

# BUSHFIRE ASSESSMENT REPORT

## ADDITIONS AND ALTERATIONS SCHUSS SKI CLUB LOT 707, ALPINE WAY, THREDBO ALPINE RESORT



**JULY 2015**  
Project: 29-15

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# GLOSSARY

<b>APZ</b>	Asset Protection Zone
<b>AS 3959-2009</b>	Australian Standard 3959-2009: Construction of buildings in bushfire prone areas
<b>BCA</b>	Building Code of Australia
<b>BFSA</b>	Bush Fire Safety Authority
<b>CC</b>	Construction Certificate
<b>DA</b>	Development Application
<b>EP&amp;A Act</b>	Environmental Planning Assessment Act, 1979
<b>IPA</b>	Inner Protection Area
<b>KNP</b>	Kosciuszko National Park
<b>kW/m<sup>2</sup></b>	kilowatts per square metre (being a measure of radiant heat)
<b>PBP</b>	Planning for Bushfire Protection
<b>RF Act</b>	Rural Fires Act 1997
<b>RFS</b>	NSW Rural Fire Service
<b>SFPP</b>	Special Fire Protection Purpose

# 1. INTRODUCTION

## 1.1 Purpose

Dabyne Planning Pty Ltd has been engaged to undertake a Bushfire Assessment Report to accompany a Development Application for additions and alterations at 'Schuss Lodge' located on the Alpine Way at Thredbo. The property is legally described as Lot 707 DP 1119757.

The site consists of an existing club lodge with 25 beds in two and three bed ensuited rooms, a communal lounge and dining room and a commercial kitchen in which guests can self-cater.

The proposal seeks consent to undertake additions and alterations to improve the amenity of the lodge and update its environmental performance.

The report has been prepared in accordance with Section 91A of the Environmental Planning and Assessment Act, 1979 [EP&A Act, 1979], and Section 100B of the NSW Rural Fires Act, 1997 [RF Act, 1997] and based on the published Planning for Bushfire Protection 2006 Guidelines [PBP].

## 1.2 Site Description & Proposal

The subject site is located at Lot 707 at 17 Alpine Way, Thredbo Village.

The existing property is licensed to contain a maximum of twenty five (25) beds for the purpose of tourist accommodation. The property is directly accessible from the Alpine Way.

The proposed additions and alterations will be staged (via staged Part 4A Construction Certificates) to accommodate the club's financial position, as follows:

Stage 1 (priority 1):

- Replacement of existing Juliet balconies and construction of a new larger balcony and deck to level 4.
- Installation of new double glazed sliding aluminium doors and windows to level 4.
- Addition of a new sloping roof and ceiling profile over the existing lounge on level 4.
- Installation of a new canopy at the main entry.
- Construction of a new bike store constructed underneath the southern car park deck.
- Installation of reverse cycle air conditioning to the lounge area.
- Stump grinding of remaining pine tree stumps along the northern boundary of the site and remedial landscaping.

Stage 1 (priority 2) will consist of:

- New thermally insulated Colorbond cladding to external masonry walls.

Stage 1 (priority 3):

- Replacement of all windows in residential parts of the building with double glazed anodised aluminium sliding windows.

Stage 2 (priority 4):

- Southern extension to the Lounge area to provide for a TV/quiet nook and a ski/bag/delivery storage room. This achieves a continued opportunity to provide the new roof profile to the Alpine Way that upgrades the external appearance of the building.
- Repaint/replace existing “mansard” roof sections to match new lounge roof.

Stage 3 (priority 5):

- Kitchen and associated pantry/cleaners room upgrades – stainless steel bench tops with clear finished Australian Oak marine ply door fronts.
- New selected resilient and cushioned floor finishes to the kitchen and dining areas .

The subject site is illustrated in context with the locality in Figures 1 & 2 below:

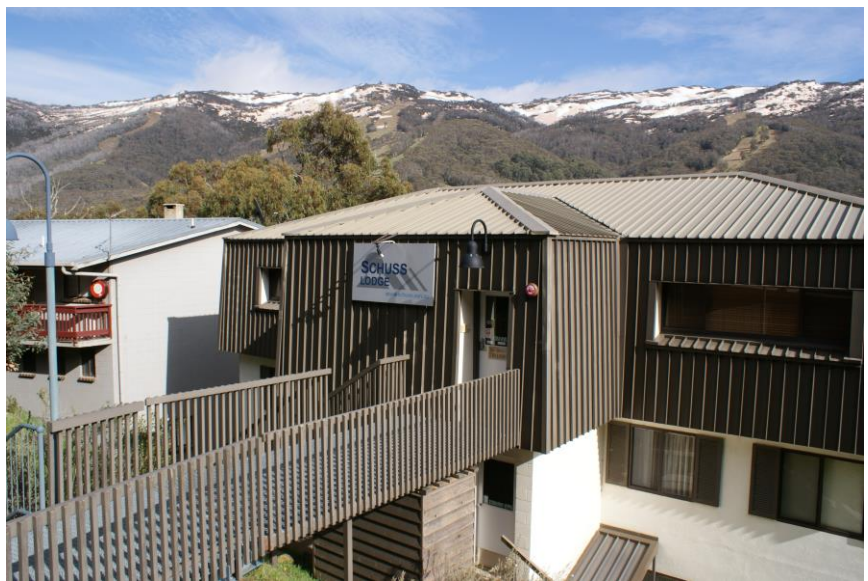


*Figure 1: Aerial view of the subject site in context of the locality*

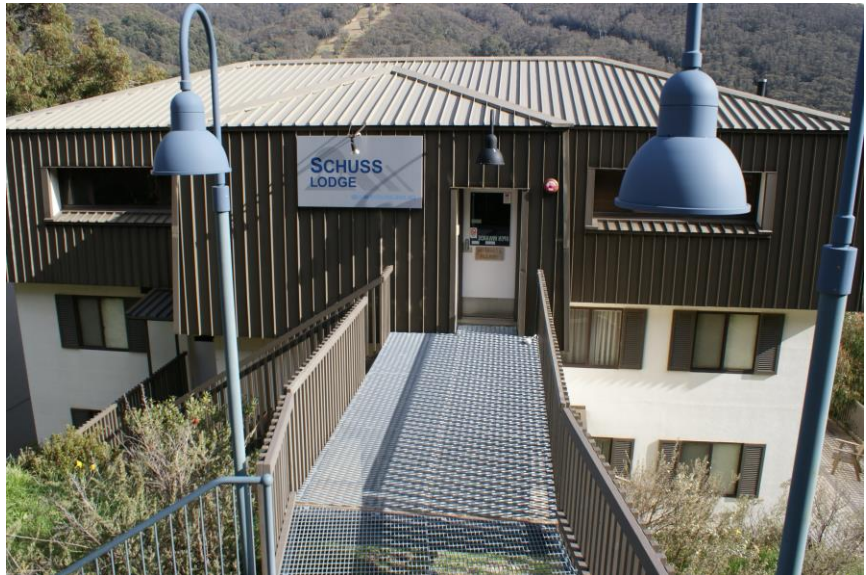


*Figure 2: Aerial view of the subject site*

The following photos identify the existing lodge and surrounding environment:



*Figure 3: Photo of the southern elevation of the building from the Alpine Way*



*Figure 4: Photo of the southern elevation of the building*



*Figure 5: Photo of the southern elevation of the building from the car park on the edge of the Alpine Way*



*Figure 6 : Photo of the existing Juliet Balconies to be replaced with a larger deck/balcony*



*Figure 7 : Photo of the northern elevation and Juliet balconies to be replaced with the larger deck/balcony*



*Figure 8: Photo of the northern side of the building*



*Figure 9: Photo of the proposed southern cantilevered additions on Level 4 (top floor)*





*Figure 10: Photo of the Southern side of the building and elevated walkway*



*Figure 11: Photo of the car park undercroft area to be used for the installation of a bike store cage*



*Figure 12: Photo of the car park undercroft area to be used for the installation of a bike store cage*

### **1.3 Bushfire Prone Land**

The NSW Department of Planning has advised that the subject site is located within a designated bushfire prone area and is therefore subject to S.100B of the NSW Rural Fires Act, 1997.

## 2. LEGISLATION

### 2.1 NSW Environmental Planning and Assessment Act 1979 and Rural Fires Act 1997

As identified above, the subject site is located within a designated bushfire-prone area and as the development is for the purpose of 'tourist accommodation', the development is classed as being for a 'Special Fire Protection Purpose'.

The development application is therefore categorised as an Integrated Development under S.91 of the EP&A Act, 1979 and therefore requires a Bushfire Safety Authority from the NSW Rural Fire Service under S.100B of the RF Act, 1997.

Clause 46 of the Rural Fires Regulation 2002 sets out the matters that must be assessed in an application for a Bush Fire Safety Authority including a description of the property, classification of the vegetation, slope assessment, identification of significant environmental features, and details of threatened species and Aboriginal relic or place.

Clause 46(1)(g) of the Rural Fires Regulation 2002 specifies that a bushfire assessment for a proposed development must address the following matters:

- (i) the extent to which the development is to provide for setbacks, including asset protection zones,*
- (ii) the siting and adequacy of water supplies for fire fighting,*
- (iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency,*
- (iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access,*
- (v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response,*
- (vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site,*
- (vii) the construction standards to be used for building elements in the development, and*
- (viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development.'*

This Bushfire Assessment Report has been undertaken in accordance with the requirements stipulated above, where considered relevant in context of the proposed development.

### 2.2 Planning for Bushfire Protection 2006

The NSW Rural Fire Service 'Planning for Bushfire Protection, 2006: A Guide for Councils, Planners, Fire Authorities and Developers' applies to the proposed development including the recently adopted Appendix 3 Addendum.

The subject site is located within Thredbo Alpine Resort, which is located within the NSW Alpine Resorts as discussed on page 31 of PBP.

Under PBP, a different 1:50 fire weather scenario has been determined for the Alpine Resorts, being FDI 50.

## **3. METHODOLOGY**

### **3.1 Site Inspection**

A site inspection was undertaken by Dabyne Planning Pty Ltd in July 2015, to determine the potential bushfire risks associated with the site. The guidelines for bushfire risk assessment as set out in PBP were used to determine these potential bushfire risks.

### **3.2 Vegetation Communities**

The vegetation and plant communities within 140m of the site were determined by undertaking a site inspection and consulting PBP and the vegetation types identified in *'Ocean Shores to Desert Dunes'*, by Kieth (2004).

The classification under David Keith's *'Ocean Shores to Desert Dunes'* (used in PBP) were then converted to the 'Sprect' classifications using Table A3.5.1 in the Appendix 3 Addendum.

### **3.3 Slope**

The slope assessment has been based on the topographical contour lines sourced from the Department of Lands mapping and on-site assessment.

Slope over a distance of at least 100m from the building footprint on the development site towards the vegetation communities that constitute the predominant hazard has been considered.

The gradient that will most significantly influence the fire behaviour will be used for the bush fire attack assessment.

## 4. VEGETATION CLASSIFICATION & SLOPE ASSESSMENT

### 4.1 Vegetation Classification

The predominant vegetation formation within and around the resort and within the wider locality is Sub-alpine Woodland, which is classified under *Keith, 2004* as Grassy woodlands (Woodlands) formation.

The AUSLIG (1990) Pictorial Analysis confirms that the vegetation on site is Woodlands as also converted from Keith below:

David Keith's <i>Ocean Shores to Desert Dunes</i>	AUSLIG (1990) Pictorial Analysis (AS3959-2009)
Forests (Wet & Dry Sclerophyll)	Forest
Pine Plantations	
Forested Wetlands	Woodland
Woodlands (Grassy, Semi-Arid)	
Tall Heath (Scrub)	Scrub
Freshwater Wetlands	
Short Heath (Open Scrub)	Shrubland
Arid Shrubland	Mallee/Mulga
Alpine Complex (Sedgelands)	Tussock Moorland
Rainforest	Rainforest
Grassland	Grassland

The vegetation to the south, on the other side of the Alpine Way however has a greater enclosed canopy and therefore is more likely to be classified as a Forest.

The vegetation to the south on the other side of the Alpine Way, up the slope and the vegetation to the north on the other side of Thredbo River is considered to have the most influence in the event of a bushfire, due to the topography, wind direction and existing built environment around the village, as illustrated in figure 13 below.



**Figure 13: Aerial view demonstrating the location of the vegetation that would have the most influence in the event of a bushfire**

This is further illustrated in figure 14 below.



**Figure 14: Aerial view demonstrating the distance to vegetation that would have the most influence in the event of a bushfire**

The vegetation located to the north, on the other side of Thredbo River is over 100m away and therefore is not considered the closest vegetation with the greatest bushfire risk.

The vegetation located to the south, on the other side of the Alpine Way is 30m and being Forest, is considered the closest unmanaged vegetation to the subject site.

Located within these setbacks are existing buildings and individual Eucalypt trees with scattered ground cover (Sub-alpine Woodland) however they do not form a continuous canopy.

## **4.2 Slope Assessment**

The effective slope, being the slope that will have the greatest influence on the bushfire behaviour (where the vegetation is Forest and located upslope on the other side of the Alpine Way as depicted in figure 14 above) is upslope.

## **5. SIGNIFICANT ENVIRONMENTAL FEATURES**

The proposed additions and external alterations are mostly located within the existing building footprint or on impervious surfaces that are highly disturbed and therefore an assessment in respect to threatened species, populations, endangered ecological communities or critical habitat is not required to be undertaken. Furthermore an assessment of Aboriginal heritage is also not warranted.



## 6. BUSHFIRE ASSESSMENT

### 6.1 Special Fire Protection Purpose Developments

As stated above, the proposed development consists of additions and alterations to an existing lodge used for short-term tourist accommodation, primarily in winter with variable summer visitation.

#### 6.1.1 Specific Objectives for Special Fire Protection Purpose Developments

The specific objectives for special fire protection purpose developments are to:

- *provide for the special characteristics and needs of occupants. Unlike residential subdivisions, which can be built to a construction standard to withstand the fire event, enabling occupants and firefighters to provide property protection after the passage of fire, occupants of SFPP developments may not be able to assist in property protection. They are more likely to be adversely affected by smoke or heat while being evacuated.*
- *provide for safe emergency evacuation procedures. SFPP Developments are highly dependent on suitable emergency evacuation arrangements, which require greater separation from bush fire threats. During emergencies, the risk to firefighters and other emergency services personnel can be high through prolonged exposure, where door-to-door warnings are being given and exposure to the bush fire is imminent.*

Fortunately, the normal fire season within the Kosciuszko National Park extends for a short period from January to March (PBP). This coincides when there are fewer visitors to the lodge, as the building is primarily used in winter from June through to October of each year. Although, it is acknowledged that the lodge is used in summer, however generally well below peak capacity.

These objectives have been considered and addressed below.

#### 6.1.2 SFPPs as infill (Alpine Resorts)

An assessment of the proposal in accordance with the performance criteria and acceptable solutions contained within section 4.3.5 of PBP have been provided below.

Performance Criteria	Acceptable Solutions	Can Comply?	Comments
The intent may be achieved where:			
<b>in relation to Asset Protection Zones:</b> <ul style="list-style-type: none"> <li>• a defensible space is provided onsite.</li> <li>• an asset protection zone is provided and maintained for the life of the development.</li> </ul>	<ul style="list-style-type: none"> <li>• APZ determined in accordance with Appendix 2.</li> </ul>	✓	<i>See discussion below.</i>

<p><b>in relation to siting and design:</b></p> <ul style="list-style-type: none"> <li>• buildings are sited and designed to minimise the risk of bush fire attack.</li> </ul>	<ul style="list-style-type: none"> <li>• buildings are designed and sited in accordance with the siting and design principles in this section (see also figure 4.7).</li> </ul>	✓	<p><i>The proposed additions and alterations will not alter the siting or overall design of the lodge.</i></p>
<p><b>in relation to construction standards:</b></p> <ul style="list-style-type: none"> <li>• it is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact.</li> </ul>	<ul style="list-style-type: none"> <li>• construction determined in accordance with Appendix 3 and the Requirements for attached garages and others structures in this section.</li> </ul> <p><i>Note: provisions in relation to Class 10a buildings may also apply.</i></p>	✓	<p><i>The proposed additions and external alterations are required to be constructed in accordance with BAL-19 construction under AS3959-2009.</i></p>
<p><b>in relation to access requirements:</b></p> <ul style="list-style-type: none"> <li>• safe, operational access is provided (and maintained) for emergency services personnel in suppressing a bush fire while residents are seeking to relocate, in advance of a bush fire, (satisfying the intent and performance criteria for access roads in sections 4.1.3 and 4.2.7).</li> </ul>	<ul style="list-style-type: none"> <li>• compliance with section 4.1.3 for property access roads.</li> <li>• compliance with section 4.2.7 for access standards for internal roads.</li> </ul>	✓	<p><i>The existing access comprises of a sealed, two-way all-weather road that is easily accessible for two-wheel drive vehicles.</i></p>
<p><b>in relation to water and utility services:</b></p> <ul style="list-style-type: none"> <li>• adequate water and electricity services are provided for firefighting operations</li> <li>• gas and electricity services are located so as not to contribute to the risk of fire to a building.</li> </ul>	<ul style="list-style-type: none"> <li>• compliance with section 4.1.3 for services - water, electricity and gas.</li> </ul>	✓	<p><i>Reticulated water supply with fire hydrants are provided throughout Thredbo Village.</i></p> <p><i>Electricity and gas supply is provided underground throughout Thredbo Village.</i></p>
<p><b>in relation to landscaping:</b></p> <ul style="list-style-type: none"> <li>• it is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions.</li> </ul>	<ul style="list-style-type: none"> <li>• compliance with Appendix 5.</li> </ul>	✓	<p><i>The proposed additions and external alterations will not affect the existing landscaping on the site.</i></p>

**TABLE 2.4.4**  
**DETERMINATION OF BUSHFIRE ATTACK LEVEL (BAL)—FDI 50 (1090 K)**

Vegetation classification	Bushfire Attack Levels (BALs)				
	BAL—FZ	BAL—40	BAL—29	BAL—19	BAL—12.5
	Distance (m) of the site from the predominant vegetation class				
	<b>All upslopes and flat land (0 degrees)</b>				
A. Forest	<12	12–<16	16–<23	23–<32	32–<100
B. Woodland	<7	7–<10	10–<15	15–<22	22–<100
C. Shrubland	<7	7–<9	9–<13	13–<19	19–<100
D. Scrub	<10	10–<13	13–<19	19–<27	27–<100
E. Mallee/Mulga	<6	6–<8	8–<12	12–<17	17–<100
F. Rainforest	<5	5–<6	6–<9	9–<14	14–<100
G. Tussock Moorland	<7	7–<9	9–<14	14–<20	20–<100
	<b>Downslope &gt;0 to 5 degrees</b>				
A. Forest	<14	14–<19	19–<27	27–<38	38–<100
B. Woodland	<9	9–<12	12–<18	18–<26	26–<100
C. Shrubland	<7	7–<10	10–<15	15–<22	22–<100
D. Scrub	<11	11–<15	15–<22	22–<31	31–<100
E. Mallee/Mulga	<7	7–<9	9–<13	13–<20	20–<100
F. Rainforest	<6	6–<8	8–<12	12–<17	17–<100
G. Tussock Moorland	<8	8–<10	10–<16	16–<23	23–<100
	<b>Downslope &gt;5 to 10 degrees</b>				
A. Forest	<18	18–<24	24–<34	34–<46	46–<100
B. Woodland	<11	11–<15	15–<23	23–<32	32–<100
C. Shrubland	<8	8–<11	11–<17	17–<25	25–<100
D. Scrub	<12	12–<17	17–<24	24–<35	35–<100
E. Mallee/Mulga	<7	7–<10	10–<15	15–<23	23–<100
F. Rainforest	<7	7–<10	10–<15	15–<22	22–<100
G. Tussock Moorland	<9	9–<12	12–<18	18–<26	26–<100
	<b>Downslope &gt;10 to 15 degrees</b>				
A. Forest	<22	22–<30	30–<41	41–<56	56–<100
B. Woodland	<14	14–<19	19–<28	28–<40	40–<100
C. Shrubland	<9	9–<13	13–<19	19–<28	28–<100
D. Scrub	<14	14–<19	19–<28	28–<39	39–<100
E. Mallee/Mulga	<8	8–<11	11–<18	18–<26	26–<100
F. Rainforest	<9	9–<13	13–<19	19–<28	28–<100
G. Tussock Moorland	<10	10–<13	13–<20	20–<29	29–<100
	<b>Downslope &gt;15 to 20 degrees</b>				
A. Forest	<28	28–<37	37–<51	51–<67	67–<100
B. Woodland	<18	18–<25	25–<36	36–<48	48–<100
C. Shrubland	<10	10–<15	15–<22	22–<31	31–<100
D. Scrub	<15	15–<21	21–<31	31–<43	43–<100
E. Mallee/Mulga	<9	9–<13	13–<20	20–<29	29–<100
F. Rainforest	<12	12–<17	17–<25	25–<35	35–<100
G. Tussock Moorland	<11	11–<15	15–<23	23–<33	33–<100

### Asset Protection Zones (APZs)

An Asset Protection Zone (APZ) is to be provided in accordance with the relevant tables provided in Appendix 2 of PBP.

The minimum specifications for APZs for Special Fire Protection Purposes in bushfire prone areas are set out in Table A2.6 in Appendix 2 of PBP. The table specifies that the Alpine Resorts does not contain any minimum specifications and refers to Table A3.5. As Appendix 3 within PBP has been replaced by the new Appendix 3 (2010 Addendum) the new Appendix 3 refers to Table A2.4.4 in AS3959-2009. This is provided below:

Based on the slope, distance of the site to the predominant vegetation class, being approximately 30m to Forests (with a continuous canopy), located upslope; the category of Bushfire Attack in accordance with Table A2.4.4 in AS3959-2009 is 'BAL-19'.

Therefore the proposed additions and external alterations are required to be constructed to BAL-19 in accordance with AS 3959-2009.

## 7. CONCLUSION

As identified above, the proposed development can achieve compliance with all of the performance criteria standards set out in PBP for a special fire protection purpose 'infill' development located within the Alpine Resorts.

The proposal will result in additions and alterations predominantly contained within the existing building footprint or located on impervious surfaces that are already highly disturbed.

With the proposed new external works to be constructed in accordance with construction level BAL-19 under AS3959-2009, the proposed development can achieve an improved bushfire risk outcome.

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