REF: 6737BF

Date: 28/3/24

Valid to: 28/3/25

BUSHFIRE HAZARD ASSESSMENT

PROPOSED ADDITIONS AND ALTERATIONS

129 PERISHER CREEK ROAD, PERISHER VALLEY, NSW 2624

LGA: Snowy Monaro Regional

Lot 1 DP 1175667

Applicant: Jo Curran

HARRIS ENVIRONMENTAL CONSULTING

KATE@HEC.ECO

HARRIS ENVIRONMENTAL CONSULTING

Version Control

Date Created	21/2/24			
Version Number	Name	Issue Detail	Date Modified	Status
1.0	SO & SB	Draft Report	21/3/24	Complete
1.1	KH	Final Report	21/3/24	Complete

Bushfire Hazard Assessment

Property Address:	129 Perisher Creek Road, Perisher Valley, NSW 2624, Lot 1 DP 1175667
Description of Proposal:	Proposed Additions and Alterations
Highest BAL Rating:	BAL Flame Zone
Performance-Based Solution	No.
Bushfire Assessment Reference:	6737BF
Report Date:	25/3/24
Accreditation Scheme/Certification No:	FPAA Australia Bushfire Planning & Design Scheme BPAD L3 26947

ASSESSOR & QUALIFICATIONS

BPAD L3 26947
MASTER BUSH FIRE PROTECTION, WSU
GRAD DIP BUSH FIRE PROTECTION, UWS
GRAD DIP ENVIRO MANG HERTS, UK
GRAD DIP NAT RES UNE
BSC APP SC, AGRICULTURE HAC

HARRIS ENVIRONMENTAL CONSULTING

ABN 54 12 87 40 549
PO BOX 70, 2533
Phone: (02) 42 350 954 | (02) 48 621 168
Mobile: 0403 237 072
Email: kate@hec.eco
Web: www.harrisenvironmental.com.au

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 Harris Environmental Consulting 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.

TABLE OF CONTENTS

FIGURES

TABLES

APPENDIX

EXECUTIVE SUMMARY

This SFPP Infill Bushfire Hazard Assessment is for a proposed additions and alterations for an existing Ski Lodge on Lot 1 DP 1175667 at 129 Perisher Creek Road, Perisher Valley, NSW 2624. The assessment confirms the subject lot is mapped bushfire prone.

Under Rural Fires Act s.100B, a Bush Fire Safety Authority (BFSA) from the NSW RFS is required for infill Special Fire Protection Purpose (SFPP). However, as the bulk of existing structures in alpine areas are not constructed to appropriate bushfire fire standards and are surrounded by the environmentally significant Kosciuszko National Park, this assessment aims to ensure that the proposed development provides an overall better bushfire protection outcome for the existing structure.

The bushfire prone land within 140 m of the proposed development is:

Aspect	Vegetation Classification and slope	Distance from hazard to façade
North	0-5° Downslope Forest	6 m (from addition)
East	0-5° Downslope Forest	5 m (from addition)
South	0-5° Downslope Forest	10 m
West	Upslope Forest	7 m

This assessment confirms no vegetation removal is required to maintained the Asset Protection Zone to the standard of an Inner Protection Area (IPA).

The proposed additions and alterations are to be constructed to **BAL Flame Zone** as specified by AS3959 - 2018 Construction for Buildings in Bushfire Prone Areas and/or *NASH Standard Steel Framed Construction in Bushfire Areas* (2014). New construction must also comply with the construction requirements in Section 7.5 of *Planning for Bush Fire Protection 2019.*

In circumstances where the 10 m setback distance between the building and the edge of the classified vegetation cannot be achieved, those elements of the building that are less than 10 m from the edge of the classified vegetation shall conform with AS 1530.8.2. There is no deemed to satisfy for construction in Flame Zone, and it is required to consider the Performance Requirements of the BCA and the specific objectives of PBP for the type of building constructed.

The existing dwelling is required to be upgraded to improve ember protection, unless already constructed to a relevant standard. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weep holes and eaves. External doors are to be fitted with draft excluders.

The existing APZ is to be maintained in perpetuity.

The subject lot is located on Perisher Creek Road. This is a two-wheel drive accessible road in summer, however during winter, snow chains or 4wd are required for all vehicles to access Perisher. There are only required to be used in certain conditions but are a requirement for vehicles in the event of sudden changes to weather. The Ski Lodge is only accessible in winter

by approved vehicles, including emergency services. The widths and design of the roads would allow safe access for firefighters while residents are evacuating an area. Road surfaces and bridges are sufficient to carry fully loaded firefighting vehicles.

Reticulated water is supplied to Perisher Valley and to the subject lot. The nearest hydrant location is located along Perisher Creek Road, in front of the existing Ski Lodge and within 70 m of the furthest extent.

Any bottled gas will be installed and maintained under AS1596 and the relevant authority's requirements. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used. The proposed electricity supply is proposed as solar.

1 PROPOSAL

The owners of 129 Perisher Creek Road, Perisher Valley, NSW 2624, on Lot 1 DP 1175667 propose additions and alterations to an existing Ski Lodge within the subject lot. The additions and alterations include a proposed awning, new window and door. The assessment confirms the subject lot is mapped as bushfire prone.

Harris Environmental Consulting was commissioned to provide this bushfire assessment.

Figure 1 shows the subject lot location.

Figure 2 provides a broad scale aerial view of the subject site.

Figure 3 shows a close up of the subject lot.

Figure 4 shows the proposed plans.

Figure 1 Site location

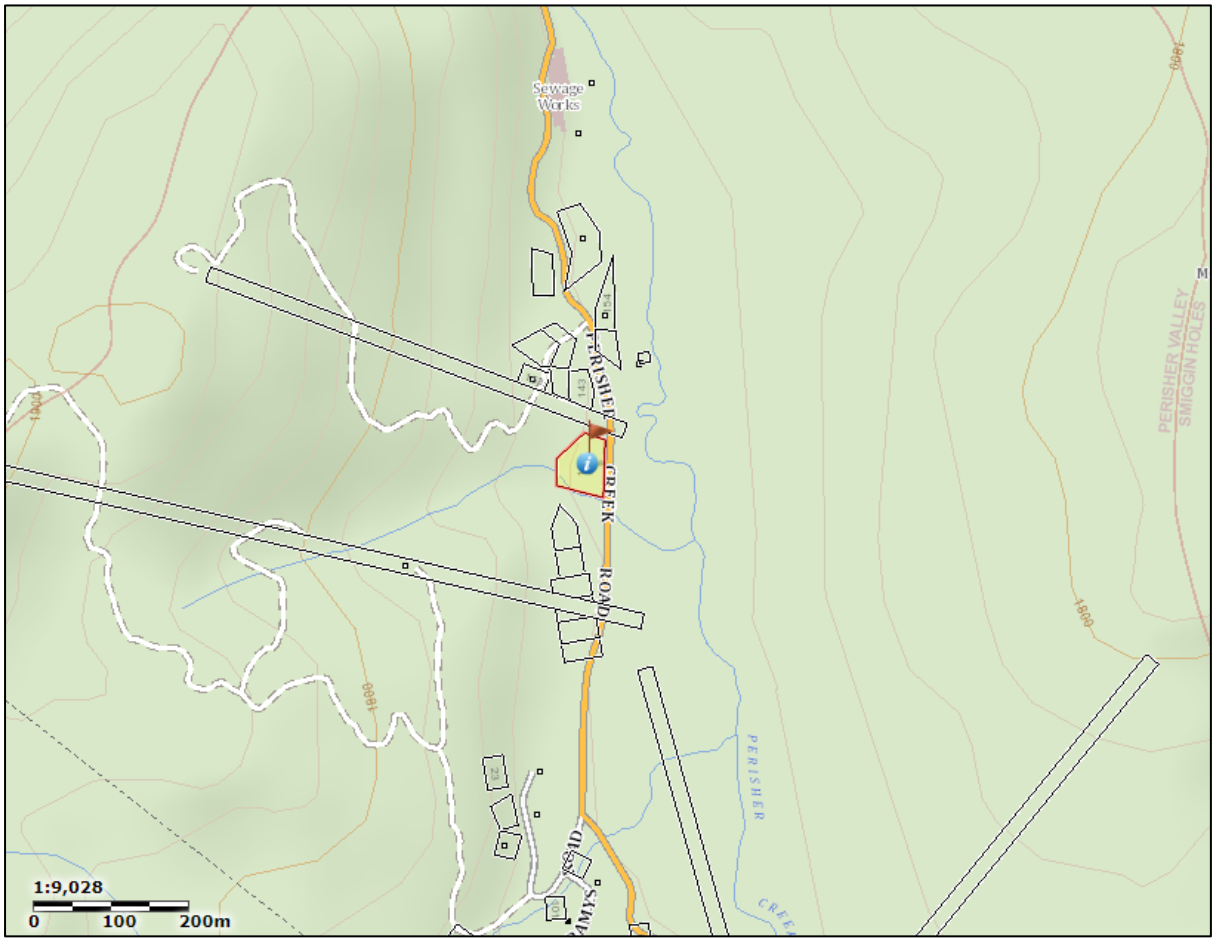


Figure 2 Broad scale aerial view of the subject site

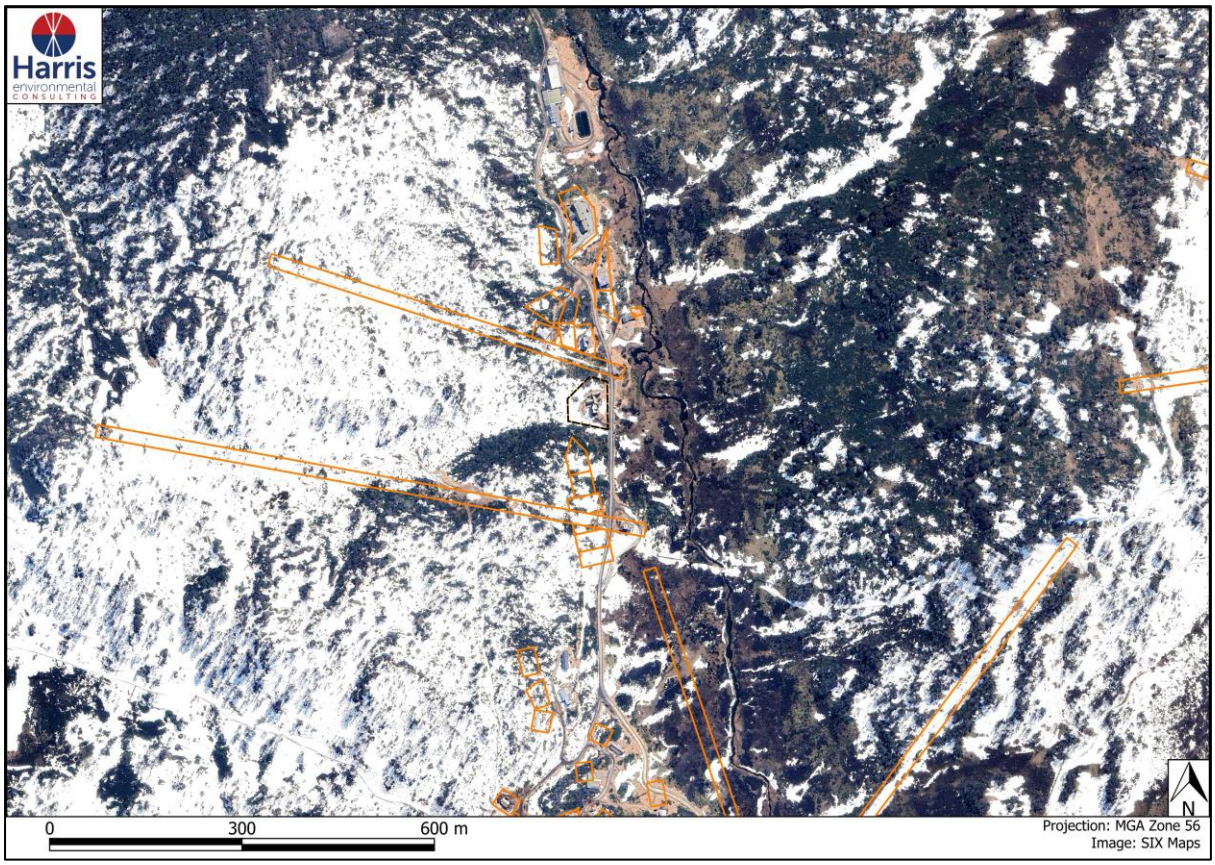
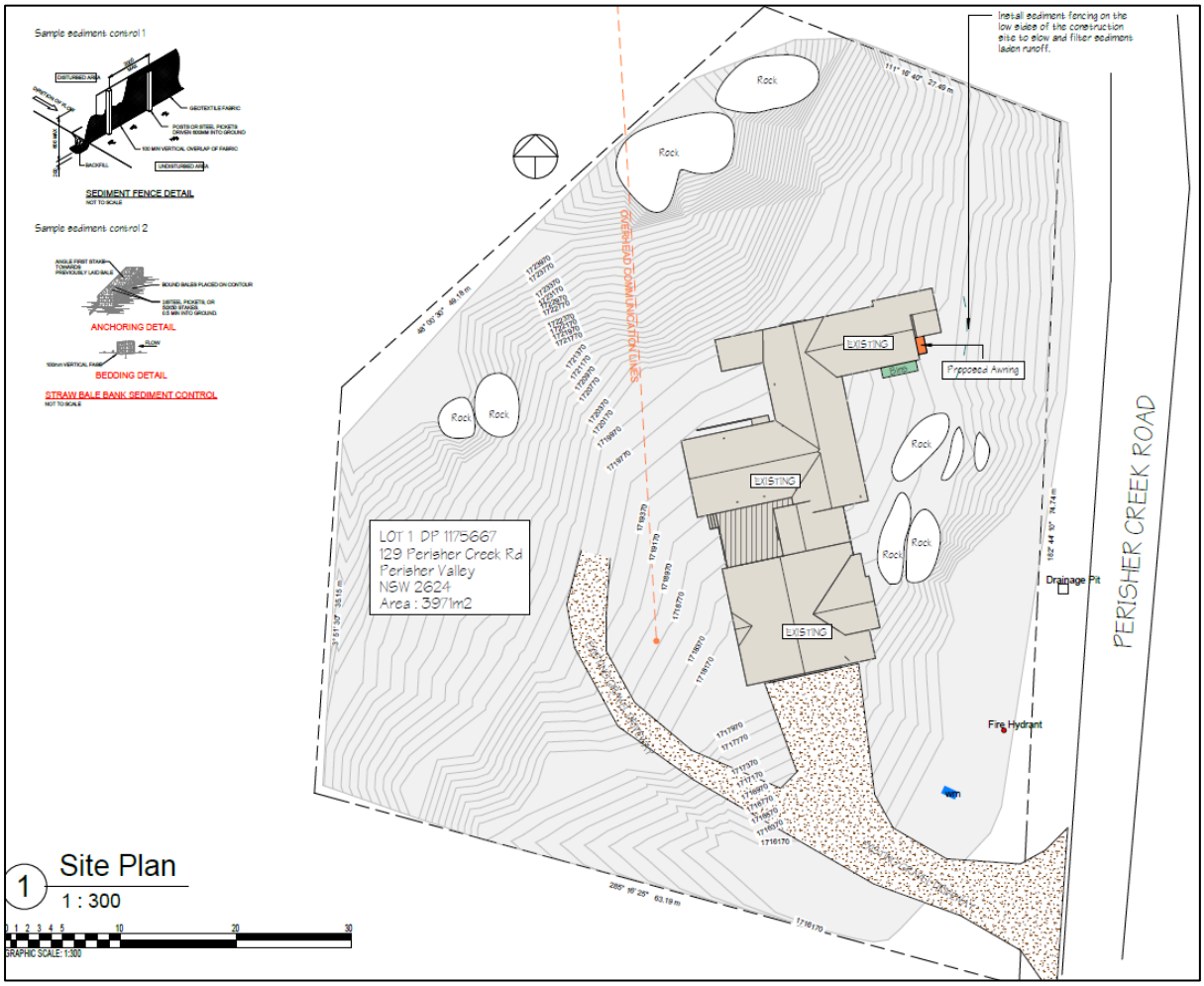
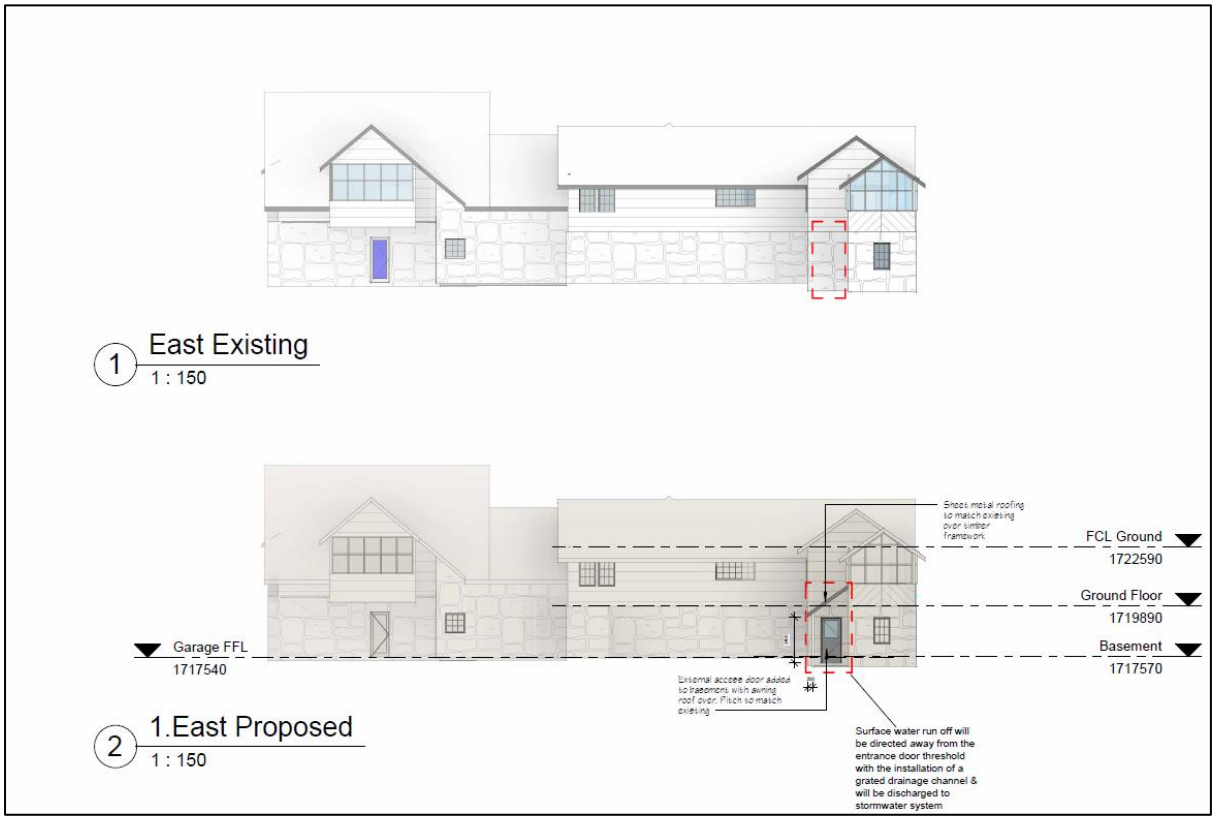
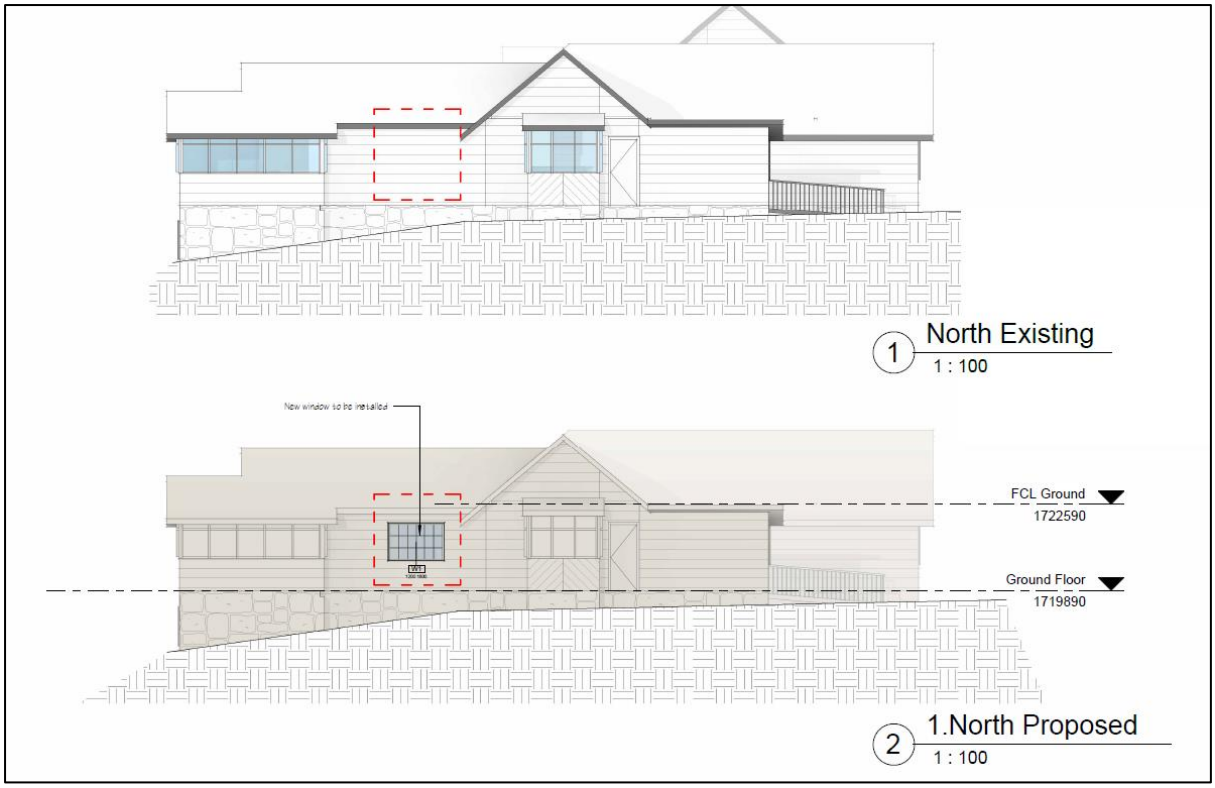


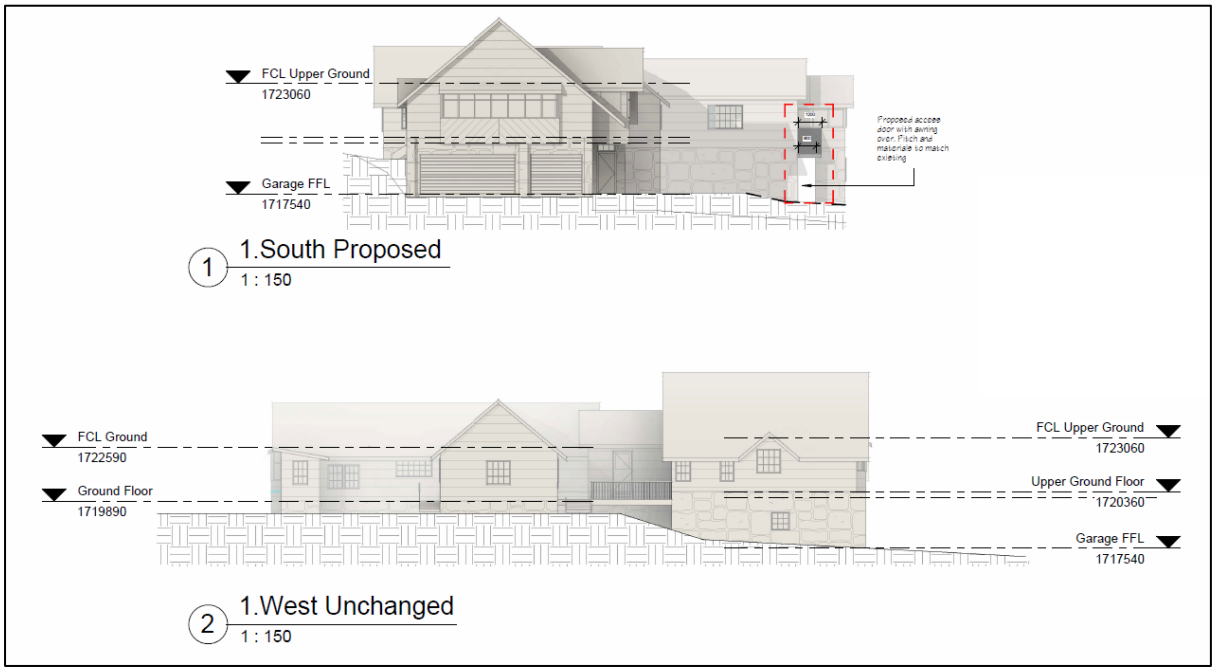
Figure 3 Close up of development

Figure 4 Proposed Plans






1
North Existing
1 : 100
New window to be installed
FCL Ground
1722590
Ground Floor
1719890
2
1.North Proposed
1 : 100


FCL Upper Ground
1723060
Garage FFL
1717540
Proposed access door with awning over. Finish and materials to match existing
1
1.South Proposed
1 : 150
FCL Ground
1722590
Ground Floor
1719890
FCL Upper Ground
1723060
Upper Ground Floor
1720360
Garage FFL
1717540
2
1.West Unchanged
1 : 150

1.1 BUSHFIRE HAZARD ASSESSMENT REQUIREMENTS

Tourist development can fall under a number of descriptions in PBP 2019.

The development will be considered Special Fire Protection Purpose development under Section 6 PBP (2019), a BFSA is required under RF Act s.100B.

Some SFPP development is occupied on a short term basis by people who are unaware of their surroundings and the appropriate procedure to follow in the event of a bush fire. Short-term accommodation (six weeks or less) must meet the varied performance criteria in Tables 6.8a to 6.8d.

In accordance with Section 6.6, it is recognised that alpine resorts are located within the environmental significant setting of the Kosciusko National Park. Much of the existing building stock has not been constructed to current requirements for the development in a bush fire prone area. Leasehold arrangements combined with conflicting land management objectives present challenges in achieving APZs for SFPP developments in the alpine areas.

The specific objectives that apply to SFPP infill development in the alpine resort areas are as follows:

- provide an appropriate defendable space;
- provide a better bushfire protection outcome for existing structures;
- ensure new building work complies with the construction standards set out in AS 3959;
- to ensure ongoing management and maintenance responsibilities are in place where APZs area proposed outside of the sub lease or leasehold area;
- written consent from the land managers is provided for all proposed works outside of the sub lease or leasehold area;
- proposed APZs outside of the sub leased or leasehold area are supported by a suitable legal mechanism to ensure APZs are managed under a binding legal agreement in perpetuity;
- ensure building design and construction standards enhance the changes of occupant and building survival; and
- provide safe emergency evacuation procedures.

Any addition construction requirements should be commensurate with the following:

- the scope of the proposed works, including and increase in size and footprint of the building;
- any additional capacity for the accommodation of the guests and/or staff on site; and
- the cost associated with the proposed upgrade of any building.

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 1".
LEP Zone Map	6	The subject lot is zoned as "C1 – National Parks and Nature Reserves".
Vegetation Mapping	7	The vegetation within and surrounding the subject lot has been mapped as "Alpine Bogs and Fens", "Alpine Heaths" and "Subalpine Woodlands" (DPE, 2022).
Biodiversity Values Map	8	There is land identified on 21/03/24 as having high biodiversity value under the Biodiversity Offsets Scheme under the *Biodiversity Conservation Act 2016*. However, no building works or APZ's are proposed on biodiverse land or will negatively impact these areas.

Figure 5 Bushfire Prone Map

Figure 6 LEP Zone Map

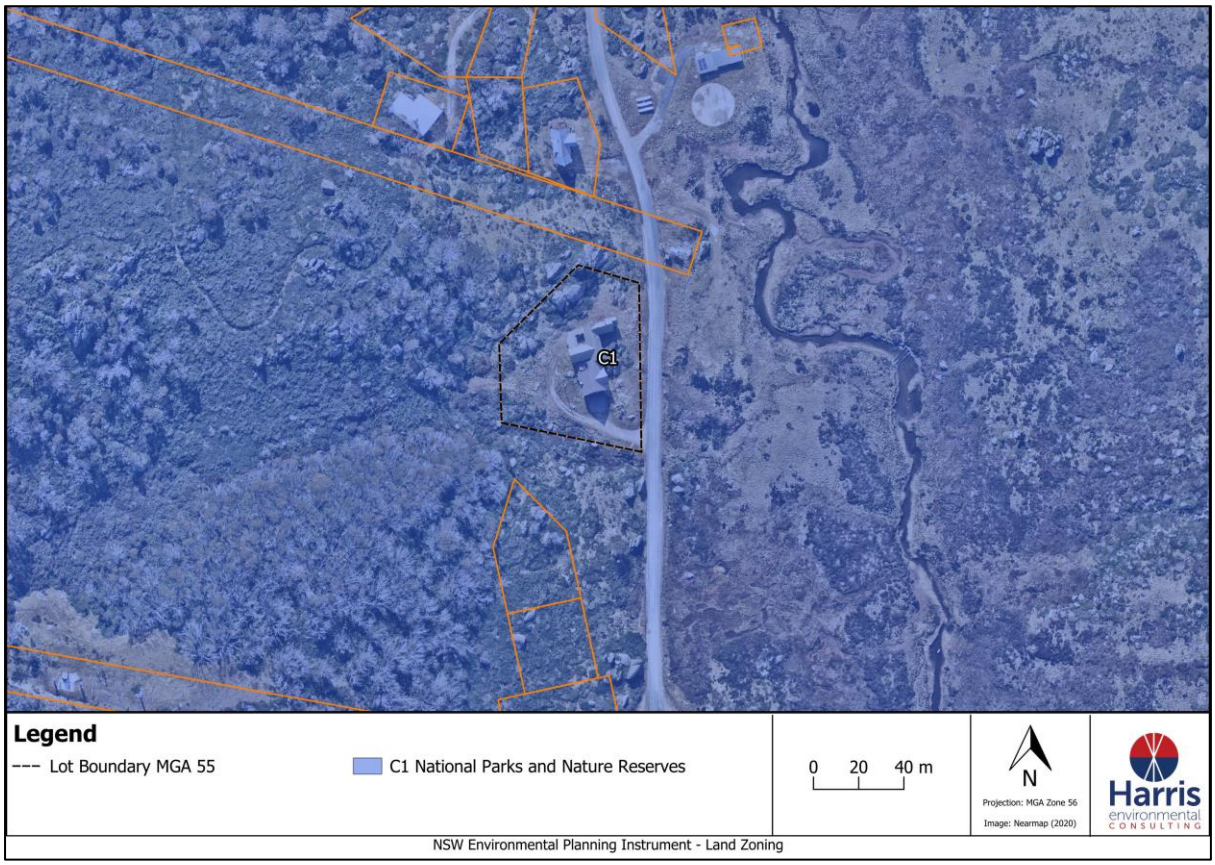


Figure 7 Vegetation Mapping

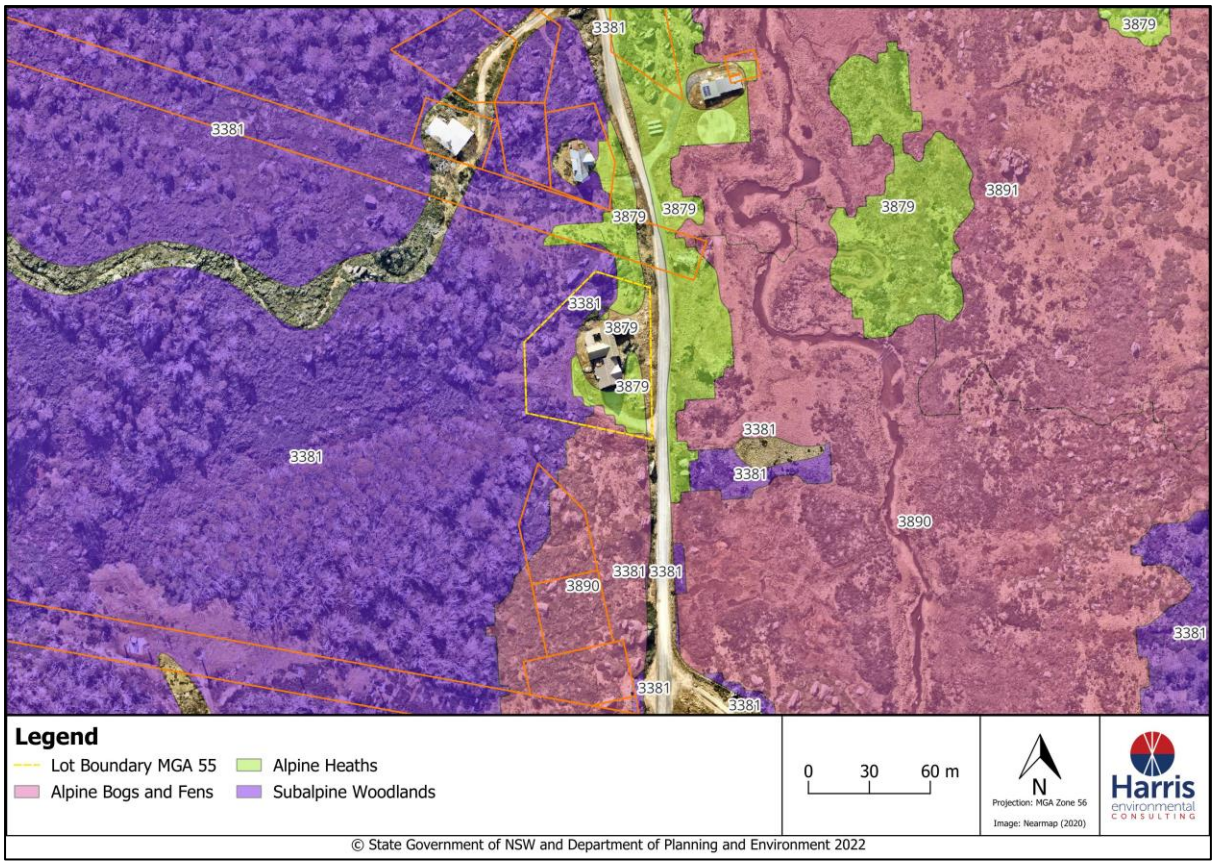
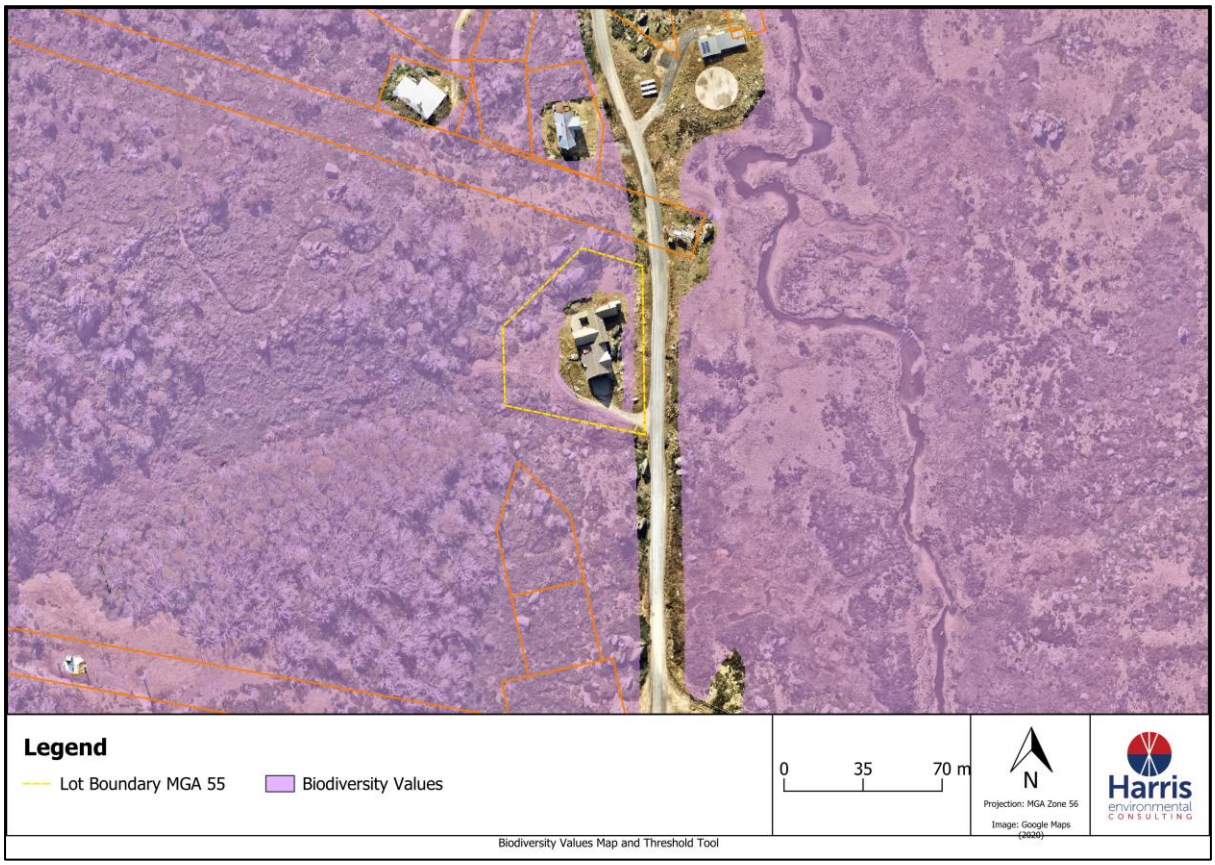


Figure 8 Biodiversity Values Map



3 SITE DESCRIPTION

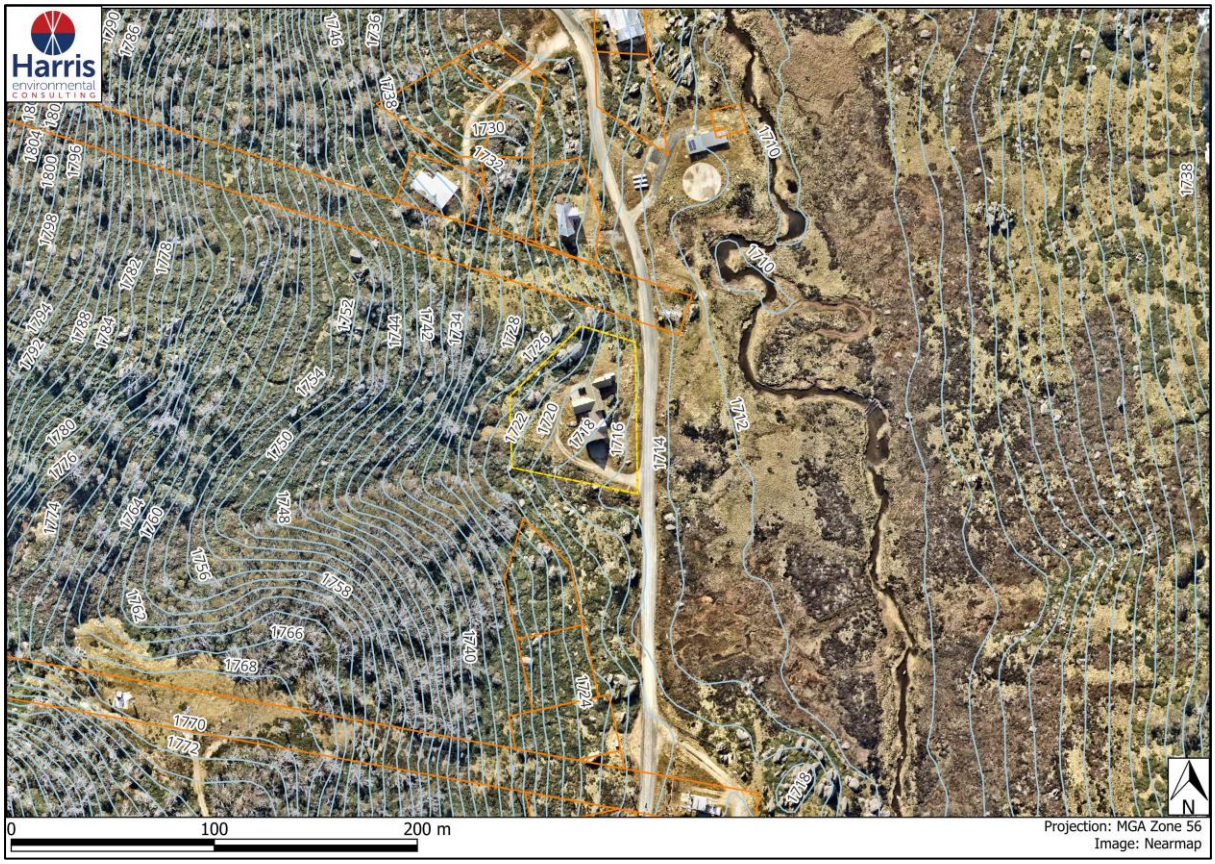
3.1 Slope and Aspect of the Site within 100m

The slope that would most significantly influence fire behaviour was determined over a distance of 100 m out from the proposed development. This assessment used 2 m and 20 m contour intervals.

The Australian Standard AS3959 - 2018 and PBP 2019 identify 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 shown in Figure 9, the subject lot is located on land that slopes steeply upwards towards the western elevation. The land slopes gently downwards towards the eastern elevation bore sloping steeply upwards again.

Figure 9 Slope



3.2 Vegetation Formation Within 140m of Proposed Development

Figure 10 shows the managed and unmanaged land within 140 m of the proposed additions and alterations.

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

The vegetation on all elevations has been identified as “Sub-alpine Woodland” (DPE, 2022). In accordance with *Planning for Bush Fire Protection (PBP) 2019,* this vegetation has classified as “Forest”.

The vegetation on the eastern elevation of Perisher Creek Road is classified as “Alpine Heath” (DPE, 2022). In accordance with PBP 2019, this vegetation has be classified as “Alpine Complex”.

The surrounding vegetation is shown in Photos 1 – 4 and have been provided by the client.

Table 2 Predominate Vegetation Classification

	Vegetation Formation	Effective Slope	Distance from façade to hazard
North	Forest	0-5° Downslope	6 m from the proposed addition
East	Forest	0-5° Downslope	5 m from the proposed addition
	Alpine Complex	0-5° Downslope	26 m
South	Forest	0-5° Downslope	10 m
West	Forest	Upslope	7 m

Figure 10 Bushfire Prone Vegetation within 140 metres

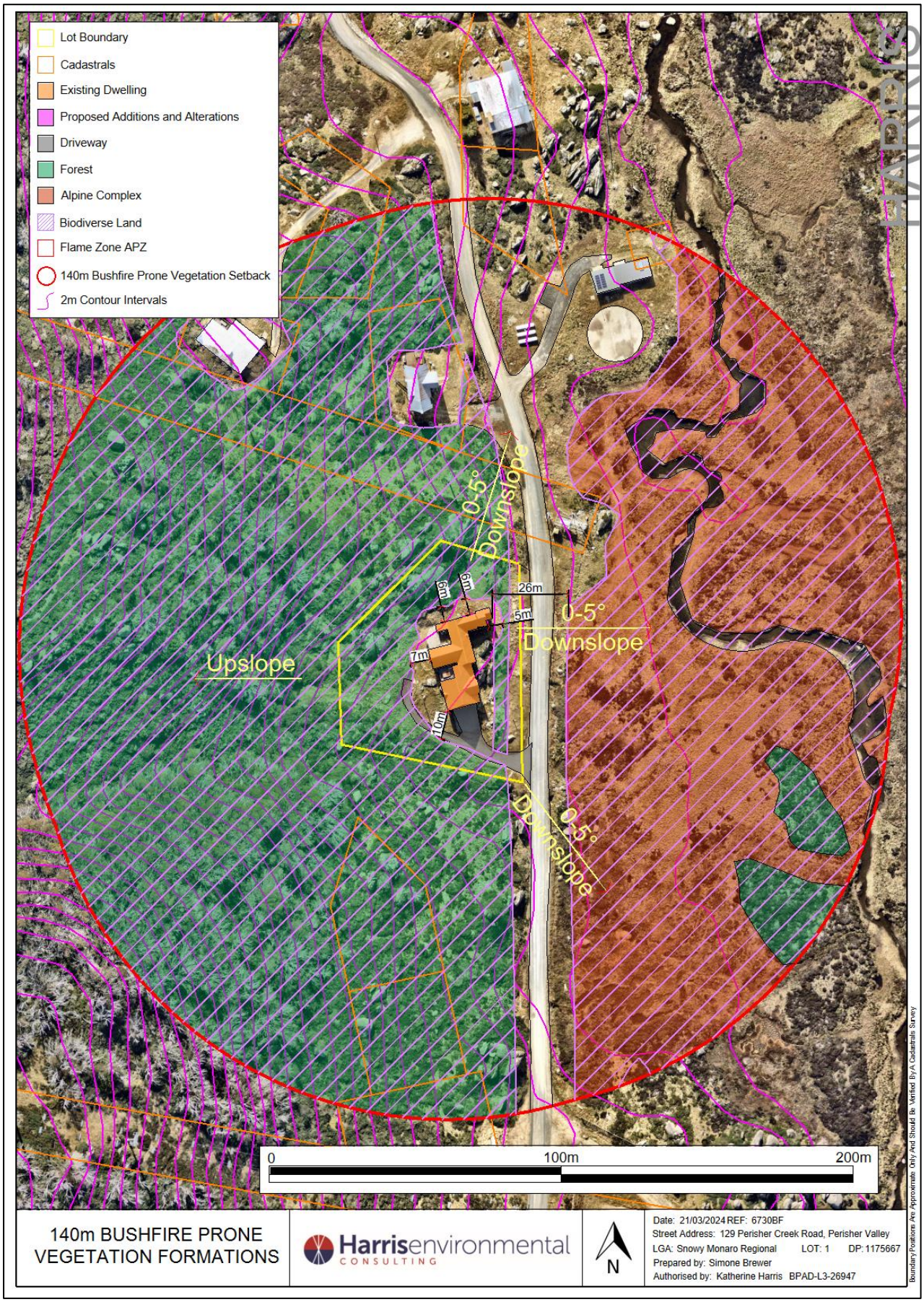
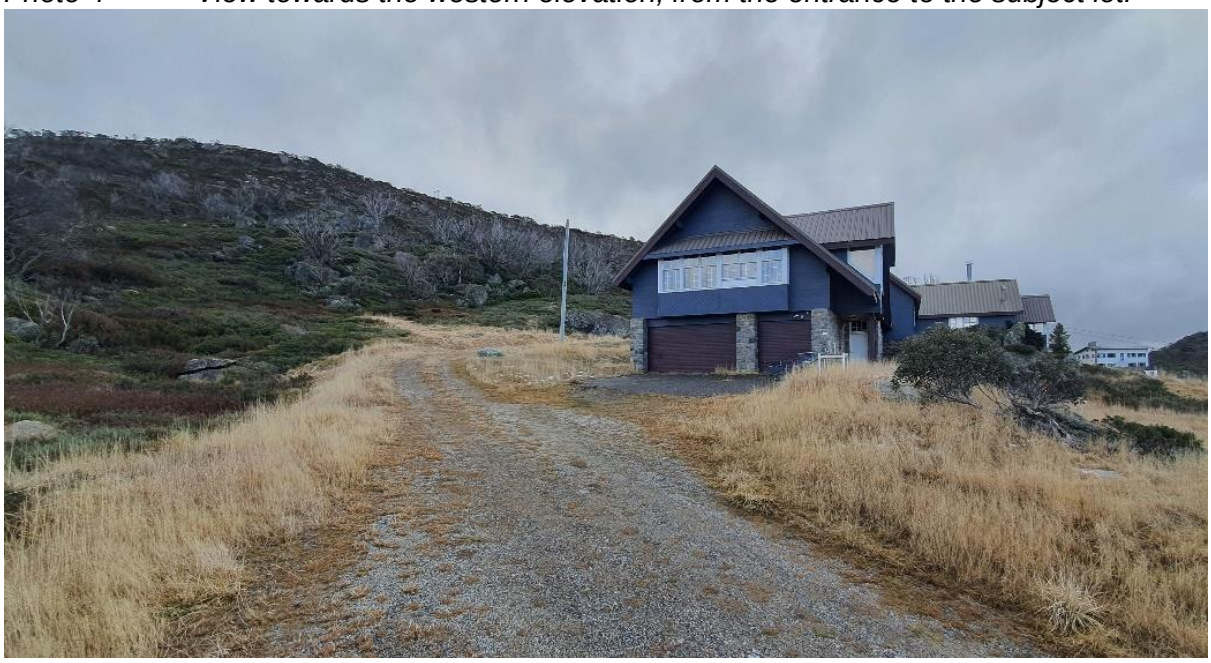


Photo 1 View towards the northern elevation.

Photo 2 View towards the eastern elevation from the southern end of the ski lodge

Photo 3 View towards the southern elevation

Photo 4 View towards the western elevation, from the entrance to the subject lot.



4 BUSHFIRE THREAT ASSESSMENT

4.1. Asset Protection Zones (APZ)

Table A1.12.7 *PBP 2019* has been used to determine the width of the required APZ for the proposed development using the vegetation and slope data identified.

The APZ and BAL determination results shown in Table 3 & Figure 11.

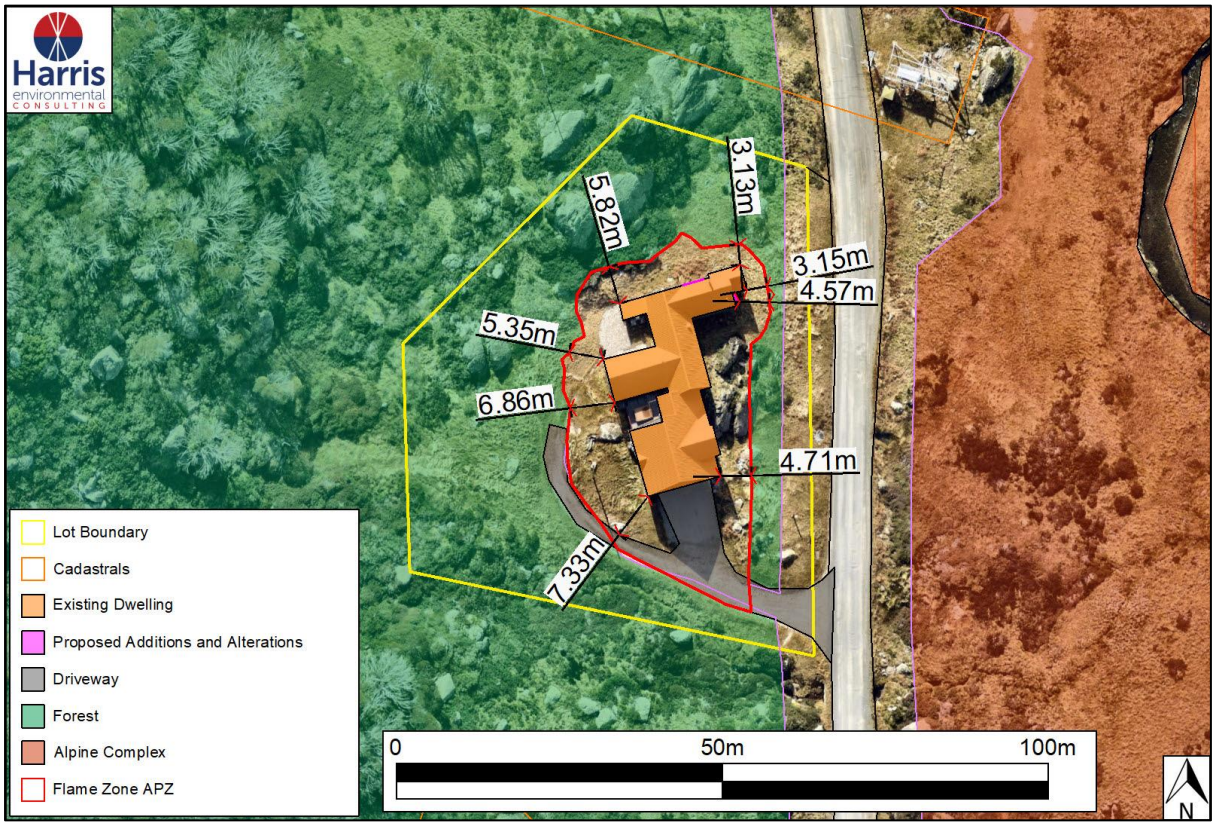
The existing APZ should be maintained in perpetuity as shown in Figure 11.

This assessment confirms no vegetation removal is required to maintained the Asset Protection Zone to the standard of an Inner Protection Area (IPA).

Table 3 APZ and BAL Determination

	NORTH	***EAST***	***SOUTH***	***WEST***
Vegetation	Forest	Forest	Forest	Forest
Gradient	0-5° Downslope	0-5° Downslope	0-5° Downslope	Upslope
Distance between façade and hazard	6 m (From addition)	5 m (From addition)	10 m	7 m
Table A1.12.7 BAL FZ required APZ	<14 m	<14 m	<14 m	<14 m
BAL Required	**BAL FZ**	**BAL FZ**	**BAL FZ**	**BAL FZ**

Figure 11 Asset Protection Zone



4.2. Relevant Construction Standard

The Australian Standard AS3959 – 2018 and/or *NASH Standard Steel Framed Construction in Bushfire Areas* (2014) are the enabling standards that address the performance requirements of both parts 2.3.4 and Part GF5.1 of the Building Code of Australia for the Construction of Class 1, 2 and Class 3 buildings within a designated Bushfire Prone Area.

The following was determined for this site:

Relevant fire danger index……FDI 50
Flame temperature ……1090 K

The proposed additions and alterations are to be constructed to **BAL Flame Zone** as specified by AS3959 - 2018 Construction for Buildings in Bushfire Prone Areas and/or *NASH Standard Steel Framed Construction in Bushfire Areas* (2014). New construction must also comply with the construction requirements in Section 7.5 of *Planning for Bush Fire Protection 2019.*

In circumstances where the 10 m setback distance between the building and the edge of the classified vegetation cannot be achieved, those elements of the building that are less than 10 m from the edge of the classified vegetation shall conform with AS 1530.8.2. There is no deemed to satisfy for construction in Flame Zone, and it is required to consider the Performance Requirements of the BCA and the specific objectives of PBP for the type of building constructed.

The existing dwelling is required to be upgraded to improve ember protection, unless already constructed to a relevant standard. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weep holes and eaves. External doors are to be fitted with draft excluders.

4.3. Emergency Management

A Bush Fire Emergency Management and Evacuation Plan should be prepared to support the proposed development. The Plan should be consistent with the NSW RFS document *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan.*

The Bush Fire Emergency Management and Evacuation Plan must consider a mechanism for the early relocation of occupants on days when adverse fire weather is notified or adverse fire activity occurs in the local government area in which the development operates.

A copy of the Bush Fire Emergency Management and Evacuation Plan shall be provided to the Local Emergency Management Committee for its information prior to occupation of the development.

4.4. Adequate Water and Utility Services

Reticulated water is supplied to Perisher Valley and to the subject lot. The nearest hydrant location is located along Perisher Creek Road, in front of the existing Ski Lodge and within 70 m of the furthest extent.

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

4.5. Safe Operational Access

The *Planning for Bushfire Protection 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.

The subject lot is located on Perisher Creek Road. This is a two-wheel drive accessible road in summer, however during winter, snow chains or 4wd are required for all vehicles to access Perisher. There are only required to be used in certain conditions but are a requirement for vehicles in the event of sudden changes to weather. The Ski Lodge is only accessible in winter by approved vehicles, including emergency services. The widths and design of the roads would allow safe access for firefighters while residents are evacuating an area. Road surfaces and bridges are sufficient to carry fully loaded firefighting vehicles.

5 LANDSCAPING

An APZ should be maintained for perpetuity as an Inner Protection Area. This assessment confirms no vegetation removal is required for the APZ.

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.

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well-maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees

- tree canopy cover should be less than 15% at maturity.
- trees at maturity should not touch or overhang the building.
- lower limbs should be removed up to a height of 2m above the ground.
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided.

- shrubs should not be located under trees.
- shrubs should not form more than 10% ground cover: and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- grass should be kept mown (as a guide, grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

7. HOW THIS PROPOSAL MEETS DEEMED TO SATISFY

The following table shows how the proposed accommodation meets the Performance-Based Controls of the *Planning for Bushfire Protection* (2019) 6.8a, 6.8b, 6.8c, and 6.8d.

Table 4 Demonstration of PBP 2019 Compliance

	Performance Criteria	Acceptable Solution	Demonstration of Compliance
ASSET PROTECTION ZONES	radiant heat levels of greater than 10kW/m² (calculated at 1200K) will not be experienced on any part of the building.	the building is provided with an APZ in accordance with Table A1.12.1 in Appendix 1.	Does not comply: an appropriate defendable space has been provided between the building and the surrounding vegetation.
	APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are located on lands with a slope less than 18 degrees.	Complies: The APZ is not located on land than exceeds 18 degrees.
	APZs are managed and maintained to prevent the spread of fire to the building.	The APZ is managed in accordance with the requirements of Appendix 4 of PBP 2019, and is wholly within the boundaries of the development site;	All land within the specified APZ in the subject lot will be managed in accordance with Appendix 4 of PBP 2019. This assessment confirms no vegetation removal is required for the APZ.
	The APZ is provided in perpetuity.	APZ are wholly within the boundaries of the development site;	The proposed APZ for the development is within the development site boundaries.
LANDSCAPING	Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Landscaping is in accordance with Appendix 4; And fencing is constructed in accordance with section 7.6 of PBP 2019.	This assessment confirms no vegetation removal is required for the APZ. Any proposed planting is to be provided in accordance with Appendix 4 to the standard of an IPA.
CONSTRUCTION STANDARDS	the proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	a construction level of BAL-12.5 under AS 3959 or NASH Standard and section 7.5 of PBP is applied.	Does not comply: BAL Flame Zone is proposed along side better bush fire protection of the existing structure to improve ember attack protection.

ACCESS	fire fighting vehicles are provided with safe, all-weather access to structures.	SFPP access roads are two-wheel drive, all-weather roads;	Roads are accessible via 2wd during the summer. During winter, vehicles require snow-chains or 4wd in the event of sudden changes in the weather.
		access is provided to all structures;	Complies
		traffic management devices are constructed to not prohibit access by emergency services vehicles;	Complies
		access roads must provide suitable turning areas in accordance with Appendix 3; and	N/A
		one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression	N/A
	The capacity of access roads is adequate for firefighting vehicles.	The capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges and causeways are to clearly indicate load rating.	Complies.
	There is appropriate access to water supply.	hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression; hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005	Complies.

WATER SUPPLY	An adequate water supply for firefighting purposes is installed and maintained.	Reticulated water is to be provided to the development, where available.	Complies.
	Water supplies are located at regular intervals.	fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005; hydrants are not located within any road carriageway; and	To comply – out side the scope of BPAD
	The water supply is accessible and reliable for firefighting purposes.	reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads.	To comply – outside the scope of BPAD
	Flows and pressure are appropriate.	relevant clauses of AS 2419.1:2005.	To comply – outside the scope of BPAD
	The integrity of the water supply is maintained.	All above-ground water service pipes external to the building are metal, including and up to any taps.	To comply.
WATER SUPPLY	Water supplies are adequate in areas where reticulated water is not available.	All exposed water pipes external to the building are metal, including any fittings; Where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack; Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and fire hose reels are constructed in accordance with AS/NZS 1221:1997 *Fire hose reels*, and installed in accordance with the relevant clauses of AS 2441:2005 *Installation of fire hose reels.*	As above.
ELECTRICITY SERVICES	Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings.	Where practicable, electrical transmission lines are underground; Where overhead, electrical transmission lines are proposed as follow: - lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 *Guideline for Managing Vegetation Near Power Lines.*	The electricity supply is proposed as solar.

GAS SERVICES	Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	-bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used; - All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side; - Connections to and from gas cylinders are metal; if gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion; - Polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and above-ground gas service pipes external to the building are metal, including and up to any outlets.	Is Proposed to comply.

EMERGENCY MANAGEMENT	A Bush Fire Emergency Management and Evacuation Plan is prepared. Appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire Emergency Management and Evacuation Plan.	Bush Fire Emergency Management and Evacuation Plan is prepared consistent with: - NSW RFS document: *A Guide to Developing a Bush Fire Emergency Management* and Evacuation *Plan;* - NSW RFS Schools Program Guide; - Australian Standard AS 4083:2010 Planning for emergencies in facilities; and - Australian Standard AS 4083:2010 Planning for emergencies – Health care facilities (where applicable). The Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants. An Emergency Planning Committee is established to consult with residents (and their families in the case of aged care accommodation and schools) and staff in developing and implementing an Emergency Procedures Manual; and Detailed plans of all emergency assembly areas including on site and off-site arrangements as stated in AS 3745:2010 are clearly displayed, and an annually emergency evacuation is conducted.	An emergency /evacuation plan as described in the PBB 2019 will be required. This will need to meet the criteria of the RFS guidelines for the Preparation of *Emergency/Evacuation Plan* and there shall be a trigger system for cancellation of tourists at the site on Extreme and Catastrophic Fire Danger Days. Consideration should be given to also preventing occupancy on Severe Fire Danger Days. An onsite manager who can act as a Fire Warden is considered good practice.

6 SUMMARY

- This assessment confirms no vegetation removal is required to maintained the Asset Protection Zone to the standard of an Inner Protection Area (IPA).

- The proposed additions and alterations are to be constructed to **BAL Flame Zone** as specified by AS3959 - 2018 Construction for Buildings in Bushfire Prone Areas and/or *NASH Standard Steel Framed Construction in Bushfire Areas* (2014). New construction must also comply with the construction requirements in Section 7.5 of *Planning for Bush Fire Protection 2019.*

- In circumstances where the 10 m setback distance between the building and the edge of the classified vegetation cannot be achieved, those elements of the building that are less than 10 m from the edge of the classified vegetation shall conform with AS 1530.8.2. There is no deemed to satisfy for construction in Flame zone, and it is required to consider the Performance Requirements of the BCA and the specific objectives of PBP for the type of building constructed.

- The existing dwelling is required to be upgraded to improve ember protection, unless already constructed to a relevant standard. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weep holes and eaves. External doors are to be fitted with draft excluders.

- The existing APZ is to be maintained in perpetuity.

- The subject lot is located on Perisher Creek Road. This is a two-wheel drive accessible road in summer, however during winter, snow chains or 4wd are required for all vehicles to access Perisher. There are only required to be used in certain conditions but are a requirement for vehicles in the event of sudden changes to weather. The ski lodge is only accessible in winter by approved vehicles, including emergency services. The widths and design of the roads would allow safe access for firefighters while residents are evacuating an area. Road surfaces and bridges are sufficient to carry fully loaded firefighting vehicles.

- Reticulated water is supplied to Perisher Valley and to the subject lot. The nearest hydrant location is located along Perisher Creek Road, in front of the existing Ski Lodge and within 70 m of the furthest extent.

- Any bottled gas will be installed and maintained under AS1596 and the relevant authority's requirements. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used. The proposed electricity supply is proposed as solar.

7 REFERENCES

Australia, G. (2019). *ELVIS - Elevation - Foundation Spatial Data*. Elevation.fsdf.org.au. Available at: http://elevation.fsdf.org.au/

Keith, D. (2004). "*Ocean Shores to Desert Dunes*" Department of Environment and Conservation, Sydney

National Association of Steel-Framed Housing (2014) *NASH Standard Steel Framed Construction in Bushfire Areas*

NSW Department of Environment, Climate Change and Water (2010) Southeast NSW Native Vegetation Classification and Mapping - SCIVI VIS_ID 2230 20030101. Bioregional Assessment Source Dataset. Viewed 18 June 2018, http://data.bioregionalassessments.gov.au/dataset/0f1aeb33-1b49-4839-88fa-8b635cf9d3ab.

NSW Department of Planning and Environment. Planning Portal. Accessed at: https://www.planningportal.nsw.gov.au/

NSW Office of Environment and Heritage (2020). Biodiversity Value Map. Accessed at: https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap

NSW Rural Fire Service (2019). *Planning for Bushfire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*. *November 2019*

Standards Australia (2018). *AS3959, Construction of buildings in bushfire-prone areas.*

Tozer MG, Turner K, Keith DA, Tindall D, Pennay C, Simpson C, MacKenzie B, Beukers P, Cox S (2010). *Native Vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands*. Cunninghania 11:359-406.

Department of Planning and Environment (2022) NSW State Vegetation Type Map | dataset | seed, NSW State Vegetation Type Map. Available at: https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map.

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 stratums;

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) Noncombustible 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 ii Definitions & Abbreviations

Asset Protection Zone- A fuel reduced area surrounding a buffer zone between a bushfire hazard and an asset. The APZ includes a defendable space within which firefighting operations can be carried out. The size of the required APZ varies with slope, vegetation and FFDI.

AS3959-2019: Australian Standard AS 3959:2018 Construction of buildings in bush fire-prone areas.

Bush fire prone area- an area of land that can support a bush fire or is likely to be subject to bushfire attack, as designated on a bush fir prone land map

Bush fire prone vegetation (BFPV) – A map prepared by Council in accordance with RFS guidelines and defining area of vegetation by BFPV categories

Bushfire prone land map (BFPL) A map prepared in accordance with RFS guidelines and certified by the Commissioner of the NSW RFS under section 146 (2) of the Environmental Planning and Assessment Act (1979)

BFSA: Bush fire safety authority.

Effective Slope: The land beneath the vegetation which most significantly effects fire behavior, having regard to the vegetation present.

Fire Danger Index (FDI) The chance of a fire starting, its rate of spread, its intensity and the difficulty potential for its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long- and short term drought effects.

Fire hazard: the potential for land o carry a bush fire, utilizing materials or fuels that can be ignited

Grasslands- Grassed areas capable of sustaining a fire. Under Australia standard 3959 Construction of buildings in bushfire -prone areas, identified as low open shrubland, hummock grassland, closed tussock grassland, tussock grassland, open tussock, sparse open tussock, dense sown pasture, sown pasture, open herbfield and sparse open herb field. Grass, whether exotic or native, which is regularly maintained at or below 10 cm in height (includes maintained lawns, golf course, maintained public reserves, parklands, nature strips and commercial nurseries) are regarded as managed land

Inner Protection Area (IPA): the component of an APZ which closest to the asset (measured from unmanaged vegetation). It consists of an area maintained to minimal fuel loads so that a fire path is not created between the hazard and the building.

Managed land- Managed land is land that has vegetation removed or maintained to limit the spread and impact of bushfire. It may include existing developed land (i.e. residential, commercial or industrial) roads, golf course fairways, playgrounds or sports fields, vineyards, orchards, cultivated ornamental gardens, and commercial nurseries.

PBP 2019: Planning for Bushfire Protection 2019