

Bushfire Hazard Assessment Report



Project: Alterations to Riverside Cabin 56 DIGGINGS TERRACE, THREDBO VILLAGE Lot 772 DP 1119757

DATE: OCTOBER 2021
REPORT NO: 21134
REVISION: 01
PREPARED FOR: ROBYN AND JAMES PRICE
PREPARED BY: ACCENT TOWN PLANNING PTY LTD

- Preparation of Bushfire Reports for Development in Bushfire Prone Areas
- Bushfire Attack Level (BAL) Certificates
- Bushfire Evacuation Plans
- Construction Solutions & Advice for Bushfire Prone Areas



Accreditation No: BPD - 27149



BUSHFIRE HAZARD ASSESSMENT

ACCENT TOWN PLANNING

ABN 63 637 759 758

PO BOX 642
JINDABYNE NSW 2627

Phone: (02) 6456 7176
Email: info@completeplanning.com.au
Web: accenttownplanning.com.au

This document is copyright © 2021.

ASSESSOR & QUALIFICATIONS

A handwritten signature in black ink, appearing to read 'M Stewart', is positioned above the name Matthew Stewart.

Matthew Stewart

FPAAC BPAD Accredited Bushfire Practitioner – No 27149

DISCLAIMER

The recommendations provided in the summary of this report are a result of the analysis of the proposal in relation to the requirements of Planning for Bushfire Protection 2019. Utmost care has been taken in the preparation of this report however there is no guarantee of human error. The intention of this report is to address the submission requirements for Development Applications on bushfire prone land. There is no implied assurance or guarantee the summary conditions will be accepted in the final consent and there is no way Accent Town Planning Pty Ltd is liable for any financial losses incurred should the recommendations in this report not be accepted in the final conditions of consent.

This bushfire assessment provides a risk assessment of the bushfire hazard as outlined in the PBP 2019 and AS3959 2018. It does not provide protection against any damages or losses resulting from a bushfire event.

EXECUTIVE SUMMARY

This bushfire assessment is for the alterations to the existing cabin 56; these alterations include: These alterations include: removal of existing hot water unit (HWU), the addition of an alcove to house the replacement HWU to be suspended from the underside of the existing floor framing, refurbish kitchen, living/dining and bathroom areas, and a new high level window to the southern elevation to match the existing dwellings. Thredbo Riverside is located at Diggings Terrace, Thredbo Village, NSW, within the Alpine Resort area of Kosciuszko National Park. The site is legally described as Lot 772 DP1119757.

The land is zoned tourist accommodation and has been identified as being in bushfire prone land, and hence as outlined in *Planning for Bushfire Protection – PBP 2019* (NSW RFS 2019) is considered Special Fire Protection Purpose (SFPP) and is required to obtain a BFSa from the RFS under section 100B of the RF Act.

The required Bushfire Attack Level for the commercial lodge will be:

- **Bushfire Attack Level of BAL 40 to the North and East and**
- **BAL FZ to the South and West.**

Pending compliance with the recommendations outlined in this report. The performance criteria and deemed to satisfy provisions of infill development within the Alpine Resorts outlined in Section 6.4 and 6.6 of PBP 2019 are found to be satisfied.



The assessment confirms the lot is located on Bushfire Prone Land and identifies the following:

- The bushfire threat is forest vegetation to the South and West of the existing lodge.
- Thredbo Resort maintains vegetation and APZ of the village for bushfire protection as per the *Thredbo Bush Fire Preparation Map*.
- All allotments are maintained as inner protection areas.
- Clearing will not exceed the clearing threshold permissible above which the Biodiversity Assessment Method (BAM) and offsets scheme to apply.
- The proposed works are not within the identified terrestrial biodiversity areas.
- No changes to existing road access are proposed as part of this application.
- Thredbo is serviced by reticulated water and hydrant system with nearest hydrants located on Friday Drive and Valley Close.

ASSET PROTECTION ZONES

The landscaped areas of the allotment shall be maintained as an inner protection area.

The landscaping shall maintain the inner protection area effectively free of available fuel. Landscaping plants may be used in this area so long as they are selected for their low combustibility, by virtue of high moisture content, low volatile oil content, high leaf minerals, large fleshy leaves, absence of shredding bark. They should be placed so as not to provide either vertical or horizontal connectedness of plant material and avoid overhanging roof lines or contact with the building.

Riverside Cabins was granted an Asset Protection Zone Plan on 12th February 2021, the approval is granted subject to conditions to undertake vegetation management works. The proposed works are required to provide a defendable space around the cabin and to remove any potential hazardous trees or branches which are overhanging the cabin. APZ works may include:

- Removal of all fine fuels such as leaves, twigs, bark etc surrounding the building,
- Removal of any trees or branches that are overhanging the building whether live or dead,
- Removal of trees to provide a defendable space within the lease and extending beyond the lease area as per the attached plan, and
- Selective removal of native ground cover or trimming of ground cover within the defendable space. We request that the minimum amount of removal is conducted to achieve the desired result

The following provisions must be adhered to in order to comply with the Planning for Bushfire Protection 2019:

- native tree canopies will not exceed 15% of the area,
- understorey vegetation will not exceed 10% of the area,
- tree canopies will not be continuous from hazard to asset,
- lower branches will be pruned up to 2m above the ground, and
- tree canopies will not overhang the building.
- No understorey vegetation to be located below trees.

See Appendix 1 for Asset Protection Zone Plan diagram.

CONSTRUCTION

To BAL 40 to the North and East and FZ to the South and West, as per AS3959-2018, with the exception that the construction requirements shall be varied to comply with the requirements of Section 7.5 of the NSW Rural Fire Service *Planning for Bushfire Protection 2019*.

UTILITIES

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting fire fighting activities. To achieve this, the following conditions shall apply:

WATER

All above ground water pipes external to the building are to be metal.

Thredbo Resort is serviced by reticulated water. A hydrant system is located along Friday Drive and Valley Close. The location and distance to the hydrants will be consistent with the requirements of the PBP 2019.

GAS

If gas is connected to the lodge on the subject land, must perform as per the following criteria:

- Bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used.
- All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.
- If gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal.
- Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

EVACUATION AND EMERGENCY MANAGEMENT

The intent of measures is to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments.

To achieve this, the following conditions shall apply:

A building evacuation diagram, site layout diagram and Statement of Action are to be provided in each building in accordance with the NSW Rural Fire Service Guidelines for the Preparation of Emergency/Evacuation Plan and with Australian Standard AS 3745 2010 'Planning for Emergencies in Facilities'.

1. PROPOSAL

This Bush Fire Assessment Report has been compiled for submission to the Department of Planning for the purpose of assessment under Section 100B of the RF Act and is also considered “integrated development” under Section 4.46 of *Environmental Planning and Assessment Act 1979* (EP&A Act).

The report has been prepared in accordance with the submission requirements of Appendix 1 of *Planning for Bush Fire Protection* (NSW RFS 2019) and identifies the proposal can meet the appropriate objectives and performance criteria of Section 6 *Planning for Bush Fire Protection* (NSW RFS 2019).

The assessment confirms the subject lot is mapped as bushfire prone.

Accent Town Planning was commissioned to provide this bushfire assessment. Accredited bushfire assessor, Matthew Stewart inspected the site on 9th September 2021.

- Figure 1 – shows the subject lot location.
- Figure 2 – provides a broad scale aerial view of the subject site.
- Figure 3 – shows the proposed plans.

FIGURE 1 SITE LOCATION

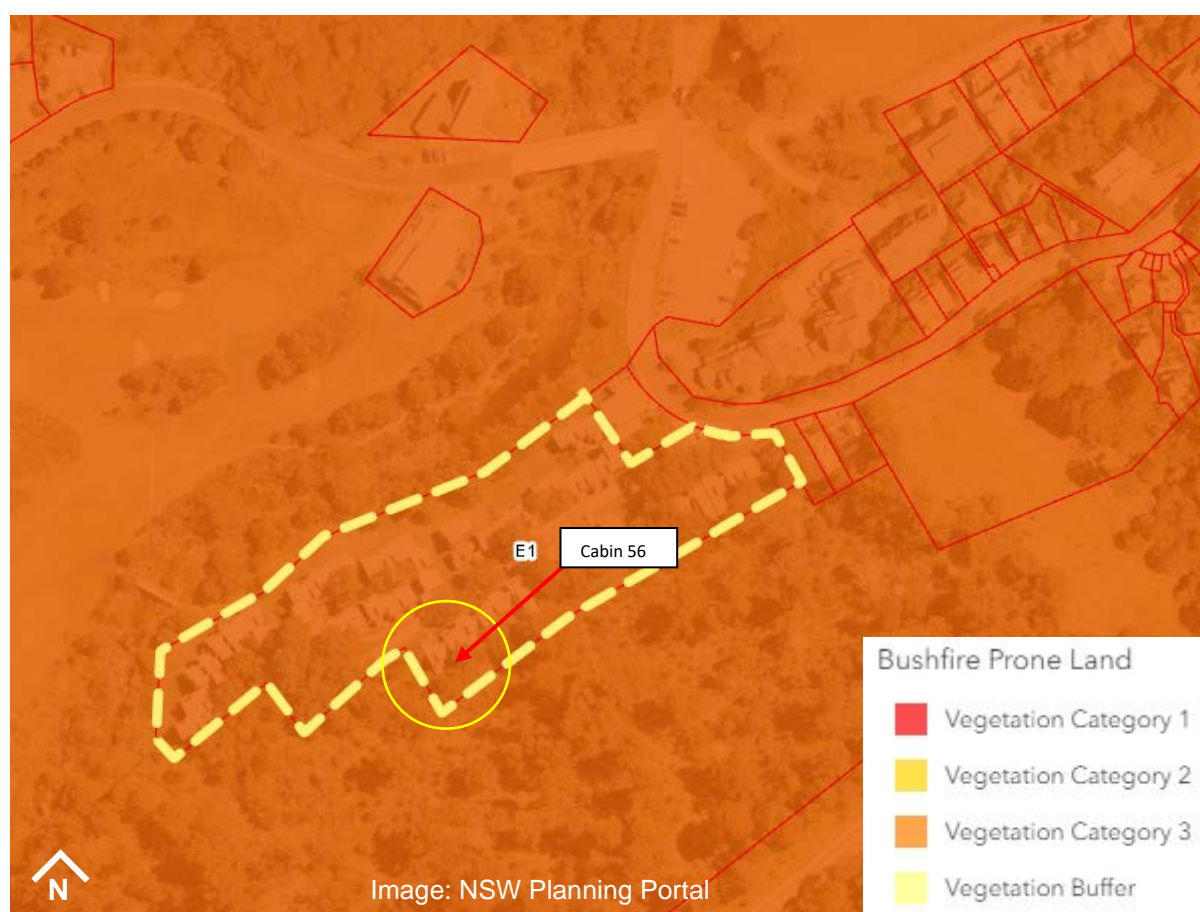


FIGURE 2 BROAD SCALE AERIAL VIEW OF THE SUBJECT SITE



FIGURE 3 CLOSE UP AERIAL VIEW OF SUBJECT LOT

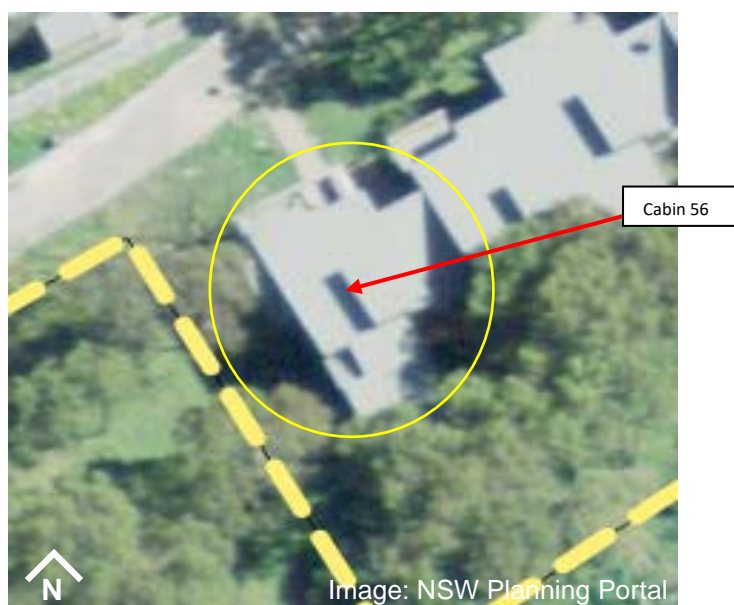
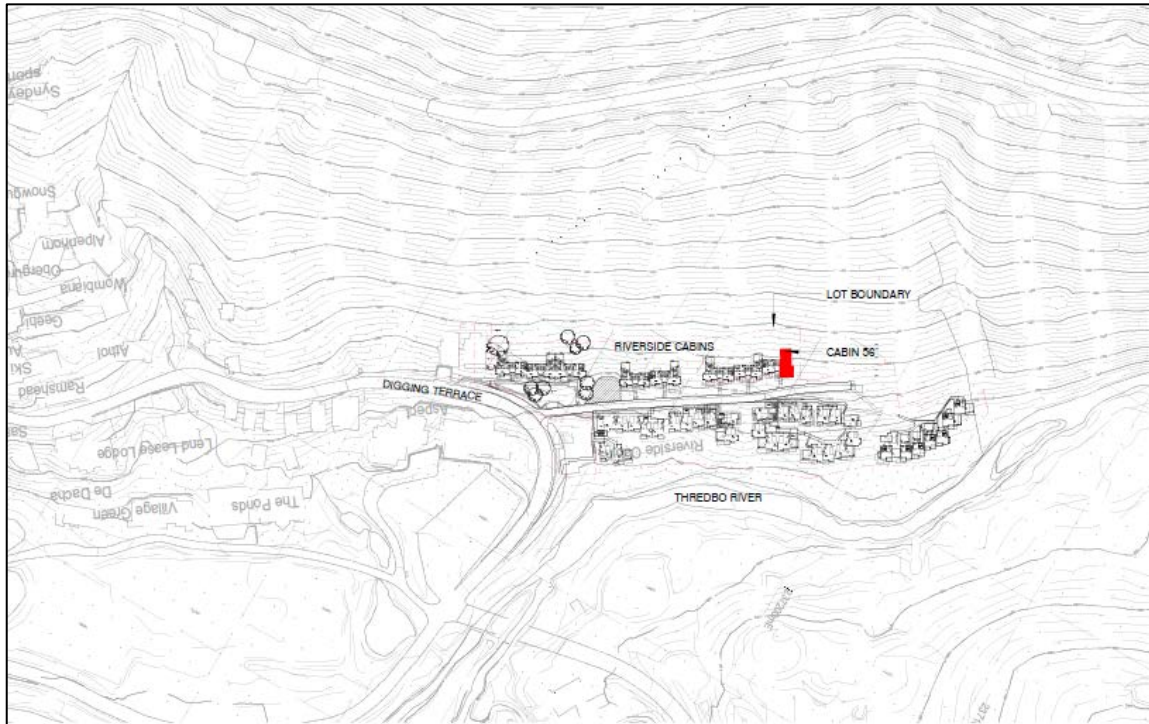
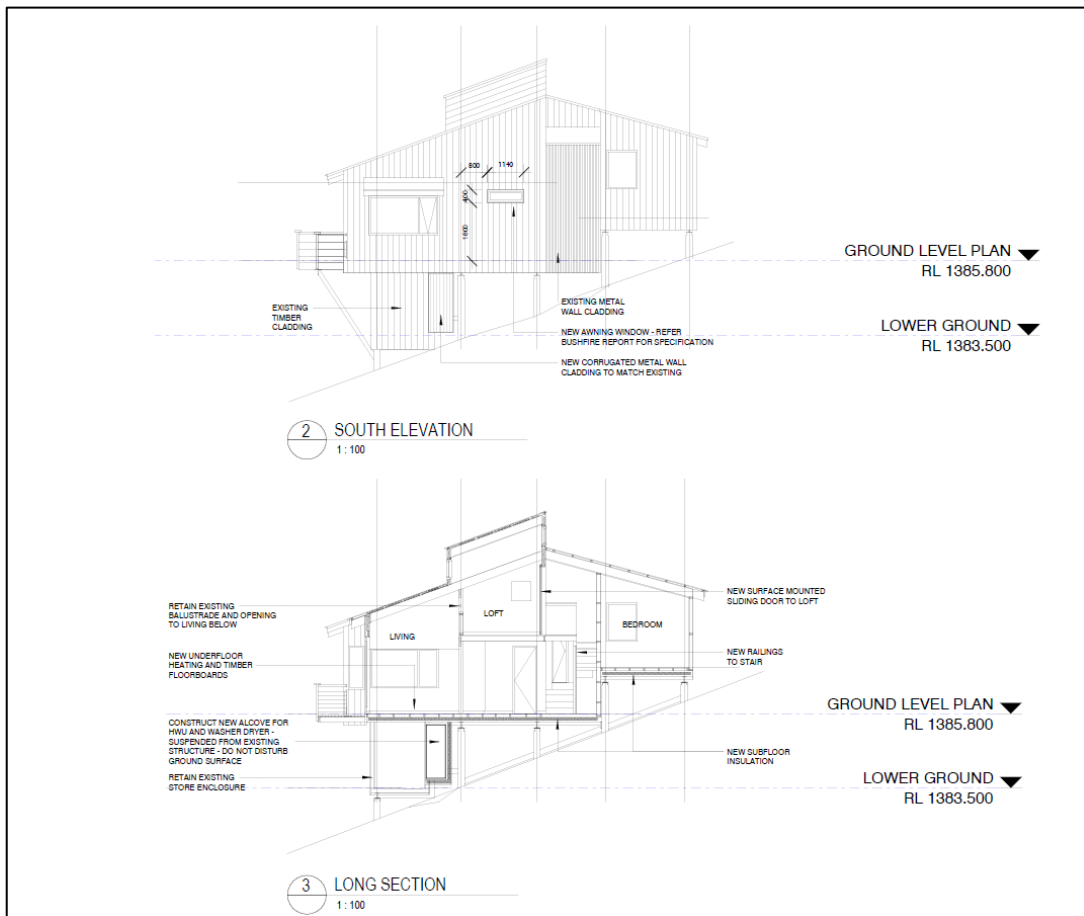


FIGURE 4 PROPOSED PLANS

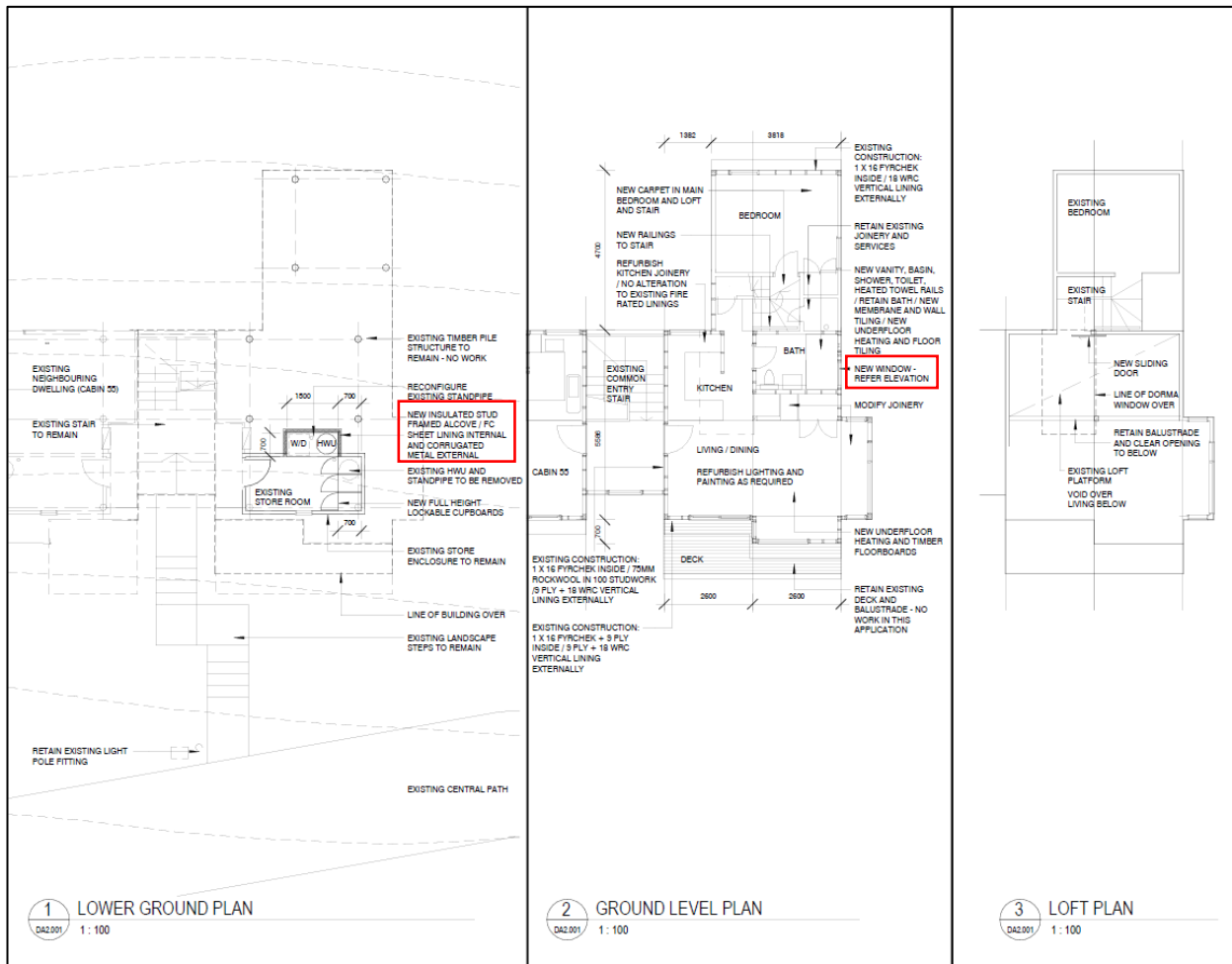
SITE PLAN



ELEVATIONS PLANS



FLOOR PLANS



SITE PHOTOS



2. PLANNING LAYERS

The following planning layers are described in Table 1 and shown in the Figures below:

TABLE 1 PLANNING LAYERS

MAP	FIGURE	DESCRIPTION
Bushfire Prone Land Map	5	The subject lot is mapped "Vegetation Category 3"
LEP Zone Map	6	The subject lot is zoned as "E1 – National Parks and Nature Reserves"
Vegetation Mapping	7	The vegetation surrounding the existing lodge has been mapped as: <ul style="list-style-type: none"> - Sub-alpine Shrub-Grass Woodland - Tableland Acacia Moist Herb Forest According to Keith (2004) this formation is classified as "Managed Land" and "Forest".
Biodiversity Values Map	8	Not identified as an area with high biodiversity values.
Thredbo Bushfire Protection Map	9	Nearest vegetation north upslope from the existing lodge and proposed new penetrations for the new external flues.

FIGURE 5 BUSHFIRE PRONE MAP

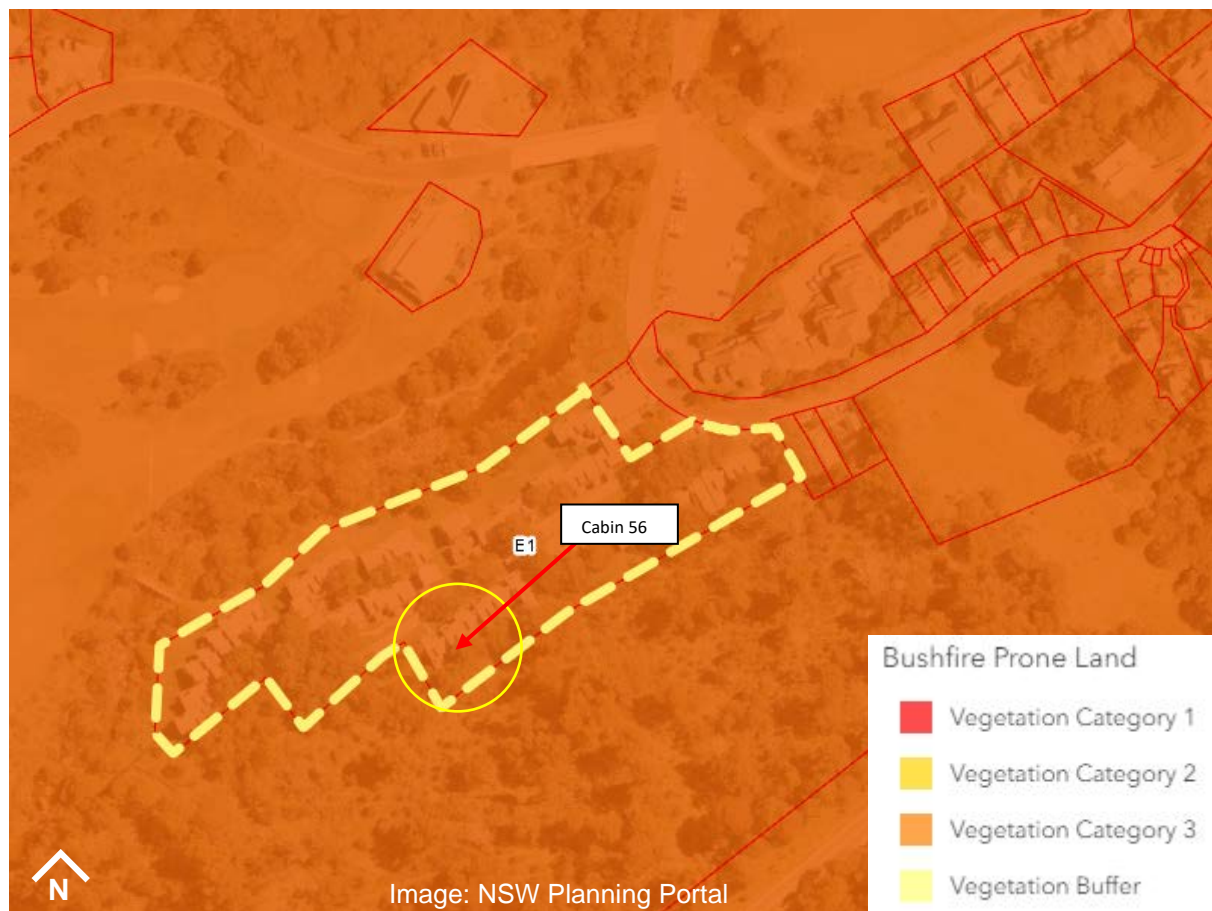


FIGURE 6 LEP MAP



FIGURE 7 VEGETATION MAPPING

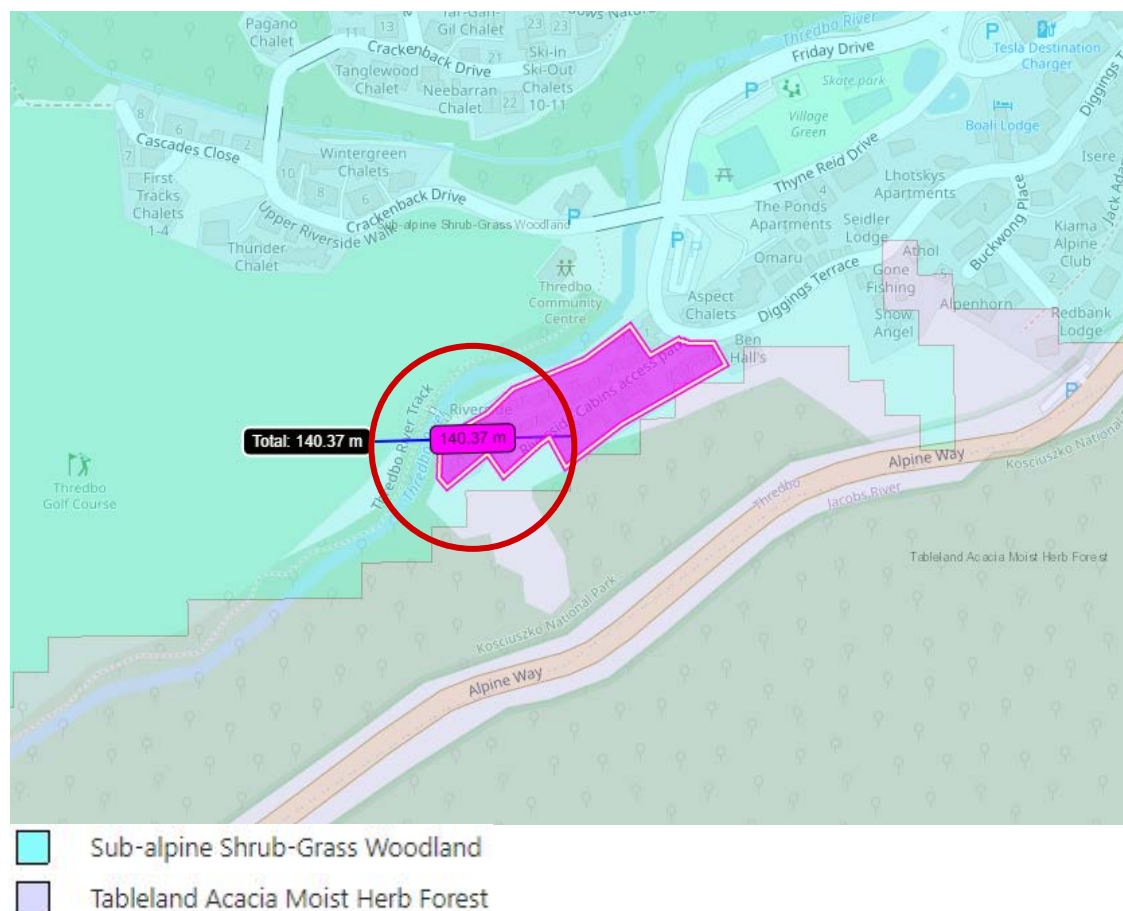
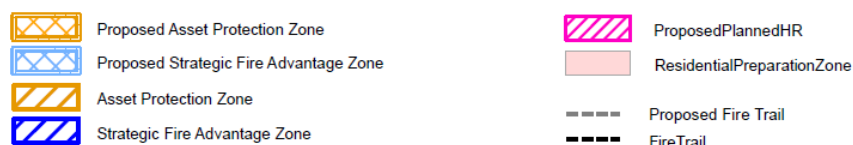
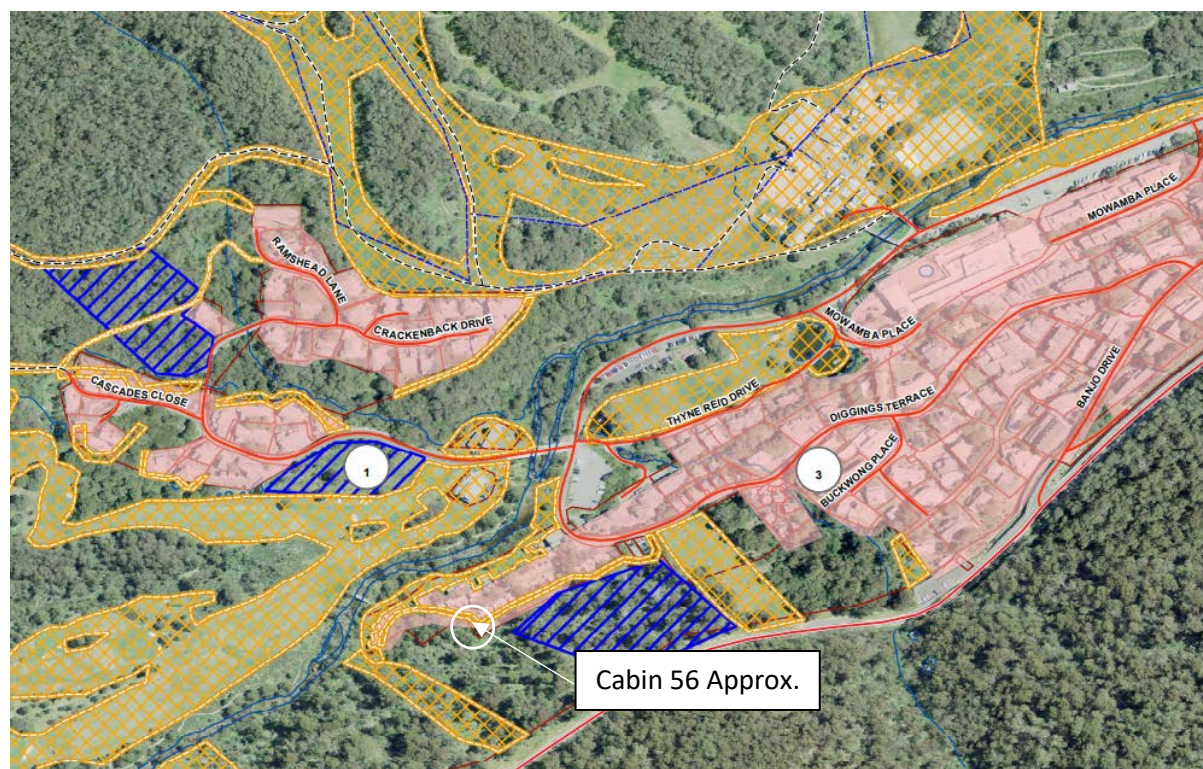


FIGURE 8 BIODIVERSITY VALUES MAP



FIGURE 9 THREDBO BUSHFIRE PROTECTION PLAN

3. SITE DESCRIPTION

3.1. Slope and aspect of the site within 100 m of the site

The slope that would most significantly influence fire behaviour was determined to be to the South and the West with *Forest* vegetation 5m upslope from the lot boundary.

The Australian Standard AS3959-2018 identifies that the slope of the land under the classified vegetation is much more important than the slope between the site and the edge of the classified vegetation.

As can be seen in Figure 9 the land surrounding the existing lodge exhibits an upwards slope to the south and downslope 5 – 10° to the west.

FIGURE 9 SLOPE



FIGURE 10 PROPOSED APZ



3.2. Vegetation formation within 140 m of existing lodge

Thredbo Village is comprised of managed land at the base of the valley. Within 140m of the site, the area is managed land within a ski resort with the majority comprised of other existing lodges as well as Forest vegetation outside of the Thredbo Asset Protection Zone and Residential Preparation Zone.

As seen in Figure 7, within 140m of Cabin 56 Diggings Terrace, Thredbo there are two types of vegetations:

- Sub-alpine Shrub-Grass Woodland
- Tableland Acacia Moist Herb Forest

Above the lodge, to the north is a dense path of Sub-Alpine Shrub-Grass Woodland, which is comparable to the *Forests* classification of *Keith* as it is comprised of an open tree canopy which is dominated by eucalypt species over 10m in height. Below the canopy there is a prominent understory of Tableland Acacia Moist Herb Forest.

The majority of the remaining area is comprised of managed land as cleared and maintained for ski runs during winter and a mountain bike park during the summer months as well as each allotment maintained as inner protection areas. Common land within the resort is managed by Kosciuszko Thredbo.

The vegetation formations are described below and summarised in Table 2.

TABLE 2 PREDOMINATE VEGETATION CLASSIFICATION

	Vegetation Formation	Effective Slope	APZ Proposed	Photo
North	Managed Land	Downslope 5-10°	Entire Lot to be Managed as IPA	1
East	Managed Land	Downslope 0-5°	Entire Lot to be Managed as IPA	2
South	Forest	Upslope	10m	3
West	Forest	Downslope 5-10°	5m	4

Photo 1 View to North



Photo 2 View to East



Photo 3 View to South



Photo 4 View to West



4. BUSHFIRE THREAT ASSESSMENT

4.1. Asset Protection Zones (APZ)

PBP 2019 Table A1.12.7 has been used to determine the width of the required APZ for the proposed development using the vegetation and slope data identified. An FFDI of 50 was used for this location. An APZ should be maintained from the commencement of building works and maintained for perpetuity.

The vegetation classification for bushfire purposes for this site is “Forest”. Forest vegetation can be managed as an Inner Protection Area (IPA) and Outer Protection Area (OPA). The IPA is critical for providing a defensible space and managing heat intensities at the building surface. The OPA serves to reduce the potential length of flames, filtering embers and reducing the likelihood of crown fires.

The IPA should provide a tree canopy cover less than 15% and any tree canopies must be located greater than 2 metre from any part of the proposed dwelling roofline. Garden beds of flammable shrubs should not be located under trees and should be no greater than 10m from an exposed window or door. Trees should have lower limbs removed up to a height of 2 metres above ground.

An OPA should provide a tree canopy cover of less than 30% and should have understory managed (mowed) to treat all shrubs and grasses on an annual basis in advance of the fire season (September).

Table 3 below shows the APZ and BAL Determination for proposed dwelling.

TABLE 3 APZ AND BAL DETERMINATION

	NORTH	EAST	SOUTH	WEST
Gradient	Downslope 5-10°	Downslope 0-5°	Upslope	Downslope 5-10°
Vegetation	Managed Land	Managed Land	Forest	Forest
Proposed distance to be provided between edge of building and vegetation	Entire Lot to be Managed as IPA	Entire Lot to be Managed as IPA	10m	5m
APZ required by PBP 2019 for BAL 12.5 under Table A1.12.7	N/A	N/A	<11m	<17m
BAL Proposed	BAL 40	BAL 40	BAL FZ	BAL FZ

4.2. Relevant Construction Standard

The Australian Standard AS 3939 – 2018 is the enabling standard that addresses the performance requirements of both parts 2.3.4 and Part GF5.1 of the Building Code of Australia for the construction of the Class 1, 2 and Class 3 buildings within a designated Bushfire Prone Area.

The following was determined for this site:

Relevant fire danger index..... FFDI 50

The applicant proposes the new alterations for the lodge will meet BAL 40 to the North and East and FZ to the South and West.

4.3. Safe Operational Access

The Planning for Bushfire Protection requires the provision of safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.

The PBP (2019) requires the provision of safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.

- Diggings Terrace is a sealed public road. It is a two-wheel drive, all weather road. The widths and design would allow safe access for firefighters while residents are evacuating an area. The capacity of road surfaces is sufficient to carry fully loaded firefighting vehicles.

4.4. Emergency Management

The intent of measures is to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments.

To achieve this, the following conditions shall apply:

A building evacuation diagram, site layout diagram and Statement of Action are to be provided for the proposed development in accordance with Building Emergency Procedures and Bush Fire Evacuation Plan, the NSW Rural Fire Service Guidelines for the Preparation of Emergency/Evacuation Plan and with Australian Standard AS 3745 2010 'Planning for Emergencies in Facilities'.

The owners are advised to obtain the NSW Rural Fire Service – “Guidelines for the Preparation of Bush Fire Evacuation Plans” & ‘Bush Fire Survival Plan’ In the event of emergency, the owners should ensure they are familiar with the RFS Bush Fire Alert Levels and use their Bush Fire Survival Plan.

4.5. Adequate Water and Utility Services

Thredbo Resort is serviced by reticulated water. A hydrant system is located along Diggings Terrace. The location and distance to the hydrants will be consistent with the requirements of the PBP 2019.

Any bottled gas will be installed and maintained in accordance with AS1596 and the requirements of the relevant authority. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

5. LANDSCAPING

An APZ is required to be established and should be maintained for the life of the lease as specified.

When landscaping, vegetation should be located greater than 2 m from any part of the roofline of a dwelling or the shed. Garden beds of flammable shrubs are not to be located under trees and should not be within 10 m of an exposed window or door. Trees should have lower limbs removed up to a height of 2 m above the ground.

Appendix 4 (PBP 2019) provides guidelines for landscaping and Bushfire Provisions within the APZ. To incorporate bushfire protection measures into future development, the owner is advised to consider the following:

- Avoid planting trees species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopy.
- Avoid planting deciduous species that may increase fuel at surface/ground level by the fall of leaves.
- Avoid climbing species to walls and pergolas.
- Locate combustible materials such as woodchips/mulch, flammable fuel stores (LPG gas bottles) away from the building.
- Locate combustible structures such as garden sheds, pergolas and materials such as timber furniture away from the building.
- Ensure any vegetation planted around the house is a suitable distance away so these plants do not come into physical contact with the house as they mature.

The property should be developed to incorporate suitable impervious area surrounding the building, including courtyards, paths and driveways.

6. HOW THIS PROPOSAL MEETS DEEMED TO SATISFY SOLUTION

DEMONSTRATION COMPLIANCE UNDER SECTION 6.4 – SPECIFIC OBJECTIVES PLANNING FOR BUSHFIRE (2019)

Performance Criteria	Complies	Acceptable solutions
The intent may be achieved where:		
• provide an appropriate defensible space	<input checked="" type="checkbox"/>	See Table 3 for APZ distances.
• site the building in a location which ensures appropriate separation from the hazard to minimise potential for material ignition	<input checked="" type="checkbox"/>	No change to existing building location. Proposed exhausts and penetrations will be constructed to BAL 40 and BAL FZ requirements.
• provide a better bush fire protection outcome for existing buildings	<input checked="" type="checkbox"/>	Construction to achieve BAL40 and BAL FZ requirements.
• new buildings should be located as far from the hazard as possible and should not be extended towards or situated closer to the hazard than the existing buildings (unless they can comply with section 6.8);	<input checked="" type="checkbox"/>	No new buildings proposed as part of this application.
• ensure there is no increase in bush fire management and maintenance responsibility on adjoining landowners without their written confirmation	<input checked="" type="checkbox"/>	The APZ does not propose new maintenance requirements outside of the existing leasehold area.
• ensure building design and construction enhances the chances of occupant and building survival	<input checked="" type="checkbox"/>	Proposed works to comply with BAL 40 and BAL FZ requirements.
• provide for safe emergency evacuation procedures including capacity of existing infrastructure (such as roads)	<input checked="" type="checkbox"/>	Access to the lodge is provided via Diggings Terrace which is an all-weather two-wheel drive access road. Emergency Evacuation plan will be provided in accordance with Kosciuszko Thredbo Ski Resort evacuation management plan. An individual evacuation plan will be prepared as described in section 4.4. of this report.

DEMONSTRATION COMPLIANCE UNDER SECTION 6.6 – SPECIFIC OBJECTIVES PLANNING FOR BUSHFIRE (2019)

Performance Criteria	Complies	Acceptable solutions
The intent may be achieved where:		
• provide an appropriate defensible space	<input checked="" type="checkbox"/>	See Table 3 for APZ distances.
• provide a better bush fire protection outcome for existing structures (e.g. via ember protection measures)	<input checked="" type="checkbox"/>	Construction to achieve BAL40 and BAL FZ requirements.
• ensure new building work complies with the construction standards set out in AS 3959;		Proposed works to comply with BAL 40 and BAL FZ requirements. This will enhance the design and construction of the existing building.
• to ensure ongoing management and maintenance responsibilities are in place where APZs are proposed outside of the		The APZ does not propose new maintenance requirements outside of the existing leasehold area.

sub lease or leasehold area.		
<ul style="list-style-type: none"> written consent from the land managers is provided for all proposed works outside of the sub lease or leasehold area 	<input checked="" type="checkbox"/>	The APZ does not propose new maintenance requirements outside of the existing leasehold area.
<ul style="list-style-type: none"> proposed APZs outside of the sub lease or leasehold area are supported by a suitable legal mechanism to ensure APZs are managed under a binding legal agreement in perpetuity 	<input checked="" type="checkbox"/>	<p>The APZ does not propose new maintenance requirements outside of the existing leasehold area.</p> <p>APZ to be maintained in perpetuity.</p>
<ul style="list-style-type: none"> ensure building design and construction standards enhance the chances of occupant and building survival; 	<input checked="" type="checkbox"/>	Proposed works to comply with BAL 40 and BAL FZ requirements. This will enhance the design and construction of the existing building.
<ul style="list-style-type: none"> provide safe emergency evacuation procedures. Any additional construction requirements should be commensurate with the following: <ul style="list-style-type: none"> the scope of the proposed works, including any increase in size and footprint of the building. any additional capacity for the accommodation of guests and/or staff on site. the cost associated with the proposed upgrade of any building. 	<input checked="" type="checkbox"/>	<p>Access to lodge provided via Diggings Terrace which is an all-weather two-wheel drive access road.</p> <p>Emergency Evacuation plan will be provided in accordance with Kosciuszko Thredbo Ski Resort evacuation management plan. An individual evacuation plan will be prepared as described in section 4.4. of this report.</p> <p>Proposed works to comply with BAL 40 and BAL FZ requirements.</p> <p>No change to existing bed numbers proposed.</p>

APPENDIX 1 DEFINITION OF ASSET PROTECTION ZONES

Vegetation within the APZ should be managed in accordance with APZ specifications for the purposes of limiting the travel of a fire, reducing the likelihood of direct flame contact and removing additional hazards or ignition sources. The following outlines some general vegetation management principles for APZs:

1. Discontinuous shrub layer (clumps or islands of shrubs not rows).
2. Vertical separation between vegetation stratum.
3. Tree canopies not overhanging structures.
4. Management and trimming of trees and other vegetation in the vicinity of power lines and tower lines in accordance with the specifications in "Vegetation Safety Clearances" issued by Energy Australia (NS179, April 2002).
5. Maintain low ground covers by mowing / whipper snipper / slashing.
6. Non-combustible mulch e.g. stones and removing stores of combustible materials.
7. Vegetation to be planted should consist of fire retardant/ less flammable species strategically located to reduce attack from embers (i.e. as ember traps when in small clumps and short wind breaks).

APPENDIX 2 ASSET PROTECTION ZONE PLAN

APZ Plan

