

Bushfire Hazard Assessment Report



Planning,
Industry &
Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Section 4.55 (1A) Modification Application

No MOD 10679 (DA 9258 MOD 1) granted on the 20/07/2021

In respect to DA 9258

Signed M Brown

Sheet No 15 of 18



Project: Establishment of an APZ Plan and
Replacement Roof for Existing Lodge
120 Wheatley Road, Perisher Valley NSW
Lot 1 DP 863582

DATE: APRIL 2021

REPORT NO: 21110

REVISION: 01

PREPARED FOR: KUNAPIPI SKI CLUB C/- MARK CAMBOURN

PREPARED BY: ACCENT TOWN PLANNING

- 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

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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 Complete 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 proposed establishment of an APZ plan to be approved by NPWS and the proposed replacement of roofing of an existing Lodge known as Kunapipi Ski Club located at Lot 1 DP863582, 120 Wheatley Road, Perisher Valley NSW 2624.

It is important to note that there is no increase in size to the building footprint by either proposal.

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:

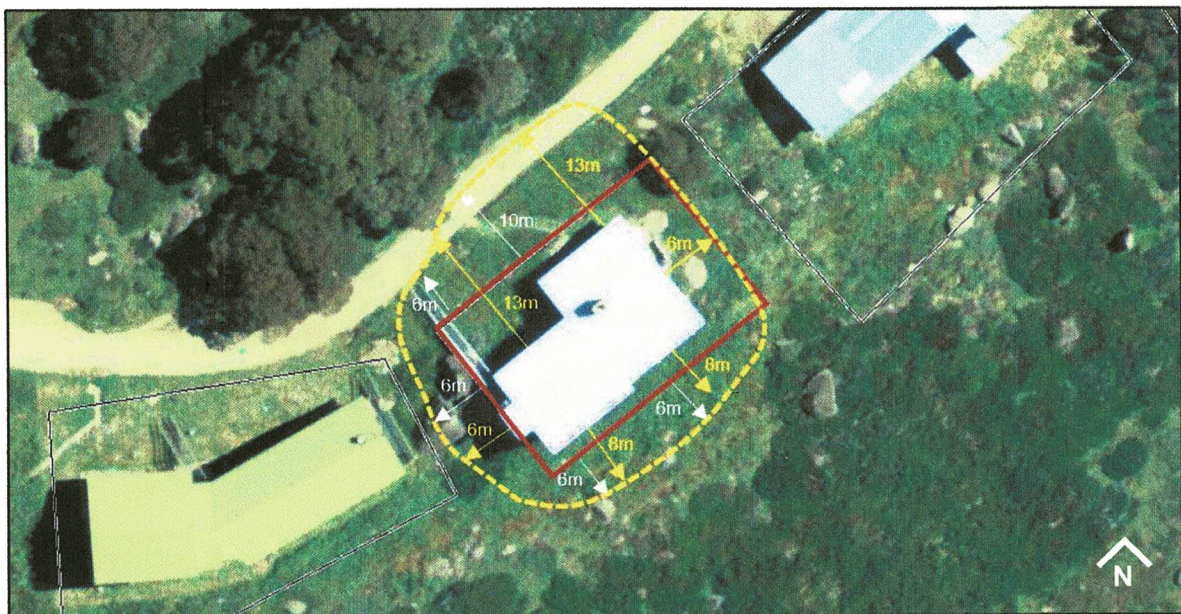
- **Bushfire Attack Level of BAL 40.**

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

ASSET PROTECTION ZONES

An updated APZ is proposed to be established in conjunction with the Office of Environment and Heritage (OEH)/NPWS to create a defensible space adjoining the building to permit any new work including the replacement roof to be constructed to achieve BAL40.

Trees will be removed within the APZ to reduce the attached canopy from adjoining vegetation and overhanging the building. The owners of the lodge will work closely with OEH/NPWS to arrange this removal.



Asset protection zones are the most strategically valuable defence against radiant heat and flame, and to lesser extent embers. The landscaped areas of the allotment shall be maintained as an inner protection area in perpetuity.

To allow for emergency service personnel and residents to undertake property protection activities, the defensible space permits unobstructed pedestrian access is to be provided around the building.

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.

CONSTRUCTION

To BAL 40 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 firefighting activities. To achieve this, the following conditions shall apply:

WATER

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

Perisher Valley is serviced by reticulated water. A hydrant system is located along Wheatley Road. 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) and submission to OEH/NPWS for the establishment of an APZ Plan to allow BAL40 construction.

The report has been prepared in accordance with the submission requirements of Appendix 4 of *Planning for Bush Fire Protection* (NSW RFS 2019) and identifies the proposal can meet the appropriate objectives and performance criteria of Section 6.4 and 6.6 *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 30 March 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

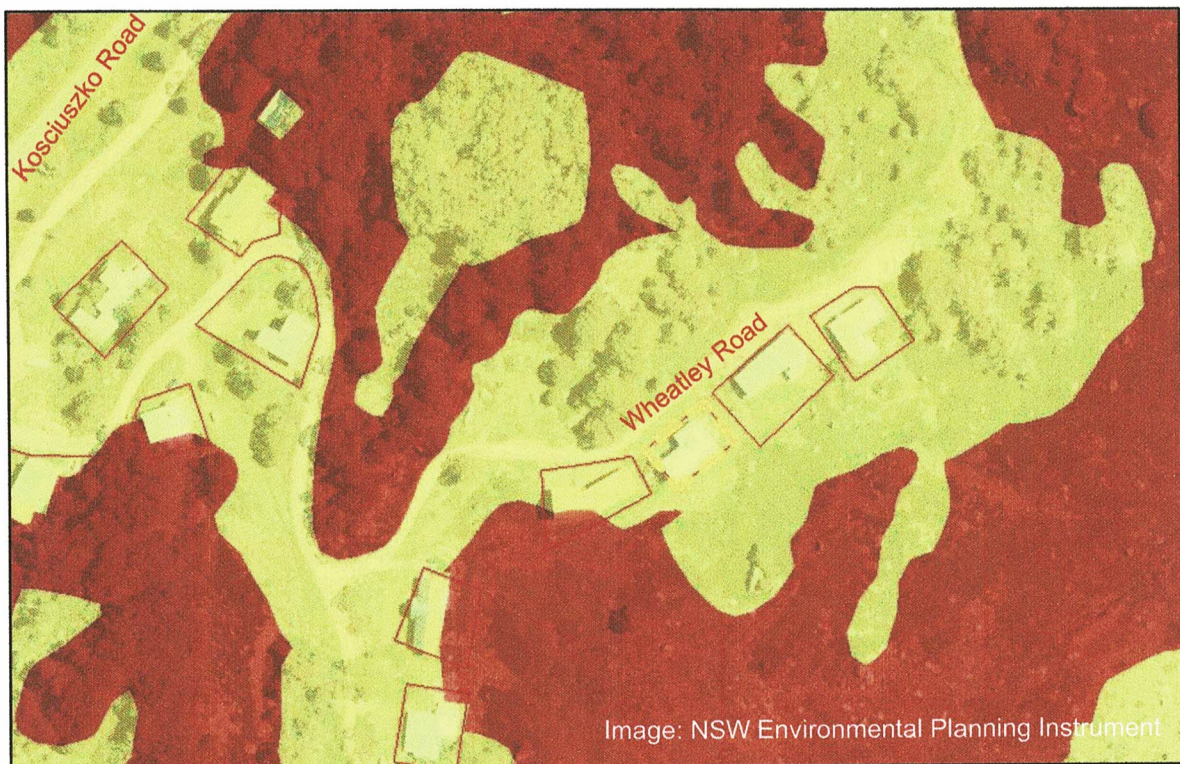


FIGURE 2 BROAD SCALE AERIAL VIEW OF THE SUBJECT SITE

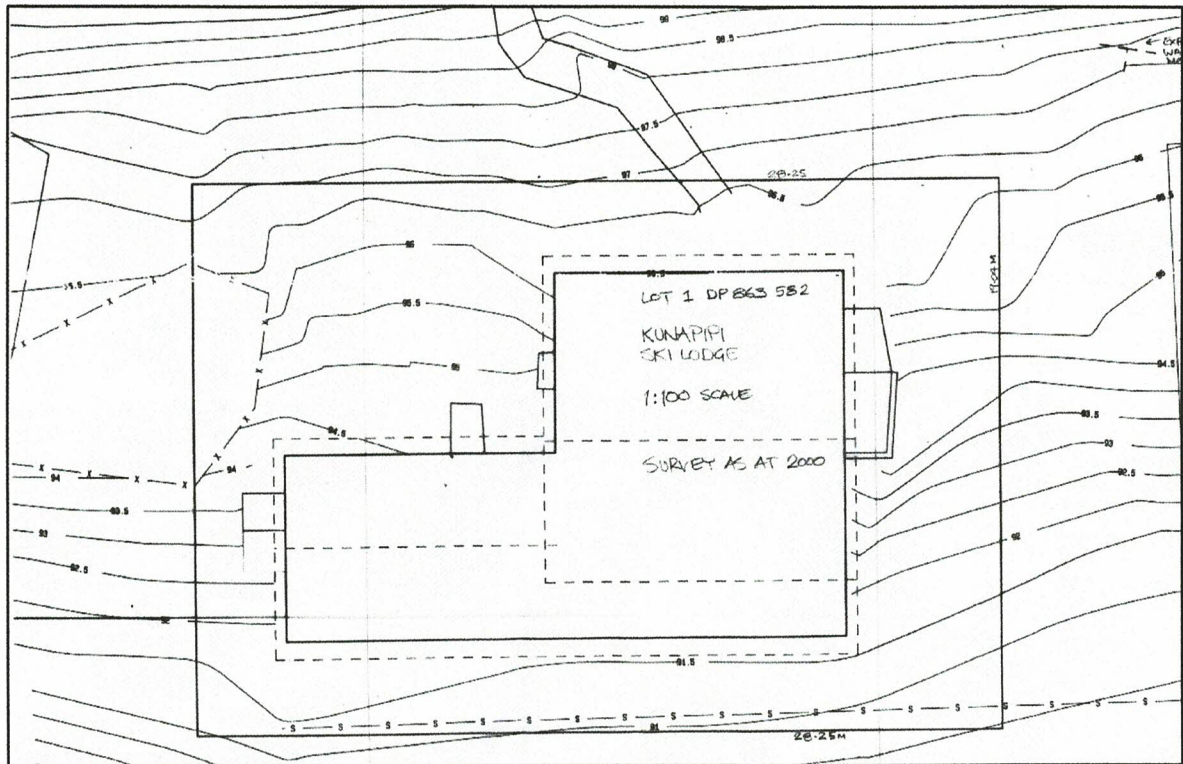


FIGURE 3 CLOSE UP AERIAL VIEW OF SUBJECT LOT

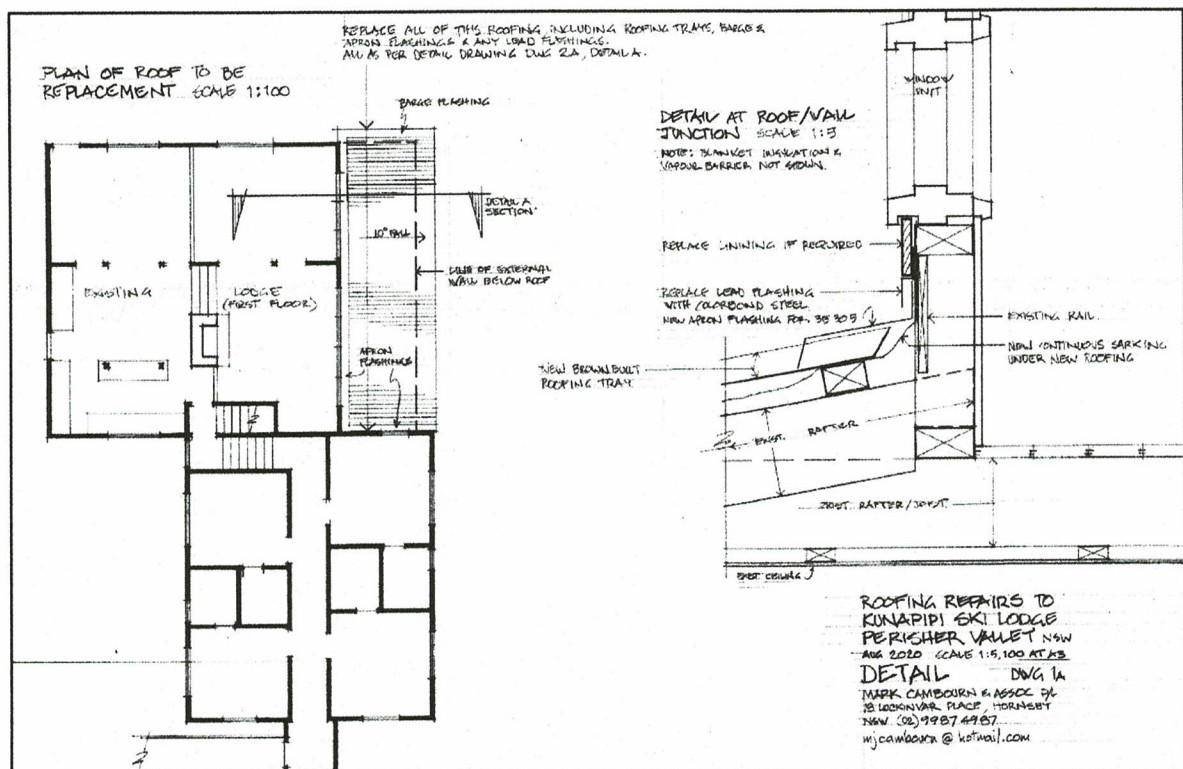


FIGURE 4 PROPOSED PLANS

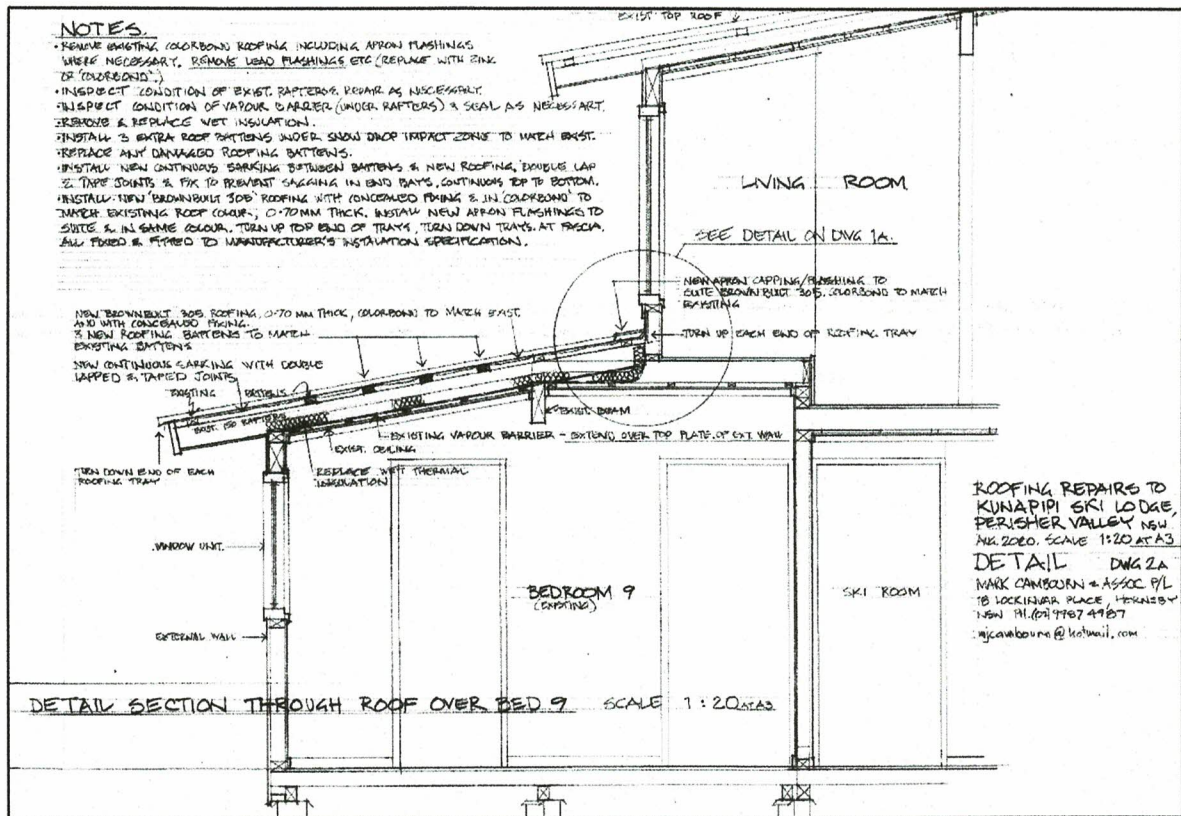
SITE PLAN



PLAN OF ROOF TO BE REPLACED



DETAIL SECTION THROUGH ROOF OVER BEDROOM 9



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 Buffer"
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, within 140m, has been mapped as: - Sub-alpine Shrub-Grass Woodland - Sub-alpine Wet Herb-Grassland-Bog According to Keith (2004) this formation is classified as "Forest".
Biodiversity Values Map	8	Proposed works are not identified within an area of high biodiversity values.

FIGURE 5 BUSHFIRE PRONE MAP

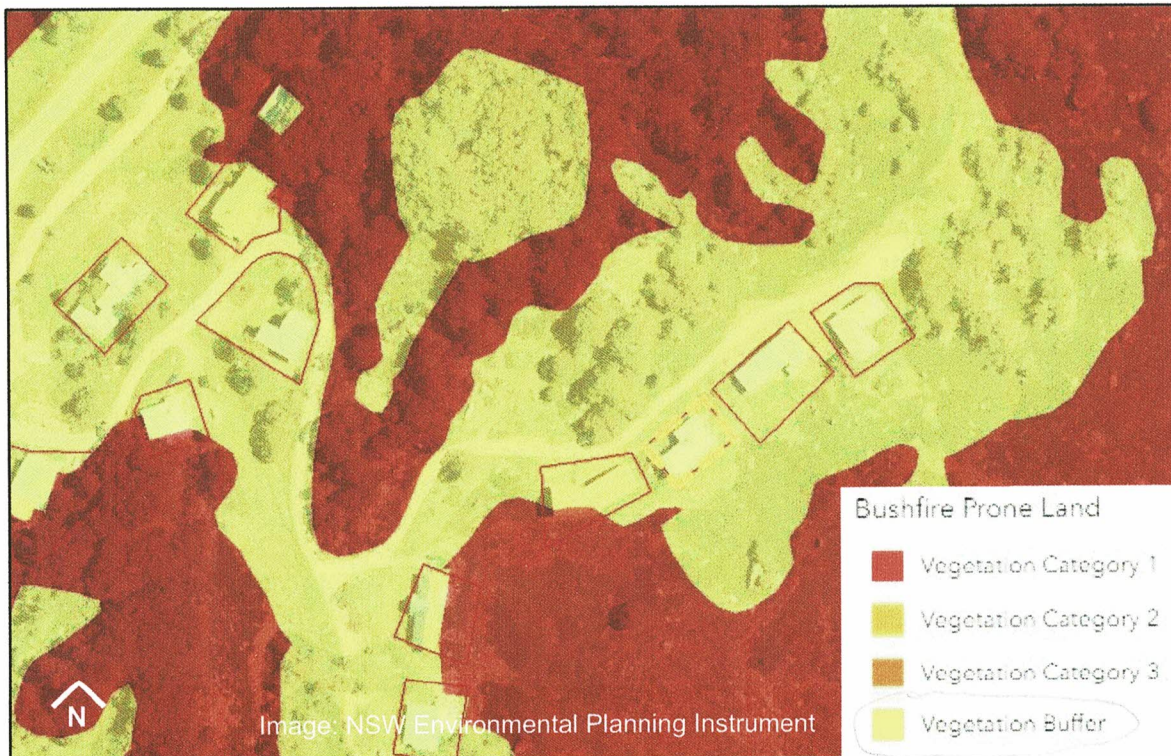
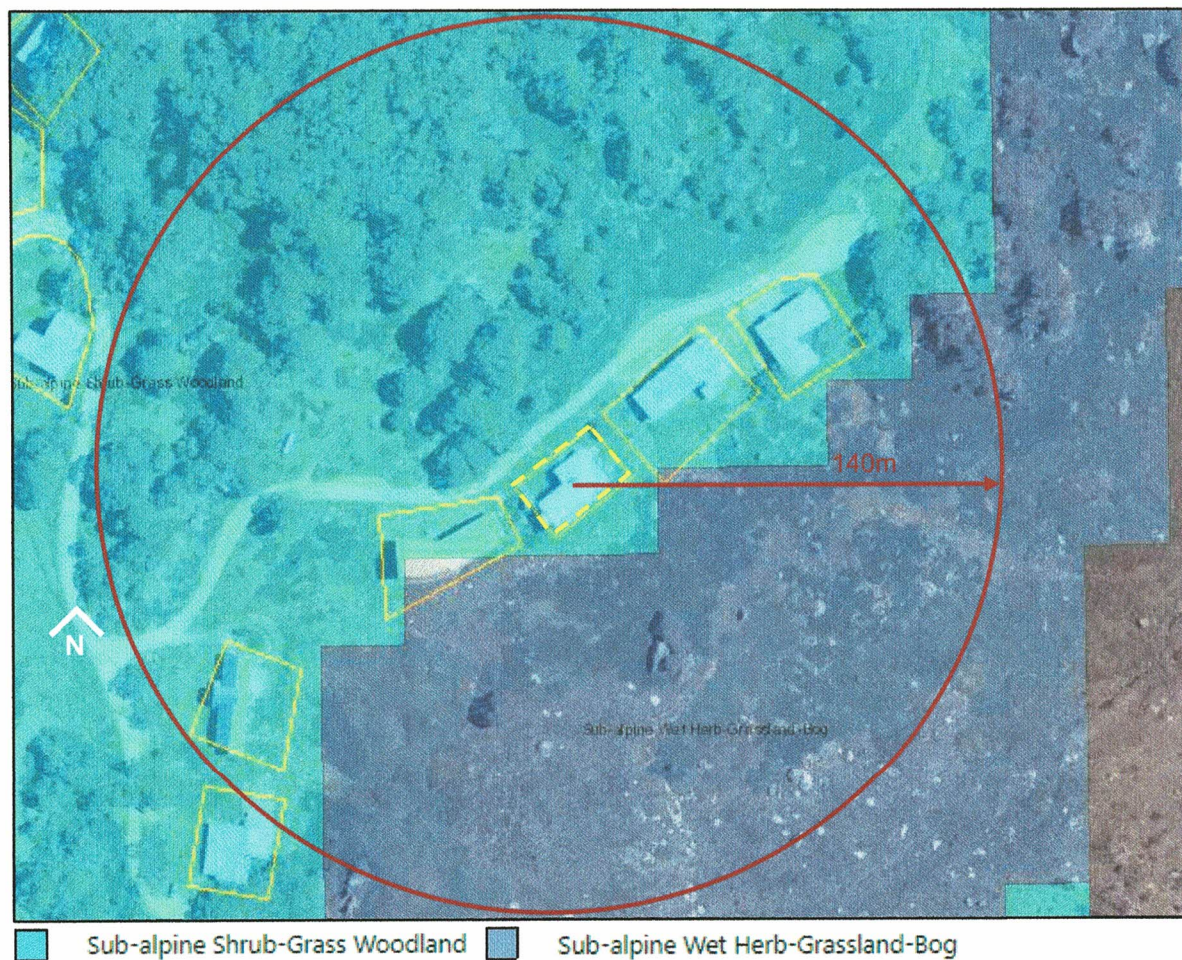


FIGURE 6 LEP MAP



FIGURE 7 VEGETATION MAPPING





3. SITE DESCRIPTION

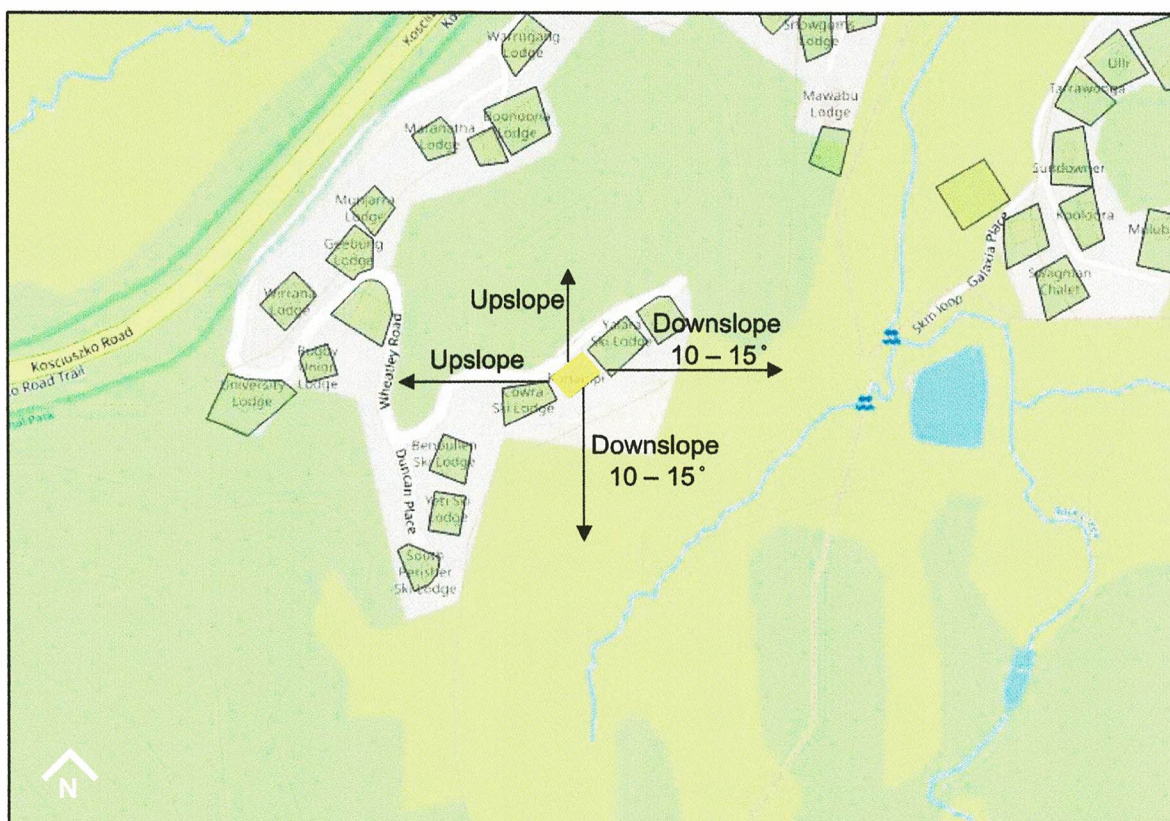
3.1. Slope and aspect of the site within 100 m of the site

The slope that would most significantly influence fire behaviour was determined to be to the north with *Forest* vegetation upslope from the Lodge. An APZ Plan is proposed to be established outside the lot boundary to create an APZ to meet BAL40 requirements.

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 north and downslope to the south through sub-alpine shrub grass woodland and sub alpine wet herb-grassland bog of Kosciuszko National Park.

FIGURE 9 SLOPE



3.2. Vegetation formation within 140 m of the existing lodge

Perisher Valley 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 ski lodge to the east and west of Kunapipi Ski Lodge. Uphill to the north of the lodge is Sub-Alpine Shrub-Grass Woodland and to the south is alpine bog and wetter native vegetation.

As seen in Figure 7, within 140m of 21 Plum Pine Road, Smiggin Holes there are two main types of vegetation:

- Sub-alpine Shrub-Grass Woodland (converted to *Forest* by PBP 2019)
- Sub-alpine Wet Herb-Grassland-Bog (comparable to *Alpine Complex*)

As mentioned above, upslope from the existing lodge is Sub-alpine Shrub-Grass Woodland which is comparable to *Woodlands* classification of *Keith* as it is dominated by an open to sparse layer of eucalypts with the crowns rarely touching as well as diverse ground cover of grasses and herbs with shrubs sparsely distributed. However, being a type of sub-alpine woodland, this woodland vegetation is recognised as *Forest* vegetation by NSW Rural Fire Service under Table A1.12.7 of the *Planning for Bushfire Protection 2019* document.

Surrounding and south of the lodge is wetter vegetation, sub-alpine wet herb-grassland-bog, which is comparable to *Alpine Complex* classification of *Keith* as it dominated by low lying wetter native vegetation comprised of low shrubs, tussock grasslands that are interspersed with alpine bog.

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

TABLE 2 PREDOMINATE VEGETATION CLASSIFICATION

	Vegetation Formation	Effective Slope	APZ Proposed	Photo
North	Forest	Upslope	13m (including 10m defensible space)	1
East	Alpine Complex	Downslope 10 – 15°	8m (including 2m defensible space)	2
South	Alpine Complex	Downslope 10 – 15°	8m (including 6m defensible space)	3
West	Alpine Complex	Upslope	6m (including 6m defensible space)	4

Photo 1 View to North

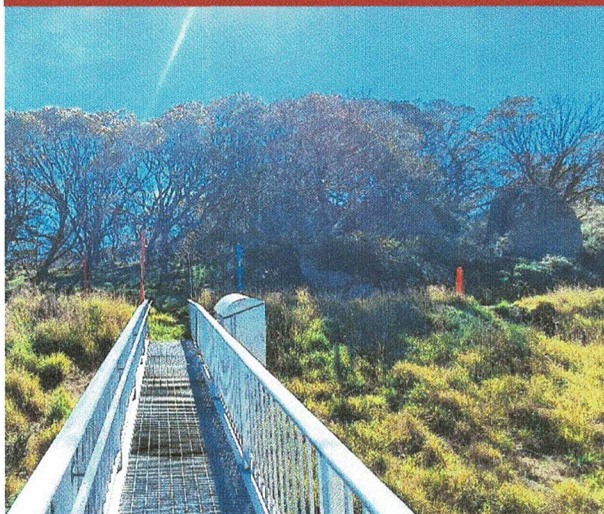


Photo 2 View to East

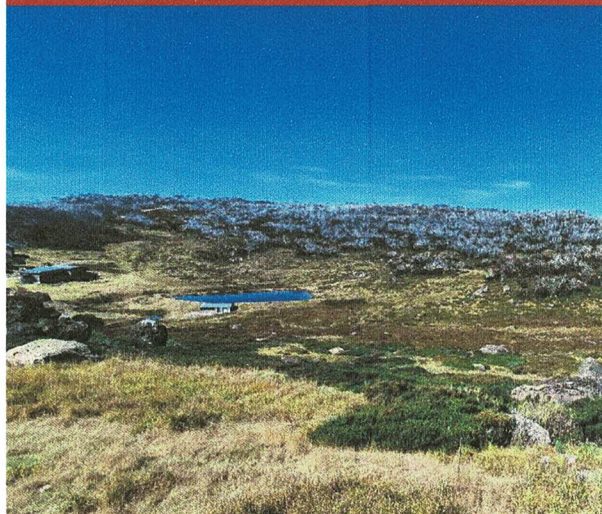


Photo 3 View to South

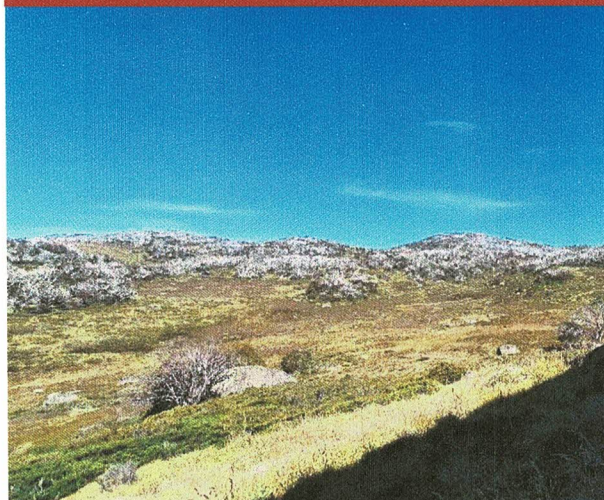
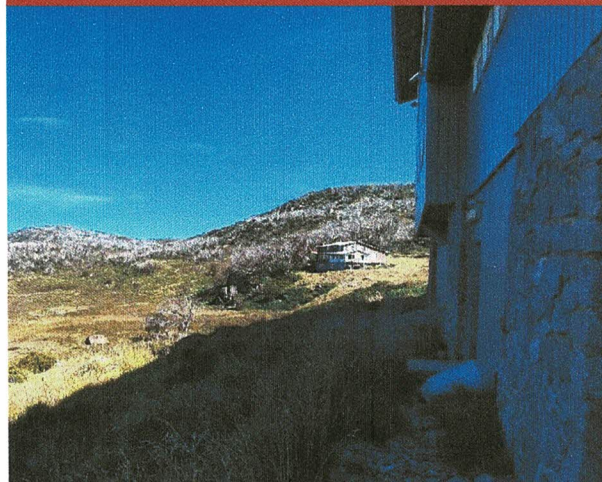


Photo 4 View to West



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. The APZ has already been established with the OEH for areas outside of the lot and should be maintained for perpetuity.

The vegetation classification for bushfire purposes for this site is "Forest" and "Alpine Complex". Forest vegetation can be managed as an Inner Protection Area (IPA). The IPA is critical for providing a defendable 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. IPA?

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 not be located within 10m from an exposed window or door. Trees should have lower limbs removed up to a height of 2 metres above ground.

Table 3 below shows the APZ and BAL Determination for proposed alterations & addition.

TABLE 3 APZ AND BAL DETERMINATION

	NORTH	EAST	SOUTH	WEST
Gradient	Upslope	Downslope 10-15°	Downslope 10-15°	Upslope
Vegetation	Forest	Alpine Complex	Alpine Complex	Alpine Complex
Proposed distance to be provided between edge of building and vegetation	13m (incl. 10m defendable space) Entire Lot to be Managed as IPA	8m (incl. 2m defendable space) Entire Lot to be Managed as IPA	8m (incl. 6m defendable space) Entire Lot to be Managed as IPA	6m (incl. 6m defendable space) Entire Lot to be Managed as IPA
APZ required by PBP 2019 for BAL 40	11-<15 m	6-<8 m	6-<8 m	4-<6 m
BAL Proposed	BAL 40	BAL 40	BAL 40	BAL 40

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 all future construction including the replacement roof for the existing lodge will meet the requirements of BAL 40.

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.

- Wheatley Road 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.

The access road and turning bay will allow tankers to travel in a forward direction from the allotments.

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

Perisher Valley is serviced by reticulated water. A hydrant system is located along Wheatley Road. 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 has been approved and is currently being established in conjunction with the OEH and should be maintained for perpetuity 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 or 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.

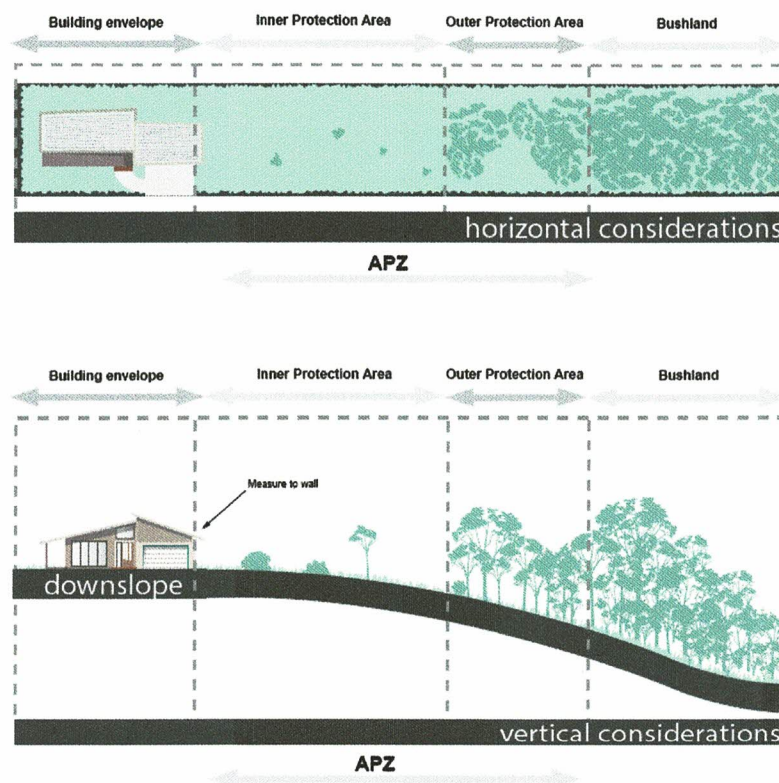
The property should be developed to incorporate suitable impervious area surrounding the house, including courtyards, paths and driveways.

APPENDIX I 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; and
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).

Typical Inner and Outer Protection Areas.



(Planning for Bushfire Protection 2019)