Birds	*Lichenostomus chrysops*	Yellow-faced Honeyeater					Bill Middleton	30/11/1994
Birds	*Lichenostomus leucotis*	White-eared Honeyeater					Bill Middleton	30/11/1994
Birds	*Malurus cyaneus*	Superb Fairy-wren					Bill Middleton	30/11/1994
Birds	*Myiagra cyanoleuca*	Satin Flycatcher					Bill Middleton	30/11/1994
Birds	*Neochmia temporalis*	Red-browed Finch					Bill Middleton	30/11/1994
Birds	*Pachycephala pectoralis*	Golden Whistler					Bill Middleton	30/11/1994
Birds	*Pachycephala rufiventris*	Rufous Whistler					Bill Middleton	30/11/1994
Birds	*Pardalotus punctatus*	Spotted Pardalote					Bill Middleton	30/11/1994
Birds	*Phylidonyris novaehollandiae*	New Holland Honeyeater					Bill Middleton	30/11/1994
Birds	*Phylidonyris pyrrhoptera*	Crescent Honeyeater					Bill Middleton	30/11/1994
Birds	*Platycercus elegans*	Crimson Rosella					Bill Middleton	30/11/1994
Birds	*Rhipidura fuliginosa*	Grey Fantail					Bill Middleton	30/11/1994
Birds	*Rhipidura rufifrons*	Rufous Fantail					Andrew Kuhlmann	30/01/2018

Group	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP	Recorded By	Record Date
Birds	*Sericornis frontalis*	White-browed Scrubwren					Bill Middleton	30/11/1994
Birds	*Strepera versicolor*	Grey Currawong					Andrew Kuhlmann	30/01/2018
Birds	*Turdus merula*	Common Blackbird	*				Bill Middleton	30/11/1994
Mammals	*Canis vulpes*	Red Fox	*				Marianne Henderson	30/11/1994
Mammals	*Macropus giganteus*	Eastern Grey Kangaroo					Marianne Henderson	30/11/1994
Mammals	*Oryctolagus cuniculus*	European Rabbit	*				Marianne Henderson	30/11/1994
Mammals	*Phascolarctos cinereus*	Koala					Landowner	30/01/2018
Mammals	*Rattus fuscipes*	Bush Rat					Bill Middleton	30/11/1994
Mammals	*Tachyglossus aculeatus*	Short-beaked Echidna					Bill Middleton	30/11/1994
Mammals	*Vombatus ursinus*	Common Wombat					Bill Middleton	30/11/1994
Mammals	*Wallabia bicolor*	Black Wallaby					Marianne Henderson	30/11/1994

Appendix 3: Significant species (not observed but potential to be present)

The following table outlines significant flora and fauna species that have been documented in the local area. These significant species recorded in the local area, have potential to also be present in, or to use, habitat on the property.

EPBC Act = status under the Federal Environment Protection and Biodiversity Conservation Act 1999
CE = Critically Endangered EN = Endangered VU = Vulnerable NT = Near Threatened

FFG Act = listed as threatened under the Victorian Flora and Fauna Guarantee Act 1988
L = listed N = nominated for listing

DELWP = status on the Advisory List of Rare and Threatened (Plants, Fauna, Invertebrates) in Victoria (2014).
r = rare v = vulnerable e = endangered c = critically endangered k = poorly known in Victoria n = near threatened

Fauna

Group	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP
Birds	*Ninox strenua*	Powerful Owl			L	e

Flora

Family	Scientific Name	Common Name	Origin	EPBC	FFG	DELWP
Orchidaceae	*Chiloglottis aff. valida*	Alpine Bird-orchid				k

Appendix 4a: Weed records

CALP = status under the Victorian Catchment and Land Protection Act 1995 (CaLP Act).

Four categories:

SPW = State Prohibited Weed RPW = Regionally Prohibited Weed RCW = Regionally Controlled Weed

RRW = Regionally Restricted Weed (Refer to Appendix 4b for definitions)

Frequency key

1 = Not commonly encountered at site; scarce and either low in numbers; single, widely scattered plants, or small isolated patches.
2 = Neither common nor scarce; encountered occasionally and well represented as either scattered plants or multiple patches.
3 = Moderately common and frequently encountered; often an obvious component of the vegetation, but may be ecosystem specific.

Scientific Name	Common Name	WoNS	CALP	Recorded on	Frequency
Agrostis capillaris	Brown-top Bent			16/09/2009	2
Anthoxanthum odoratum	Sweet Vernal-grass			16/09/2009	2
Arctotheca calendula	Cape weed			16/09/2009	1
Briza minor	Lesser Quaking-grass			16/09/2009	1
Cirsium vulgare	Spear Thistle		RCW	16/09/2009	2
Holcus lanatus	Yorkshire Fog			16/09/2009	1
Pittosporum undulatum	Sweet Pittosporum			16/09/2009	1

Scientific Name	Common Name	WoNS	CALP	Recorded on	Frequency
Poa annua	Annual Meadow-grass			16/09/2009	2
Prunella vulgaris	Self-heal			16/09/2009	2
Rubus fruticosus spp. agg.	Blackberry	Yes	RCW	16/09/2009	2
Acetosella vulgaris	Sheep Sorrel			16/09/2009	1
Lysimachia arvensis (Red-flowered variant)	Scarlet Pimpernel			16/09/2009	1
Ilex aquifolium	English Holly			30/01/2018	1
Hypochaeris radicata	Flatweed			30/01/2018	2
Helminthotheca echioides	Ox-tongue			30/01/2018	2
Anthoxanthum odoratum	Sweet Vernal-grass			30/01/2018	2
Petrorhagia spp.	Pink			30/01/2018	1

Appendix 4b: Definitions of declared noxious weeds

Under the Catchment and Land Protection (CaLP) Act 1994 certain plants are declared as noxious weeds in Victoria. These plants cause environmental or economic harm or have the potential to cause such harm. They can also present risks to human health. The CaLP Act defines four categories of noxious weeds:

State Prohibited Weeds: weeds that either do not occur in Victoria, but pose a significant threat if they invade, or are present and pose a serious threat. They are to be eradicated if possible from Victoria or excluded from the State. The Victorian Government is responsible for their eradication, but under Section 70(1) of the CaLP Act it may direct land owners to prevent their growth and spread.

Regionally Prohibited Weeds: weeds not widely distributed in a Region but are capable of spreading further. It is reasonable to expect that they can be eradicated from a Region and they must be managed with that goal. Land owners, including public authorities responsible for Crown land management, must take all reasonable steps to eradicate Regionally Prohibited weeds on their land

Regionally Controlled Weeds: weeds usually widespread and are considered important in a particular Region. To prevent their spread, continuing control measures are required. Land owners have the responsibility to take all reasonable steps to prevent the growth and spread of Regionally Controlled weeds on their land.

Restricted Weeds: This category includes plants that pose an unacceptable risk of spreading in this State or to other parts of Australia if they were to be sold or traded in Victoria, and are a serious threat to another State or Territory of Australia. Trade in these weeds and their propagules; either as plants, seeds or contaminants in other materials is prohibited.

Weed of National Significance (WoNS): Thirty two Weeds of National Significance (WoNS) have been identified by Australian governments based on their invasiveness, potential for spread and environmental, social and economic impacts. Individual landowners and managers are ultimately responsible for managing WoNS, however require coordination among all levels of government, organisations and individuals with weed management responsibilities. For further information, visit: http://www.environment.gov.au/biodiversity/invasive/weeds/weeds/lists/wons.html

Appendix 5a: Pest animal records

CALP = status under the Victorian Catchment and Land Protection Act 1995 (CaLP Act).

Four categories:

PPA = Prohibited Pest Animal CPA = Controlled Pest Animal RPA = Regulated Pest Animal

EPA = Established Pest Animal (refer to Appendix 5b for definitions)

WoNS = Weed of National Significance

Frequency key

1 = Individuals or evidence thereof (e.g. scats, diggings, prints) not commonly encountered; low in numbers
2 = Neither common nor scarce; individuals or evidence thereof encountered occasionally
3 = Moderately common and individuals or evidence thereof frequently encountered

Scientific Name	Common Name	CALP	Last Recorded on	Frequency
Turdus merula	Common Blackbird		30/11/1994	2
Oryctolagus cuniculus	European Rabbit	EPA	30/11/1994	1
Canis vulpes	Red Fox	EPA	30/11/1994	2

Appendix 5b: Definition of pest animals

Under the CaLP Act pest animals are classified into several groups which dictate the level of control that needs to be applied in their management:

Prohibited pest animals: cannot be kept at all.

Controlled pest animals: can only be kept in statutory zoos.

Regulated pest animals: may be kept with a permit by commercial or scientific facilities for educational or scientific purposes.

Established Pest Animal: Landowners are required to take all reasonable steps to prevent the spread of, and as far as possible eradicate, established pest animals. Landowners are also required to take all reasonable steps to prevent the spread of these animals on any roadside adjoining their land.

Appendix 6: Further definitions

The following terms may be used throughout this plan.

Associated Asset – assets such as EVCs, threatened species, and indicator species that are part of the primary conservation asset and likely to respond to the same management actions proposed for that broader asset category.

Benchmark (Vegetation) – the 'ideal' or original state or condition of a structural component (e.g. shrub layer cover, amount of fallen timber) of a vegetation community or EVC.

Biodiversity – a term that refers to the diversity of living things.

Bioregion – a landscape-scale area of land that shares certain characteristics of climate, geology, topography, and vegetation types. Victoria is recognized as having 23 different bioregions.

Conservation Asset – an element of biological diversity selected for protective action. These assets are chosen as they belong to a limited suite of species, communities, and ecological systems that are chosen to represent and encompass the biodiversity found on the covenant area. They are the basis for setting goals, carrying out conservation actions, and measuring conservation effectiveness. In theory – and hopefully in practice – conservation of the focal targets will ensure the conservation of all native biodiversity within functional landscapes (The Nature Conservancy 2007).

Ecological Vegetation Class (EVC) – an assemblage of plants that occur in association with one another due to a common preference for the soil type, climate, topography, etc. occurring in a particular area or ecological niche. Any one type of Ecological Vegetation Class is comprised of a number of more 'closely-knit' vegetation associations called "floristic communities". Although to a large degree an artefact of the human need to categorize (EVCs are statistically-determined aggregations of plant species), EVCs enable us to more systematically communicate the variation in vegetation types that occur across the landscape.

Ecotone – a transition area between two adjacent but different patches of landscape It can be narrow or wide, and it may be local (the zone between a field and forest) or regional (the transition between forest and grassland ecosystems. An ecotone may appear on the ground as a gradual blending of the two communities across a broad area, or it may manifest itself as a sharp boundary line.

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) – The primary Australian federal legislation addressing flora and fauna conservation. Species or communities considered threatened at the National scale are 'listed' under the Act.

Exotic – a plant or animal that has been introduced to a particular locality from another part of Australia or from overseas.

Flora and Fauna Guarantee Act 1988 (FFG Act) - Victorian legislation addressing flora and fauna conservation. Species or communities considered threatened on the State scale are 'listed' under the Act.

Indigenous – native to a particular locality.

Key Indicator - a measurable entity related to a specific information need such as the status of a target/factor, change in a threat, or progress toward an objective. A good indicator meets the criteria of being: measurable, precise, consistent, and sensitive.

Overstorey – the tallest stratum in a vegetation community (or EVC), often comprising the trees.

Significant species – a plant or animal whose abundance is considered low enough on a regional, State, or National scale to warrant a conservation status of 'depleted', 'vulnerable', 'endangered', etc. The application of this term in this context to some species does not imply that all other species are not 'significant' in an ecological or conservation sense.

Species – a 'type' or 'variety' of plant or animal, or any other organism.

Threat – an action occurring that is having an adverse impact upon a conservation asset. A threat will have a source, severity level, and scope.

Understorey – a term that refers to the plants (usually shrubs, but may include saplings of trees) occurring below the uppermost stratum (usually trees) of a vegetation community.

Vegetation Quality Assessment (VQA) - ascertains the quality and condition of the vegetation and habitat occurring within the area being assessed. Vegetation is assessed against a benchmark level representing 'long-undisturbed' remnant vegetation A score (out of a possible maximum) is given for each of a series of structural or habitat features to be found within the covenanted area. The point of the assessment is not so much the 'total score', as it is about helping to focus on each of the structural or habitat features, individually.

Appendix 7: Useful resources

VIC Department of Environment, Land, Water and Planning (DELWP): Phone 13 61 86, 8 Nicholson St, East Melbourne VIC 3002. http://delwp.vic.gov.au/

Costermans, L. (2009). Native Trees and Shrubs of South-Eastern Australia. Reed New Holland, Sydney.

Nest boxes

LaTrobe University Wildlife Sanctuary: Phone (03) 9479 1206, LaTrobe Avenue, Bundoora.

http://www.latrobe.edu.au/wildlife/nursery/nestboxes

Revegetation

Munro, N. and Lindenmayer, D. (2011). Planting for Wildlife. A practical guide to restoring native woodlands. CSIRO Publishing. Collingwood. Victoria.

Greening Australia (2003). Revegetation Techniques. A guide for establishing native vegetation in Victoria. Greening Australia. Victoria.

Weeds

Australian Government Department of Environment, Weeds in Australia, http://www.environment.gov.au/biodiversity/invasive/weeds

Muyt, A. (2001), Bush Invaders of South-East Australia. R.G and F.J Richardson, Meredith, Victoria.

Richardson, F.J. Richardson, R.G. Shepherd, R.C.H. (2007), Weeds of the South-East, An identification guide for Australia. R.G and F.J Richardson, Meredith, Victoria.

Wildlife Welfare

Wildlife Victoria: www.wildlifevictoria.org.au. For injured wildlife or a wildlife emergency call: 13 000 94535.

Wombat Mange Management: www.mangemanagement.org.au. Phone (03) 5942 8518.
Email: info@managemanagement.org.au

Appendix 8: General weed control methods and tips

The most effective weed control program is one that integrates a variety of methods throughout the year. This reduces the risk of the weed developing a resistance to one method (particularly chemical-based methods), and applies pressure to the weed at different phases of its cycle. The following provides an overview of methods often used in an integrated program.

HAND WEEDING

Hand weeding is useful for controlling new and emergent weeds, small infestations of weeds and weeds in environmentally sensitive areas (e.g. orchid areas, wetlands, riparian areas). Regardless of species, hand weeding can usually be undertaken throughout the year, but will often be easier when soil is moist. For plants that flower and set seed it is preferable to hand weed before seed can set, add to the seed stock and/or be spread elsewhere

Herbs and grasses

It is important to remove all of the roots (and for some species, all of the plant material) to ensure there is no re-growth. Some herbs have surprisingly large taproots whilst some grasses have extensive fibrous root systems, both of which can easily break off and re-shoot.

Woody species <0.5m in height

It is most effective to pull small woody weeds from the trunk, very close to the ground; levering the root system out of the soil. If placed on the ground, many woody weeds have mechanisms to re-establish. If the weed is not in fruit or seed, it can be good practice to turn the plant upside-down and place it in the branches of a larger tree, or on a fence. If it is in fruit or seed, the crown (and fruit/seed) should be cut, bagged and disposed of. Be careful not to disturb the soil around the weed as this can provide opportunities for other weeds to move in. If the weed snaps at the base of the trunk or root, apply a neat herbicide (broad spectrum systemic) to the area of the break that remains in the ground.

SPOT SPRAYING

The timing and herbicide to use for spraying weeds is very dependent upon the species and the surrounding vegetation. There are contact herbicides, systemic herbicides, non-residual herbicides, residual herbicides, target herbicides, non-target herbicides, and herbicides inappropriate for use near water etc. There are also certain weather conditions that are inappropriate for spraying (e.g. windy, chance of rain within 5 hours of spraying). It is imperative to research the most appropriate herbicide for your weed situation and to always consider non-target impacts such killing indigenous plants, run off in to waterways, secondary poisoning (by means of animals, even humans, eating fruits that have been sprayed) etc.

CUT AND PAINT

Woody species >0.5 m <1.5m in height

If the woody weed is over half a meter high, or is smaller but too difficult to pull out, the cut and paint method may be appropriate (depending on the girth of the trunk). Cut the trunk of the woody weed at the base, as close as possible to the ground, and immediately apply neat herbicide (broad spectrum systemic). Ensure that the point of herbicide application and the applicator is not covered in soil because some herbicides deactivate upon contact with soil. Application of the herbicide needs to be within eight seconds after cutting, or the plant will not circulate the poison. The further away from the base of the trunk that the cut is made, the greater the chance that the plant will re-shoot.

DRILL AND FILL / FRILL AND FILL

Woody weeds <1.5m

Some woody weeds (such as Hawthorn and Gorse) provide habitat for a number of native animals, particularly birds and small ground-dwelling mammals. The drill and fill method kills the woody weed but allows it to remain structurally, and allows fauna to continue to use the tree/shrub, until it finds a suitable alternative. Drill holes around the base of the trunk and fill the hole with neat herbicide (broad spectrum systemic). The holes should neither be too deep or too shallow; the aim is to target the plants vascular pathways just below the bark, so the herbicide is transported throughout. Frill and fill is a similar method, but an axe is used to create cuts near the base of the trunk, and the herbicide is carefully poured into the cuts.

CORRECT DISPOSAL OF WEEDS

In situations where weed material cannot remain in situ due to further risk of seeding, re-shooting, re-establishment or spreading, it may have to be disposed of. Options of disposal include the following.

Bagging up the weed material, tying the bag and sending or taking it to landfill (do not put it into green-waste).

Burning weed material in accordance with Local Council and Country Fire Authority's prescribed burning periods and regulations.

Piling in an open area, covering and sealing pile with a heavy black tarp (or similar) that does not allow sunlight to penetrate but does allow heat, and smothering the material.

FUNDING

You may be eligible for some funding to assist you with weed control and other restoration works. Your local council, Landcare Group, Friends Of group may have opportunities.

Appendix 9: Management and observations diary

We suggest that you remove these pages from this Plan and keep them somewhere convenient for recording management actions and observations.

Record of management actions and observations

Location	Objective	Activity	Undertaken by	Date	Result
Example: Management action Creek line	Reduce the extent of Holly	Cut and painted 4 large individuals	Contractor [name] or Landowner [name]	01/05/2017	Death of 3 Holly trees
Example: Observation Powerful Owl	-	Feeding young/nesting etc.	Landowner [name]	13/03/2017	Observed owls for 4 weeks by the front dam

Trust for Nature

Management Plan

Level 5/379 Collins Street

Melbourne VIC 3000

Phone: (03) 8631 5888 Fax: (03) 9614 6999

Free call: 1800 99 99 33 (Australia only)

Email: trustfornature@tfn.org.au

TRUST FOR NATURE

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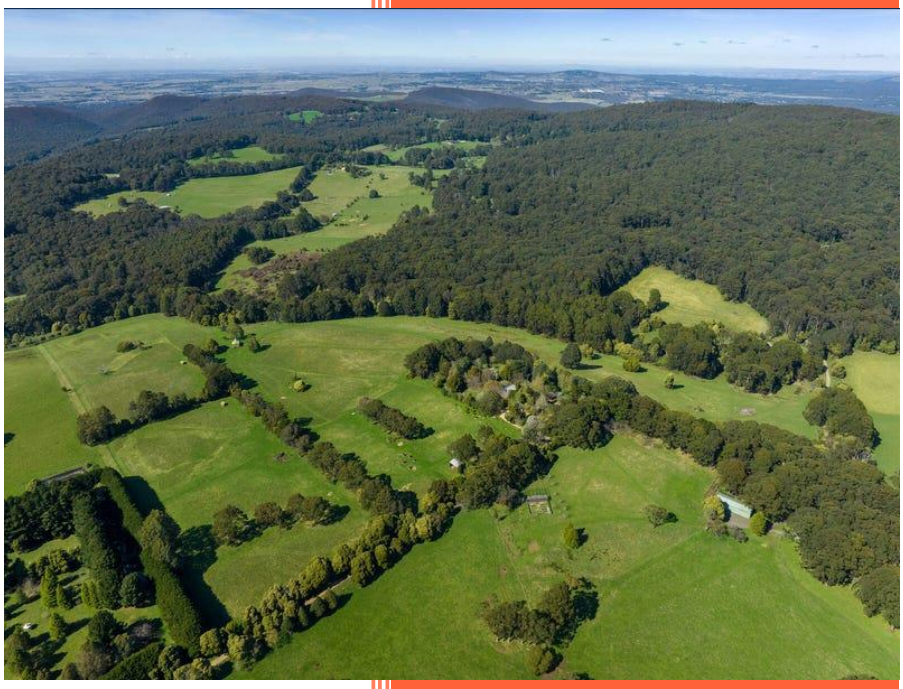
131 Shannons Lane, Kerrie

131 Shannons Lane, Kerrie



Simone Herrmannsen
MARVIRO
6/18/2024

CONTENTS

INTRODUCTION

This Environmental Management Plan (EMP) has been prepared to support the installation of 4 Tiny Houses proposed at 131 Shannons Lane, Kerrie VIC 3434 (-37.374164, 144.647794).

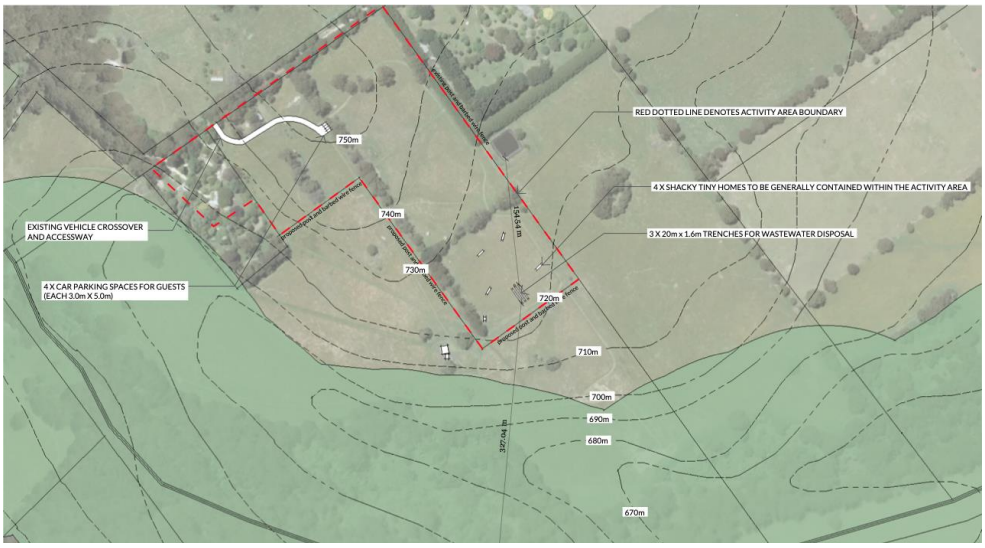
This EMP has been prepared by Marviro Pty LTD via a desktop review and site visit to provide an extensive plan to be implemented in tandem with the current EMP for the surrounding lands of Certificate Title Volume 6262 Folio 333 and Title Volume 1243 Folio 440.

This EMP aims to outline the goals, priorities and strategies for successful land management associated with the construction and operation of these Tiny Homes over a 10 year period. The proposed development will include:

- 4 Tiny Homes contained within the site assessment area.
- Any required works to existing access.
- Four carparking spaces for guests to be located closer to the existing dwelling on site.

Details of the proposed works are shown in drawings prepared by Solve Town planning (2023).

Figure 1. Extract from planning drawings



Additional regenerative planting plans have been provided under the instruction of the landowner to develop natural tree corridors to ensure sustainable environmental stewardship.

BACKGROUND

The development site at 131 Shannons Lane, Kerrie is situated within the Macedon Ranges Shire, within designated Rural Conservation Zone 1 (RCZ1).

The proposed development must therefore adhere to the Development Control Plans and regulations set forth by the Macedon Ranges Shire Council and the State Government of Victoria. These regulations are designed to

ensure sustainable development and the protection of the region's unique ecological assets whilst achieving the municipals Strategic Framework Plans. The cohesion of

The primary objectives of this Environmental Management Plan is to:

- Identify potential environmental impacts associated with the installation and operation of the tiny homes.
- Establish mitigation measures to prevent, minimize, or offset adverse environmental effects.
- Ensure compliance with local and state environmental regulations.
- Promote sustainable building practices and enhance the ecological integrity of the site.

REGULATORY FRAMEWORKS

This EMP has been developed in accordance with the following key regulations and guidelines included in Appendix C:

- Macedon Ranges Planning Scheme: Clause 21.05, Clause 42.01 and Clause 52.17
- Environment Protection Act 2017: Section 25, Section 27
- Planning and Environment Act 1987: Section 60
- Catchment and Land Protection Act 1994
- Victoria's Native Vegetation Management Framework and Waterway Management Framework
- Environmental Protection Authority (EPA) Victoria and other relevant bodies.

The Development site is subject to Environmental Significance Overlay 5 (**ESO5**), with the following consideration met within this Environmental Management Plan;

- The impact of the development on the water catchment.
- Whether the proposed development provides a net benefit to the stability and health of the waterway.
- The need to protect vegetation and habitat and the role these attributes play in improving and assisting in the maintenance of water quality. In particular, the need to maintain and revegetate land within 30 metres of a watercourse.
- The need to retain vegetation which prevents or limits adverse effects on ground water recharge.
- The need to address any existing land degradation and prevent further land degradation as a result of the proposal.
- Whether any proposed effluent and irrigation fields are within 100 metres of any watercourse.
- How any proposed septic tank or other form of wastewater treatment may impact the quality of water in the catchment. This should include demonstration that the proposed density of septic tanks in the area.
- Will not overload the natural environment with effluent and lead to pollution of watercourses or other properties.
- That the design and location of septic tanks is appropriate to the site and environmental characteristics of the allotment.
- That the disposal of effluent will not result in the discharge of wastewater from the site.
- The need to include litter traps and artificial wetlands in development proposals to improve the quality of discharge from new developments prior to discharge to water courses and to minimise the amount of sediment and litter entering waterways from new development.
- Any relevant land capability study or relevant Catchment and River Health Strategy for the area.
- Any approved local land care policies and plans.

The Development site is subject to Significant Landscape Overlay 1 **(SLO1),** with the following consideration met within this Environmental Management Plan;

- The extent of tree clearing and earthworks and whether there is a more suitable alternative siting to minimise the impact on the environment.
- The “Macedon Ranges Cultural Heritage and Landscape Study – June 1994”.
- The threat of soil erosion and land slip from the proposed works.
- The need to minimise the impact on prominent ridgelines from proposed buildings and works.
- Whether the proposal is located on land where slope is greater than 20 per cent.
- The need to site and design any proposed structure to minimise visual intrusion including methods such as landscaping, and tree planting to screen the buildings and works.
- Whether access roads should be located across slope to minimise visual intrusion of the road.
- The "Hanging Rock Strategic Plan, 2018".
- The "Macedon Ranges Statement of Planning Policy, 2019".

The Development site is subject to Vegetation Protection Overlay 9 (**VPO9**), with the following consideration met within this Environmental Management Plan;

- The need to protect all native vegetation in this area to pursue the “Living Forest” vision.
- The relative value of the vegetation in terms of the surrounding vegetation community and at a regional level.
- The threat of soil erosion and land slip resulting from loss of vegetation.
- The need to locate access roads across slope to minimise visual intrusion of the road on land where slope is greater than 20 per cent.

SCOPE OF THE PLAN

The scope of this Environmental Management Plan encompasses all stages of the development project, from initial site preparation and installation to the operational phase of the Tiny Homes.

By implementing this Environmental Management Plan, the project at 131 Shannons Lane aims to achieve a balance between development and environmental stewardship, ensuring that the natural values of the Macedon Ranges are preserved for future generations.

CURRENT FLORA AND FAUNA

ENVIRONMENTAL VEGETATION CLASS

The Tiny House proposal site is located within the Central Victorian Uplands Bioregion. Department of Energy, Environment and Climate Action (DEECA) 2005 native vegetation modelling within the proposed site indicates the outskirts of the site is Ecological Vegetation Class (EVC) Herb Rich Foothill Forrest H-RFF (EVC 23) which was confirmed via on site assessments.

This area is defined by the Department of Sustainability and Environment as:

Occurs on relatively fertile, moderately well-drained soils on an extremely wide range of geological types and in areas of moderate to high rainfall. Occupies easterly and southerly aspects mainly on lower slopes and in gullies. A medium to tall open forest or woodland to 25m tall with a small tree layer over a sparse to dense shrub layer. A high cover and diversity of herbs and grasses in the ground layer characterise this EVC.

See Appendix D for more information.

FLORA

Flora species recorded during the assessment include both indigenous and exotic species. A detailed list is provided in Appendix A. The study area consists of 2 main categories:

- Degraded Pasture Areas
- Open Tree Lanes

The vegetation within the degraded pasture areas consist of a mixture of exotic species, with 4 species requiring control plans. While some of the other species listed, such as Plantago sp. (Plantain), Taraxacum sp. (Dandelion), Achillea millefolium (Yarrow), and Trifolium repens (White Clover), can be considered weeds, they are typically less aggressive than the ones listed below and do not require extensive control measures unless they become problematic.

The second category of Open Tree Lanes consisted of 5 native species planted with spacing similar to EVC 47: Grassy Valley Forest. The Open Tree Lanes were historically planted as a windbreak for the property and create a continuous canopy ranging from 6m to 12m in height. The smaller Acacia species provide a robust understory approximately 4m in height, with the lowest herb layer consisting of the aforementioned degraded pasture species.

FAUNA

Twenty fauna species were recorded, with all seen on the site avian. Detailed records are provided in Appendix A. All species recorded are common to the area, with 2 additional feral mammal species highlighted by the landowner as requiring a control plan. Reptile species are expected to be present in the area, though were not found during the assessment period.

The study area may provide air space over which some threatened species, such as Gang Gang Cockatoos which may fly on occasions when moving around the landscape. However, the study area itself does not provide important resources to the transient species, for whom the study area is unlikely to provide important or limiting and, therefore, the development of the study area is unlikely to impact these threatened fauna species.

Wombats are known to frequent the surrounding areas, though there is no evidence of wombat burrows or scat present on the proposed development site.

LAND MANAGEMENT

WATERWAYS

The natural waterway Bolinda Creek lies 350m South-East of the proposed development site. An average 12% slight slope (Appendix B) southeast leads to 70m of dense Damp Forest (EVC 29). Given the significant land area classification, all buffer distances stipulated by the EPA are achievable.

On-site wastewater system has been designed and proposed by Strata – Geoscience and Environmental Report. This system mitigates the impact of stormwater and waste water in the natural waterways. The reconfirmation of the aforementioned report recommendations is required within 1 year of the Tiny Home installation.

EROSION

The Land Capability Assessment prepared by Strata for the tiny home application shows the site has a mixture of category 4b and 4c soil texture, with the clay loam moderately structured soil proving a reduced susceptibility to erosion. Similarly, the installation of the tiny homes does not require soil removal or significant earthworks, with the primary land management focus on stabilising the existing soil. Immediately following installation, any exposed soil areas will be seeded with a mix of native grasses, such as Common Tussock Grass (*Poa labillardierei*) and Wallaby Grass (*Austrodanthonia caespitosa*), which are effective in stabilising soil and preventing erosion. Mulching around newly planted areas will help retain moisture and protect the soil surface from erosive forces. Regular monitoring will be conducted to ensure that vegetation cover is developing as expected and to identify any areas where additional erosion control measures might be needed. In areas where vegetation is slow to establish or where erosion is observed, additional ground cover plants and erosion control blankets will be applied to reinforce soil stability. These actions have been documented in Table 3.

PASTURE

Historically used as pasturelands, the landowner does not intend to graze an animals.

Surrounding properties house cattle, with the risk of grazing from escape mitigated by fence lines. Fence lines should be visually inspected yearly, with maintenance works ongoing.

WILDFIRE

A comprehensive Bushfire Assessment Report has been prepared for the Tiny House proposal by Terralogic. All recommended bushfire mitigation measures will be followed:

- Defendable space must be provided for a distance of 40 metres around the accommodation buildings, or to the property boundary whichever is the lesser in accordance with the following requirements:
- The tiny houses must be constructed to a BAL-29 construction standard in accordance with AS3959.
- Defendable space must be provided for a distance of 40 metres around the accommodations of buildings, or to the property boundary whichever is the lesser.
- 10,000 Litres of static water must be provided.
- Vehicle access must be maintained.

In addition, the following prescriptions were made:

- Grass must be short cropped and maintained during the declared fire danger period.

- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 centimetres in height must not be placed within 3 metres of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 square metres in area and must be separated by at least 5 metres.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 5 metres.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

WEEDS

Effective management of pest plants and weeds is critical for maintaining the ecological integrity and productivity of the land. Identified problem species such as Blackberry (*Rubus fruticosus*) and Bent Grass (*Agrostis spp.)* can outcompete native vegetation, disrupt local ecosystems, and reduce biodiversity. Under the *Catchment and Land Protection Act 1994* (Vic), landowners are legally obligated to control noxious weeds to prevent their spread and mitigate their impact on agricultural and natural environments. These pest plants can degrade soil health, lead to increased erosion, and provide habitat for feral animals, further exacerbating their detrimental effects. By implementing a rigorous weed control program that includes manual removal and selective herbicide application. Regular monitoring and prompt response to new infestations are essential to ensure compliance with legislative requirements and to sustain the long-term health and resilience of the property's ecosystems.

This site assessment found the presence of weeds scattered across the degraded pasture land, with no established infestations. The proposed weed management measures are to mitigate spreading opportunities and eliminate weed presence (<1%).

Selective herbicide use is recommended to reduce off-target damage, with residual herbicides not recommended for repeated use. Manufacturers instructions must be adhered too and application must be undertaken by a suitable qualified professional that is licensed with the appropriate accreditation and/or Agricultural Chemical Users Permit.

The following plant species are determined to require monitoring and mitigation measures with recommendations as per the *Catchment and Land Protection ACT 1994.*

Table 1. *Priority weeds within the study area*

Plant Species	Control Measure	Frequency
Bent Grass *Agrostis Spp.*	1. Hand pull young plants before seeding, ensuring complete root removal. 2. Herbicide application 3. Mowing before seeding to prevent spread.	Annual visual inspection and removal. Spring herbicide application. Spring mowing prior to seed.
Blackberry *Rubus fruticosis spp.*	1. Hand pull young plants before seeding, ensuring complete root removal. 2. Cut and paint stems at base.	Annual visual inspection and removal. Cut and paint as required.

	3. Foliar spray larger growth patches if necessary, though unlikely.	
Scotch Thistle *Onopordum acanthium*	1. Hand pull young plants before seeding, ensuring complete root removal. 2. Slash and remove seed heads in larger plants. Apply herbicide.	Annual visual inspection and removal. Spring herbicide application.
Spear Thistle *Cirsium vulgare*	3. Hand pull young plants before seeding, ensuring complete root removal. 4. Slash and remove seed heads in larger plants. Apply herbicide.	Annual visual inspection and removal. Spring herbicide application.

FERAL ANIMALS

While Sambar Deer (*Rusa unicolor*) and Foxes (*Vulpes vulpes*) were not sighted on the land during the site assessment, the landowner has reported their presence and raised concerns about their impact. These feral animals pose significant threats, causing extensive damage to native vegetation through browsing, trampling, and antler rubbing, which disrupts plant regeneration and soil stability. Foxes are known predators of native wildlife, including birds, small mammals, and reptiles, contributing to the decline of vulnerable species. The landowner has implemented a fortnightly shooting program (*Appendix E*) to manage these feral populations, which mitigates their adverse effects. Continued efforts in feral animal control are essential to prevent the establishment and increase of these invasive species, ensuring the long-term health and resilience of the property's ecosystems.

It is recommended the fortnightly licensed shooter continues to attend the Tiny Homes development site and the surrounding property.

Table 2 . *Priority Feral Fauna*

Fauna Species	Control Measure	Frequency
Sambar Deer *Rusa unicolor*	1. Licensed shooter to control population	Fortnightly
Red Fox *Vulpes vulpes*	1. Licensed shooter to control population	Fortnightly

No evidence of other feral species including rabbits, cats or pigs were found on the site, with the landowner confirming these species have not been encountered in the 5 years of ownership.

Continual monitoring across the development site is recommended.

LAND MANAGEMENT PLAN

Land Management Plan Schedule of Works

Season	Action	Detail	Responsible Persons	Completed	Date
		Year 1			
Spring	Approve Management Plan	Council approves the Tiny Homes Application	Land Owner/Council		
Spring	Weed Control	Manual removal and spray of priority weeds as per Table 1.	Landowner		
Spring	Fauna Control	Weekly shooting of Fox and Deer as per Table 2. Fence line visual inspection to reduce cattle risk.	Landowner/ Licensed Shooter		
Spring	Fire Preparedness	Ensure appropriate defendable space in accordance with BAL-29 prior to installation.	Landowner		
Summer	Erosion Control	Assess site area for any soil erosion. Plant recommended species if spot erosion present due to installation.	Landowner		
		Years 2-10			
Spring	Regeneration Planting	Prepare revegetation corridor as per Regeneration Action plan	Landowner		
Spring	Weed Control	Manual removal and spray of priority weeds as per Table 1.	Landowner		
Spring	Fauna Control and Monitoring	Forntightly shooting of Fox and Deer as per Table 2. Fence line visual inspection to reduce cattle risk. Monitor for other feral species including cats, pigs and rabbits.	Landowner/ Licensed Shooter		

Spring	Waterway Monitoring	Following Land Capability Assessment recommendations, check drainage and storm water systems.	Landowner/Strata Consultants
Autumn	Erosion Control	Check erosion on site.	Land Owner
Autumn	Fire Preparedness	Maintain appropriate defendable space as per BAL-29.	Land Owner

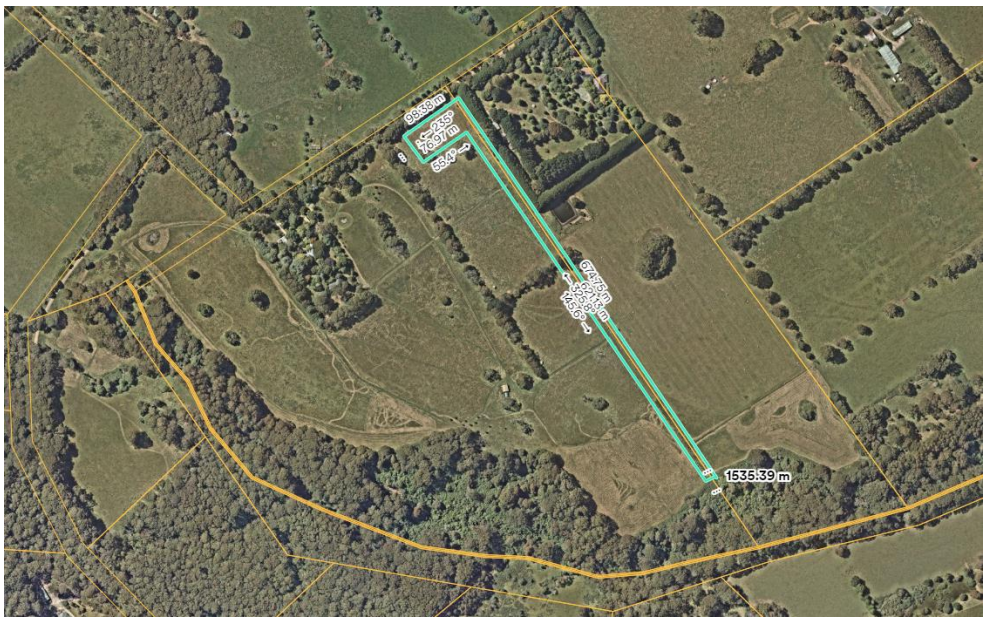
Table 3. *Land Management Plan Schedule of Works*

REGENERATIVE TREE CORRIDOR

To create a vibrant and ecologically sustainable tree lane along the east side of the Tiny Home development, the landowner has indicated their want to implement a regenerative tree corridor for responsible environmental stewardship. Similarly, the planting will support site screening in accordance with the SLO1 requirement: *The need to site and design any proposed structure to minimise visual intrusion including methods such as landscaping, and tree planting to screen the buildings and works*.

We recommend planting a diverse mix of canopy trees, understory species, shrubbery, and ground covers. This combination will provide a stable habitat structure, support native birdlife, insects, and small fauna, and enhance soil fertility and stability. The selected species are well-suited to the local environment and will contribute to the overall ecological health of the area. The proposed planting area of 1535m^2 is located on the east side of the Tiny Home site,

Figure 2 - Proposed regenerative tree corridor



The canopy layer will include Narrow-leaved Peppermint (*Eucalyptus Radiata*), Yellow Box Eucalypt (*Eucalyptus melliodora*), and Red Box Eucalypt (*Eucalyptus polymanthemos*), which provide essential habitat for nectar-feeding fauna and native birds. The understory will be enriched with Silver Wattle (*Acacia dealbata*) and Blackwood (*Acacia melanoxylon*) to improve soil fertility and support native fauna. For shrubbery, Prickly Tee-tree (*Leptospermum continentale*) and Bushy Needlewood (*Hakea sericea*) will offer dense foliage and support soil structure. Ground cover species such as Common Tussock Grass (*Poa labillardierei*), Black-anther Flax-lily (*Daniella revoluta*), Kangaroo Grass (*Themeda triandra*), Cut-leaf daisy (*Brachyscome multifida),* and Wallaby Grass (*Austrodanthonia caespitosa*) will stabilise soil, prevent erosion, and support ground-dwelling fauna and pollinators.

This planting program aims to create a sustainable and diverse tree lane that enhances the ecological value of the property while providing needed habitat for local birdlife. Regular monitoring and maintenance will ensure the long-term success of the planting efforts.

Table 4. Recommended Tree Corridor Species

Recommended Tree Corridor Species

Common Name	Scientific Name	Vegetation layer	Height	Notes
Narrow-leaved Peppermint	*Eucalyptus Radiata*	Canopy	25m	Provides habitat for native bird life and insect.
Yellow Box Eucalypt	*Eucalyptus melliodora*	Canopy	25m	Stable habitat structure supporting nectar feeding fauna.
Red Box Eucalypt	*Eucalyptus polymanthemos*	Canopy	20m	Stable habitat structure supporting nectar feeding fauna.
Silver Wattle	*Acacia dealbata*	Understory	10m	Improves soil fertility supporting native birds.
Blackwood	*Acacia melanoxylon*	Understory	10m	Improves soil and supports native Fauna.
Prickly Tee-tree	*Leptospermum continentale*	Shrubbery	2m	Sprawling roots support soil structure, provides dense foliage for small birds.
Bushy Needlewood	*Hakea sericea*	Shrubbery	2m	Sprawling roots support soil structure, provides dense foliage for small birds.
Common Tussock Grass	*Poa labillardierei*	Ground Cover	.75m	Stabilises soil, prevents erosion, and provides habitat for ground-dwelling fauna.
Black-anther Flax-lily	*Daniella revoluta*	Ground Cover	1m	Sprawling roots support soil structure, provides dense foliage for small birds.
Kangaroo Grass	*Themeda triandra*	Ground Cover	1m	Native grass supporting small fauna.
Cut-leaf daisy	*Brachyscome multifida*	Ground Cover	0.5m	Supports native pollinators.
Wallaby Grass	*Austrodanthonia caespitosa*	Ground Cover	1m	Native grass supporting small fauna and soil stabilisation.

Table 5. Regenerative Tree Corridor Planting Plan

Regenerative Tree Planting Corridor Plan			
Month	**Activity**	**Species**	**Measures**
		Year 2 - Initial Planting Phase	
March	Site preparation		Clear area of weeds and debris as per table 1.
April	Planting canopy trees	*Eucalyptus Radiata, Eucalyptus melliodora, Eucalyptus polymanthemos*	Ensure spacing of 5 meters or more
May	Planting understory trees	*Acacia dealbata, Acacia melanoxylon*	Plant between canopy trees
		Year 3 - Establishment Phase	
March	Planting shrubbery	*Leptospermum continentale, Hakea sericea*	Plant in clusters for dense foliage
April	Planting ground covers	*Poa labillardierei, Daniella revoluta, Themeda triandra*	Plant around the base of canopy and understory trees
		Year 4 - Maintenance Phase	
March	Mulching and watering	All species	Ensure all plants are well-mulched and watered regularly
April	Monitoring and replacement	All species	Replace any plants that did not establish successfully
		Year 5 - Sustainable Phase	
March	Weeding and pest control	All species	Regularly remove weeds and control pests to ensure plant health as per table 1.
April	Additional planting	*Brachyscome multifida, Austrodanthonia caespitosa*	Fill in gaps with additional ground covers

APPENDIX A – SPECIES LIST

Table 5. Flora species identified on site at time of site inspection.

Flora Species		
Common Name	**Scientific Name**	**Priority Species**
Spear Thistle	*Cirsium vulgare*	Yes
Blackberry	*Rubus fruticosus sp.*	Yes
Bent Grass	*Agrostis spp.*	Yes
Plantain	*Plantago sp.*	
Dandelion	*Taraxcum sp.*	
Bloodwort	*Achillea millefolium*	
Scotch Thistle	*Onopordum acanthium*	Yes
White Clover	*Trifolium repens*	
Blackwood	*Acacia melanoxylon*	
Black Wattle	*Acacia mearnsii*	
Radiata Pine	*Pinus Radiata*	
Long Leaved Box Eucalypt	*Eucalyptus goniocalyx*	
River Red Gum	*Eucalyptus camaldulensis*	

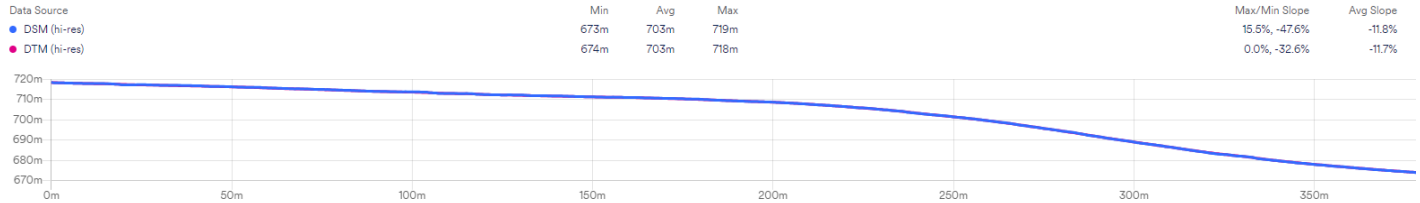
Table 6. Fauna species identified on site at time of site inspection

Fauna Species	
Common Name	*Scientific Name*
Native Animals	
Tawny Frogmouth	*Podargus strigoides*
Fan-tailed Cuckoo	*Cacomantis flabelliformis*
Fairy Martin	*Petrochelidon ariel*
Dusky Wood swallow	*Artamus cyanopterus*
Australian Raven	*Corvus coronoides*
Australian Magpie	*Cracticus tibicien*
Pied Currawong	*Strepera graculina*
Yellow-Rumped thornbill	*Acanthiza chrysorrhoa*
Super Fairy-Wren	*Malurus cyaneus*
Eastern Yellow Robin	*Eopisaltria australia*
White-eared Honeyeater	*Nesoptilotis leucotis*
Red Wattlebird	*Anthochaera carunculata*
Willie Wagtail	*Rhipidua leucophrys*
Redbrowed finch	*Neochmia temporalis*
Sulphur Crested Cockatoo	*Cacatua galerita*
Galah	*Eolophus roseicapilla*
Kookaburra	*Dacelo novaeguinea*
Common Starling	*Strunus vulgaris*
Crested Pgeon	*Ocyphaps lophotes*

Spotted Dove	*Streptopelia chinensis*
Feral Animals	
Red Fox	*Vulpes Vulpes*
Sambar Deer	*Rusa unicolor*

APPENDIX B – WATER CATCHMENT AREA SLOPE

Figure 3. Development site slope from First tiny home to water catchment area



Source: Near Maps DSM and DTM data February 2nd 2024.

APPENDIX C – VICTORIA PLANNING PROPERTY REPORT

PLANNING PROPERTY REPORT

VICTORIA State Government | Environment, Land, Water and Planning

From www.planning.vic.gov.au at 28 June 2024 09:17 AM

PROPERTY DETAILS

Address:	**131 SHANNONS LANE KERRIE 3434**
Crown Description:	**More than one parcel - see link below**
Standard Parcel Identifier (SPI):	**More than one parcel - see link below**
Local Government Area (Council):	**MACEDON RANGES** www.mrsc.vic.gov.au
Council Property Number:	**1168981**
Planning Scheme:	**Macedon Ranges** Planning Scheme - Macedon Ranges
Directory Reference:	**Vicroads 60 C7**

This property has 5 parcels. For full parcel details get the free Property report at Property Reports

UTILITIES

Rural Water Corporation:	**Southern Rural Water**
Melbourne Water Retailer:	**Greater Western Water**
Melbourne Water:	**Inside drainage boundary**
Power Distributor:	**POWERCOR**

STATE ELECTORATES

Legislative Council:	**NORTHERN VICTORIA**
Legislative Assembly:	**MACEDON**

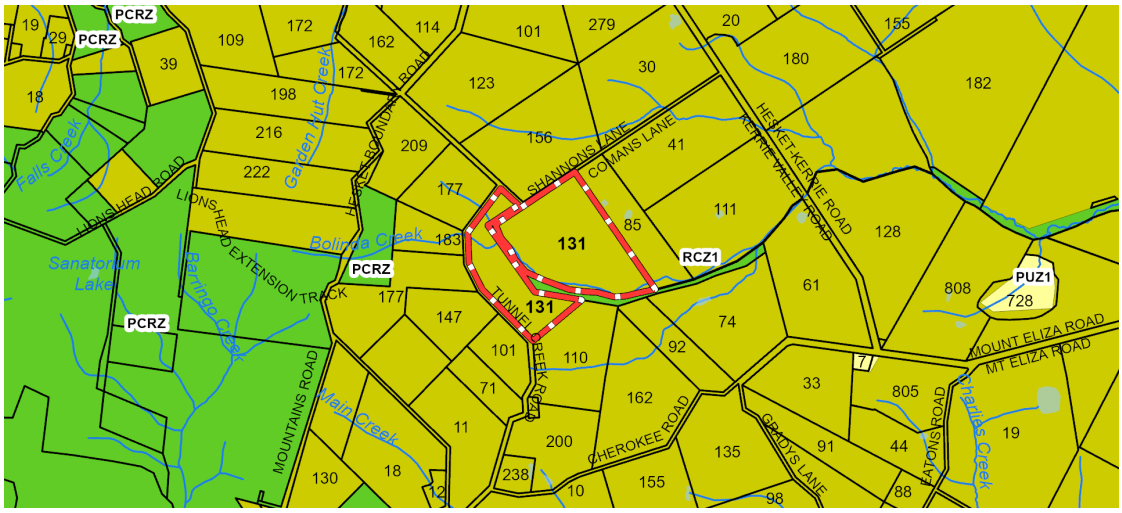
OTHER

Registered Aboriginal Party:	**Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation**

View location in VicPlan

Planning Zones

RURAL CONSERVATION ZONE (RCZ)
RURAL CONSERVATION ZONE - SCHEDULE 1 (RCZ1)



PCRZ - Public Conservation and Resource
RCZ - Rural Conservation
Water course
PUZ1 - Public Use-Service and Utility
TRZ2 - Principal Road Network
PUZ6 - Public Use-Local Government
Water area

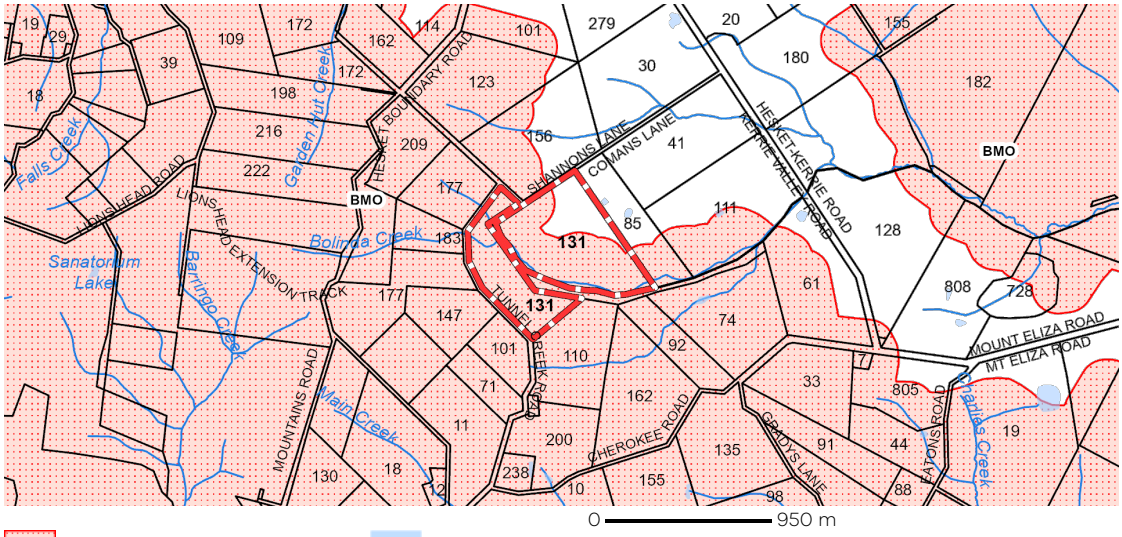
Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

PLANNING PROPERTY REPORT

VICTORIA State Government | Environment, Land, Water and Planning

Planning Overlays

BUSHFIRE MANAGEMENT OVERLAY (BMO)

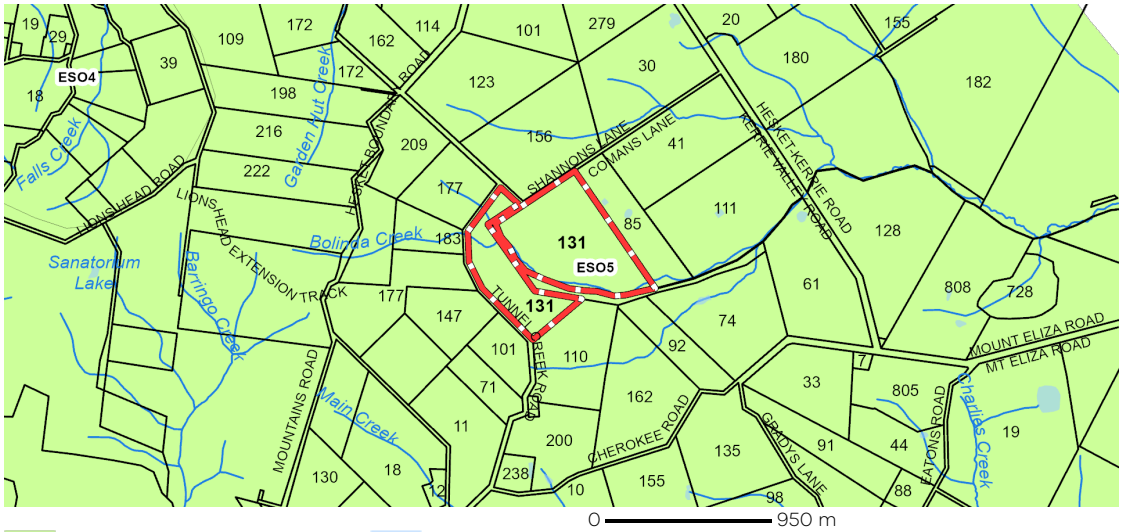


BMO - Bushfire Management Overlay | Water area | Water course

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)

ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 5 (ESO5)



ESO - Environmental Significance Overlay | Water area | Water course

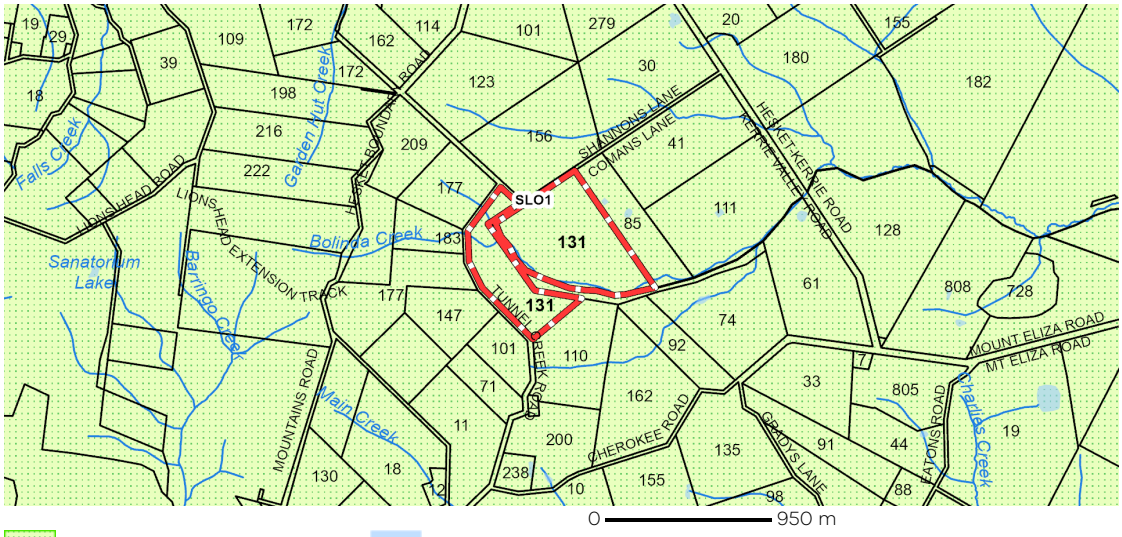
Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

PLANNING PROPERTY REPORT

VICTORIA State Government | Environment, Land, Water and Planning

Planning Overlays

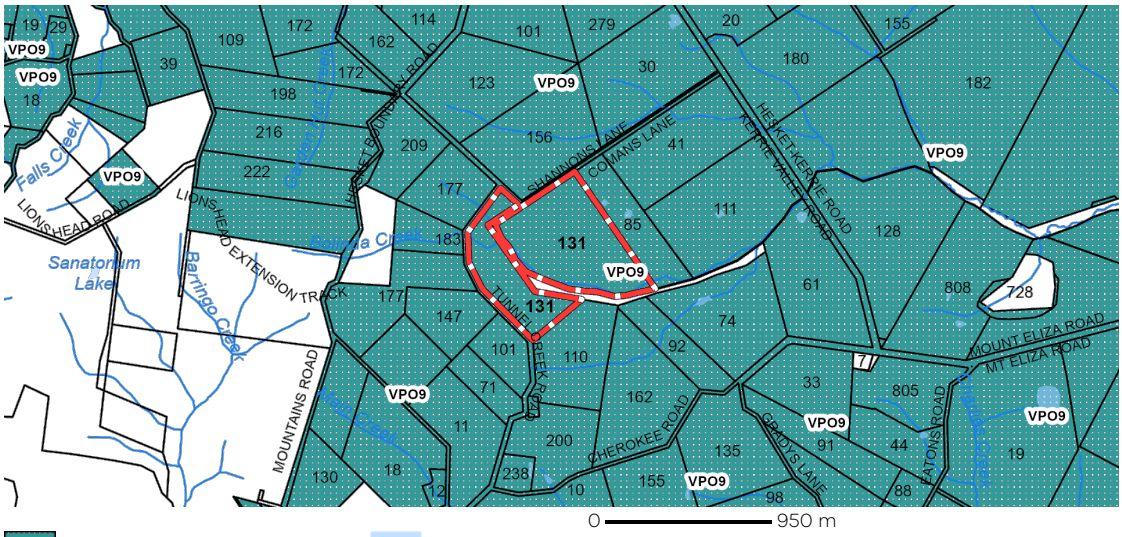
SIGNIFICANT LANDSCAPE OVERLAY (SLO)
SIGNIFICANT LANDSCAPE OVERLAY - SCHEDULE 1 (SLO1)



SLO - Significant Landscape Overlay | Water area | Water course

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

VEGETATION PROTECTION OVERLAY (VPO)
VEGETATION PROTECTION OVERLAY - SCHEDULE 9 (VPO9)



VPO - Vegetation Protection Overlay | Water area | Water course

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Planning Overlays

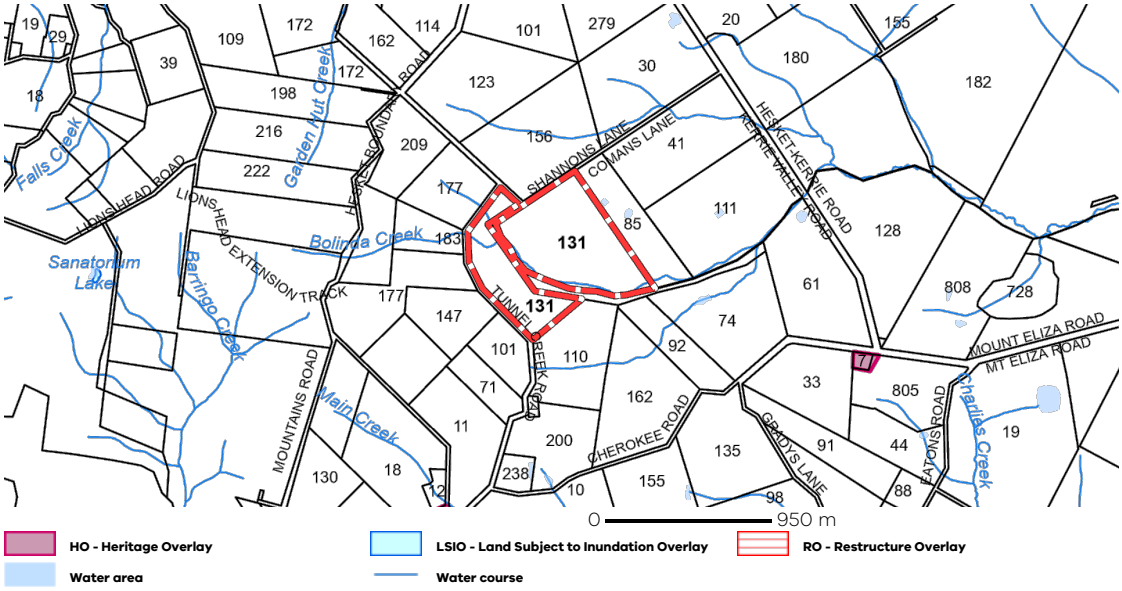
OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

HERITAGE OVERLAY (HO)

LAND SUBJECT TO INUNDATION OVERLAY (LSIO)

RESTRUCTURE OVERLAY (RO)



Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Areas of Aboriginal Cultural Heritage Sensitivity

All or part of this property is an 'area of cultural heritage sensitivity'.

'Areas of cultural heritage sensitivity' are defined under the Aboriginal Heritage Regulations 2018, and include registered Aboriginal cultural heritage places and land form types that are generally regarded as more likely to contain Aboriginal cultural heritage.

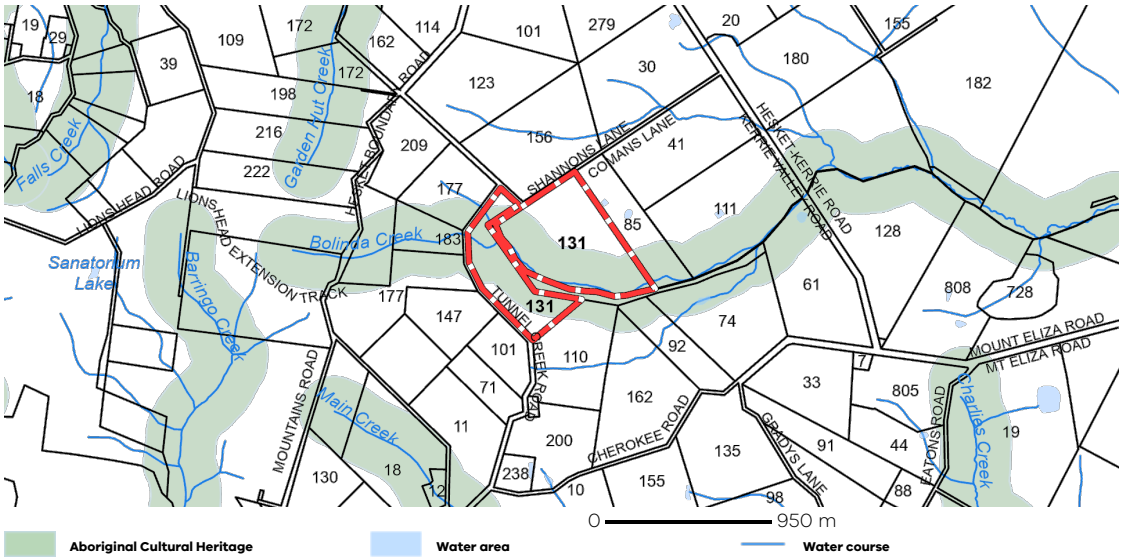
Under the Aboriginal Heritage Regulations 2018, 'areas of cultural heritage sensitivity' are one part of a two part trigger which require a 'cultural heritage management plan' be prepared where a listed 'high impact activity' is proposed.

If a significant land use change is proposed (for example, a subdivision into 3 or more lots), a cultural heritage management plan may be triggered. One or two dwellings, works ancillary to a dwelling, services to a dwelling, alteration of buildings and minor works are examples of works exempt from this requirement.

Under the Aboriginal Heritage Act 2006, where a cultural heritage management plan is required, planning permits, licences and work authorities cannot be issued unless the cultural heritage management plan has been approved for the activity.

For further information about whether a Cultural Heritage Management Plan is required go to http://www.aav.nrms.net.au/aavQuestion1.aspx

More information, including links to both the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2018, can also be found here - https://www.aboriginalvictoria.vic.gov.au/aboriginal-heritage-legislation



PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

Further Planning Information

Planning scheme data last updated on 20 June 2024.

A **planning scheme** sets out policies and requirements for the use, development and protection of land.
This report provides information about the zone and overlay provisions that apply to the selected land.
Information about the State and local policy, particular, general and operational provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting https://www.planning.vic.gov.au

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the ***Planning and Environment Act 1987.***
It does not include information about exhibited planning scheme amendments, or zonings that may abut the land.
To obtain a Planning Certificate go to Titles and Property Certificates at Landata - https://www.landata.vic.gov.au

For details of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, overlay and heritage information in an interactive format visit https://mapshare.maps.vic.gov.au/vicplan

For other information about planning in Victoria visit https://www.planning.vic.gov.au

PLANNING PROPERTY REPORT

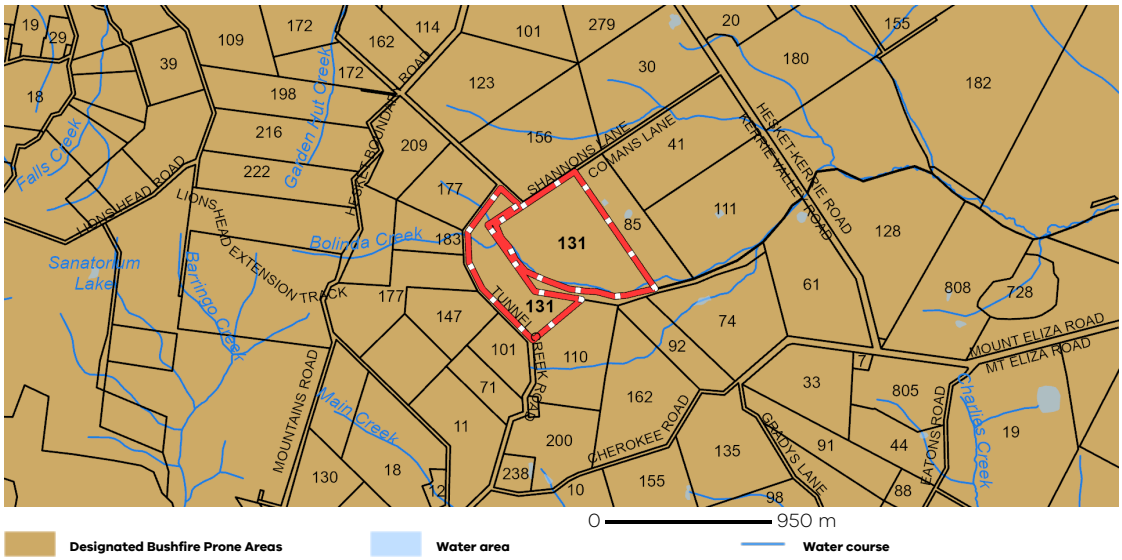
Environment, Land, Water and Planning

Designated Bushfire Prone Areas

This property is in a designated bushfire prone area. Special bushfire construction requirements apply to the part of the property mapped as a designated bushfire prone area (BPA). Planning provisions may apply.

Where part of the property is mapped as BPA, if no part of the building envelope or footprint falls within the BPA area, the BPA construction requirements do not apply.

Note: the relevant building surveyor determines the need for compliance with the bushfire construction requirements.



Designated BPA are determined by the Minister for Planning following a detailed review process. The Building Regulations 2018, through adoption of the Building Code of Australia, apply bushfire protection standards for building works in designated BPA.

Designated BPA maps can be viewed on VicPlan at https://mapshare.vic.gov.au/vicplan/ or at the relevant local council.

Create a BPA definition plan in VicPlan to measure the BPA.

Information for lot owners building in the BPA is available at https://www.planning.vic.gov.au.

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website https://www.vba.vic.gov.au. Copies of the Building Act and Building Regulations are available from http://www.legislation.vic.gov.au. For Planning Scheme Provisions in bushfire areas visit https://www.planning.vic.gov.au.

Native Vegetation

Native plants that are indigenous to the region and important for biodiversity might be present on this property. This could include trees, shrubs, herbs, grasses or aquatic plants. There are a range of regulations that may apply including need to obtain a planning permit under Clause 52.17 of the local planning scheme. For more information see Native Vegetation (Clause 52.17) with local variations in Native Vegetation (Clause 52.17) Schedule

To help identify native vegetation on this property and the application of Clause 52.17 please visit the Native Vegetation Information Management system https://nvim.delwp.vic.gov.au/ and Native vegetation (environment.vic.gov.au) or please contact your relevant council.

You can find out more about the natural values on your property through NatureKit NatureKit (environment.vic.gov.au)

APPENDIX D – ECOLOIGCAL VEGETATION CLASS DEFINITION

EVC/Bioregion Benchmark for Vegetation Quality Assessment

Central Victorian Uplands bioregion

EVC 23: Herb-rich Foothill Forest

Description:
Occurs on relatively fertile, moderately well-drained soils on an extremely wide range of geological types and in areas of moderate to high rainfall. Occupies easterly and southerly aspects mainly on lower slopes and in gullies. A medium to tall open forest or woodland to 25m tall with a small tree layer over a sparse to dense shrub layer. A high cover and diversity of herbs and grasses in the ground layer characterise this EVC.

Large trees:

Species	DBH(cm)	#/ha
Eucalyptus spp.	70 cm	20 / ha

Tree Canopy Cover:

%cover	Character Species	Common Name
40%	*Eucalyptus globulus ssp. bicostata*	Eurabbie
	Eucalyptus obliqua	Messmate Stringybark
	Eucalyptus dives	Broad-leaved Peppermint

Understorey:

Life form	#Spp	%Cover	LF code
Immature Canopy Tree		5%	IT
Understorey Tree or Large Shrub	2	10%	T
Medium Shrub	3	5%	MS
Small Shrub	2	1%	SS
Prostrate Shrub	1	1%	PS
Large Herb	4	5%	LH
Medium Herb	11	25%	MH
Small or Prostrate Herb	3	5%	SH
Large Tufted Graminoid	2	5%	LTG
Large Non-tufted Graminoid	1	5%	LNG
Medium to Small Tufted Graminoid	6	20%	MTG
Medium to Tiny Non-tufted Graminoid	2	5%	MNG
Ground Fern	2	10%	GF
Scrambler or Climber	3	5%	SC
Bryophytes/Lichens	na	20%	BL

EVC 23: Herb-rich Foothill Forest – Central Victorian Uplands bioregion

LF Code	Species typical of at least part of EVC range	Common Name
T	*Acacia dealbata*	Silver Wattle
SS	*Hovea heterophylla*	Common Hovea
PS	*Acrotriche prostrata*	Trailing Ground-berry
LH	*Wahlenbergia stricta*	Tall Bluebell
LH	*Senecio tenuiflorus*	Slender Fireweed
LH	*Senecio minimus*	Shrubby Fireweed
LH	*Senecio quadridentatus*	Cotton Fireweed
MH	*Stellaria pungens*	Prickly Starwort
MH	*Viola hederacea sensu Willis (1972)*	Ivy-leaf Violet
MH	*Acaena novae-zelandiae*	Bidgee-widgee
SH	*Dichondra repens*	Kidney-weed
SH	*Hydrocotyle laxiflora*	Stinking Pennywort
LTG	*Lomandra longifolia ssp. longifolia*	Spiny-headed Mat-rush
MTG	*Lomandra filiformis ssp. coriacea*	Wattle Mat-rush
MTG	*Luzula meridionalis var. flaccida*	Common Woodrush
MTG	*Austrodanthonia pilosa*	Velvet Wallaby-grass
MTG	*Poa ensiformis*	Sword Tussock-grass
MNG	*Microlaena stipoides var. stipoides*	Weeping Grass
MNG	*Poa tenera*	Slender Tussock-grass
MNG	*Echinopogon ovatus*	Common Hedgehog-grass
GF	*Pteridium esculentum*	Austral Bracken
GF	*Asplenium flabellifolium*	Necklace Fern
SC	*Clematis aristata*	Mountain Clematis
SC	*Glycine clandestina*	Twining Glycine
SC	*Billardiera scandens var. scandens*	Common Apple-berry
SC	*Hardenbergia violacea*	Purple Coral-pea

Recruitment:
Continuous

Organic Litter:
40 % cover

Logs:
20 m/0.1 ha.

Weediness:

LF Code	Typical Weed Species	Common Name	Invasive	Impact
MH	*Hypochoeris radicata*	Cat's Ear	high	low
MH	*Centaurium erythraea*	Common Centaury	high	low
LNG	*Holcus lanatus*	Yorkshire Fog	high	high

Published by the Victorian Government Department of Sustainability and Environment April 2004

www.dse.vic.gov.au

APPENDIX E – PEST CONTROL LETTER

Pest Control 131 Shannons Lane Kerrie

I'm Matt Perkins (MP Vermin Control) I'm a Professional Vermin Controller fully licensed and insured.
I have been shooting foxes and deer on Trent and Rosie Barry's property (131 Shannons lane) for over 4 years, visiting the property weekly or more frequently if sighting foxes/deer or if neighbouring properties are having troubles with invasive species.
Over 4 years i have removed 116 foxes, 45 sambar deer, 5 red deer and 4 fallow deer off Rosie's property, the deer meat is all taken to a chiller for human consumption
I shoot on 5/6 farms on Shannons lane and constantly control feral animal species on the other farms in the area.
Since I have been shooting on Rosie's property I have noticed a huge increase in the smaller animals e.g. birds, crickets, frogs and all other small reptiles.
walking through the bush you now notice less erosion in the creek banks due to less deer causing destruction to the creek line and the hills
all in all the bush/ farm is a lot healthier.

Matt Perkins
MP Vermin Control
0470276330

TERRALOGIC

BUSHFIRE ASSESSMENT REPORT

Accommodation (Tiny Houses)

131 Shannons Lane, Kerrie

FINAL
2 October 2023

TERRALOGIC

Contents

Attachment 1 - Bushfire Management Plan

TERRALOGIC

Disclaimer and conditions of use

This report has been made with careful consideration and with the best information available to Terralogic Pty Ltd at the time of writing. Before relying on information in this report, users should evaluate the accuracy, completeness and relevance of the information provided for their purposes. Terralogic Pty Ltd do not guarantee that it is without flaw or omission of any kind and therefore disclaim all liability for any error, loss or other consequence that may arise from you relying on any information in this report.

Requirements detailed in this document do not guarantee survival of the buildings or the occupants. The client is strongly encouraged to develop and practice a bushfire survival plan. Information and assistance including a template for a Bushfire Survival Plan is provided as part of the 'Fire Ready Kit' available through the CFA website at www.cfa.vic.gov.au or through your local CFA Regional office.

Version control and review

Version	Date	Author	Client Reviewer
Draft 1	10 July 2023	A Wilson / G McMillan	J Cavill
Draft 2	9 August 2023	G McMillan	J Cavill
Final	2 October 2023	G McMillan	J Cavill

TERRALOGIC

1. Introduction

This report has been prepared to support a planning permit application for accommodation (tiny houses) (**proposal**) at 131 Shannons Lane, Kerrie (**site**).

Clause 44.06 Bushfire Management Overlay (**BMO**) of the Macedon Ranges Planning Scheme (**Planning Scheme**) requires an application for a planning permit to be accompanied by the following:

- Bushfire hazard landscape assessment
- Bushfire hazard site assessment
- Bushfire management statement

This report addresses these matters and the relevant bushfire planning policy at clause 13.02-1S of the Planning Scheme.

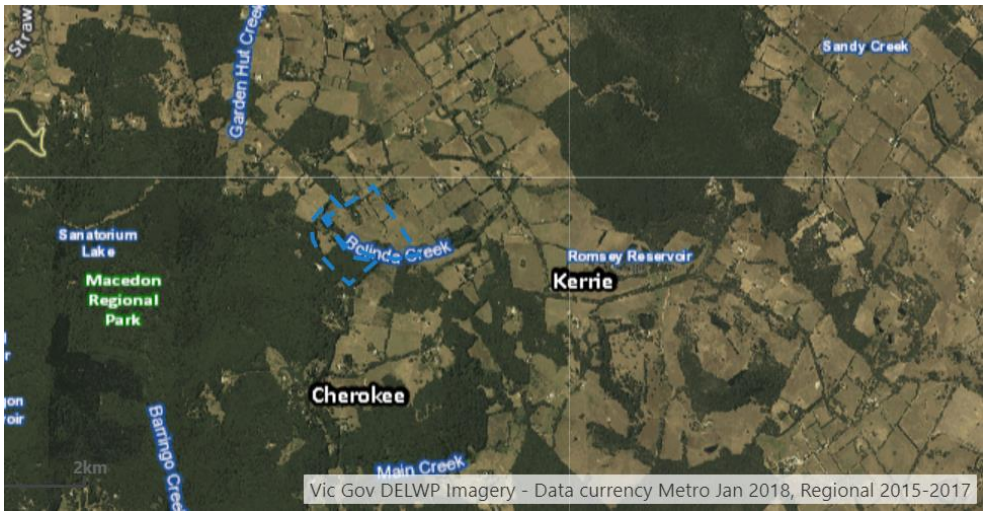
TERRALOGIC

2. Site description

There is an existing dwelling on the site. The main access to the site is from Shannons Lane to the north. The site is close to significant areas of forest including the Macedon Ranges, which presents a risk of unmanaged vegetation close to the site. Bolinda Creek runs through the property to the south.

Photographs of the site and surrounds can be found in **section 5** of this report.

Figure 1 – Site context



TERRALOGIC

3. Proposal

It is proposed to undertake buildings and works to construct three tiny houses for short stay accommodation at the site, including:

Use

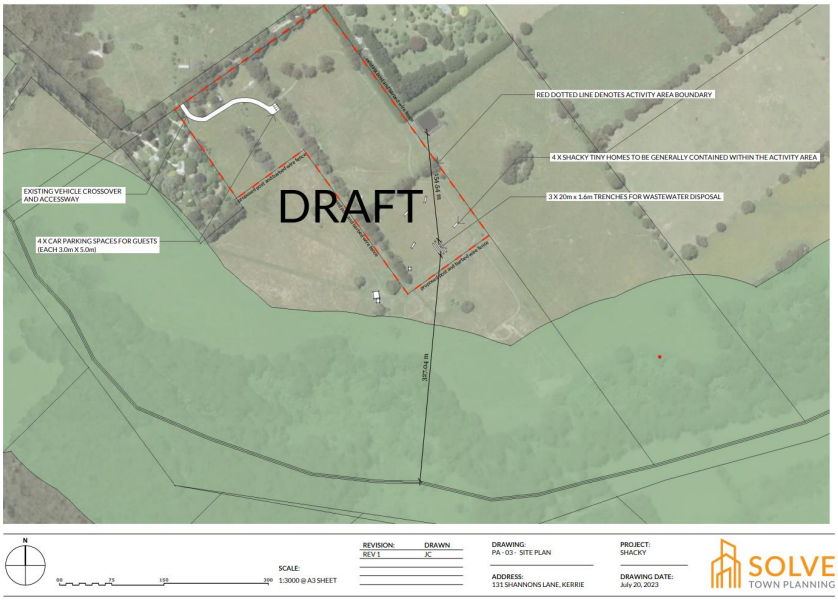
- Overall use of the site for, group accommodation (4 tiny houses)
- The larger landholding will continue to be used for agricultural purposes.

Buildings and works

- Four tiny houses (contained within the site assessment area)
- Any required works to existing access
- Four car parking spaces for guest to be located closer to the existing dwelling on the site.

Details of the proposed works are shown in drawings prepared by Solve Town Planning (dated 20 July 2023)

Figure 2 – Extract from planning drawings



TERRALOGIC

4. Relevant planning controls

Zoning and Overlays

The land is zoned Rural Conservation Zone (**RCZ1**) pursuant to the Macedon Ranges Planning Scheme (**Planning Scheme**) and is affected by the Bushfire Management Overlay (**BMO**), the Environmental Significance Overlay (**ESO5**), the Significant Landscape Overlay (**SLO1**) and the Vegetation Protection Overlay (**VPO9**). The site is also within the designated Bushfire Prone Area (**BPA**).

State bushfire policy at Clause 13.02-1S of the Planning Scheme will be a relevant consideration as it applies to all decisions in the BMO and the designated BPA.

State bushfire policy

State planning policy at clause 13.02-1S of the Planning Scheme is relevant for the project, as it applies to projects within the BMO. The objective of clause 13.02 is to:

> *To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.*

In terms of settlement planning the policy seeks to:

- *Directing population growth and development to low risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).*

- *Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.*

- *Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.*

- *Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reducing bushfire risk overall.*

Clause 71.02-3 (Integrated decision making)

The provisions at clause 71.02-3 explains how bushfire risk is integrated with other policy objectives.

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The Planning Policy Framework operates together with the remainder of the scheme to deliver integrated decision making. Planning and responsible authorities should endeavour to integrate the range of planning policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations. However, in bushfire affected areas, planning and responsible authorities must prioritise the protection of human life over all other policy considerations.

Integrated bushfire hazard identification and mitigation

In Victoria the planning and building systems are integrated in how they deal with bushfire risk. The planning system is largely responsible for strategic decisions and decisions in areas with more significant bushfire hazard. The building system is largely responsible for decisions on sites with lower levels of bushfire hazard. Mapping tools under the planning and building systems are used to designate the level of bushfire hazard.

Building system

In the building system, areas that are likely to be subject to bushfire are mapped in the designated BPA pursuant to Section 192A of the *Building Act 1993.* Areas designated as BPA areas that are exposed to lower levels of bushfire hazard – typically grassland environments and other bushfire prone areas where extreme bushfire behaviour is unlikely to be generated.

The BPA designation triggers a bushfire construction requirement under the National Construction Code 2016 (National Construction Code). A minimum construction standard of Bushfire Attack Level (**BAL**) 12.5 applies in all parts the BPA for accommodation buildings.

Planning system

The planning system requires bushfire risk to be considered when developing land in the BPA and the BMO.

The BMO is a planning overlay control applied to areas that have the potential for more significant fire behaviour, such as a crown bushfire and extreme ember attack and radiant heat (DELWP 2017). These are the type of locations where the creation of new or expanded settlements should be avoided where possible and accordingly the mapping of the BMO has also used as an important input for the landscape scale bushfire assessment.

Australian Standard AS.3959-2018

Australian Standard AS.3959-2018 – Construction of buildings in bushfire prone areas (2018) (**AS.3959**) is used to determine the level of bushfire attack on buildings and to determine

the appropriate separation distances from vegetation and construction response in the building system.

The standard underpins both the building system and many aspects of the planning system. For example, State policy at Clause 13.02-1S refers to different radiant heat exposure thresholds as calculated under AS.3959.

As part of any assessment of bushfire behaviour there are assumptions made based on vegetation type, slope and assumptions about the weather conditions under AS.3959.

Vegetation classifications, slope and weather conditions

AS.3959 models the likely fire behaviour using the following parameters:

- Vegetation classification
- Slope
- Weather conditions

Vegetation (bushfire hazard) is classified under AS.3959 based on how it is likely to influence fire behaviour, taking into account the type and structure of the vegetation. The different vegetation classifications (listed broadly in order of descending fire severity) include:

- Forest
- Woodland
- Shrubland
- Scrub
- Mallee/Mulga
- Rainforest
- Grassland

Some vegetation is excluded from any assessment under AS.3959 on the basis that it is assumed to have a minimal influence on fire behaviour (i.e. it is considered 'low threat'). Excluded vegetation includes:

- Single areas of vegetation less than 1 hectare in area and not within 100 metres of other classifiable vegetation.
- Multiple areas of vegetation less than 0.25 hectares in area and not within 20 metres of the site or each other.
- Strips of vegetation less than 20 metres in width and not within 20 metres of the site or each other or other areas of classifiable vegetation.

- Non-vegetated areas including waterways, roads, footpaths, buildings or rock outcrops.
- Low threat vegetation including managed grassland, maintained lawns, golf courses and public reserves.

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5. Bushfire Hazard Assessment

A bushfire hazard assessment is a factual assessment of the bushfire hazard and the likely forms of bushfire attack.

The bushfire hazard assessment has been prepared in two parts:

- Bushfire hazard landscape assessment of the wider area. This considers the hazard at the broader landscape scale.
- A desktop bushfire hazard site assessment which assesses the vegetation and slope within 150 metres of the proposed accommodation buildings.

Mechanisms of bushfire attack

As noted in DELWP's BMO Technical Guide, there are up to five forms of bushfire attack that need to be taken into account when undertaking bushfire assessments. These are:

- ember attack
- radiant heat
- localised flame contact
- flame contact from the fire front
- extreme fire behaviour.

Bushfire Hazard Landscape Assessment

This area would be classified as broader landscape type three according to the BMO Technical Guide. These are landscapes where:

- *The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site.*
- *Bushfire can approach from more than one aspect.*
- *The site is located in an area that is not managed in a minimum fuel condition.*
- *Access to an appropriate place that provides shelter from bushfire is not certain.*

The most likely forms of fire behaviour at the landscape scale that could currently impact the site include:

- Extreme ember attack from the Macedon Ranges Regional Park and forested areas in the landscape.
- Direct flame contact and radiant heat impacting on the site from the forested areas immediately to the west and south west of the site.

- Fast moving grassfire (which could be ignited by embers) running through the grassland paddocks on the site.

A Bushfire Hazard Landscape Assessment plan is provided at **page 13** of this report.

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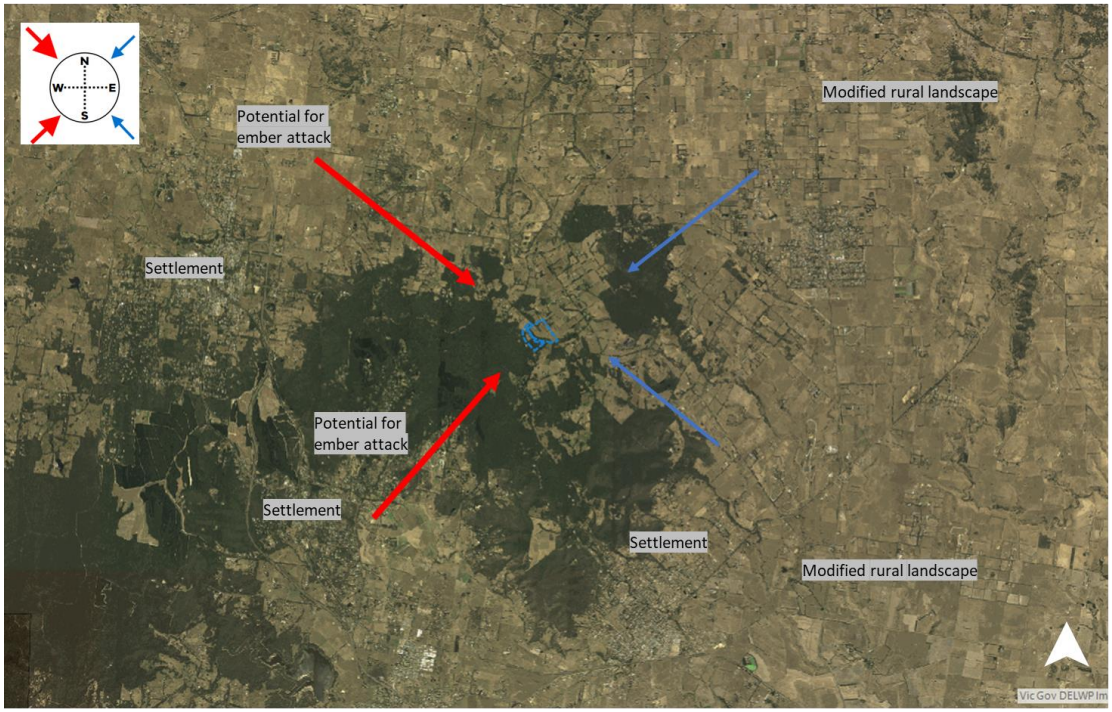

Plan prepared on 10/07/2023

Bushfire Hazard Landscape Assessment

131 Shannons Lane Kerrie

Subject site

Main fire runs

Secondary fire runs

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13

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Bushfire hazard site assessment

A site inspection was conducted on 29 June 2023.

Vegetation within 150 metres of the siting envelopes for the proposed accommodation buildings was assessed according to the methodology in the BMO. The outcomes of the assessment are documented in **Table 1**.

A Bushfire Hazard Site Assessment plan is at **page 15** of this report. Photographs of the vegetation close to the proposed accommodation sites are at **pages 16 - 17** of this report.

Table 1

	North	East	South	West
Vegetation classification	Grassland	Grassland	Grassland and Forest	Grassland
Effective slope under classified vegetation	Upslope	Downslope 0-5'	Downslope 10-15' under Forest	Flat
Existing distance* between proposed buildings and classified vegetation	0m to grassland			
Separation distances required according to Table 3 at Clause 53.02	35m to Grassland	40m to Grassland	105m to Forest	35m to Grassland
Separation distances to achieve radiant heat exposure of less than 12/KW/sqm (e.g. equivalent to BAL-12.5) according to Table 2	19m to Grassland	22m to Grassland	82m to Forest	19m to Grassland
Recommended defendable space (with integrated risk management)	**40 metres in all directions or to the property boundary.**			

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Prepared on 10/07/23 (Site inspection conducted on 29/06/2023)

Bushfire Hazard Site Assessment

131 Shannons Lane Kerrie

Subject site

150m assessment area

Classified vegetation

Forest

Woodland

Shrubland

Scrub

Grassland

Modified vegetation

Note – unshaded vegetation on the plan has been classified as low threat according to AS3959

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15

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Photo 1 – View of front gates from north east of house

Photo 2 – View from property front looking north east

Photo 3 – View from property front looking south west

Photo 4 – View of gates to house

Photo 5 – View from south west of site looking south

Photo 6 – View from secondary gates looking south east

Photo 7 – View of proposed siting looking north

Photo 8 – View from proposed siting looking north

Photo 9 – View from proposed siting looking south

Photo 10 – View from proposed siting looking south east

Photo 11 – View from proposed siting looking east

Photo 12 – View of vegetation to south of site assessment area

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Clause 53.02 – Bushfire Planning

The following is a response to the relevant bushfire protection objectives and measures set out in clause 53.02 of the Planning Scheme.

Clause 53.02-4.1 Landscape, siting and design

Objective	Response
• *Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape.* • *Development is sited to minimise the risk from bushfire.* • *Development is sited to provide safe access for vehicles, including emergency vehicles.* • *Building design minimises vulnerability to bushfire attack.*	The main types of bushfire attack expected include: • Extreme ember attack from the Macedon Ranges Regional Park and rugged forest areas in the landscape. • Direct flame contact and radiant heat impacting on the site from the forested areas immediately to the west and south west of the site. • Fast moving grassfire (which could be ignited by embers) running through the grassland paddocks on the site. In order to make this proposal acceptable, the tiny houses need to be positioned as far away from the forest hazard as practicable, whilst maintaining easy access to the main road (for the purposes of evacuation). The landscape risk cannot be fully mitigated by measures such as defendable space and water supply alone. An integrated approach to risk management is required, including the implementation of an emergency management plan.

Approved measures	Response
AM 2.1 *The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.*	An integrated approach to risk management is required, including the implementation of an emergency management plan, construction

Approved measures	Response
	standards (where practical), defendable space and water supply. Subject to the measures recommended below, it is considered the landscape risk can be mitigated to an acceptable standard.
AM 2.2 *A building is sited to ensure the site best achieves the following:* • *The maximum separation distance between the building and the bushfire hazard.* • *The building is in close proximity to a public road.* • *Access can be provided to the building for emergency service vehicles.*	The accommodation is located in a cleared part of the site. There is an opportunity to manage defendable space.
AM 2.3 *A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building.*	The accommodation buildings have a simple design where there is less risk of embers getting lodged in eaves and gaps.

Clause 53.02-4.2 Defendable space and construction objective

Objective	Response
Defendable space and building construction mitigate the effect of flame contact, radiant heat and embers on buildings.	Defendable space and construction standards will be implemented to mitigate the effects of bushfire attack, taking into consideration the landscape scale risk. This will form part of an integrated approach to risk management, including the implementation of a BEMP.

See Table 1 for defendable space calculations. We initially assessed the proposal against AM3.2, however the defendable space distances in Table 3 cannot be practicably acheived, accordingly we have then assessed the proposal against AltM3.6 (see below).

Approved measures	Response
AltM3.6 *A building used for accommodation (other than a dwelling or dependent person's unit), a child care*	See **Table 1** for defendable space calculations.

centre, an education centre, a hospital, leisure and recreation or a place of assembly is provided in accordance with Table 2 Columns A, B or C and Table 6to Clause 53.02-5 where it can be demonstrated that:
 	
• *An integrated approach to risk management has been adopted that considers:*
  ○ *The characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency.*
  ○ *The intended frequency and nature of occupation.*
  ○ *The effectiveness of proposed emergency management arrangements, including a mechanism to secure implementation.*
• *Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment.*
	An integrated approach to risk management is required, including the implementation of an emergency management plan, construction standards (where practical), defendable space and water supply.
	
	The accommodation will be centrally managed by an on-site manager. Accordingly, there is an option to close the site on high risk days (e.g. Extreme and Catastrophic fire danger rating days). There is also an option for the site manager to evacuate visitors from the site if risk ratings are predicted to increase. This will need to be implemented via a BEMP.
	
	In addition to the BEMP, water supply will be required (see below) and specific construction standard and defendable space considerations include:
	
	• A BAL-29 construction standard for the cabin accommodation and 40m of defendable space is proposed to mitigate the landscape risks.

Clause 53.02-4.3 Water supply and access objectives

Objective	**Response**
A static water supply is provided to assist in protecting property. Vehicle access is designed and constructed to enhance safety in the event of a bushfire.	Static water and access will be provided to enhance safety. It is proposed to install a 10,000L storage water tank.

Approved measure	**Response**
AM 4.2 *A building used for accommodation (other than a dwelling or dependent person's unit), child care centre, education centre, hospital, leisure and recreation or place of assembly is provided with:*	A total floor area of 57 sqm is proposed. According to Table 4 at clause 53.02-5, a 10,000 litre dedicated water supply is required for fire fighting purposes.

Approved measure	Response
• *A static water supply for fire fighting and property protection purposes of 10,000 litres per 1,500 square metres of floor space up to 40,000 litres.* • *Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02-5.* • *An integrated approach to risk management that ensures the water supply and access arrangements will be effective based on the characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency.* *The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire fighting water supplies.*	Access requirements will apply.

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6. Risk assessment

Factors influencing risk

State policy at Clause 13.02-1S and the BMO Technical Guide sets out the factors that influence bushfire risk and should be considered as part of a planning application.

Relevantly for this accommodation proposal, these factors include:

- Bushfire hazard and likely fire behaviour.
- Characteristics of the use and visitors to the site.
- Management arrangements.
- Access to the site and availability of safer places.

A response to each factor and proposed mitigation measures (if required) are described below:

Bushfire hazard and likely fire behaviour

In **section 6** of this report the bushfire hazard and likely fire behaviour was assessed. It is anticipated that the most likely forms of fire behaviour that could impact the site include:

- Extreme ember attack from the Macedon Ranges Regional Park and rugged forest areas in the landscape.
- Direct flame contact and radiant heat impacting on the site from the forested areas immediately to the west and south west of the site.
- Fast moving grassfire (which could be ignited by embers) running through the grassland paddocks on the site.

An integrated approach is required to manage these risks, primarily via emergency management arrangements. Evacuation and site closure requirements would need to be implemented, and this is considered to be a practical measure given there will be a dedicated on-site manager.

To mitigate any residual risk it is recommended that a 10,000 litre static water supply be provided that is dedicated to fire fighting purposes. This could be used, by staff at the site, in the event of ember attack, forest fire or ember attack to protect the assets and visitors on the site.

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Visitors to the site

The accommodation will be used by guests who book the accommodation in advance. All staff and guests on the site will be known by management. This will enable the managers of the site to direct guests and staff in the event of an emergency.

There is a very low possibility that unplanned visitors would visit the site, however these guests would need to go to a reception so the site manager would know that they are on site.

On extremely risky days (e.g. Catastrophic or Extreme risk rating) accommodation would be closed to guests to reduce the chances of people being in the area. This is reflected in the BEMP.

Management arrangements

There will be a dedicated site manager. This enables the implementation of a BEMP which could apply to accommodation guests, staff and other visitors to the site.

Access and availability of safer places

The main access to the site is from Shannons Lane to the north, which then connects Kerrie Valley Road.

The site is positioned within an open area with significant areas of grassland and forest surrounding the site.

The existing access provides suitable access, however it is recommended that it be maintained at a standard suitable for emergency service access.

There is an opportunity at the site to designate a building as a safer place, where guests and staff could congregate in the event of an emergency. This is likely to be safer than evacuating people from the site as then it is not clear where they would travel. However, ultimately evacuation requirements would be addressed in the BEMP and direction would need to be sought from the emergency services.

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7. Recommended bushfire mitigation measures

Based on the outcomes of the policy assessment, hazard assessment and risk assessment the following recommendations are made:

- The tiny houses must be constructed to a **BAL-29** construction standard in accordance with AS3959.

- **Defendable space** must be provided for a distance of 40 metres around the accommodation buildings, or to the property boundary whichever is the lesser in accordance with the following requirements:

    - Grass must be short cropped and maintained during the declared fire danger period.
    - All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
    - Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
    - Plants greater than 10 centimetres in height must not be placed within 3 metres of a window or glass feature of the building.
    - Shrubs must not be located under the canopy of trees.
    - Individual and clumps of shrubs must not exceed 5 square metres in area and must be separated by at least 5 metres.
    - Trees must not overhang or touch any elements of the building.
    - The canopy of trees must be separated by at least 5 metres.
    - There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

    Unless otherwise agreed in writing to the satisfaction of the relevant fire authority

- A **Bushfire Emergency Management Plan should** be prepared to include appropriate actions for ensuring the safety of guests and staff associated with the accommodation. Adequate consideration needs to be given to amongst other measures:
    - The conditions under which the site should not be occupied by guests or staff.
    - Activities to be undertaken prior to each fire season such as vegetation management and other mitigation measure.

- Management actions in the event of a fire and clearly identify who is responsible for implementing those actions.
- Management action to implement site closure and clearly identify who is responsible for implementing those actions.

Unless otherwise agreed by the relevant fire authority.

- **10,000 litres of static water supply must be provided**. All static water supply must meet the following requirements:
  - Be stored in an above ground water tank constructed of concrete or metal.
  - Have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive resistant metal.
  - Include a separate outlet for occupant use.
  - Be readily identifiable from the building or appropriate identification signs to the satisfaction of the relevant fire authority.
  - Should be located within 60 metres of the outer edge of the relevant accommodation building.
  - The outlet/s of the water tank must be within 4 metres of the accessway and unobstructed and can be provided via remote access in accordance with *Guidelines for remote outlets on water tanks in the Bushfire Management Overlay* (CFA, 2017).
  - Incorporate a separate ball or gate valve (British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting).
  - Any pipework and fittings must be a minimum of 65 millimetres(excluding the CFA coupling).

  Unless otherwise agreed by the relevant fire authority.

- **Vehicle access must be maintained** to meet the following standards:
  - All-weather construction.
  - A load limit of at least 15 tonnes.
  - Provide a minimum trafficable width of 3.5 metres.
  - Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
  - Curves must have a minimum inner radius of 10 metres.
  - The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres.

- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

Unless otherwise agreed by the relevant fire authority.

These requirements are reflected on the Bushfire Management Plan at **Attachment 1** of this report and in the BEMP prepared concurrently with this report.

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8. Conclusion

The site will be managed by an on-site manager who will be on the site at all times. The site is located within a high bushfire risk landscape. To meet the objectives of Clause 13.02-1S, the BMO and clause 53.02 an integrated approach to risk management is required. This involves emergency management arrangements, defendable space, construction standards, water supply and access.

The risk to visitors and staff can be suitably mitigated by the bushfire protection measures recommended at **section 7** of this report.

It is considered that the proposal is consistent with the State policy objectives at clause 13.02-1S, the purpose of the BMO and the objectives at clause 53.02 of the Planning Scheme.

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9. References

Advisory Note 46, Bushfire Management Overlay Mapping Methodology and Criteria, Victorian Government, August 2013

Advisory Note 68 – Bushfire State Planning Policy Amendment VC140

Planning Practice Note 64 - Local planning for bushfire protection, Victorian Government, September 2015

Technical Guide Planning permit Applications Bushfire Management Overlay, Victorian Government, September 2017

DELWP 2017. Guidelines for the removal, destruction or lopping of native vegetation, https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/91146/Guidelines-for-the-removal,-destruction-or-lopping-of-native-vegetation,-2017.pdf.

Standards Australia 2018. Australian Standard AS.3959-2018 – Construction of buildings in bushfire prone areas (AS.3959-2018), Council of Australian Standards.

Attachment 1

Bushfire Management Plan to be added once siting confirmed [add 40m or to property boundary defendable space line]