

# Office of Sport

Southern Highlands Regional Shooting Complex



## Bushfire Management Plan



Southern Highlands Regional Shooting Complex  
430 Wattle Ridge Road, Hill Top NSW 2575  
August 2018



Prepared by: Building Code & Bushfire Hazard Solutions P/L



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## Glossary of Terms & List of Abbreviations

Term	Description
APZ	Asset Protection Zone (Buffer Zone) contains an Inner Protection Area and an Outer Protection Area and lays between an Asset and bushfire hazard
BAP	Bushfire Awareness Program
BFCC	Bush Fire Coordinating Committee (Southern Highlands NSW)
BMP	Bushfire Management Plan (SHRSC)
BFMC	Bush Fire Management Committee (Wollondilly / Wingecarribee)
BFRMP	Bush Fire Risk Management Plan
BMAP	Bushfire Mitigation Action Plan
Bushfire	An uncontrolled fire burning in forest or grassland vegetation. Can be referred to as a 'wildfire'
Bush Fire Prone Area	An area deemed and mapped by local Council and / or the NSW RFS as being bushfire prone land. Land mapped as being <i>bushfire prone</i> is the trigger for bushfire compliance under <i>Planning for Bushfire Protection - 2006</i> .
Crown fire	A fire that advances rapidly from tree top to tree top ahead of the main fire front
Council	Wingecarribee Shire Council
EEC	Endangered Ecological Community
Ember attack	Wind driven, burning materials typically vegetation, delivered prior to, during and after a main fire impact
Evacuation	The emergency evacuation of persons from a place of danger to a place of greater safety. In this case a location external to the Complex
FDI	Fire Danger Index: A relative number denoting an evaluation of rate of spread, or suppression difficulty for specific combinations of temperature, relative humidity, drought effects and wind speed. The numbers range from 1 to 100 (100 being the highest risk) and form classes that equate to the Fire Danger Rating
FDR	Fire Danger Rating: Based on an FDI range, denoting an evaluation of rate of spread, or suppression difficulty for specific combinations of temperature, relative humidity, drought effects and wind speed. Rated as <i>Low, Moderate, High, Very High, Severe, Extreme or Catastrophic</i> , indicating the relative evaluation of the bush fire danger.
HV	High Voltage – with reference to 330kv electricity transmission lines
IC	Incident Controller , a person who is in overall charge of a bushfire incident
LMZ	Land Management Zone – is land that is mapped or described as such in a BFRMP. Provides for large area, mosaic burning.
Mitigation Measures	Specific measures undertaken to reduce the impact of bushfire onto fixed or environmental assets. Includes hazard reductions, SFAZ's / APZ's or other measures.
NPWS	National Parks and Wildlife Service being part of the Office of Environment and Heritage
NSW RFS	NSW Rural Fire Service – the firefighting combat agency for region
OEH	Office of Environment and Heritage
Prescribed burning	The controlled application of fire under specified environmental conditions to a predetermined area. It is undertaken in regard to specified environmental conditions

Term	Description
Radiant heat	The heat output measured in Kw/m <sup>2</sup> generated by a bushfire
Relocation	The controlled relocation of persons from potential hazard to safer places where time is plentiful.
RSPCA	Royal Society for the Prevention of Cruelty to Animals
Safe refuge	A building or structure which may provide a safe refuge during bushfire attack
SFAZ	Strategic Fire Advantage Zone – is land that is mapped or described as such in a bushfire risk management plan.
SHRSC	Southern Highlands Regional Shooting Complex. The whole of the property including all ranges, infrastructure and surrounding land extending the property boundaries of Lot 100 in DP1088254
SHRSC Manager	The Office of Sport representative who has responsibility for the Complex, all its assets and personnel
Water point	Any natural or constructed supply of water that is readily available for fire control operations, including external gravity fire hydrants.
WIRES	NSW Wildlife Information, Rescue and Education Service Inc.

## Introduction:

### Background

The Southern Highlands Regional Shooting Complex is a recreational shooting facility located at 430 Wattle Ridge Road, Hill Top (Lot 100 of DP1088254) incorporating approximately 1036 ha of bushland, consisting of a 136 ha *Special Activity Zone* and a 900 ha Conservation Zone.

The Complex is owned by the Minister, Administering the Sporting Venues Authorities Act 2008 and is administered by the Office of Sport. A number of Shooting Clubs under a licence agreement use the 800m range. The 800m Club house is owned and maintained by the Southern highlands Rife Club.

This review was commissioned by the Office of Sport, and was prepared in accordance with the current approvals from the NSW Office of Planning and Environment; Office of Environment and Heritage, the objectives of the NSW Rural Fire Services documents "*Planning for Bushfire Protection*" - 2006 in relation to built assets, "*Standards for Asset Protection Zone Maintenance*" in relation to asset protection and the "*Bushfire Environmental Assessment Code*", to determine local bushfire mitigation measures and the existing Complex, Bushfire Emergency Management Plan.

This Bushfire Management Plan (BMP) details the fire management objectives, strategies, actions and mitigation requirements for the Southern Highlands Regional Shooting Complex and replaces the previous BMP prepared by GHD (Australia) of 2010 for the 800m range.

Bushfire management planning for the Complex will be reliant upon this document.

The Plan recognizes that land management in relation to bushfire mitigation measures is to be a co-operative approach between the Office of Sport, the National Parks and Wildlife Service, and the NSW Rural Fire Service (being both the major land management and firefighting services for the Nattai region).

Endeavour Energy may have input where major High Voltage (HV) electrical supply easements could be involved in proposed mitigation areas south east of the Complex.

The Complex's built assets and infrastructure are located along Wattle Ridge Road on the north eastern and north western sections of the site.

The north eastern section consists of:

An existing 800m clubhouse building;

Toilet facilities and associated storage sheds;

An informal car parking area with associated earthen access roads; and



A seven-target rifle range 800 m long with firing mounds at 100 m intervals.

The north western section consists of:

A carpark and a proposed clubhouse apron with associated earthen roads;

A 50 m range;

A 500 m range;

Associated fire trails and access roads; and

Four sediment basins.

Future additional ranges (200m pistol/rifle range, shotgun range and indoor air range) are also approved under the terms of the Minister's Project Approval MP06-0232.

The remainder of the Complex is vegetated typically with natural dry sclerophyll forest and scrubland vegetation on ridges and plateaus above several small creek lines typically containing wet sclerophyll forest.

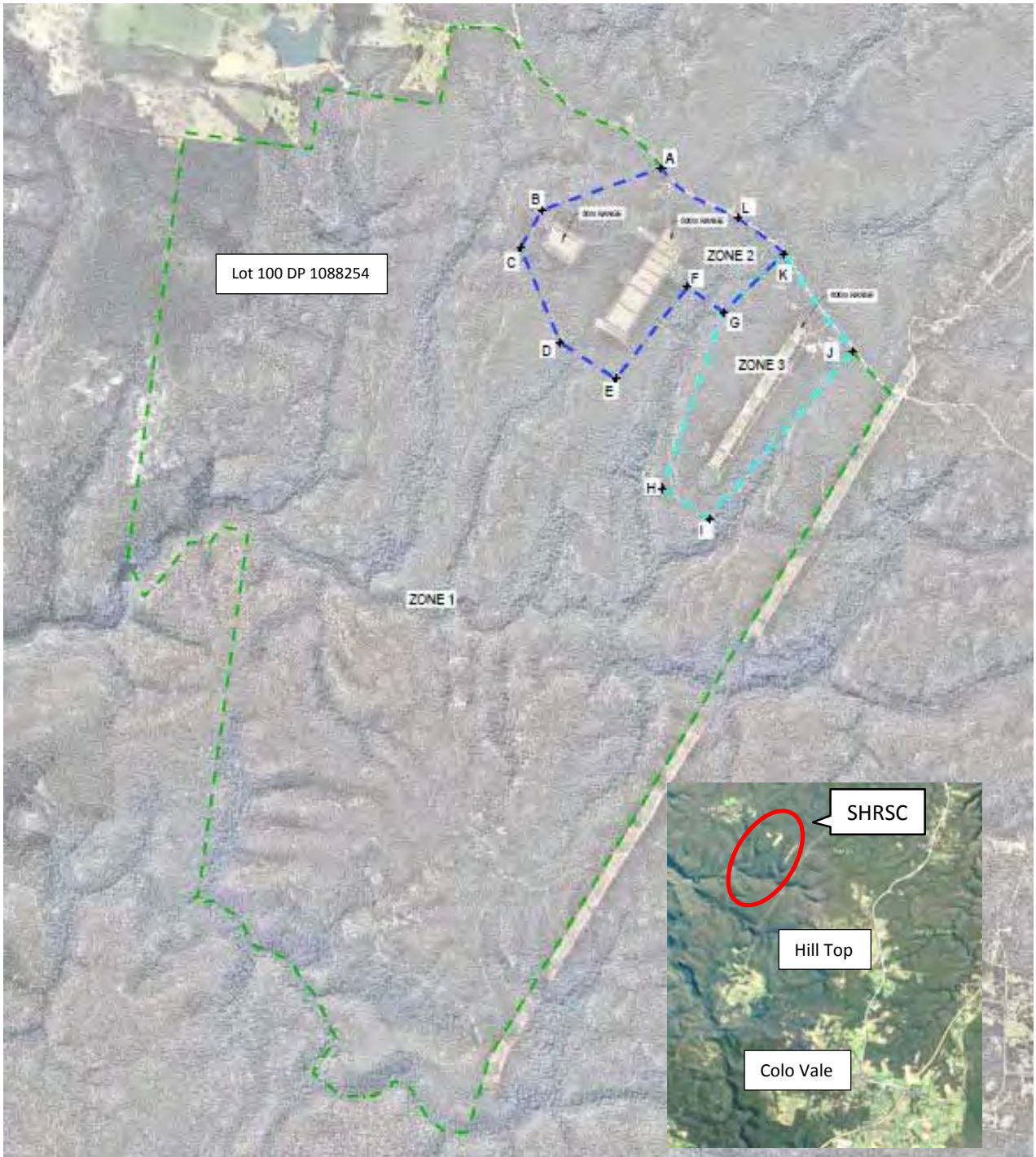


Image 1 – SHRSC location being 430 Wattle Ridge Road, Hill Top noting Conservation Zones 1-3 (acknowledgement GHD 2010)

Zone 1	Green boundary	Bushland conservation.
Zone 2	Dark Blue boundary	Current development area.
Zone 3	Light Blue boundary	Original development area.

## Purpose

This plan has been developed to provide a practical methodology for the implementation of bushfire mitigation measures. It addresses life and property / asset protection, operational capability, and emergency management typically within the immediate areas surrounding the ranges as this is where the Office of Sport are in a position to directly manage such areas.

The bushfire management within the greater proportion of the Complex's forested areas will be managed by the Office of Sport in close consultation with the National Parks and Wildlife Service and / or the NSW Rural Fire Service having regard to broad area treatments within the Wollondilly / Wingecarribee, BFRMP of 2017, consideration of past bushfire history and proposed prescribed LMZ or SFAZ burn operations.

Fire is a natural part of the Australian environment and occurs regularly in temperate climates including within the local Nattai region. The responsibility to address and prepare strategies for bushfire management is essential to better protect life, property, assets and to maintain operational capability.

The implementation of this plan will assist in reducing the residual risk to Complex's occupants and assets both fixed and environmental.

The provision of Conservation Area Zones (1-3) within the Complex provides boundary's for the possible asset construction. (reference Image 01, page 9)

- Zone 1 (Green boundary) Bushland conservation.
- Zone 2 (Dark Blue boundary) Existing development area.
- Zone 3 (Light Blue boundary) Original development area.

Notwithstanding the Complex's conservation zones, any future development will require close consultation with the NP&WLS and the NSW Rural Fire Service.

## Objectives

The primary objectives of bushfire management and mitigation plans are to:

- a) Provide increased protection to human life;
- b) Minimise potential loss of assets before, during and after the passage of destructive bushfires;
- c) Minimise the physical and environmental impact of bushfires;
- d) Provide for bushfire mitigation work to be undertaken in an environmentally sustainable and cost effective manner; and
- e) Where possible maintain fire regimes that are appropriate and necessary to conserve environmental values. This plan has been prepared with consideration of the above objectives.

Property owners and land managers have a responsibility to minimise the risk of bushfires

impacting onto their properties, spreading into neighbouring property or spreading uncontrollably within their property.

The Southern Highlands Regional Shooting Complex's Bushfire Management Plan documents the reliance on appropriate agencies or authorities to assist the Office of Sport in bushfire management and mitigation over the large forested areas of the complex or where future Special Fire Advantage Zones are to be located within the complex. The Office of Sport may be required to provide minimal physical assistance (such as allowing access to the Complex) during regional planning and during the execution of proposed bushfire mitigation work.

It is for these reasons that this plan is more focused on the shooting ranges and immediate surrounding areas which the Office of Sport can manage.

## **Plan Structure**

This Bushfire Management Plan is divided into two parts as follows:

**Bushfire Management Plan** (This document)

Complex background information, reference material and standards.

Bushfire Risk Management Plan (Appendix F), and

Bushfire Mitigation Action Plan (Appendix G)

**Property Bushfire Management Plan** (A1 Map Format)

This approach allows consolidation of background and reference information into a single document complimented by a map containing a brief compilation of specific information for the SHRSC manger and staff.

The Southern Highlands Regional Shooting Complex, Bushfire Management Plan is structured to ensure the approach to bushfire planning is consistent with current risk management frameworks adopted by emergency service organisations and the National Parks and Wildlife Service.

## **Legislative, Planning and Policy Obligations**

Legislative, planning and policy obligations relating to bushfire management are detailed and summarised in the following sections:

### **Commonwealth Legislation**

*Aboriginal and Torres Strait Islander Heritage Protection Act (1984)*. The Act provides framework for the preservation and protection of places, areas and objects of Aboriginal significance. The Office of Sport and the Southern Highlands Regional Shooting Complex are

to comply with the Act where their activities have the potential to impact on an Aboriginal place, area or object;

*Environmental Protection and Biodiversity Conservation Act (1999)*. The Act provides the legal framework for the protection and management of nationally and internationally important flora, fauna, ecological communities and heritage places defined in the Act as matters of national environmental significance. The Act comes into play when a proposal has the potential to have a significant impact on a matter of national environmental significance; and

*Environment Protection and Biodiversity Conservation Regulations (2000)*. The Regulations support the provisions set forth in the Environment Protection and Biodiversity Conservation Act (1999).

#### NSW Legislation

*Environmental Planning and Assessment Act (1979)*. The Act is the major component of environmental legislation that deals with environmental planning and approvals. Subordinate to the Act are a number of environmental planning instruments:

- State Environmental Planning Policy
- Regional Environmental Plans; and
- Local Environmental Plans

The Office of Sport and the Southern Highlands Regional Shooting Complex users or clients are to be aware of and comply with the conditions of any Project Approval issued by the Department of Planning or other Project Approvals issued by local, state or national authorities.

*National Parks and Wildlife Act (1979)*. The Act protects Aboriginal objects and places in NSW. It is an offence to do any of the following things without permission:

- disturb or move an Aboriginal object;
- excavate land for the purpose of discovering an Aboriginal object;
- knowingly destroy, damage or deface an Aboriginal object or Aboriginal place;
- knowingly cause or permit the destruction, damage or defacement of, an Aboriginal object or Aboriginal Place.

If the Office of Sport or the Southern Highlands Regional Shooting Complex users or clients or their contractors plan an activity that will disturb or destroy Aboriginal heritage, permission will need to be sought from OEHL before any work is commenced.

*Local Land Services Act (2013)*. The Act establishes a corporation with the responsibility for the management and delivery of local land services to the social, economic, and environmental interests of the State in accordance with any State priorities for local land services.

*Land Management (Native Vegetation) Code (2017)*. The Code applies to all land in NSW to which Part 5A of the *Local Land Services Act 2013* applies. The aim of the code is to authorize clearing of native vegetation on Category 2 regulated land. The Code does not allow the clearing of native vegetation if that vegetation forms part of a critically endangered ecological community.

*Biodiversity Conservation Act (2016)*. The purpose of the Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principals of ecologically sustainable development.

*Rural Fires Act (1997)*. The Act provides for the prevention, control and suppression of bush fires, and for the mitigation of danger resulting from bushfires. The Act contains provisions for the control and suppression of fires that are imminent or burning, including a definition of the responsibilities of various authorities during bush fire emergencies. Importantly, it also ensures that measures to reduce the hazards that contribute to the occurrence, intensity and spread of fire are carried out by responsible agencies;

*Sporting Venues Authority Act (2008)*. The Act allows for the establishment of the State Sporting Venues Authority. The Authority is responsible for maintaining and improving the Authority's land and to ensure that asset management plans are in place for that land. The Office of Sport is the responsible delegated authority.

#### [NSW State Policy](#)

Bush Fire Coordinating Committee (BFCC) *Policy No. 2/2007 – Fire Trails* (BFCC 2015) describes the construction and maintenance requirements appropriate for effective fire trails. The Complex has several earthen trails which could be used by the NSW Rural Fire Service in emergencies.

NSW Rural Fire Service document; *Fire Trail Standards – 2017*; The Rural Fires Amendment (Fire Trails) Act of 2016 provides for the application of Fire Trail Standards across the State.

*Bushfire Environmental Assessment Code for NSW* (NSW RFS 2006) The Code has been prepared pursuant to sections 100J to 100N of the *Rural Fires Act 1997*. The purpose of the Code is to provide a streamlined environmental assessment process for use by issuing authorities and certifying authorities in determining bush fire hazard reduction certificates.

#### [Relevant Regional or Local Plans and Planning Documents](#)

Wingecarribee Shire Councils, *“Emergency Management Plan”* of 2016. The Plan sets out the roles and responsibilities for emergency services (Combat Agencies) for the response to and recovery from emergencies. It also sets out liaison control and coordination arrangements at local levels, activation and alerting arrangements and arrangements of the acquisition of resources.

*Wollondilly /Wingecarribee Bush Fire Risk Management Plan (including Map 8 Hill Top)* as prepared by the Wingecarribee Bush Fire Management Committee (2017). The Plan offers “*broad-scale*” fire management strategies for the whole of the two Council Regions, and

*Planning for Bushfire Protection-2006* prepared by the NSW RFS, this document regulates planning considerations for development in areas declared to be ‘bushfire prone’. In this case other than previously meeting compliance requirements at assessment stage, the document calls for on-going maintenance of any required Asset Protection Zones and annual review of any bushfire emergency plan.

Further, *Planning for Bushfire Protection-2006* calls for compliance with the *Australian Standard AS3959 – 2009 “Construction of buildings in bushfire prone areas”* where buildings and other structures are planned.

## Consultation

Direct consultation has occurred on several occasions with Officers from the NSW Rural Fire Service's District Office at Picton and the National Parks and Wildlife Service's Natti Area Office. Continued direct consultation is critical for future development and land management of the Complex, particularly for Conservation Zone 1.

## Cooperative Bushfire Mitigation and Management Arrangements

A cooperative approach engaging major stakeholders will increase the effectiveness of bushfire prevention, mitigation and management within the Complex. Indeed, many of the works outlined in this plan are reliant on cooperative relationships; e.g. effective bushfire response, environmental planning and hazard reduction treatment including prescribed burning.

More local treatments (immediately around buildings or structures such as APZ's or similar can be arranged by the Office of Sport. However the broad area treatments must be carried out on a cooperative approach with all relevant stakeholders including the National Parks and Wildlife Service and the NSW Rural Fire Service.

The SHRSC Manager and their staff should maintain a working knowledge of this Bushfire Management Plan. The SHRSC Manager or their delegate should, prior to each bushfire season, review the implementation of the Bushfire Management Plan and in particular check that actions for implementation in the Bushfire Mitigation Works Schedule (BMWS) and Bushfire Awareness Strategy are complete or planned.

In reviewing the implementation of this Bushfire Management Plan (BMP) and to foster a cooperative approach to bushfire management, the following should be considered by the Office of Sport:

- Prior to October each year undertake an annual discussion with the NSW Rural Fire Service's Picton District Office and the National Parks and Wildlife Service's, Regional Officer to review the regional BMP and ascertain any planned regional or local area mitigation works. The meeting should also include:
  - Discussion as to any changes to buildings or structures, access roads or trails, water sources or other matters relevant to the bushfire safety of the Complex or the Complex environment as a whole.
  - Where necessary, arrange a Complex inspection by NSW Rural Fire Service, District Office and / or the National Parks and Wildlife Service to ensure their satisfaction as to any bushfire mitigation measures undertaken the previous year.



- Invite the local *Hill Top Rural Fire Brigade* to visit Complex at least once a year to familiarise themselves with the Complex and its facilities.
- Carry out any bushfire mitigation work near shooting ranges prior to October each year where possible and invite sign off by an accredited bushfire practitioner or an Officer of the NSW Rural Fire Service.

### **Plan Circulation**

The plan is to be circulated to all relevant stakeholders:

- Including the NSW Rural Fire Service, Picton District Office, the National Parks and Wildlife Service Regional Office, the Office of Sport, the Office of Environment and Heritage and the Department of Planning and other agencies or authorities as may be required.

### **Plan Implementation**

Responsibilities for the implementation, monitoring and reporting actions identified in this plan are described in Section 6.0. The responsible person shall be the SHRSC Manager.

### **Plan Review Schedule**

The review of this Bushfire Management Plan should occur on a five year cycle or anytime following a bushfire incident or major hazard reduction within the Complex.

There is an assumption on behalf of the Office of Sport that the extent of the existing Shooting Ranges and associated facilities and intensity of use of the SHRSC may be altered within the life of this plan to include an additional approved shotgun range and access track and other assets. The Bushfire Management Plan would need to be updated to reflect altered conditions where necessary for any future development consent approval.

## 1. Bushfire Resource Information

### General:

The Southern Highlands Region has a range of natural and demographic attributes that make it one of the most fire prone areas in NSW. These attributes include:

- The general region is covered by eucalyptus and dry sclerophyll forests, heathlands and significant deep inaccessible gorges often supporting wet sclerophyll or rainforest;
- Very limited access is available to much of the region. In most cases a significant amount of the region is inaccessible to vehicles;
- A history of large bushfires which have run under dangerous north-west to south-west winds towards Southern Highlands townships and villages and potentially the Southern Highlands Regional Shooting Complex;
- Regularly occurring drought seasons which render the landscape fire prone for months on end from mid spring through summer;
- A relatively long fire season commencing from late spring (early November) due to the predominance of strong north-southwest winds and relatively dry winters;
- Regularly occurring Very High and Severe fire danger days, particularly ahead of strong weather fronts in late spring and through summer, which have in the recent past caused fires to make significant high intensity runs in a single day, and are uncontrollable in such conditions;
- Population density (increasingly significantly during holiday periods and weekends) residing and holidaying in areas of high fire risk;
- Regular sources of fire ignition from lightning and higher population centres, providing further fire sources from deliberate to accidental fire lighting; and
- A dominance of local vegetation types which are 'fire maintained' and require fire at appropriate intervals to maintain their range, health and diversity.

This section provides basic Complex information and identification of the factors that contribute to the levels of bushfire risk existing at the Complex.

## 1.1 Fire History and Ignition Sources

The Southern Highlands Regional Shooting Complex is potentially at risk from bushfires entering from adjacent lands or from ignitions on the property itself. Routine recreational shooting activities generally do not have the potential to cause ignition as the munitions used are not explosive, do not contain phosphorous or involve tracer ammunition. Bushfire cause can be categorised into several categories:

- Natural – fires caused by lightning;
- Accidental – fires caused through sparks from machinery use (welders, vehicles, plant), escaped prescribed burning operations or permit burns or campfires;
- Deliberate – fires caused by arson, the occurrence of which can correspond with distance from urban areas, proximity of major roads and holiday periods.

The management of fuels and the maintenance of fire control infrastructure can significantly limit bushfire potential. The ignition potential for the Complex and strategies to limit fire spread and residual risk are detailed in the Bushfire Mitigation Works Schedule (clause 2.3).

### 1.1.1 Fire History

Minor and major fires have been recorded in the region and within the Complex. Large fires, often burning under adverse conditions, have occurred on an infrequent basis. NPWLS 2017 records indicate that major fires have impacted the Complex at least three times in recent history the last being;

- 2013/14 – south west portion of Complex – “Flat Top” – held along Rocky Water Holes Creek.

Bushfire has also occurred on lands adjoining the Complex.

- 2008/09 - south east of Complex – “Rocky Water Holes” held along north / south electricity easement.
- 2009/10 – south of Complex - “Iron Creek” held along north / south electricity easement south of the Power Line trail.
- 2012/13 – northwest of adjoining property known as “Camelot” - held along Wattle Ridge Road.
- 2001/2002 – exact area unknown

There is no recent recorded history of bushfire for the Natti Parkland immediately to the north of the Complex. (NPWL 2017)

Importantly, Wattle Ridge Road is classified by the NSW Rural Fire Service as an “Essential Category 1” road meaning the road must be capable of trafficking large Category 1 type fire appliances and bulk water filler at all times. This may influence possible evacuations from the Complex in terms of emergency traffic conflicting with local and Complex traffic exiting the general area.

Bushfire history is shown pictorially for the region of the SHRSC in Appendix A, page 52.

### **1.1.2 Prescribed Fires**

Advice from the National Parks and Wildlife Service has indicated that the area of “Flat Top” will be subject to prescribed burning in 2018. Part of the burn area will be along the SHRSC property to the south of Rocky Water Holes Creek (previously burnt in 2013/14).

The burn plan could be amended to incorporate more bushland within the SHRSC Zone 1 Conservation Area as bushfire history is not available suggesting the bushland is below the deemed “Fire Threshold” as determined by National Parks and Wildlife Service. The Office of Sport must apply to have the land or parts thereof approved for inclusion in any burn plan.

Zone 2 (50m and 500m ranges) and Zone 3 (800m range) could be treated by prescribed burning on a much smaller, mosaic pattern basis again in further consultation with National Parks and Wildlife Service and the NSW Rural Fire Service. This will be dependent on “Fire Threshold” levels and any environmental considerations.

### **1.1.3 Vegetation**

Generally, vegetation across the SHRSC is uniform and could be classified as Dry Sclerophyll Forest with isolated and protected pockets of Temperate Rainforest or Wet Sclerophyll Forest in creeks. (Keith 2004). The shooting ranges themselves represent a modified environment consisting primarily of low level grasses. These areas are maintained to promote the amenity of the shooting area.

### **1.1.4 Fuel (Vegetation) Assessment**

Reducing available fuels through prescribed burning is the most effective and economic means of reducing the potential for bushfire which may impact fixed assets, degrade environmental and cultural values, and disrupt operations and recreational activities.

Therefore the planning of any prescribed burning should aim to break up the vegetation continuity of fuel in the landscape through the application of mosaic burning patterns.

The Office of Sport as part of its cooperative approach to bushfire management would be reliant up the National Parks and Wildlife Service to prepare any vegetation assessment reports as they

in conjunction with the NSW Rural Fire Service are the primary agencies in regional and local bushfire management and control.

Where smaller areas of the Complex have been determined as *Asset Protection Zones* under Planning for Bushfire Protection – 2006, the standard of construction and maintenance of the APZ is provided by the NSW Rural Fire Service’s document, “*Standards for Asset Protection Zones*”. The Office of Sport will manage and maintain local Asset Protection Zone areas.

#### **1.1.5 Fire Danger Ratings**

Fire danger ratings set the risk level for a region, they are not locally driven. The risk level ranges through Low, Moderate, High, Severe, Very High, Extreme or Catastrophic. These risk level ratings will dictate how the Complex will be managed when in operational mode or when it will be closed due to high levels of risk.

A Fire Danger Rating (FDR) is calculated from wind speed, temperature, relative humidity and long term dryness and fuel quantity and is expressed as being Low, Moderate, High, Severe, Very High, Extreme or Catastrophic. Once a bushfire is ignited, the FDR provides an indication of possible rate of spread, flame height, spotting distance. The rate of spread will be crucial for SHRSC management in terms of commencing evacuations or remaining within the Complex.

Where bushfire has not commenced the FDR provides a trigger to modify or restrict activities, or increase bushfire preparedness levels (see Clause 4.1) within the Complex.

Very High and greater fire days typically occur ahead of frontal movements with low humidity, high temperatures and wind ahead of the front, followed by a drop in temperature following the front and often significant changes in wind direction and speed. Typically Very High to Severe fire days are experienced for 4 days for each summer month and 1-2 days per month in the shoulder season (spring/autumn).

During the bush fire season the Bureau of Meteorology (BoM) prepares daily fire danger ratings for selected regions. FDR forecasts are posted on the BoM web page (under NSW Forecasts) at approximately 1600 hours for the following day. Forecasts of Very High, Severe, Extreme or Catastrophic fire danger and any associated ‘Total Fire Ban’ notice is issued by the NSW Rural Fire Service and are also generally broadcast by BoM and the media.

The Wollondilly /Wingecarribee region is noted as Region 5 “Illawarra/Shoalhaven” in the RFS fire danger advice web page. (<https://www.rfs.nsw.gov.au/fire-information/fdr-and-tobans>)

## **1.2 Assets and Values at Risk**

Bushfires have the potential to adversely impact life, property, environmental assets and the operational capacity of the Southern Highlands Regional Shooting Complex. Well planned and managed bushfire mitigation work can reduce the risk of bushfire damage. These assets require special consideration in the location, magnitude or method of bushfire protection, mitigation works and construction.

Protection of human life is the highest priority objective of all bushfire suppression and management activities. The most likely fire scenario to result in loss of life and large scale or high consequence property loss is from a large, fast moving high intensity fire event which would generate significant wind driven embers, excessive radiant heat and possibly direct flame contact of the Complex's assets. Such a bushfire could (traditionally) be expected from the Northwest or West or Southwest. Whilst uncommon, in terms of recorded history, major bushfire impact from the North is still possible.

The risk of injury to staff and Complex clients is considered very high where persons are using Wattle Ridge Road for evacuation purposes. There are no controls available to the Office of Sport for the management of the road in regard to bushfire mitigation.

### **1.2.1 Complex Facilities**

The majority of Complex infrastructure is located adjacent to the northern boundary abutting Wattle Ridge Road. These assets comprise the following:

- Existing Clubhouse & amenities building & 800m shooting range (Images 2-4);
- Access road infrastructure and gravel parking;
- Complex services;
- Dams or retention ponds; and
- 50m and 500m Administration office, shooting mounts and structures (Images 5-7)



Images 2-4 Eastern Club House and portable Complex Office, Amenities building and the 800m Shooting Range





Images 5-7 The 500m Administration building, 500m shooting range and 50m shooting range

The Southern Highlands Regional Shooting Complex has a unique combination of features that make strategic and effective bushfire management planning and implementation across the Complex very important. Whilst the Complex has not been categorised as a LMZ in the regional Bushfire Strategy Plan prepared by National Parks and Wildlife Service for the Thirlmere Lakes National Park and the Nattai Reserve System, the vegetation contained within the Complex will have an adverse effect on bushfire movement in the local area.

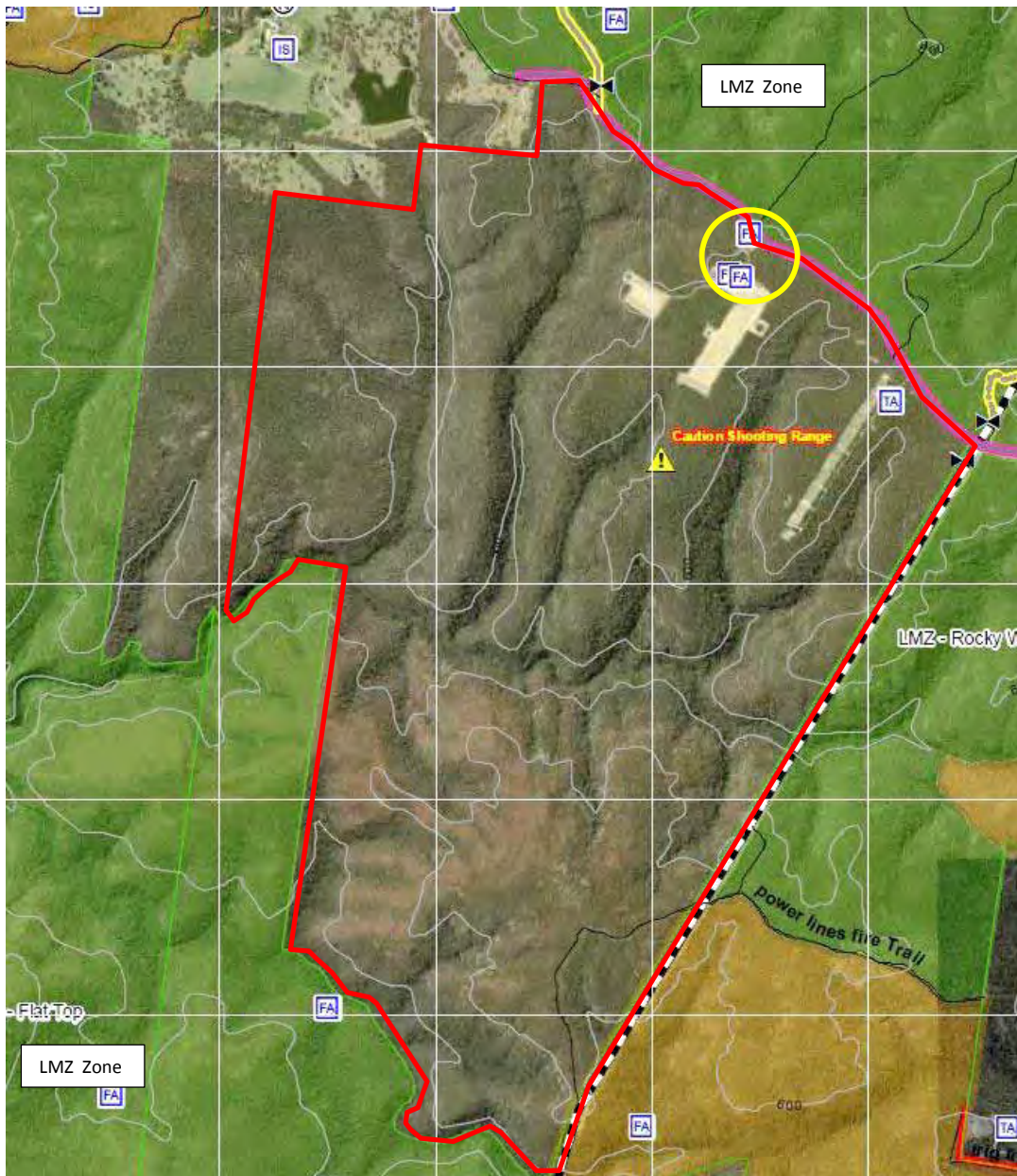


Image 8 – Identified Threatened Fauna areas within the SHRSC boundaries.

(Acknowledgements: NP&WLS Fire Management Strategy Map - 2016)

The plan includes only three environmentally sensitive areas located in the vicinity of Wattle Ridge Road and the 500m shooting range car park. (circled above)

It is of note that a previously mapped SFAZ located to the southeast of the Complex adjacent the HV power line easement and fire trail is no longer mapped as a SFAZ by the NPWLS.

The classifications of the Complex buildings and structures under the Building Code of Australia – 2016 relate to non-habitable structures. That is, the 800m Club house and the 500m Office can be considered Class 5 buildings as the primary use is for scoring and administration whilst all other structures including the storage shipping containers, sheds and shooting awnings can be considered as Class 10a non-habitable structures.

The protection of fixed Complex assets, local landscaping including Asset Protection Zones are noted in this plan.

Any new buildings and structures are to comply with the bushfire assessment process contained within the NSW Rural Fire Services document *“Planning for Bushfire Protection – 2006”*, with constructional requirements being determined through Australian Standard AS3959 – 2009 *“Construction in bushfire prone areas”*.

Existing buildings and structures within the Complex are subject to on-going maintenance with the regular treatment of determined bushfire Asset Protection Zones and other nominated areas all to reduce the potential for bushfire impact onto buildings or structures. The construction of Asset Protection Zones and their on-going maintenance is determined by NSW Rural Fire Services document *“Standards for Asset Protections Zones”*.

Local staff readiness and response to emergency incidents is integral to life safety and initial asset protection. A Complex specific Bushfire Emergency Management Plan is noted as a separate document to this plan.

### **1.2.3 Aboriginal and Historic Cultural Heritage**

The Southern Highlands Regional Shooting Complex is within the traditional lands of the Gandangarra and Wodi Wodi peoples (Navin Officer Report 2007). The Navin Officer report of 2007 also noted that only one ‘artefact find’ was made on the Complex being at “Hill One” located adjacent the entry to the 50m and 500m ranges off Wattle Ridge Road. (Image 8 following)

There are no other identified aboriginal sites or artefacts within the Southern Highlands Regional Shooting Complex. However, prior to any proposed hazard reductions by fire or

mechanical means, the Office of Sport will liaise with the National Parks and Wildlife Service to ensure a check is made of the proposed treatment area.

While formal land titles relating to the Complex were allocated by 1898, the Complex was largely undeveloped and no listed Heritage items are identified. (GHD 2010)



Image 9 – Extract from Navin Officer Report; page 10 (GHD) of 2007.  
Red dot arrowed indicates only find being located beside main entry to 50m and 500m

#### 1.2.4 Threatened Flora

The 2010 BMP prepared by GHD indicated that no threatened flora was located on the Complex now and it was unlikely to occur. Further no vegetation communities recorded in their study area was considered to qualify as an endangered ecological community as listed in either the Threatened Species Conservation Act of 1995 (TSC Act) or the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act).

#### 1.2.5 Threatened Fauna

Potential habitat for a variety of fauna is present within the Complex due to the extensive areas of intact vegetation and presence of mature, hollow-bearing trees. Small areas of rocky

sandstone platform and larger drop-offs provide crevices, overhangs, cracks and rocks suitable as sheltering and foraging for a range of fauna including reptiles and mammals. Gully areas are likely to provide important habitat for arboreal mammals, bats and birds.

Bushfires in 2001/2002 and 2013/14 (NSW RFS 2017) resulted in many burnt out and newly formed stags and hollows. Many trees also possessed naturally developed hollows. These hollows may provide denning and nesting habitat for a range of fauna.

#### **1.2.6 Threatened fauna and flora management**

Vegetation of the Southern Highlands Regional Shooting Complex contains healthy, mature trees forming a canopy with an open dry sclerophyll forest or open woodland structure in the relatively accessible areas. The Complex contains quantities of hollow bearing trees and stags, a healthy and diverse small tree stratum and moderate recruitment of juveniles and seedlings. Based on these habitat attributes native vegetation at the Complex would be expected to support a diversity of native fauna including threatened species.

The National Parks and Wildlife Service will be called upon to conduct appropriate assessments and provide data for review in the preparation of any large scale pre-burn planning.

### **1.3 Bushfire Management Zones**

The whole of the Complex and the regions surrounding the Complex have been determined to be bushfire prone in accordance with Wingecarribee Shire Council's, Bushfire Prone Lands Map and the National Parks and Wildlife Service's 2016 Fire Management Strategy for the Thirlmere Lakes National Park and Nattai Reserve Regions.

Typically for very large land areas certain management zones are provided to reduce potential impact to built-up / habitable areas. These zones are usually known as Land Management Zones, Strategic Fire Advantage Zones and Asset Protection Zones.

- Land Management Zone (LMZ): An area in which the fire regime is managed to meet general land management objectives and vegetation fire intervals.
- Strategic Fire Advantage Zone (SFAZ): A fuel reduced area to support the protection of assets (either alone or to compliment more intensely managed APZs), to limit fire spread and spot fire development (through placement in areas of high ignition potential or across known fire paths), or enable the safe use of parallel or indirect suppression strategies;
- Asset Protection Zone (APZ): An area between an asset and a bushfire hazard where bushfire fuel has been reduced significantly to protect an asset that is vulnerable to bushfire,

and also to provide a space for firefighters to safely defend the asset using various suppression strategies;

The previous GHD BMP (2010-2015) noted that the Complex was both an LMZ and had three (3) SFAZ's in specific locations. These were adjacent to the 50m and 500m ranges, part of the 800m range and a section of land to the south bounded by the power line trail and the electricity easement.

The NP&WLS Fire Management Strategy of 2017 has not included any part of the Complex as being an LMZ or SFAZ as the land could be considered as being privately managed.

The 2017, NSW Rural Fire Services, "Bushfire Risk Management Plan" prepared for the Wollondilly / Wingecarribee Councils again has not noted any LMZ or SFAZ within the Complex. The Plan does however indicate a large APZ over the 50m and 500m ranges. The 800m has not been included. Of note is the fact that the Plan determines the bushfire risk as being "*Very High*" only.

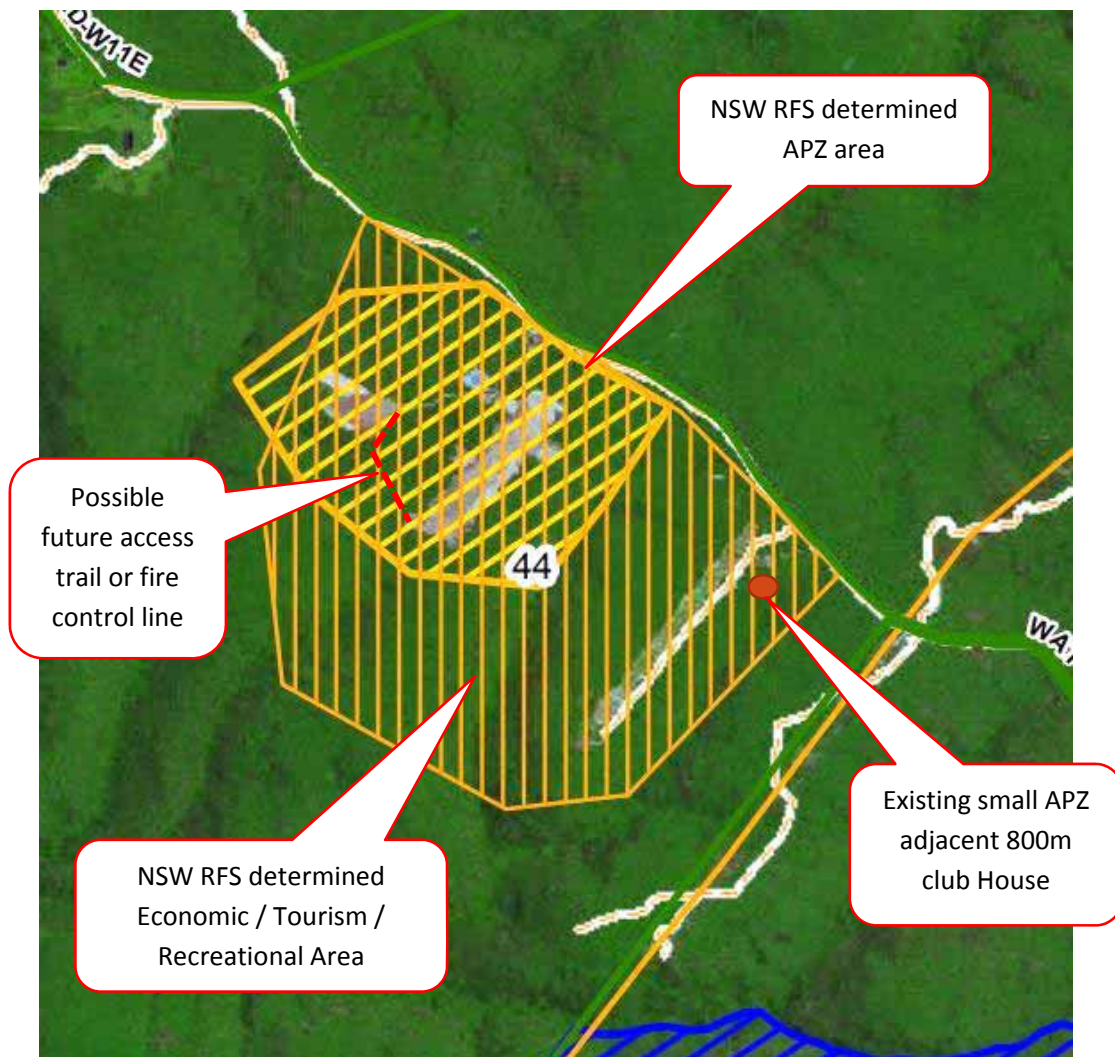


Image 10 - Extract from Wollondilly / Wingecarribee Council's BMP noting an extensive "APZ" around the 50m and 500m ranges

The Complex at present has one dedicated Asset Protection Zone to the south of the 800m Club House. APZ's will be provided in conjunction with the 50m and 500m ranges in the future. The size and scope of the proposed APZ's are yet to be determined.

Other than local small area APZ's designed to protect specific assets, close cooperation with the National Parks and Wildlife Service and the NSW Rural Fire Service will be required to plan future Complex vegetation management programs. These programs or treatments may vary in area and type of treatment however in general vegetation management by prescribed burning would be the preferred method based on past bushfire and hazard reduction history, fire threshold data and economics.

Treatments may also be the subject of site-specific ecological constraints, heritage, cultural or aesthetic considerations. Present ecological data does not suggest any major restrictions.

The protection of specific assets will generally take precedence over specific environmental considerations and require burning or mechanical programs at lesser intervals than specified in fire threshold data. These areas will generally be known as APZ's or in some cases "defendable spaces". A defendable space is limited to a 10m deep band around an asset.

#### **1.4 Firefighting Water Supplies**

There is no reticulated water supply available. Limited local water supplies only are available at the Complex consisting of:

- There is no dedicated fire services water tank at the 800m Club House for firefighting re-filling use.
- A dedicated 20,000 ltr water tank at the 500m car park area for firefighting re-filling use complete with a gravity feed pillar hydrant filling point; and
- A dedicated 20,000 ltr water tank at the 50m car park area range for firefighting re-filling use complete with a gravity feed pillar hydrant filling point.

In times of drought the fire service tanks are to be re-filled by bulk water supply road tankers.

#### **1.5 Fire Fighting Equipment**

There is no formal firefighting response equipment retained on Complex. For future planning, the provision of a utility type vehicle complete with a water tank, pump and hose would be recommended for the extinguishment of small spot fires particularly to ensure existing access roads and trails used for evacuation purposes remain relatively free of direct impact.

#### **1.6 Access**

##### **1.6.1 Roads and Trails**

Wattle Ridge Road has been classified by the NSW Rural Fire Service as a 'Category 1, Essential' access road and whilst earthen, it remains well maintained by Wingecarribee Council.

Limited internal earthen roads, fire trails and access ways provide a means of access for fire crews to carry out bushfire suppression or prescribed burning operations. They also serve as an effective control line for prescribed burning and back burning.

The NSW Bushfire Coordinating Committee (BFMC) under their Policy No. 2/2007, amended in May 2015, sets out the requirements for fire trails as required under the NSW Rural Fires Act of

1997. This policy speaks to the construction, maintenance and identification of access ways and fire trails. Three classifications exist within the policy, “Essential”, “Important” and “Dormant”.

Essential: A fire trail without which fire response and suppression in an area would be severely compromised.

Important: A fire trail that is required for fire management.

Dormant: A track or trail which was used in the past but there is no need for it to be constantly maintained.

The policy also nominates fire trail categories based on fire appliance size and weight.

Category 1: A fire trail which can be traversed by a Category 1 firefighting appliance.

Category 2: A fire trail which can be traversed by a Category 7 firefighting appliance.

Category 3: A fire trail which can be traversed by a Category 9 firefighting appliance.

Therefore an ‘Essential’ fire trail may be sub listed to carry either a Category 1, 7 or 9 firefighting appliance. All fire trails must also be registered by the BFMC and they will do so in consultation with all land owners.

The NSW Rural Fire Service has released a new document titled “Fire Trail Standards” in August 2017. This document sets out the standards for the design and construction requirements for identified fire trails in NSW.

None of the Complex’s access trails have been formally categorised by the NSW Rural Fire Service. The Office of Sport should liaise with the NSW Rural Fire Service for them to provide a Category of road or trail within the Complex in order to allow prescribed management under the NSW Rural Fire Services “Fire Trail Standard”.

The existing 50m and 500m ranges within NSW RFS determined APZ areas could be linked with a new fire or access trail from the southern end of the 50m range through to the southwest corner of the 500m range. (Refer to Image 9 page 28) This ‘link’ type access trail could well form a boundary for not only hazard reductions but also for direct firefighting operations.

All fire trails and access roads should be maintained by the Office of Sport for the benefit of Complex operations and attending fire services.

Where future development of the shot gun range occurs it would be considered critical that an access road be provided to link both the 500m range to the 800m range via the shotgun range. The road will allow emergency access for staff and visitors between ranges without the need to use Wattle Ridge Road.



### **1.6.2 SHRSC Access Points**

The location of the SHRSC's access points and vehicle gates are off Wattle Ridge Road and are noted in this Plan in Appendix B. External fire access to the Complex is restricted to authorised users only and could also be along the HV Electricity easement or the 'Power Line' trail either off Wattle Ridge Road or the "Power Line Fire Trail" off Rocky Waterholes Road.

Access keys has been provided for the NSW Rural Fire Service for all gates. Gate locations are provided in Image 12, Appendix B.

## 2. Bushfire Mitigation Works

### 2.1 Aim

The aim of the bushfire mitigation work program is to primarily reduce possible bushfire impact onto fixed assets and access/evacuation routes within the determined APZ's (Image 9, p28). Broad area mitigation for the balance of the Complex's land area must be considered by the Office of Sport in conjunction with the Wollondilly / Wingecarribee BFRMP administered by the National Parks and Wildlife Service and NSW Rural Fire Service for possible ecological constraints or other reasons.

### 2.2 Mitigation Activities

Mitigation is achieved by any or a combination of the following:

Fire trails and access ways – to ensure all fire trails and access ways are well maintained to required design levels. Fire trails and access ways are critical for fire service access and emergency internal access for occupants. Fire trails and access ways can also be used as fire control lines and fire breaks.

Whilst not categorised in terms of the NSW Rural Fire Service at this time, all internal roads, fire trails and access ways should be maintained to accord with the NSW Rural Fire Services documents, "*Planning for Bushfire Protection – 2006*" and "*Fire Trail Standards - 2017*".

It would be expected that all main access roads within the complex would be considered as *Category 1 / Essential* if assessed by the NSW Rural Fire Service.

Hazard Modification – Altering the structure of vegetation over selected areas of the Complex such that the spread of bushfire and / or fire behaviour can be reduced to lessen possible impact onto fixed assets and evacuation routes.

Traditionally, prescribed burning operations are undertaken during autumn, winter or early spring to limit the impact of summer fires and to permit safer execution and delivery of burning operations. Where ambient conditions permit and the protective risk is high, prescribed burning could take place at any time of year.

Opportunities to include adjoining properties in cooperative prescribed burning operations should be pursued where possible. As well as being potentially more cost effective it also permits the use of more suitable control lines or targeting of areas where treatment is more effective outside the property (e.g. areas of high ignition potential or likely rapid fire spread).

Asset Vulnerability Reduction – Upgrading or constructing assets which are compliant with current bushfire construction guidelines rendering them less likely to serious damage from bushfire.

Building maintenance work may be carried out anytime as part of the Southern Highlands Regional Shooting Complex's maintenance works program. Works should include inspection of external wall cladding, roofing and guttering, external vent/opening covers, window and door metal mesh screening to assure accordance with AS3959 – 2009 *“Construction of buildings in bushfire prone areas”*.

External to buildings, combustible materials and fire hazards within designated APZ's areas would be relocated or removed in accordance with the NSW Rural Fire Services document *“Standards for Asset Protection Zones”*.

Ignition Management – Managing operations where the risk of generating sparks is reduced, examples being work involving the use of open flame or grinding equipment, slashing work, road grading work or smoking (other than in designated areas) is essential.

Managing ignition risk will include the issuing of Hot Works Permits by the SHRSC Manager as necessary. Hot work should be cancelled on days of severe or above fire danger unless critical to infrastructure and only after consultation with the NSW Rural Fire Service has occurred.

The Bushfire Mitigation Works Schedule (Cl 2.3) has been prepared to coincide with the life of the Bushfire Management Plan. It details the mitigation works that need to be undertaken before and during the early parts of the bushfire season. The Plan can be modified at any time after bushfire impact or where other matters relating to vegetation removal or modification occur.

### 2.3 Bushfire Mitigation Works Schedule

The following table sets out typical mitigation work which can be applied prior to the commencement of the normal bushfire danger period, typically being the 1<sup>st</sup> October each year. The Commissioner of the NSW Rural Fire Service can vary the commencement and concluding dates of the bushfire danger period where regional conditions dictate.

Priority	Mitigation Measure	Responsible Person	Treatment Period
1	<p><b>Fire trails and access ways</b></p> <p>Ensure compliance with NSW Rural Fire Service document "Fire Trail Standards" 2017 and BFCC Fire Trail Policy No 2/2007</p>	SHRSC Manager	<p>Annually:</p> <p>Winter, or after extensive vehicular use or following extensive heavy rains</p>
2	<p><b>Asset Protection Zone/s</b></p> <p>Ensure compliance with NSW Rural Fire Services documents; "Planning for Bushfire Protection – 2006" and "Standards for Asset Protection Zones"</p>	SHRSC Manager	<p>Annually:</p> <p>Autumn / Spring</p>
3	<p><b>Built assets</b></p> <p>compliance with "AS3959 Construction of buildings in bushfire prone areas"</p>	SHRSC Manager	<p>Annually:</p> <p>Autumn / Spring</p>
4	<p><b>Fire service water tanks</b></p> <p>Ensure full tanks, all fire service connections are operational, conduct necessary repairs to tanks or roof gutters / down pipes</p>	SHRSC Manager	<p>Bi-monthly</p> <p>Regular assessment</p>
5	<p><b>Fire hydrants</b></p> <p>Ensure gravity operation and compliance with "Planning for Bushfire</p>	SHRSC Manager	<p>Annually:</p>

	Protection - 2006		
Priority	Mitigation Measure	Responsible Person	Treatment Period
6	<p><b>SHRSC fire fighting vehicle</b> (where provided)</p> <p>Ensure readiness vehicle and all firefighting equipment</p>	SHRSC Manager	Weekly
7	<p><b>SHRSC communications system</b> (where provided)</p> <p>Ensure system readiness</p>	SHRSC Manager	Weekly
8	<p><b>SFAZ/s</b> (where determined)</p> <p>Confirm location and prescribed burn arrangements in accordance with NP&amp;WL regional environmental planning and the local BFRMP</p>	SHRSC Manager & NP&WL / NSW Rural Fire Service	Annually
9	<p><b>Land Management Zone/s</b> (where determined)</p> <p>Confirm location and prescribed burn arrangements in accordance with NP&amp;WL regional environmental planning and the local BFRMP</p>	SHRSC Manager & NP&WL / NSW Rural Fire Service	Annually

Table 2.1 – Typical Bushfire mitigation measures and treatment periods

A more detailed plan is located in the Bushfire Mitigation Action Plan, Appendix G.

## 3. Bushfire Awareness Program (BAP)

### 3.1 Objectives

The objective of the Bushfire Awareness Program (BAP) is to communicate information about bushfire and associated management activities to staff, contractor's and clients or other users of the Complex. This information can include:

- Awareness of the bushfire risk associated with the Complex;
- Key messages about the management of bushfire within the Complex;
- Advice of upcoming fuel reduction burns within or around the Complex;
- Knowledge of what to do in a bushfire emergency – application of the “Bushfire Emergency Management Plan” (BEMP).
- Confirmation of a Point of Contact within the Office of Sport.

### 3.2 External Points of Contact

The Wingecarribee District Office of the NSW Rural Fire Service is the nominated *Point of Contact* for general bushfire management enquiries, awareness programs and bushfire information. (Emergency calls are to be placed through the '000' network)

The Office of Sport will delegate a person who will be responsible for ensuring the following:

- Attending Bush Fire Management Consultative Meetings including providing feedback to external agencies about any SHRSC bushfire management related issues;
- Responding to internal and external enquiries about bushfire management related issues;
- Confirming that there is a process to notify neighbours of future bushfire management activities that may affect them (e.g. confirming that the agency undertaking prescribed burning has notified neighbours);
- Implementation of a Bushfire Awareness Program (BAP) for all staff, contractors and Complex users;
- The implementation of the Bushfire Mitigation Works Program (BMWP)
- Provide assistance to responding firefighting resources to the Complex as necessary.

The National Parks and Wildlife Service are also a key contact point particularly for the assessment, development and implantation of prescribed burning plans over the both the region and Complex.

### 3.3 Generic Bushfire Awareness Program

A generic Bushfire Awareness Program Framework is provided below. This framework can be modified at any time by the SHRSC Manager particularly following a bushfire incident or major hazard reduction.

Target audience	Message	Approach	Timing /Action
Staff, visitors, contractors and other users	Bushfire Response Procedures	Discussion and display of Bushfire Management Plan; and the Bushfire Emergency Management Plan	Prior to the bushfire season commencing
Staff, visitors, contractors or other users undertaking activities which may have the potential to generate ignitions	Current fire danger ratings,  Activity restrictions,  Fire prevention measures,  Bushfire EMP	Advice to all parties from SHRSC Manager.  Limit areas, hot work permits issued where necessary.  Provide portable extinguishers, maintain fire watch or consider other available active measures  Provide awareness of operation	Prior to activity commencing  Revise or cancel H/W permits or activity  Prior to, during and following activity commencing  At all times
SHRSC Staff	Bushfire awareness, response procedures	Appropriate training, Review of response procedures	Annual awareness program prior to bushfire season
Contractors	Awareness of bushfire danger	Provide Complex induction procedure including BEMP, ensure contactable at all times, have own active fire safety measures	Prior to any work commencing
NSW RFS, NP&WL	SHRSC Bushfire management program/s	Discuss regional and local plans and what will effect be to SHRSC	Provide cooperative arrangements as necessary

Table 3.3 – Generic bushfire awareness framework

## 4. Bushfire Response Strategy

The following sub-sections set out the readiness and response procedures for the Southern Highlands Regional Shooting Complex. Several key bushfire principles for bushfire response should be reinforced:

- The main priority is to maintain the safety of visitors, contractors, staff and fire fighters;
- Where possible and if considered safe to do so, extinguish local (close to asset) bushfires or prepare to evacuate.
- Review previously prepared local mitigation strategies including prescribed burning conducted outside the Complex from time to time as this may assist in reducing bushfire spread to the Complex and therefore possible relocation of staff and clients.
- Cooperate with NSW Rural Fire Service and the National Parks and Wildlife Service and where necessary adjoining land owners to assist in controlling, suppressing or reducing bushfire impact into or from the Complex.

### 4.1 Readiness

Fire Danger Ratings issued by the Bureau of Meteorology in conjunction with the NSW Rural Fire Service provide a decision making mechanism to restrict certain activities and increase bushfire preparedness levels within the SHRSC.

The generic bushfire readiness levels in Table 4-1 apply to the Complex. The readiness levels and triggers are a key determinant for actions to be undertaken by the SHRSC Manager for the response to and control of bushfire incidents.

Where staff, visitor or contractor activities occur within areas of hazardous or unmanaged vegetation, maintaining awareness of the FDR level is critical in preventing accidental ignitions.

All staff, visitors and contractors operating in the Complex must confirm with the SHRSC Manager, the FDR prior to conducting their planned activity. Grasses along the ranges are particularly prone to ignition once > 60% cured.

A standard Fire Danger Rating sign is located on the corner of Wattle Ridge Road and Coates Road, Hill Top. It would be advantageous to provide a 'sliding arrow' type sign at the entry to the Complex.



FIRE DANGER RATING	WHAT SHOULD BE UNDERTAKEN DURING BUSHFIRE PERIOD
<b>CATASTROPHIC</b>	<p><b>All ranges are to be closed.</b></p> <p>No staff or other persons allowed within Complex.</p>
<b>EXTREME</b>	<p><b>All ranges must be closed;</b></p> <p>Limited essential staff can remain within the Complex. They must monitor NSWRFs bushfire fire warnings and local media releases and keep a 'fire watch' over the complex.</p> <p>Activities which may generate ignition (slashing / welding) cannot be undertaken.</p>
<b>SEVERE</b>	<p><b>All ranges must be closed;</b></p> <p>Limited essential staff can remain at the Complex. They must monitor NSWRFs bushfire fire warnings and local media releases and keep a 'fire watch'.</p> <p>Activities which may generate ignition (slashing / welding) cannot be undertaken.</p>
<b>VERY HIGH</b>	<p>Activities which may generate ignition (slashing / welding) cannot be undertaken unless proper active fire safety precautions including Hot Work permits are undertaken.</p> <p>Non-essential access into bushland should be limited.</p> <p>SHRSC Manager must be ready to evacuate Complex if required by NSW RFS or NSW Police.</p> <p>All Complex uses must be advised at a briefing to be ready to evacuate if necessary.</p> <p>Monitor NSWRFs bushfire fire warnings and local media releases.</p> <p>SHRSC Manager to ensure briefing are held for all Staff and visitors.</p> <p>SHRSC Manager must maintain contact / communications with all ranges.</p>
<b>HIGH</b>	<p>Review Bushfire Evacuation Plan as necessary.</p> <p>SHRSC Manager to ensure bushfire briefing of all visitors is held.</p> <p>Monitor NSW RFS bushfire fire warnings and local media releases.</p>
<b>LOW MODERATE</b>	<p>No specific restrictions in place.</p>

Table 4.1 Generic bushfire readiness table based on Fire Danger Rating levels.

Total Fire Bans:

THE NSW Rural Fire Service can declare days of Total Fire Ban in the evening of the preceding day of declaration. Total Fire Bans are precautionary being based on predicted hot, dry and windy conditions usually on FDR days of Very High and above. Total Fire Bans reflect the possibility of extreme bushfire behaviour. Bushfires may not be burning at the time and may not necessarily occur. A Total Fire Ban declaration requires the following:

- The SHRSC Manager is to liaise with the NSW Rural Fire Service, District Office as to what commercial operations are planned for the day and seek a recommendation as to the necessity to close the Complex.
- The SHRSC Manager is to cancel any Hot Works Permits and any work involving spark or flame generating equipment including open camp fires.

Readiness for possible bushfire impact will also include but is not limited to:

Emergency Advice:

Advise all operational ranges of possible bushfire impact.

Complex wide communications is critical in disseminating emergency instructions to Staff and all occupants during a bushfire incident. Where communications systems are installed, for example; loud speakers or electronic notice boards, or a warning siren, these systems need to be tested and maintained regularly. The systems can be multi-use that is, used in the day to day operations of the Complex as well as for emergency announcements or warnings.

Fire Fighting Water:

Ensure all fire service water supplies are full and accessible to attending fire service vehicles.

Transport:

Ensuring adequate transport is available for evacuation purposes. This will include SHRSC and private vehicles.

BEMP:

Have the Bushfire Emergency Management Plan readily available.

Advice to the Office of Sport:

The SHRSC Manager shall advise the Office of Sport of any bushfire occurrence as soon as possible.

#### 4.1.1 Bushfire Alert Levels

The NSW Rural Fire Service provides bushfire alert levels in regard to bushfires already burning in areas. The alert levels relate to possible bushfire impact and the actions to be undertaken by persons in the general area. These levels should be monitored at all times.




IDENTIFICATION SYMBOL	ADVICE
	<p style="text-align: center;"><b>ADVICE</b></p> <p>A fire has started. There is no immediate danger. Monitor situation regularly.</p>
	<p style="text-align: center;"><b>WATCH AND ACT</b></p> <p>There is a heightened level of threat. Conditions are changing. Commence to activate the BEMP. Monitor situation.</p>
	<p style="text-align: center;"><b>EMERGENCY WARNING</b></p> <p>An emergency warning is the highest level of bushfire alert. Action needs to be taken immediately. Follow BEMP and any advice from emergency services</p>

Table 4.1.1 NSW RFS Bushfire Alert Levels

Some areas in NSW may receive warning messages broadcast over radio or television, such as a siren tone, or specific areas may receive mobile telephone text messages of recorded phone calls. (It is not clear if mobile texts or messages are available around the Hill Top region)

The NSW Rural Fire Service provides a Web page for general information including current bushfire locations and emergency warning information. The Complex Manager should ensure access to and the monitoring of the web page is undertaken regularly during periods of *Very High to Catastrophic* bush fire danger. <https://www.rfs.gov.au/fire-information/fdr-and-tobans>

Alternatively, the RFS Social Media Facebook page or RFS Twitter account can be accessed.

## **4.2 Command and Control**

All bushfire incidents located within the Complex will be the responsibility of the SHRSC Manager until such time as the first attending fire service arrives on scene. The SHRSC Manager shall hand over incident control to the fire service and then follow their instructions.

The attending fire service's officer-in-charge shall report to their superiors and where necessary suppression operations may be escalated, including the fire services Command and Control structure.

Notwithstanding, the SHRSC Manager shall follow the directions and advice given by the Officer in Charge of the incident.

## **4.3 Fire Fighting Restrictions**

### **4.3.1 800m Range - Unexploded ordnance (UXO)**

The historic use of explosive munitions and projectiles on the 800m range can lead to the possibility of locating unexploded ordnance (UXO) within the vicinity. The potential for locating UXO varies across the 800 m range and due to the consequences of an UXO explosion mitigation measures must be applied to reduce the risk to fire fighters. The following actions and firefighting restrictions are designed to reduce the risk to fire fighters on, or adjacent to the 800 m range:

- Fire crews must be mindful that UXO may be encountered in any portion of the 800 m range;
- Where found, stay clear, the location must be accurately logged and reported to both the fire service incident controller and the SHRSC Manager.
- Wherever feasible, firefighting is to be restricted to in-direct attack and 'back-burning' from maintained fire trails, access roads or walking tracks; and
- Earthmoving equipment for the construction of fire breaks should only be used at least 20m clear of the UXO or along the managed fire trails to remove surface fuels.

Communication of these restrictions through briefings and awareness programs is critical.

### **4.3.2 Limited vehicular access**

The Complex has limited vehicular access. Other than bushfires burning in the north eastern or southern portions of the Complex where fire trail access is available no other vehicular access is available for firefighting purposes.

#### 4.3.3 Limited water supplies

The Complex has limited firefighting water supplies. During times of drought the SHRSC Manager must maintain water levels possibly arranging bulk water deliveries as necessary.

#### 4.3.4 Limited staff and equipment

The Complex has limited staff and equipment available to deal with a bushfire incident even in its incipient stages. The SHRSC Manager shall firstly advise of the incident via the "000" network then advise the NSW Rural Fire Service's Wingecarribee District Office of the incident and provide more detailed information and requesting assistance.

### **4.4 Bushfire Detection and Reporting**

The SHRSC Complex is very large in area and the detection of bushfire could be difficult in remote locations until the fire has reached significant proportions so as to be visible (smoke plume) to surrounding rural residents, Complex staff and visitors or overflying aircraft.

All fire ignitions must be reported immediately via the '000' emergency call number following which a call to the Wingecarribee District Office of the NSW Rural Fire Service should be undertaken.

Whilst bushfires of any proportion may occur well away from the Complex, all bushfire occurrences must be reported in detail with a record being kept for future reference.

The fire report template example provided in Appendix D can be used to prepare an initial fire report, a copy of which could be provided to the NSW RFS if requested.

Should a bushfire be detected within the Complex the Office of Sport should be notified as soon as possible.

## 5. Bushfire Recovery Requirements

Implementation of effective and timely recovery actions following bushfire incidents or prescribed burning operations is essential to address human aspects, provide opportunities for debriefing and lessons learnt, to ensure that the Complex capability and infrastructure are maintained, and to minimise environmental impact where possible.

### 5.1 Human Aspects

#### Local Community

Where bushfires are large enough to affect the local community, the *NSW State Emergency and Rescue Act 1989* and the *NSW State Disaster Plan* provide for community recovery and are likely to be coordinated by the Local or District Emergency Management Committees. The SHRSC Manager should endeavour to liaise with Wingecarribee Councils, Local Emergency Management Officer (LEMO) to ascertain what assistance the Complex could provide if any.

#### Southern Highlands Regional Shooting Complex

Given the large land mass area of the Complex, the likelihood of bushfire impact in some form is considered as high. It is possible that impacts may be more likely to occur from the south west of the shooting ranges where initial suppression operations may not be possible due to very poor accessibility. The SHRSC Manager will be expected to liaise with National Parks and Wildlife Service to determine the most appropriate methods of asset and bushland recovery.

Damage to fixed assets may hinder range operations. The SHRSC Manager or the Office of Sport is to arrange an assessment of the all fixed assets subject to bushfire impact.

### 5.2 Bushfire debriefings

Debriefings provide an important forum to discuss and review the effectiveness of firefighting operations and management and the need for changes. Debriefings can take place at many different levels, from informal discussions with the fire service officer that undertook the role of Incident Controller (small fires without asset damage) to more multi-agency investigations (large multi-tenure fires with life and property damage or loss). The appointed Incident Controller (IC) should determine the scale of the debriefings required. The SHRSC Manager may be invited to attend debriefings.

Staff debriefings should be conducted as soon as possible at the conclusion of local firefighting operations, regardless of the scale of the event. The SHRSC Manager will be responsible for organising the debriefing and preparation of a subsequent report for the Office of Sport.

One of the main purposes of post-fire debriefs is to determine the effectiveness of the Bushfire Management Plan and the Bushfire Mitigation Action Plan (BMAP) so that they can be reviewed and modified as and where necessary.

The key factors to be investigated are outlined in Table 5.1 below.

Factor	Example of Debriefing Issues	Potential directions for amendments to BMP
Prevention	Asset protection zone arrangements; Ignition sources (Type)	Effectiveness and maintenance of APZ's. Additional procedures/standing orders to minimise ignition potential.
Preparedness	Bushfire detection; Damage to Complex assets; BMAP schedule - was it sufficient? Effectiveness of hazard reduction operations.	Procedures for better notification. Installation of additional protective measures. Review and update BMAP. Review and update BMAP. Liaise with NSWRFs and NP&WLS.
Response	Initial response, timing. Local command and control arrangements, Vehicle access or communications issues. Inter-agency cooperation. Safety of staff, visitors, fire fighters.	Review preparedness and response procedure. Review and document command and control arrangements and resourcing. Address access or communications Issues. Review process if necessary. Investigate safety near miss / accidents.
Recovery	Critical incident stress management. Asset re-building. Access roads & fire trails. Vegetation rehabilitation. Incident reporting requirements.	Review operating procedure if required. Ensure current building / structure compliance. Review locations & operational needs. Review and formalise rehabilitation processes with NP&WLS. Review reporting processes.

### 5.3 Adjacent Infrastructure

#### 330Kv Transmission Lines

The Southern Highlands Regional Shooting Complex has to its southeast a major 330kV high voltage transmission line running along its boundary. The vegetation below the line is regularly maintained to shrub height for a width of approximately 60m being the easement width. Vegetation in the creek systems under the power lines remains native and untouched.

In the main, access for service and maintenance is provided by access trails positioned within the easement. Entry points are off Wattle Ridge Road and the "Power Line Trail" system off Rocky Water Holes Road, Hill Top.

A section of the "Power Line Trail" extends into the SHRSC land in the south east corner to allow service vehicles to access isolated sections of the electricity easement above Iron Creek. Access into SHRSC land is restricted by a locked gate.

The fire trail within the Complex should be managed and maintained having regard to the NSW Rural Fire Services document "Fire Trail Standards". The supply authority and National Parks and Wildlife Service may provide advice and or assistance.

The electricity easement is a critical aspect of bushfire mitigation for the Complex's southeast boundary. The easement is regularly slashed however this is reliant upon fire trail access.

#### Wattle Ridge Road

Wattle Ridge Road maintenance is the responsibility of Wingecarribee Shire Council. All recovery maintenance should be undertaken by them. The road is a critical infrastructure access road for the Complex and also provides a fire break along the Complex's northern boundary.

#### Fence lines

Fence lines bound the Complex along the southern, northern and part of the north-western boundaries. The fence material consists of steel star pickets and fencing wire. Illegal access can and has occurred in the past around gates. The provision of concrete blocks extending some distance past access gates may be of benefit to prevent illegal vehicle entry.



#### **5.4 Animal Welfare**

Fire may have an impact on animals through injury and loss of habitat. The Department of Environment and Heritage, National Parks and Wildlife, Wildlife Rescue Carers, and the RSPCA may be able to treat animals found to be affected by fire.

Relevant contact details are:

NSW National Parks and Wildlife Service (Picton): (02) 4677 0859

Department of Primary Industries (Animal Welfare Branch) (stock): (02) 6391 3149

WIRES (New South Wales): 13000WIRES or 1300 094 737.

RSPCA (emergencies only): (02) 9770 7556

Personnel from wildlife carer organisations should not be permitted onto the fire ground to rescue injured wildlife until it is safe to do so. The NSW Rural Fire Service's Incident Controller must give their approval in the first instance.

#### **5.5 Environmental Rehabilitation**

There can be significant environmental impacts following a bushfire fire. These include soil erosion, reduced water quality, poor recruitment of native vegetation, impacts on threatened species and cultural heritage sites and the spread of weeds, pests and pathogens. Short-term assessment and emergency works for stabilisation or rehabilitation should be instituted immediately following fire suppression operations to better protect water quality and catchment values, and to prevent degradation of natural or cultural assets.

It is acknowledged that close liaison with National Parks and Wildlife Service will be required following a major bushfire incident to identify seriously impacted areas and where necessary formulate a more detailed recovery plan.

The initial priority would be the re-instatement of existing, damaged fire and access trails.

## 6. Responsibilities, Monitoring and Reporting

### 6.1 Bushfire Responsibilities

It is the responsibility of the Southern Highlands Regional Shooting Complex Manager to action this Plan as necessary and arrange its review following a bushfire incident or major hazard reduction or on a five (5) year cyclic basis.

### 6.2 Bushfire Hazard Monitoring

Other than the immediate areas around the Shooting Ranges and determined Asset Protection Zones, the monitoring of the bushland could be beyond the scope of the Office of Sport. Therefore close liaison with the NSW Rural Fire Service and the National Parks and Wildlife Service is to be undertaken on an annual basis (or at the discretion of the National Parks and Wildlife Service being the regional land managers) to monitor selected areas of the Complex.

Where *Strategic Fire Advantage Zones* are created in the future and given their typical distances away from built assets, close liaison with the National Parks and Wildlife Service is to be undertaken to ensure on-going monitoring to the benefit of the Complex.

Asset Protection Zones are typically close to a built asset. In this case the Office of Sport can manage these areas. All Asset Protection Zones must be compliant with the NSW Rural Fire Service's documents; "Planning for bushfire Protection-2006" to determine APZ depths and "Standards for Asset Protection Zones" for construction and maintenance.

### 6.3 Monitoring of Prescribed Burns (Hazard Reductions)

Monitoring prescribed burning operations is an important component of any fire management or fuel reduction burn program. Monitoring allows an assessment of the fuel reduction burn and to confirm or otherwise if the burn plans objectives have been met.

It may also allow SHRSC management in conjunction with the National Parks and Wildlife Service to:

- Assess the need for post fire rehabilitation / environmental recovery work to be carried out.

- Adjust future fuel reduction burning activities so as not to impact the ecology unnecessarily.

- Rapidly detect and control infestations of weeds and pests;

- Evaluate the impact of the imposed fire regime on conservation;

Monitor and 'fine tune' recovery programs (e.g. erosion controls, revegetation);

Establish and/or 'fine tune' fire regime requirements for the conservation of threatened species and biodiversity; and

Evaluate the impact and value of fuel reduction burns.

Actual monitoring would be carried out by the National Parks and Wildlife Service with data gathered being held by both the National Parks and Wildlife Service the SHRSC Manager.

#### **6.4 Monitoring following bushfire impact (wild fire)**

The recording of bushfire impact data is very important to not only better manage the environment but also to provide information for future hazard reduction programs. This data would usually be gathered by the National Parks and Wildlife Service.

The SHRSC Manager should liaise with National Parks and Wildlife Service and the NSW Rural Fire Service's Wingecarribee District Office in order to gather the data required to assist with future bushfire mitigation planning within the Complex.

Some basic data requirements will be:

- The location of the bushfire, GPS data where possible;
- The area of the bushfire, perimeter map to be produced;
- The typical vegetation type involved;
- Location of known ecological communities within the burnt area;
- Aerial images of burnt area, possible images of actual bushfire where possible;
- Images of burnt area depicting scorch heights;
- Location and images of possible soil erosion areas;
- Location and images of any Aboriginal sites /relics which may have been damaged;

Further examination of the burnt area may be required on a yearly basis (up to 10 years) where the bushfire was very intense.

## **6.5 Bushfire Reports**

Bushfire reports should be prepared for all planned and unplanned fires on the Complex. As the Incident Controller, NSW Rural Fire Service / National Parks and Wildlife Service are to prepare bushfire reports. These may be requested from the Fire Authority by the Southern Highlands Regional Shooting Complex Manager for recording and further Complex management purposes. (example report Appendix E)

## REFERENCES

- Building Code & Bushfire Hazard Solutions – (2016) Bushfire Emergency Management Plan
- GHD (Australia) - (2010) Communities NSW (Sport & Recreation) Southern Highlands  
Regional Shooting Venue; Bushfire  
Management Plan.
- National Parks and Wildlife Service – (2016) Thirlmere Lakes National Park and the Natti  
Reserves System – Fire Management Strategy.
- NSW Office of Sport – (2016) SHRSC Plans, Complex, Conservation Zones, Range Template.
- NSW Office of Sport – (2015/16) SHRSC Building Plans, Complex Plan,
- NSW Rural Fire Service - (2006) Planning for Bushfire Protection.
- NSW Rural Fire Service - (2006) Standards for Asset Protection Zones.
- NSW Rural Fire Service – (2006) Bushfire Environmental Assessment Code for NSW
- NSW Rural Fire Service - (2017) Fire Trail standards
- NSW Rural Fire Service - (2017) Draft Revision; Bushfire Environmental Assessment Code
- NSW Rural Fire Service - (2016) Bushfire Protection for Existing Development
- Nivin Officer Report – (2007) – Aboriginal Cultural Heritage Assessment (for GHD)
- Wingecarribee Shire Council – (2011) Bushfire Prone Land Map.
- Wollondilly / Wingecarribee Shire Council – (2017) Bushfire Risk Management Plan, Hill Top,  
Map 8.
- Wollondilly / Wingecarribee Shire Council – (2017) Bushfire Risk Management Plan,  
Vegetation Categories, Map 15.
- Wollondilly / Wingecarribee Shire Council – (2017) Bushfire Risk Management Plan, Time  
Since Fire, Map 16.
- Wollondilly / Wingecarribee Shire Council – (2017) Bushfire Risk Management Plan, Fire  
Frequency, Map 17.
- Wollondilly / Wingecarribee Shire Council – (2017) Bushfire Risk Management Plan, Fire  
Threshold , Map 18.
- Wingecarribee Shire Council – (2011) Bushfire Prone Lands Map.

## Appendix A

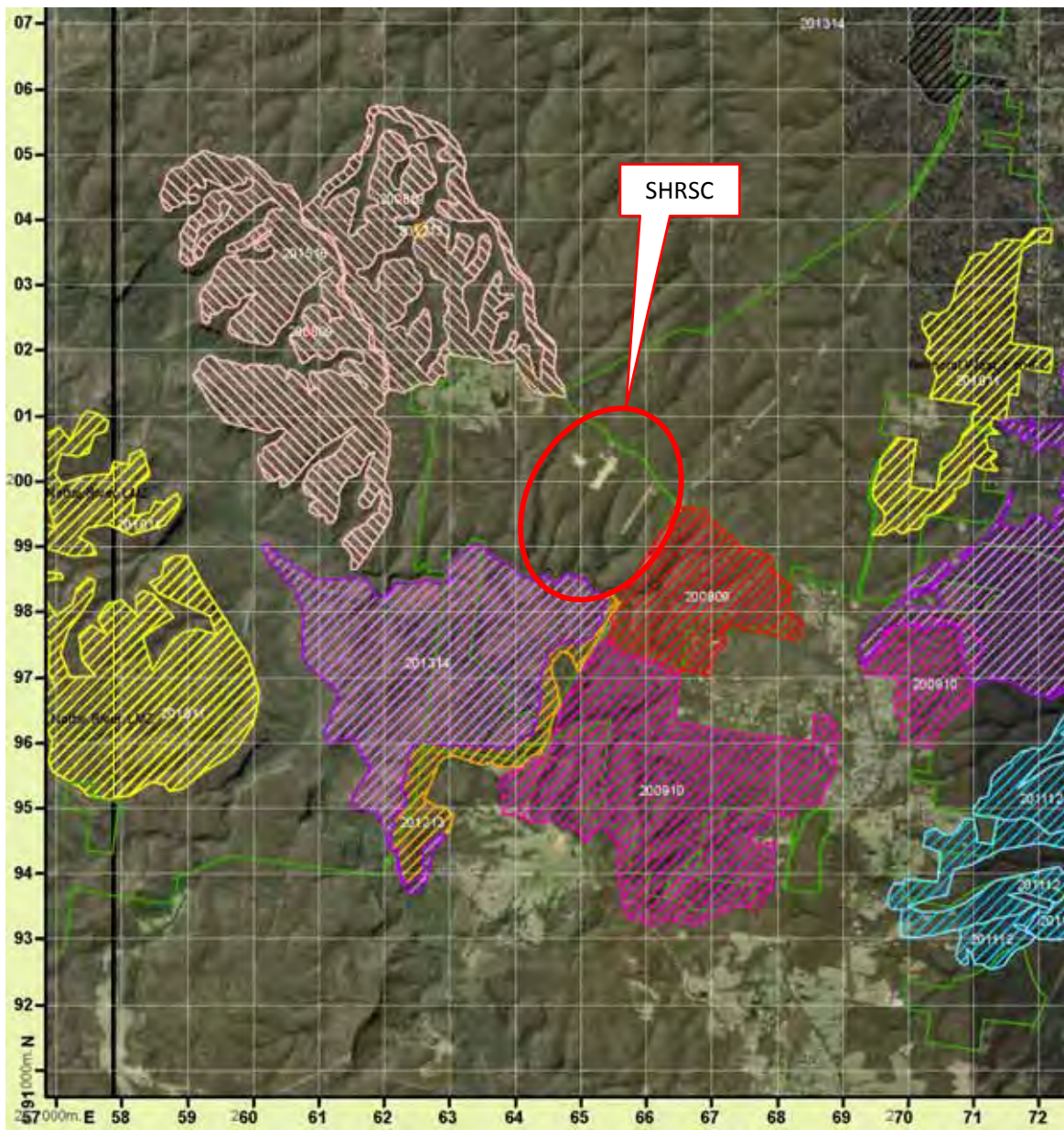


Image 11 - Past bushfire history for the region around the SHRSC  
(Acknowledgements to NP&WLS 2017)

## Appendix B

### SHRSC Bushfire Management Plan (A1 base)

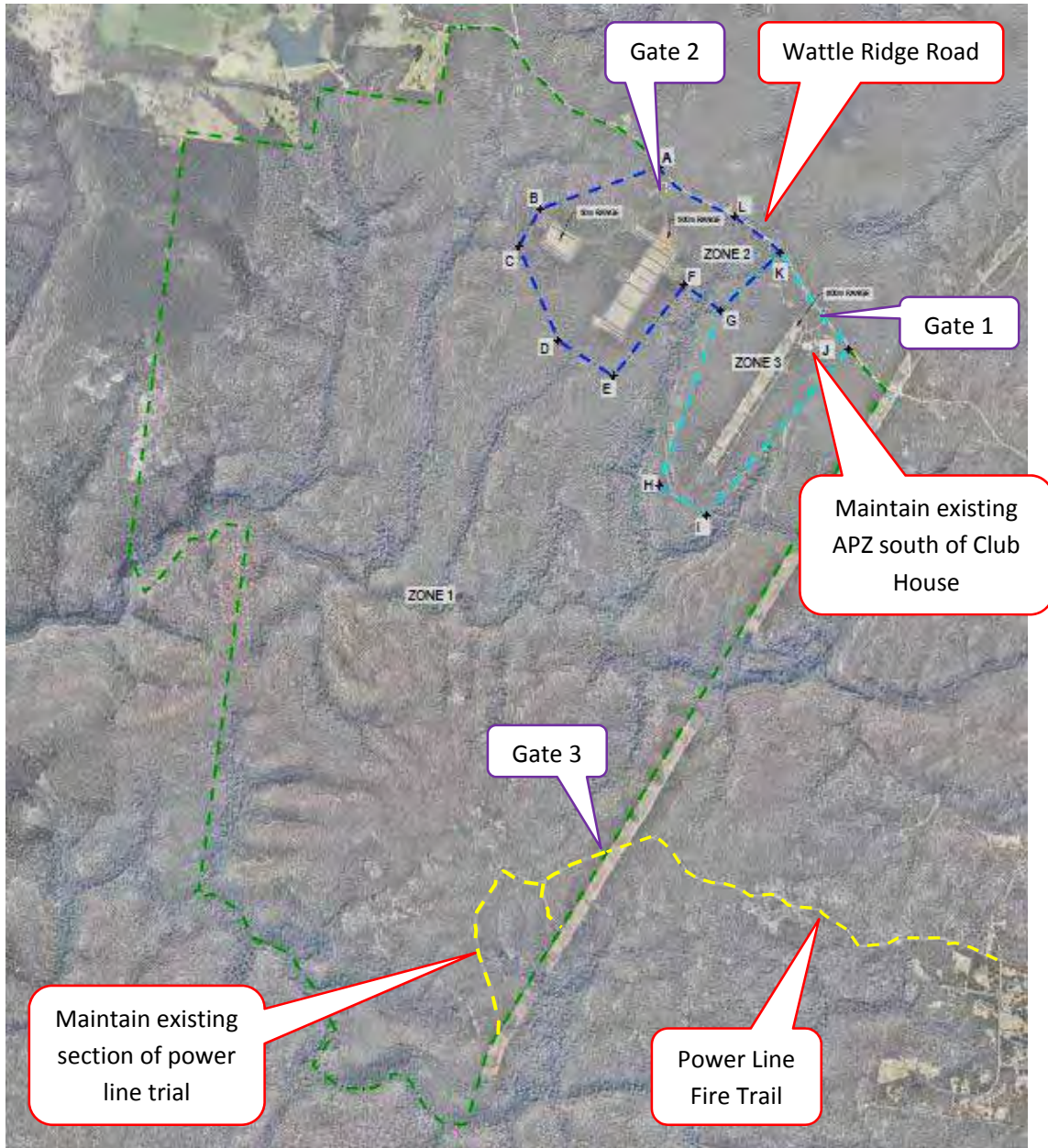


Image 12 – SHRSC Complex and Conservation Zone Area Plan

## Appendix C



Image 13 – Suggested SHRSC APZ zones (acknowledgement to NSW RFS BRMP 2017)



## Appendix D

### NSW Rural Fire Service - Bushfire Fact Sheets

**Fact Sheets:**

The NSW Rural Fire Service has prepared several Fact Sheets for the public use. These Fact Sheets relate to several areas of bushfire impact and recovery. The SHRSC Manager should from time to time, review the Fact Sheets on the NSW Rural Fire Services Web page as possible management techniques as methods and advice practices change from time to time.



# Leaving Early

LEAVE EARLY AND SURVIVE A BUSH FIRE

The safest option in a bush fire is always to leave early, well before the fire threatens. You should leave if:

- The Fire Danger Rating is Catastrophic.** On these days fires will be so intense it is not safe to defend any home - no matter how well prepared. Extreme and Severe days are also very dangerous and leaving early will always be the safest option.
- You have not prepared yourself or your property** to give you and your home the best level of protection from a fire.
- There are children, elderly, or disabled people in your home.** People who are vulnerable due to age, health or any other reason should always leave early.
- Your house is not defensible.** Some houses, because of their location, construction, or surrounding vegetation are not safe to defend. The NSW RFS Bush Fire Household Assessment Tool ([www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au)) can help you assess your home's level of risk and make an informed decision. On some days no properties will be defensible.



You should never "hold and see what happens" during a bush fire. Leaving late means you will be on the road when conditions are the most dangerous or you may not be able to get out at all. The longer you wait to leave the greater the risk to your life.

### Preparing to leave early means:

- Completing a Bush Fire Survival Plan, available at [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au)
- Planning where you will go, how to get there, and what you will take
- Knowing the daily Fire Danger Rating in your area and what it means
- Having transport organised for all members of the family, including pets
- Actively seeking information on the fire situation and weather conditions from TV, local radio and the internet so you know when to leave
- Having a back-up plan in case you aren't able to leave early enough. What other safer places are there you could get to?
- Talking to family, friends, and neighbours about your plan to leave early

**DID YOU KNOW**  
Being well away from a bush fire is the **ONLY** way to ensure your safety.





# Defending your Property

BEFORE FIRE IMPACTS YOU NEED TO BE ACTIVELY DEFENDING YOUR PROPERTY

## 1 Before the fire arrives at your home... you need to be actively defending your property

- Put on your protective clothing
- Turn on the radio to keep yourself informed
- Bring pets inside and keep them in one room
- Close all windows and doors
- Block spaces beneath doors and windows with wet towels
- Fill buckets, sinks and bath tubs with water ready to put out spot fires
- Have your firefighting equipment like pumps and hoses connected to your water supply
- Block downpipes and fill gutters with water
- Remove items which can burn from around your home like outdoor furniture
- Bring ladders inside to check roof space for embers
- Patrol the outside of your home putting out any embers or spot fires
- Just before the fire arrives, wet down timber decks and gardens close to the house
- Move any firefighting equipment to a place it will not get burnt



## 2 When the fire arrives... it's going to be hot, loud and dark

- Go inside but stay alert
- Shelter in a room on the opposite side of the house from the approaching fire and one that has a clear exit out of the house
- Patrol inside the house, including the roof space looking for sparks and embers
- Protect yourself from the heat of the fire
- If your life is at risk, call triple zero (000)

Stay up to date by listening to local radio, checking the NSW RFS website at [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au) or by calling the Bush Fire Information Line.

## 3 Once the fire has passed... you will need to patrol your property for hours

- Check your roof spaces
- Go outside and put out any part of your house which is alight
- Check under the house and any decks
- Check on your pets and animals
- Embers or sparks can start spot fires for many hours after the fire has passed
- If you can, contact your family and friends and check on your neighbours

PREPARE

ACT

SURVIVE

BUSH FIRE INFORMATION LINE | 1800 679 737





# Bush Fire Alerts

## KEEP INFORMED, STAY SAFE

Where there is a risk from bush fire, the NSW Rural Fire Service uses Bush Fire Alerts to provide information to affected communities using **radio, television, and the internet**. There are three Bush Fire Alert levels to help you make the right choices for your safety.

**ADVICE**  
A fire has started.  
There is no immediate danger.  
Stay up to date in case the situation changes.

**WATCH AND ACT**  
There is a heightened level of threat.  
Conditions are changing and you need to start taking action now to protect you and your family.

**EMERGENCY WARNING**  
An Emergency Warning is the highest level of Bush Fire Alert.  
You may be in danger and need to take action immediately.  
Any delay now puts your life at risk.

### Where can you get information during a bush fire?

- Bush Fire Information Line  
1800 NSW RFS  
(1800 679 737)
- NSW Rural Fire Service  
website [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au)
- [www.facebook.com/nswrfs](http://www.facebook.com/nswrfs)  
[www.twitter.com/nswrfs](http://www.twitter.com/nswrfs)
- Local Radio, TV, Newspapers



### An **EMERGENCY WARNING** is the highest level of Bush Fire Alert.

The alert will give information about the severity of the fire, its location and what you should do. Bush Fire Alerts are not always given in the above order. A fire may be at 'Watch and Act' or 'Emergency Warning' first. Some fires start and spread so quickly that there is no time for any warning at all. You should be prepared to put your Bush Fire Survival Plan into action with little or no warning. Include Bush Fire Alerts in your Bush Fire Survival Plan as triggers to Leave Early or prepare to Stay and Defend where appropriate.



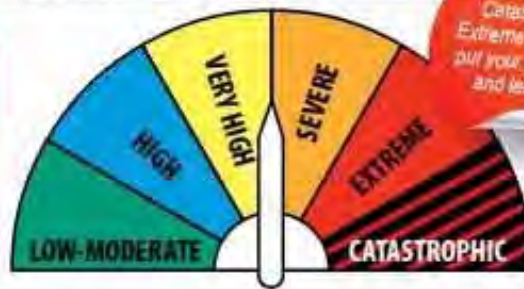


# Fire Danger Ratings

## WHAT DO THEY MEAN FOR YOU?

### Knowing what they mean could save your life

- If you live or travel through an area where a bush fire can start you need to know what the Fire Danger Rating is and what it means so you can make the safest decision.
- The Fire Danger Rating is the indication of the consequences of a bush fire if a bush fire was to start.
- The higher the Fire Danger Rating the more dangerous the conditions and the more likely that people will be injured or die if a bush fire occurs.
- When the Fire Danger Rating is Extreme or Catastrophic for your area, any fires that start will be extremely hard for fire authorities to control. Even a well prepared, well constructed and actively defended home may not survive.
- If Catastrophic conditions are expected the best option is to leave early the day or hours before a fire threatens.
- Keep Informed - check the Fire Danger Rating for your area at [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au)
- PREPARE your Bush Fire Survival Plan today. Know your trigger points and download a plan from [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au)



On days of Catastrophic or Extreme Fire Danger put your survival first and leave early.

FIRE DANGER RATING	WHAT YOU SHOULD DO
CATASTROPHIC	For your survival, leaving early is the only option. Leave bush fire prone areas the night before or early in the day – do not just wait and see what happens. Make a decision about when you will leave, where you will go, how you will get there and when you will return. Homes are not designed to withstand fires in catastrophic conditions so you should leave early.
EXTREME	Leaving early is the safest option for your survival. If you are not prepared to the highest level, leave early in the day. Only consider staying if you are prepared to the highest level – such as your home is specially designed, constructed or modified, and situated to withstand a fire, you are well prepared and can actively defend it if a fire starts.
SEVERE	Leaving early is the safest option for your survival. Well prepared homes that are actively defended can provide safety – but only stay if you are physically and mentally prepared to defend in these conditions. If you're not prepared, leave early in the day.
VERY HIGH	Review your Bush Fire Survival Plan with your family. Keep yourself informed and monitor conditions. Be ready to act if necessary.
HIGH	
LOW-MODERATE	





# Total Fire Bans

IF YOU IGNORE A TOTAL FIRE BAN, PEOPLE MAY DIE

## IN A TOTAL FIRE BAN:

- No fire may be lit in the open
- All fire permits are suspended  
This includes incinerators and barbecues (BBQ) which burn solid fuel, e.g. wood, charcoal or heat beads
- No general purpose welding, grinding, soldering or gas cutting can be done in the open.



### When is a Total Fire Ban announced?

During the Bush Fire Danger Period, the decision to issue a Total Fire Ban is usually made in the afternoon for the following day.  
A Total Fire Ban may be issued on the actual day if weather conditions get worse.  
A Total Fire Ban usually starts at midnight and lasts for 24 hours.

### To find out where Total Fire Bans have been declared:

- Visit [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au)
- Check the weather forecast at [www.bom.gov.au](http://www.bom.gov.au)
- Call the Bush Fire Information Line on 1800 679 737
- Monitor weather reports on the radio, television and in newspapers.

*Lighting a fire on a Total Fire Ban day can result in fines of up to \$100,000 and/or 14 years imprisonment*

### Can you still have a BBQ?

You may use a gas or electric BBQ, but only if:

- It is on a residential property within 20 metres of the house
- It is in a designated picnic area and the BBQ is approved by Council, National Parks or State Forests
- It is always attended by a responsible adult
- The ground within two metres of the BBQ is cleared of all materials which could burn
- You have an immediate and continuous supply of water available.



## Appendix E - Example Bushfire Report Form

<b>Fire Information</b>		<b>Details</b>
Fire Name	Eg Rocky Creek West,	
Date / Time		
Location	Grid or GPS Ref where possible and general map of area, scale where possible	
Estimate of area burnt	Generally in Ha	
Land tenure	Office of Sport / Reserve / Rural Residential	
General direction of fire	Eg North west / north east	
Firefighting Agency	NP&WL / NSW RFS	
Weather at time	Wind direction / approximate wind speed (kph); temperature degrees C ; humidity %	
Vegetation type	Forest / grassland	
Rate of spread	Very fast, fast, moderate	
Local Fire Control Measures	Spot fires extinguished? How?	
<b>Fire Damage</b>	Injured persons (y/n) How many Location Who (staff , visitor, fire fighter)	
	Built assets Location Type of Asset (office / fence)	
<b>Reporting Person</b>	Name / Position	

## Appendix F – Bushfire Risk Management Plan

### Identifying and assessing bushfire risks:

#### 1.1 Process

The process to be carried out is not too dissimilar with current NSW Rural Fire Service practice however the main thrust will be toward the protection of built assets. The balance of the vegetative land holding will be monitored by the Office of Sport with risk assessments and mitigation planning done in close liaison with the National Parks and Wildlife Service (NP&WL) and the NSW Rural Fire Service.

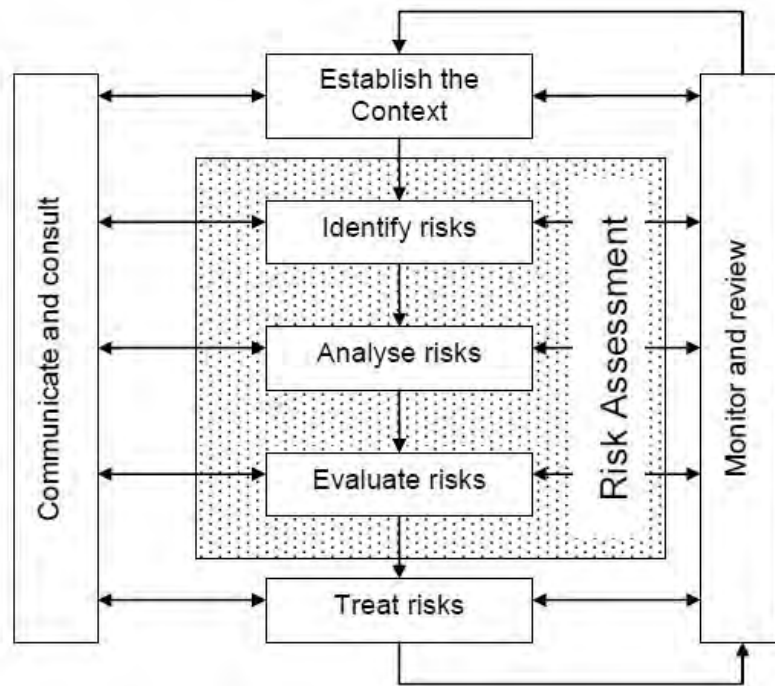


Image 14 – Extract of steps from AS/NZ 4360: 2004 'Risk Management'

#### 1.2 Communicate and consultation

The Office of Sport will communicate with adjoining private land owners and the NP&WL and the NSW Rural Fire Service having regard to large area mitigation strategies.

#### 1.3 Identifying the bush fire risk



The primary risk is associated with the built assets including all buildings and support structures which make up the 50m, 500m and 800m ranges. Other fixed assets include the access roads and fire tails. The secondary risk is the open forested conservation lands within the Complex.

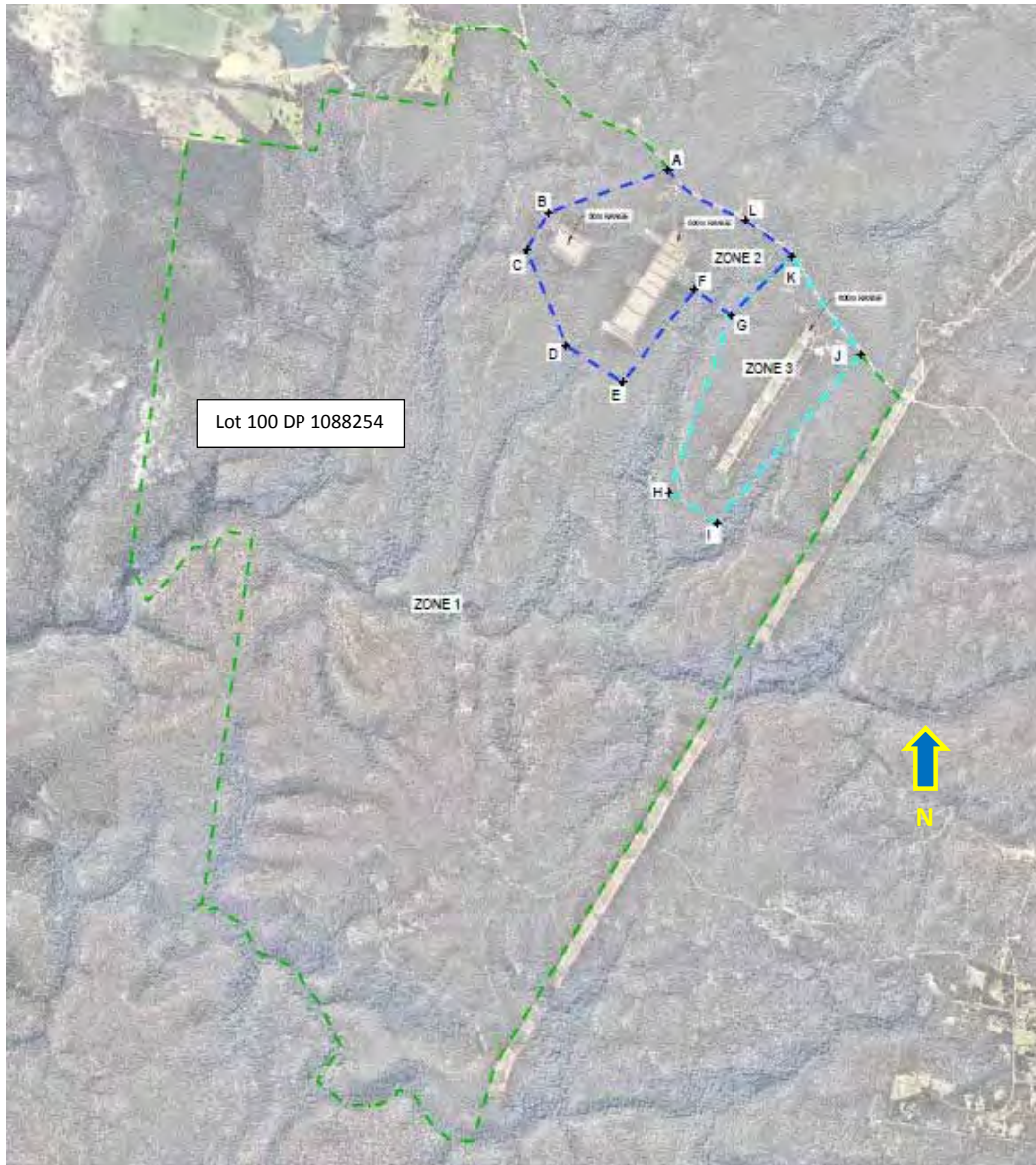


Image 15 – SHRS location being 430 Wattle Ridge Road, Hill Top noting Conservation Zones 1-3 (acknowledgement GHD 2010)

Zone 1	Green boundary	Bushland conservation.
Zone 2	Dark Blue boundary	Current development area.
Zone 3	Light Blue boundary	Original development area.

The provision of Conservation Area Zones (1-2) within the Complex provides boundary's for possible asset protection zones. Notwithstanding the Complex's conservation zones, any future development will require close consultation with the NP&WL and the NSW Rural Fire Service.

Whilst this plan can recommend Strategic Fire Advantage Zones (SFAZs') within the Complex boundary's these need to be ratified by the NP&WL and the NSW Rural Fire Service.

Identification of the bush fire risk shall be based on the built assets to be protected and Asset Protection Zone distances as determined by NSW Rural Fire Service's document '*Planning for bushfire protection -2006*' for direct protection. The Office of Sport will commission such assessments from qualified persons.

Identification of access roads, fire trails and control lines will be made in liaison with the NP&WL and the NSW Rural Fire Service. Where access roads or fire trails require a category to be assigned, the Office of Sport will arrange ongoing maintenance.

It is noted that there are currently no recognised threatened species populations particularly in the Zone 1 conservation area.

However, where APZ's or SFAZ's are proposed the Office of Sport will arrange local assessments to be carried out.

Cultural significant areas have not been identified within Zones 1 and 3. Zone 2 has a single Aboriginal artefact find located at "Hill One" adjacent the 50m and 500m entry from Wattle Ridge Road. (Navin Officer Report 2007)

#### **1.4 Assessing the bushfire risk - consequence**

The Wollondilly / Wingecarribee BFRMP provides a broad outline of the consequence of bushfire impact for the SHRSC. In this case the SHRSC is noted as being Map Reference 44, an "economic asset", with a hazard reduction strategy.

The indicated consequence of bush fire impact is 'Major'.

#### **1.5 Assessing the bushfire risk - likelihood**

Assessing the likelihood of impact includes consideration of past fire history, ignition causes, fire paths, access, containment potential and potential fire run. In the case of the SHRSC the Zone 1 land is essentially inaccessible to firefighting appliances and has a continuous path for fire travel from the surrounding area through to the fixed assets via zones 2 and 3. There is little potential to control or halt a bushfire within these zones.

The indicated likelihood of bush fire impact is 'Likely'.

#### **1.6 Assessing the bushfire risk - risk**

Given the consequence and likelihood results, overall the SHRS Complex received a “*Very High*” bush fire risk rating. (Wollondilly / Wingecarribee BFRMP – 2017)

The Office of Sport has agreed with the risk rating for the SHRS.

### **1.7 Evaluating the bush fire risk**

The bushfire risk over Zone 1 and parts of Zone 2 and 3 are very high from an environmental aspect as there are currently no mitigation controls over the land to restrict bushfire movement. Whilst firefighting vehicle access can be made to the fixed assets, they are similarly at very high risk due to the SHRS’s isolated location and therefore response times and lack of formal APZ’s will not reduce bushfire impact.

The Wollondilly / Wingecarribee BFRMP has identified the Complex as being overall a “*Very High*” risk. The significance here is that in terms of mitigation measures which could be applied to the general area under the Wollondilly / Wingecarribee BFRMP, areas of “*Extreme Risk*” will always take precedent over the treatment of lower levels of risk.

### **1.8 Treatment priority**

Given the risk level assigned to the Complex by the Wollondilly / Wingecarribee BFRMP, the priority for treatment by hazard reduction is 2A as the general area is not considered to be at an Extreme Risk. A ‘2A’ priority is the next level down from 1A, B and C.

Whilst the SHRS does not provide overnight accommodation and therefore does not raise the risk Category to ‘Extreme’, there is opportunity for the Office of Sport to discuss possible hazard reduction areas closer to the fixed assets to reduce risk levels where large competitions are run.

### **2.9 Proposed regional risk treatments**

The Wollondilly / Wingecarribee BFRMP has determined the risk level can be reduced by hazard reduction burning. The proposed burn periods are noted as being 2018/19; 19/20; 20/21 and 21/22.

These yearly dates are however subject to change due to climatic conditions, locations, fire thresholds (time since last burnt) and resourcing.

The proposed regional hazard reductions may or may not include vegetation areas beside SHRS assets. Further consultation is required to identify specific areas and to determine areas where mosaic burn patterns can be introduced which support or do not conflict with regional burn plans.

This plan has recognised several areas suitable for either SFAZ or APZ's for further consultation.

## Treating the risk:

### 2.1 Treatments

Bush fire treatments can range from mechanical management to the application of controlled burns, "hazard reductions". Hazard reductions can happen on a broad scale or lesser scales dependent upon the SHRSC Zone to be protected and overall planning levels.

There are four categories of management zone;

- Asset Protection Zone (APZ) – located around / near built assets
- Strategic Fire Advantage Zones (SFAZ) – located some distance away from built assets
- Land Management Zones (LMZ's) – located in open space well away from fixed assets
- Fire Exclusion Zones – (FEZ's) – designed to exclude fire and located well away from built assets.

In the case of the SHRSC the risk treatment will be contained mainly within dedicated APZ's in respect to built assets and secondly in open areas as SFAZ zones. The location of SFAZ's will however be discussed in detail with National Parks and Wildlife Service and the NSW Rural Fire Service so as to compliment any SFAZ plans they may have for the area /region.

The following table sets out the purpose, suppression objectives and Zone characteristics for APZ's and SFAZ's. (ref: W/W BFRMP 2017)

The proposed APZ areas are mapped in Appendix B. These areas are subject to further detailed assessment and may change shape or location. All APZ's will be assessed from the NSW Rural Fire Service's documents "*Bushfire Environmental Assessment Code -2006*" and constructed to the "*Standards for Asset Protection Zones*".

It is noted that the Wollondilly / Wingecarribee BFRMP has noted the 50m and 500m ranges as being APZ areas (Appendix C). An existing small APZ is located to the south of the 800m Club House but is not noted in the BFRMP.

<b>Zone</b>	<b>Purpose</b>	<b>Suppression Objective(s)</b>	<b>Zone characteristics</b>
<b>Asset Protection Zone</b>	To protect human life, property and highly valued public assets and values.	To enable the safe use of <b>Direct Attack</b> suppression strategies within the zone. To minimise bush fire impacts on undefended assets.	As per RFS document <i>Standards for Asset Protection Zones</i> .
<b>Strategic Fire Advantage Zone</b>	To provide strategic areas of fire protection advantage which will reduce the speed and intensity of bush fires, and reduce the potential for spot fire development. To aid containment of wildfires to existing management boundaries.	To improve the likelihood and safe use of: <b>Parallel Attack</b> suppression strategies within the zone. and/or <b>Indirect Attack</b> (back burning) in high to very high fire weather conditions within the zone. To reduce the likelihood of: Crown fire development within the zone. and/or Spot fire ignition potential from the zone	Zone width related to suppression objectives and dependant upon: - Topography - Aspect - Spotting propensity - Location of adjacent firebreaks - Mosaic pattern of treatment Assess Overall Fuel Hazard (OFH) once vegetation communities reach minimum fire thresholds within this plan. Management practices should aim to achieve mosaic fuel reduction patterns so that the majority of the SFAZ has an OFH of less than high.

Table F.1 – Extract from Wollondilly / Wingecarribee BFRMP 2017

## 2.2 Asset specific treatments

There are several treatments available for APZ areas.

Strategy	Treatments
Ignition Management	<ul style="list-style-type: none"> <li>• SHRSC Manager to monitor all maintenance work within the Complex</li> <li>• SHRSC Manager to restrict on monitor any camping within the Complex</li> <li>• Close the Complex on Severe and above FDI days.</li> </ul>
Hazard Reduction APZ & SFAZ	<ul style="list-style-type: none"> <li>• SHRSC Manager to map areas for APZ construction and seek assistance to construct</li> <li>• SHRSC Manager shall ensure that APZ's are constructed and maintained for the 50m; 500m and 800m firing points, Offices and Club House to a distance of 20m around these assets.</li> <li>• The Office of Sport shall propose areas for SFAZ's in line with the local W/W BFRMP 2017.</li> <li>• The Office of Sport shall consult with the NSW RFS on how to best implement agreed SFAZ's.</li> <li>• SHRSC Manager shall ensure all APZ and SFAZ's are inspected annually.</li> </ul>
Staff Education	<ul style="list-style-type: none"> <li>• SHRSC Manager shall ensure all staff are familiar with the Bushfire Section within the complex's Emergency Management Plan.</li> </ul>
Complex planning	<ul style="list-style-type: none"> <li>• SHRSC Manager and the Office of Sport shall review bushfire planning for the Complex.</li> </ul>
Preparedness	<ul style="list-style-type: none"> <li>• SHRSC Manager shall ensure all access roads, fire trails and any control lines are maintained to NSW RFS standards.</li> </ul>

Table F.2 Specific treatments to employed at the SHRSC

Currently, the NSW Rural Fire Service's document "*Bush Fire Environmental Code – 2006*" notes that the maximum permissible APZ distance from a bush fire hazard to a residence or a major building asset is 20m.

For the purposes of the SHRSC, a 20m APZ around all buildings will be undertaken.

### 2.3 Fire Thresholds for SFAZ's

Where the Office of Sport in consultation with NP&WL and the NSW Rural Fire Service have determined locations for SFAZ areas within the Complex, the controlled burning periods are those noted in the Table 3.3 below for the particular vegetation types.

Vegetation formation	Minimum SFAZ Threshold	Minimum LMZ Threshold	Maximum Threshold	Notes
Rainforest	NA	NA	NA	Fire should be avoided.
Alpine complex	NA	NA	NA	Fire should be avoided.
Wet Sclerophyll forest (shrubby subformation)	25	30	60	Crown fires should be avoided in the lower end of the interval range.
Wet Sclerophyll forest (grassy subformation)	10	15	50	Crown fires should be avoided in the lower end of the interval range.
Grassy woodland	5	8	40	Minimum interval of 10 years should apply in the southern Tablelands area. Occasional intervals greater than 15 years may be desirable.
Grassland	2	3	10	Occasional intervals greater than 7 years should be included in coastal areas. There was insufficient data to give a maximum interval; available evidence indicates maximum intervals should be approximately 10 years.
Dry sclerophyll forest (shrub/grass subformation)	5	8	50	Occasional intervals greater than 25 years may be desirable.
Dry sclerophyll forest (shrub subformation)	7	10	30	Occasional intervals greater than 25 years may be desirable.
Heathlands	7	10	30	Occasional intervals greater than 20 years may be desirable.
Freshwater wetlands	6	10	35	Occasional intervals greater than 30 years may be desirable.
Forested wetlands	7	10	35	Some intervals greater than 20 years may be desirable.
Saline wetlands	NA	NA	NA	Fire should be avoided.
Semi-arid woodlands (grassy subformation)	6	9	No max	Not enough data for a maximum fire interval.
Semi-arid woodlands (shrubby subformation)	10	15	No Max	Not enough data for a maximum fire interval.
Arid shrublands (chenopod subformation)	NA	NA	NA	Fire should be avoided.
Arid shrublands (acacia subformation)	10	15	No Max	Not enough data for a maximum fire interval.

Table F.3 – Extract from Wollondilly / Wingecarribee BFRMP 2017

## 2.4 Annual works programs

### 2.4.1 Asset Protection Zones

The Office of Sport shall prepare an annual works program for its APZ and any future SFAZ areas.

Proposed 20m APZ's are shown on the following images. The construction of the APZ's will be the responsibility of the Office of Sport. The construction of APZ's will be by mechanical or hand held equipment means.

APZ's will be assessed in the winter of each year with a work report being provided before the beginning of the bushfire danger period each year. Where the APZ's no longer comply with the requirements of the "*Standards for Asset Protection Zones*", work will be undertaken to ensure compliance, preferably in early October.



Image 16 - Proposed 20m APZ around 50m firing point and associated structures.



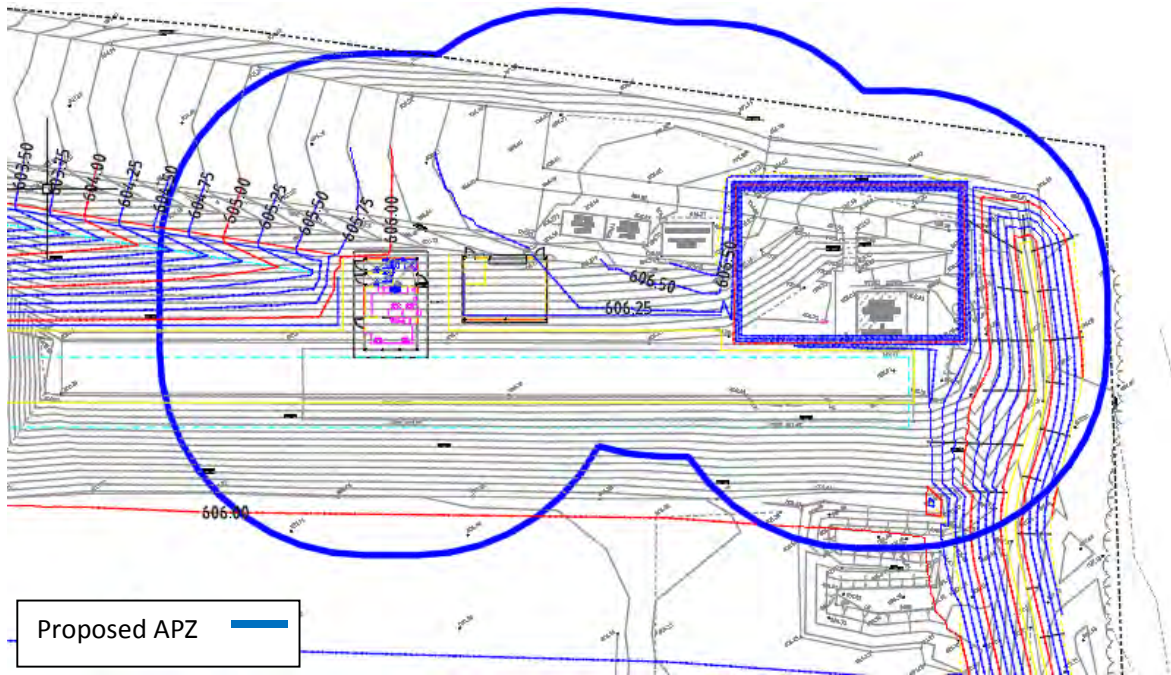


Image 17 – Proposed 20m APZ around 500m firing point structures



Image 18 – Proposed and existing APZ around 800m Club House and ancillary buildings

#### 2.4.2 Proposed Strategic Fire Advantage Zones

The proposed SFAZ's are shown on the following images. The final location, size and construction of the SFAZ's will be the responsibility of the Office of Sport in consultation with the NP&WL and NSW Rural Fire Service. The construction of SFAZ areas will be by controlled burning.

At present two proposed SFAZ areas are indicated in the following images No's 19 and 20.

Final approval must be gained in consultation with NP&WL and the NSW Rural Fire Service and the Department of Planning and Environment.



Image 19 – Proposed SAFZ No 1 and new Category 1 fire trail linking the 50m with the 500m range



## Image 20 – Proposed SAFZ No 2 adjacent the 500m range

### 2.4.3 Access roads and fire trails

The remote location of the SHRSC may necessitate that under some circumstances staff and occupants may not be able to evacuate the Complex safely. Should this be the case then the likelihood of being able to relocate staff and occupants around the Complex becomes very probable. The access roads and fire trails will play an integral part in occupant movement.

The Office of Sport will ensure all existing main access roads and trails are compliant with a Category 1 determination under the NSW Rural Fire Services document "*Fire Trail Standards - 2017*". All other ancillary fire trails will be managed as either Category 1 or Category 7 fire trails.

A 200m rifle range and a future shotgun range are proposed within the SHRSC.

The shotgun range will require an access trail extending from the entry road near the future club house to the range located approximately half way between the 500m and 800m ranges.

It is expected that this access road will be constructed to a Category 1 level and be extended to link to the 800m range at the rear of the shooting platform.

## Performance monitoring and review:

### 3.1 Monitoring

The Office of Sport shall monitor the vegetation regeneration within all APZ's and SFAZ's on an annual basis to coincide with the NSW RFS document "*Standards for asset protection zones*". The process will either involve an NSW Rural Fire Service assessment or an assessment report from a suitably qualified bushfire consultant.

A brief report will be provided to the NSW Rural Fire Service outlining the status of the SHRSC for recording and or consultation in regard to regional planning.

### 3.2 Review

The Office of Sport will at least every five (5) years cause to have this BFRMP reviewed for accuracy or following a major bush fire either within the SHRSC Complex or adjacent to it for the purposes of ensuring adequate bush fire protection is available primarily to all staff and occupants of the Complex.

## Appendix G – Bushfire Mitigation Action Plan 2018 - 2023

### Proposed Mitigation Action Measures

The following table sets out the general mitigation action measures required for on-going prevention, preparedness, response and recovery. Items may be change to suit evolving methods or regulatory changes.

Item No	Action Item	Responsible Person	Works Completion	Review Period
1	<p><b>Fire trails and access roads</b></p> <p>Ensure compliance with NSW Rural Fire Service document “Fire Trail Standards” 2017 and BFCC Fire Trail Policy No 2/2007</p>	SHRSC Manager	12 – 18 months	<p>Annually:</p> <p>Winter, or after extensive vehicular use or following extensive heavy rains</p>
	<ul style="list-style-type: none"> <li>• Inspect all access roads and fire trails</li> <li>• Check all gates and locks are RFS keyed</li> <li>• Ensure a fire trail and access road plan is available in all offices</li> <li>• Where necessary:                             <ul style="list-style-type: none"> <li>○ Grade and roll trails or access roads</li> <li>○ Trim and cut back vegetation for compliance</li> <li>○ Check swales/ drains are clear</li> </ul> </li> </ul> <p>Reference RFS Fire Trail Standards 2017 and “Planning for Bushfire Protection – 2006”</p>			
2	<p><b>Asset Protection Zone/s</b></p> <p>Ensure compliance with NSW Rural Fire Services documents; “Planning for Bushfire Protection – 2006” and “Standards for Asset Protection Zones” and RFS Bushfire Environmental Assessment Code 2006</p>	SHRSC Manager	<p>800m Club House and ancillary buildings – 12 months</p>	<p>Annually:</p> <p>Autumn / Spring</p>
	<ul style="list-style-type: none"> <li>• Determine all new and existing Asset Protection Zones for compliance with “Standards for Asset Protection Zones”</li> <li>• Arrange to inspect all Asset Protection Zones</li> <li>• Cut back, clear and maintain Asset Protection Zones as required</li> </ul>		<p>500m firing point – 12 months</p> <p>50m firing point – 12 months</p>	

Item No	Action Item	Responsible Person	Completion	Review Period
3	<p><b>SFAZ/s</b></p> <p>(where determined)</p> <p>Confirm location and any prescribed burn arrangements in accordance with NP&amp;WL regional environmental planning and the local BFRMP</p>	SHRSC Manager & NP&WS / NSW Rural Fire Service	24 months Priorities: SHRSC SAFZ No 1 SHTSC SAFZ No 2	24 months
	<ul style="list-style-type: none"> <li>• Arrange inspection and assessment of SFAZ's</li> <li>• Discuss a prescribed burn plan with NP&amp;WS and NSW Rural Fire Service</li> </ul>			
4	<p><b>Built assets</b></p> <p>compliance with "AS3959 Construction of buildings in bushfire prone areas"</p>	SHRSC Manager	12 months	Annually: Autumn / Spring
	<ul style="list-style-type: none"> <li>• Arrange inspection of all buildings to ensure compliance to AS3959</li> <li>• If required upgrade existing buildings to comply with AS3959</li> <li>• All new construction to comply with AS3959</li> <li>• Clearly signpost all three Assembly areas and distribute it to NP&amp;WL and NSW Rural Fire Service</li> <li>• Ensure all ranges are mowed/ slashed regularly</li> </ul>			
5	<p><b>Fire service water tanks</b></p> <p>Ensure full tanks, all fire service connections are operational, conduct necessary repairs to tanks or roof gutters / down pipes</p>	SHRSC Manager	6 months	Fortnightly
	<p>Provide new 20,000L Water tank to 800m Firing Range and RFS connections</p>		12 months	
<ul style="list-style-type: none"> <li>• Inspect all gutters and down pipes are clear</li> <li>• Inspect all tanks to ensure fully working order</li> <li>• Ensure all water supplies are kept full at all times</li> <li>• Signpost were all available water sources are and distribute it to NP&amp;WS and NSW Rural Fire Service</li> </ul>				

Item No	Action Item	Responsible Person	Completion	Review Period
6	<p><b>Fire hydrants</b></p> <p>Ensure gravity operation and compliance with “Planning for Bushfire Protection - 2006</p>	SHRSC Manager	12 months	Annually
	<ul style="list-style-type: none"> <li>• Arrange inspect all hydrants to ensure fully working order</li> <li>• Ensure 65mm storz adaptors are provided and blank caps fitted</li> </ul>			
7	<p><b>SHRSC communications system</b> (where provided)</p> <p>Ensure system readiness</p>	SHRSC Manager	6 months	Weekly
	<ul style="list-style-type: none"> <li>• Test and inspect system to ensure full working order across all ranges</li> </ul>			
8	<p><b>Review:</b> <b>Bushfire Management Plan;</b> <b>Bushfire Risk Management Plan</b> <b>and</b> <b>Bushfire Emergency Plan</b></p> <p>Ensure current and up to date</p>	SHRSC Manager	6 months	<p>5 years or after a bushfire incident</p> <p>Annually or after an incident</p>

Table G.1 – Proposed Actions and timing



### 3. Proposed Asset Protection Zones

The NSW Rural Fire Service has endorsed the “Bush Fire Risk Management Plan” for the Wollondilly / Wingecarribee Councils. This plan has included a mapped area of the Complex (ref No 44) encompassing the 50m and 500m ranges being designated as an Asset Protection Zones. Whilst it is acknowledged this is a board area map, the Office of Sport should liaise with the National Parks and Wildlife Service and the NSW Rural Fire Service to clarify the mapped areas boundary’s so as to ensure ecological compliance and formal APZ set back requirements.

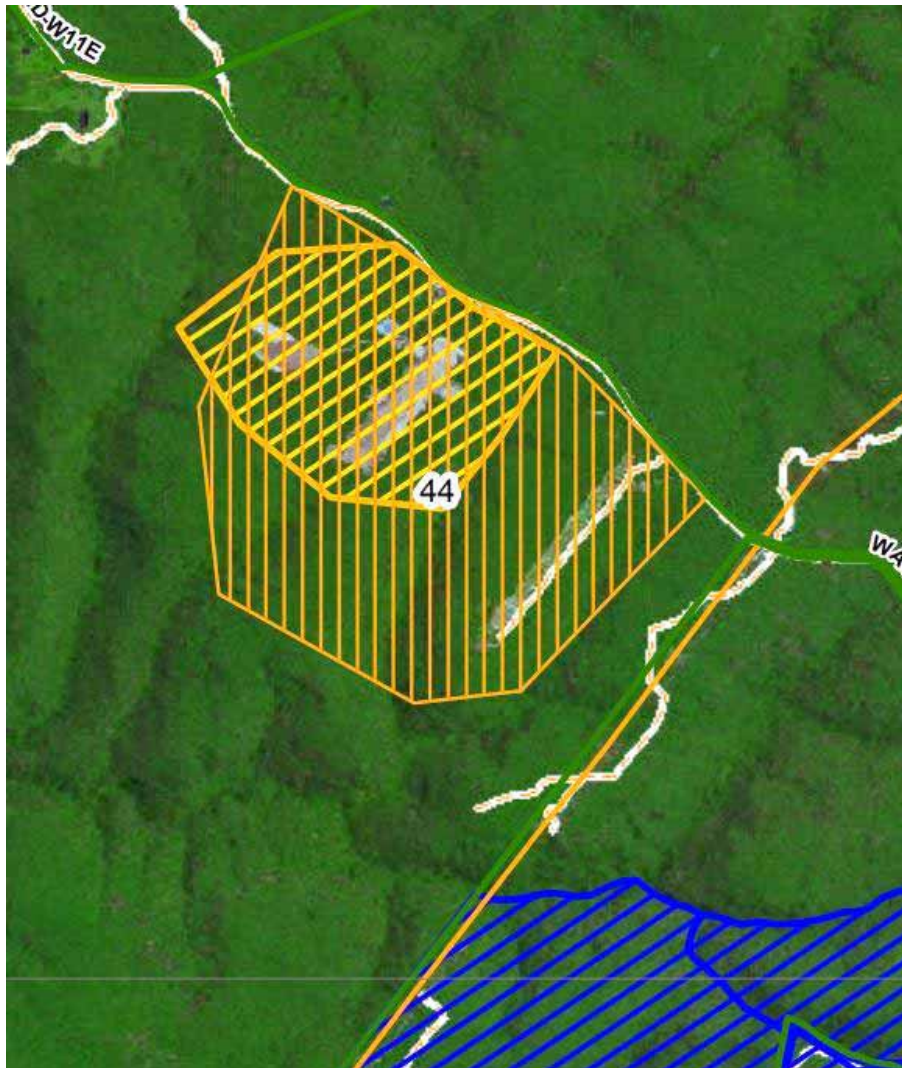


Image 21 - Extract from the Wollondilly / Wingecarribee BFRMP for the SHRSC

All Asset Protection Zones should be determined on site. Images 22, 23 and 24 following suggest compliance with the NSW Rural Fire Services “*Bushfire Environmental Assessment Code – 2006*” for Asset Protection Zones around structures, that being a 20m deep Asset Protection Zone.

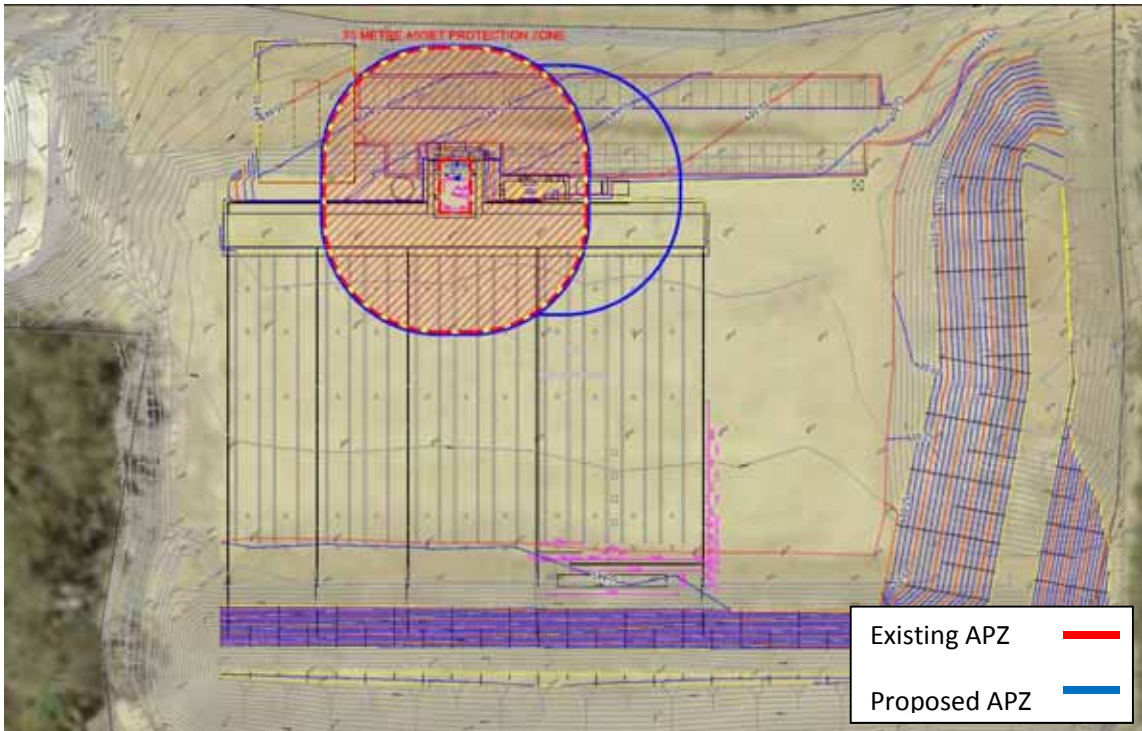


Image 22 - Proposed 20m APZ around 50m firing point

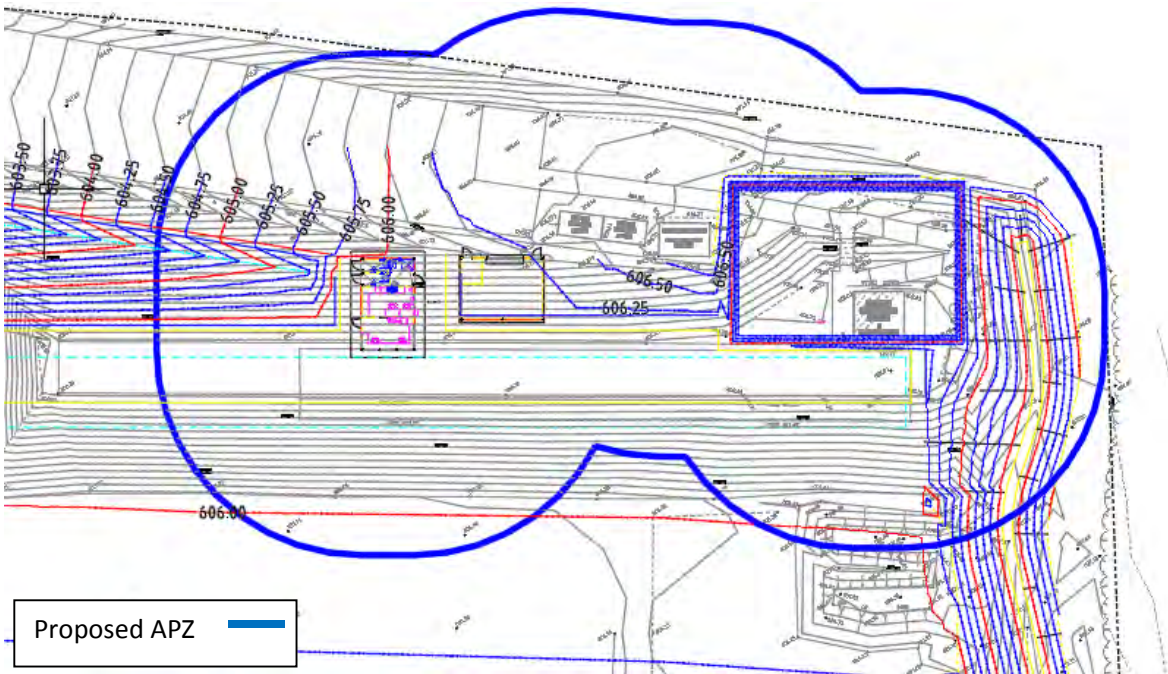


Image 23 – Proposed 20m APZ around 500m firing point structures



Image 24 - Proposed and existing 20m to 32m APZ around 800m Club House and ancillary buildings

#### 4. Existing and Proposed Access Roads and Fire Trails

All of the SHRSC main access roads and fire trails should be capable of accommodating Category 1 fire appliances. It is essential that fire appliances have continued free access around the Complex given the limited water supply available within the complex. The existing and future access roads and fire trails are to meet the requirements of the NSW Rural Fire Services document "Fire Trail Standards".

To provide a control line and vehicular access to the proposed SFAZ No 1, a new Category 1 access road should be provided linking the 50m range to the 500m range. Refer to the SHRSC Bush Fire Risk Management Plan , Appendix F and images 25 and 26 following.

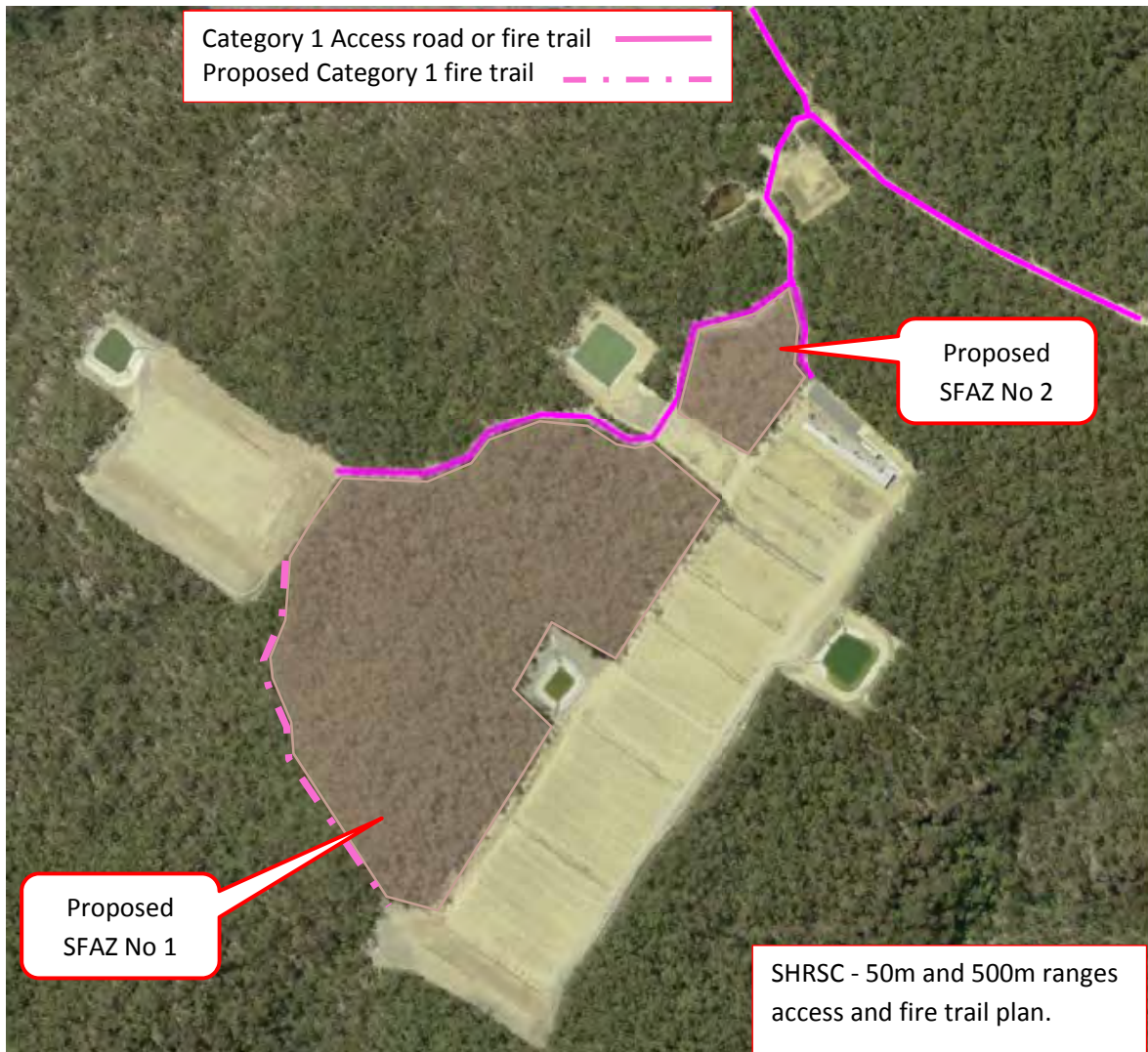


Image 25 – Existing Category 1 access roads and proposed fire trail for SFAZ No 1.



Image 26 – Existing Category 1 access roads and fire trail for 800m range

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