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Bushfire Report

“Wiruna” 48 Old Ilford Road

Lot 7, DP 747954

Client: Astronomical Society of NSW Inc

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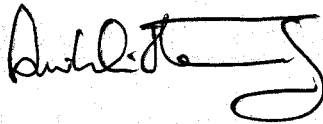
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- The information contained in this Report is neither false nor misleading; and
- It contains all relevant available information that is current at the time of release.


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1 Introduction

1.1 The Site

This bushfire report has been prepared for the proposed amendment of an existing approval for an outdoor recreation facility at “Wiruna” a property owned by the Astronomical Society of NSW. The property has been used as an astronomical site for some 36 years. A development application is proposed to ensure that all aspects of the current operation have DA coverage, and also to make provision for potential future development. The proposed use is environmental facility. The proposed development layout is shown on Figure 1.

The site adjoins mostly cleared farmland to the north-east, south-east and east, and bushland to the west, south-west and north-west. The north-west represents the main vector for bushfire attack.

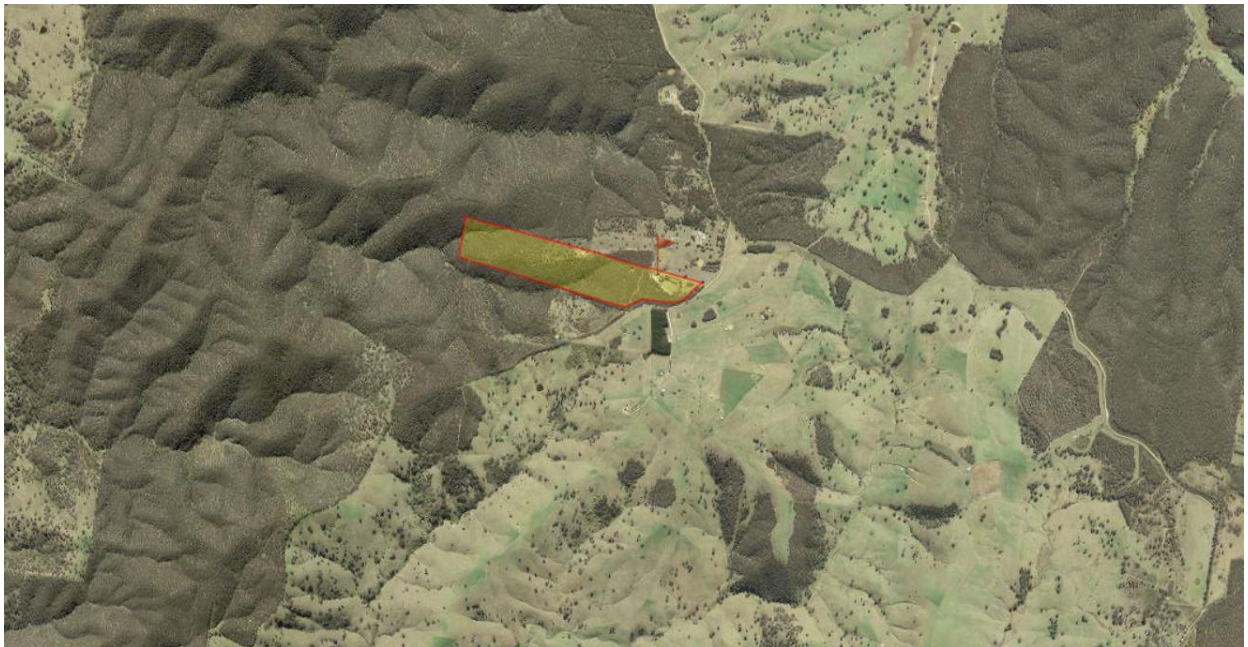


Figure 1 – Site in context

A more detailed view of the site is shown in Figure 2, over:



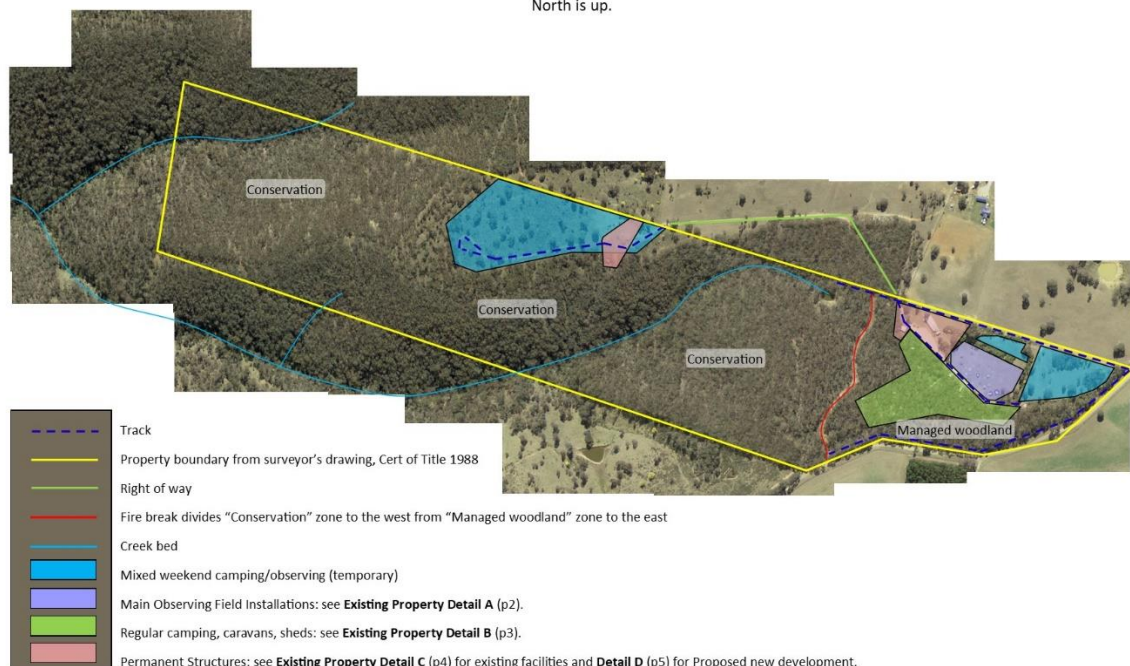
Figure 2 - Site Aerial Detail

The main uses of the site are shown on the FigureFigure 3Figure 3 below. Note that page numbers in the figure refer to plans 1-7.

Astronomical Society of NSW Inc. (ASNSW) - OVERVIEW OF “WIRUNA”, 48 Old Ilford Rd, Razorback (Ilford)

Plan 1: Existing Overall Property Usage Diagram

North is up.

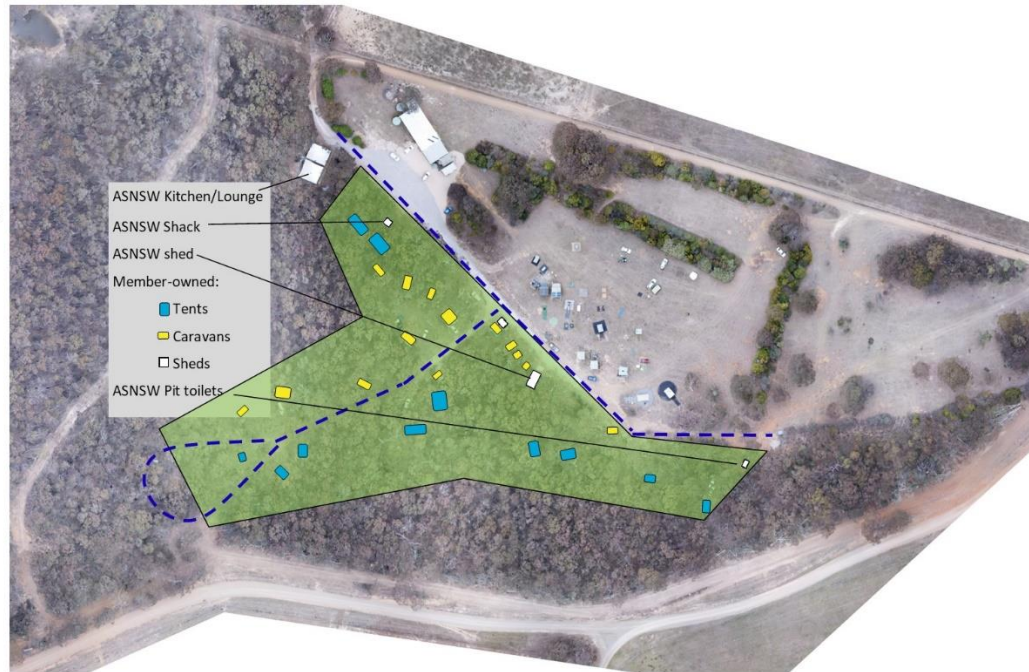


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Figure 3 – Site Use Zones

Details of the actively used areas of the site are provided in the following figures:

Plan 3:
Existing
Property
Detail B
Regular
camping,
caravans
and sheds



4

Figure 4 – Detail of Eastern Zone – Existing

Plan 5: Detail D

Proposed new development

MAIN AREA

1. Bunkroom-style accommodation block (4m x 12m) - **HIGH PRIORITY**
2. Additional bunkroom-style accommodation (4m x 12m) - potential future construction (5+ years)
3. Free-standing cabins (two or more) - possible future construction (4m x 4m)

SEPARATE STORAGE AREA (south-east of main area)

4. Three-car garage (6m x 9m) for storage of mechanical equipment, power tools, trailers, and ride-on lawnmower - **HIGH PRIORITY**



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Figure 5 – Detail of Eastern Zone – Proposed Buildings

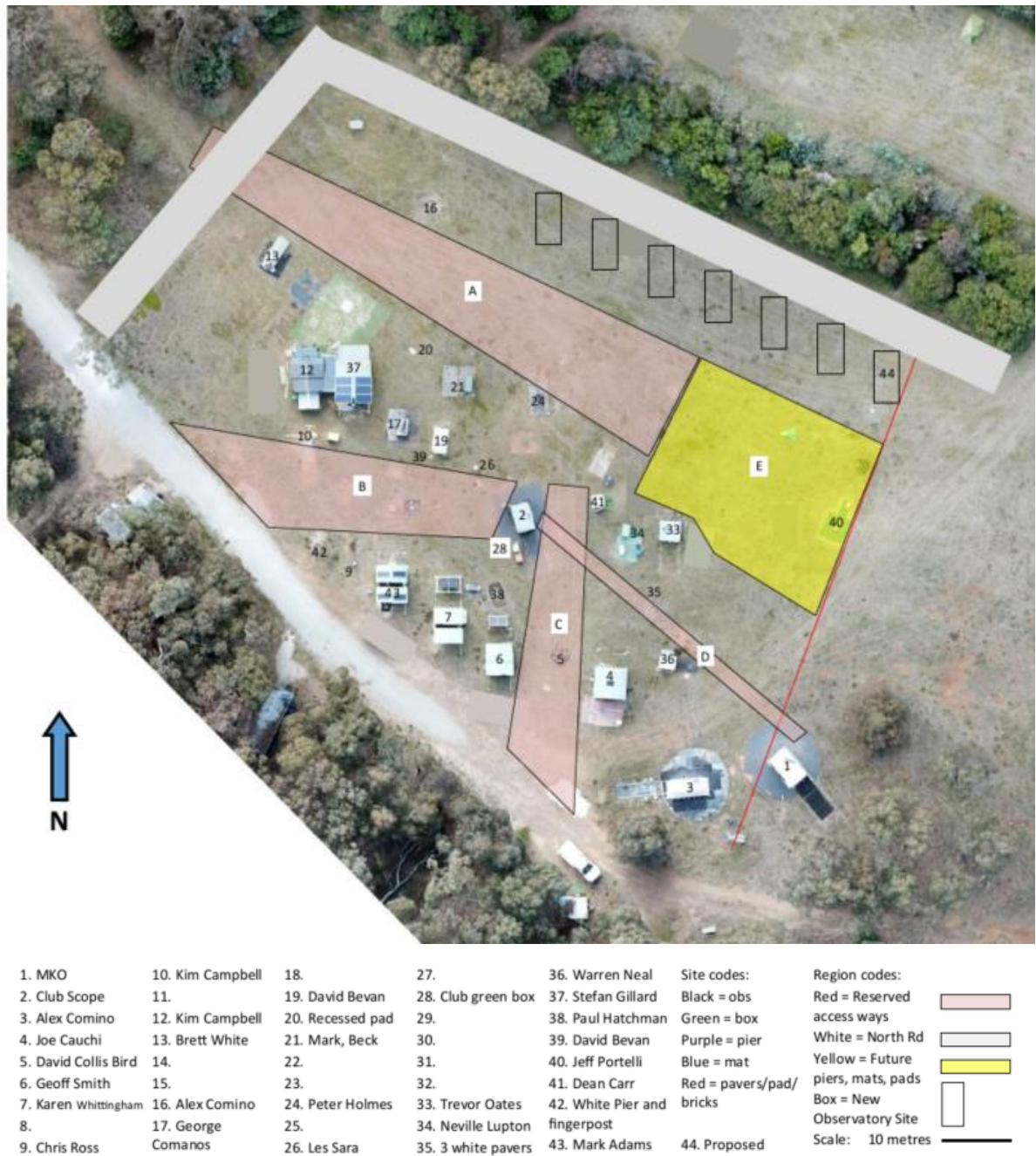


Figure 6 - Structures - Main Observing Area

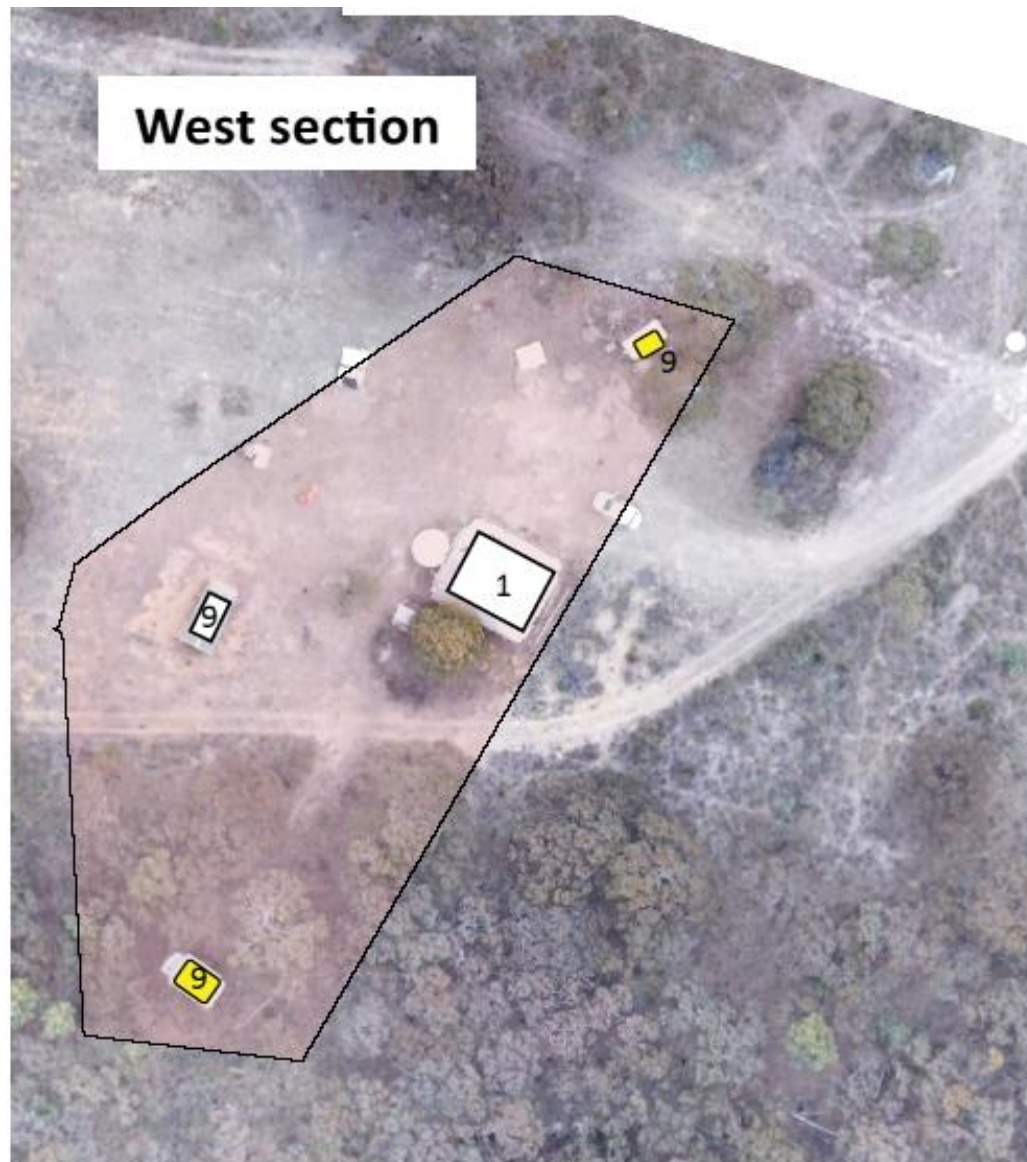


Figure 7 – Detail of Western Zone

The existing dwelling, which is not permanently occupied, is shown as 1) while caravans and a shed are shown as 9).

The property consists of flat to undulating land, and is dissected by watercourses. The topography of the property is shown on Figure 8, below. Of note is that the dwelling is located on a rise located in the middle-western section of the property, while the most active areas of the property are located on the flat land in the eastern section. In assessing the fire risk to the existing dwelling and the main hall in the eastern area, consideration will be given to the relevant factors of vegetation type, slope and aspect, as required under “*Planning for Bushfire Protection 2019*”

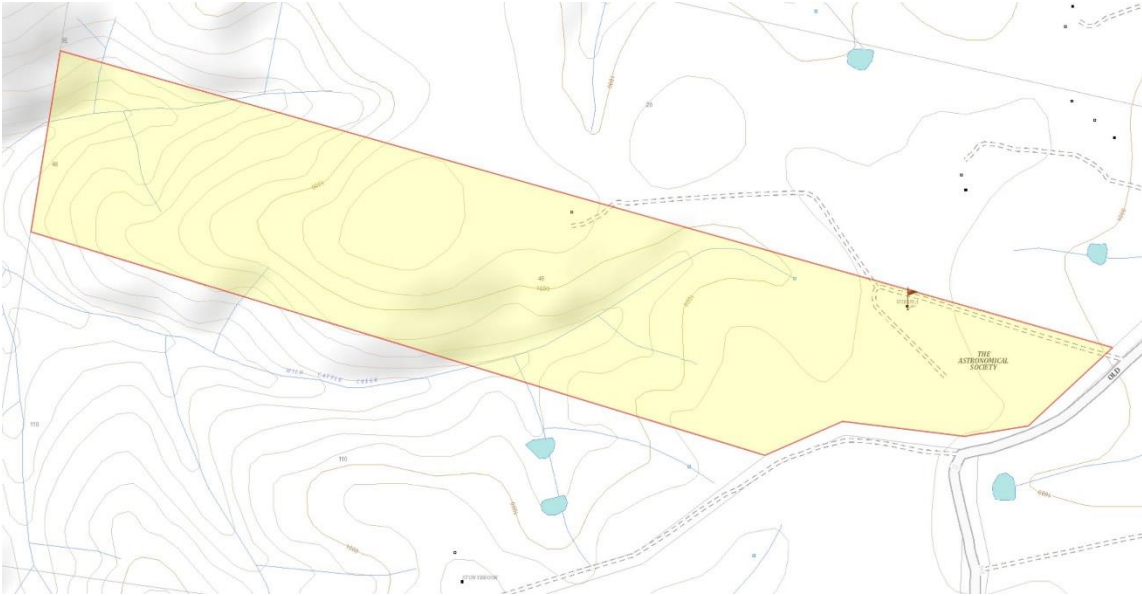


Figure 8 - Topography

The land is classified as bushfire prone, and Figure 9, below, sets out the bushfire categories as applying to the land.



Figure 9 – Bushfire Prone Land

1.2 Bushfire Categories

It is noted that the entire of the land is bushfire prone, with the activity areas largely occurring on the lower hazard category, with the exception of the camping area in the woodland area in the eastern portion of the site. This area consists of managed vegetation and is protected by a firebreak. (Refer to Figure 3).

1.3 Statutory

This report has been prepared in accordance with *Planning for Bushfire Protection 2019*. It establishes the required building setbacks in order to meet appropriate asset protection zone requirements which, in conjunction with the relevant building standards under the Building Code of Australia, would provide appropriate protection.

1.3.1 Development Category

The proposal is for an *Environmental Facility* under Midwestern Regional Council LEP 2012. The main components of the development are described below.

Existing uses include the main activity area of the site, (towards the eastern end), together with the existing dwelling in mid-site and a secondary viewing area on the hilltop further to the west.

Astronomical observations largely take place in the areas as shown in Figure 3. These activities are supported by a hall, of sheet metal on a concrete slab, with attached bunkhouse being of compressed fibreboard and timber construction with a sheet metal roof (an older structure) together with attached amenities being two demountable amenity units on footings.

The site also has an open kitchen and dining area with adjoining seating area consisting of two steel portal framed structures on concrete slabs. These provide shelter for cooking (gas stoves) and eating as well as washing up.

Informal camping occurs near the main viewing and imaging areas, with people typically camping in the nearby woodland for smaller events and occasional visits. This is partially protected by a fire trail (see Figure 3 and Figure 10 below). The bushland ambience is seen as a key and attractive feature of the site.



Figure 10 - Fire Trail

The site also has a dwelling, established in the 1980s, which provides limited accommodation. Camping also occurs around this dwelling. The dwelling is in a cleared area approximately half way into the site. The dwelling is not currently permanently occupied, and is accessed by a partially formed track via a right of way on an adjoining property.

An unformed access track leads to the brow of a hill, which is also cleared, which is available as an observation site. View angles are partially restricted by existing vegetation. All tracks are readily traversed by a conventional two-wheel drive vehicle.

Physically, and in its operation, the site is similar to the numerous “bush” Scout Camps located throughout eastern Australia.

The current operations of the site involve the hosting of a number of small gatherings per year, typically once per month, and typically involving 20-30 people. People would generally stay in existing accommodation when attending for the monthly meetings and maintenance “working bees”.

Other gatherings occur for special astronomical events, and also, annually, for a “star party” which may attract up to 350 people. The mixed camping/observing area is used during this event as shown on Plan 1. During smaller events, camping is mainly in the regular camping area also shown on Plan 1.

Smaller numbers of people attend the site on a regular basis, predominantly for maintenance activities. Bushfire is an acknowledged risk on the site, and is managed under the a Wiruna Bushfire Emergency Management and Evacuation Plan (Document B).

The use of the property will continue to be as an astronomical observing site for the use of Society members and their guests. There are no plans to commence agriculture, run stock, or in any way change to another form of use.

In the future, it is intended to have additional bunkhouses and/or cabins in the cleared areas to the north of the Meeting Hall. A three-car garage is planned adjacent to the existing storage shed. These proposals are shown on Plan 5: Detail D – Proposed new development.

In addition, sites for member telescopes are proposed. The Main Observing Field Management Plan includes the existing telescope sites as well as additional sites. These are used on a temporary basis as set out in this Management Plan.

Critically, it should be noted that all structures on the site are considered as sacrificial with the exception of the dwelling and main hall.

2 Determining development category

A review of *Planning for Bushfire Protection 2019* was undertaken to assess the development category. The proposal is not for a dwelling or a subdivision, and consideration was given to the list of Special Fire Protection Purpose Developments:

- (a) a school,
- (b) a child care centre,
- (c) a hospital (including a hospital for the mentally ill or mentally disordered),
- (d) a hotel, motel or other tourist accommodation,
- (e) a building wholly or principally used as a home or other establishment for mentally incapacitated persons,
- (f) housing for older people or people with disabilities within the meaning of State Environmental Planning Policy No 5 - Housing for Older People or People with a Disability (now State Environmental Planning Policy (Seniors Living))
- (g) A group home within the meaning of Environmental Planning Policy No 9 - Group Homes,
- (h) a retirement village,
- (i) any other purpose prescribed by the regulations. [Section 100B [6] of the RF Act.

A review of the regulations has been undertaken and the following additional uses have been identified:

- (a) a manufactured home estate (within the meaning of State Environmental Planning Policy No 36—Manufactured Home Estates), comprising two or more caravans or manufactured homes, used for the purpose of casual or permanent accommodation (but not tourist accommodation),
- (b) a sheltered workshop, or other workplace, established solely for the purpose of employing persons with disabilities,
- (c) a respite care centre, or similar centre, that accommodates persons with a physical or mental disability or provides respite for carers of such persons,
- (d) student or staff accommodation associated with a school, university or other educational establishment,
- (e) a community bush fire refuge approved by the Commissioner.

The proposal does not fall within the definition of a manufactured home estate within the meaning of SEPP 36. In particular:

manufactured home means a self-contained dwelling (that is, a dwelling that includes at least 1 kitchen, bathroom, bedroom and living area and that also includes toilet and laundry facilities), being a dwelling:

(a) *that comprises 1 or more major sections that are each constructed, and assembled, away from the manufactured home estate and transported to the estate for installation on the estate, and*

(b) *that is not capable of being registered under the Traffic Act 1909,*

and includes any associated structures that form part of the dwelling.

manufactured home estate means land on which manufactured homes are, or are to be, erected.

While caravans are located on the site, these are not for general public access, but belong to members of the NSW Astronomical Society. These vans are managed under a policy of the Society, which is included as Document G.

In summary, the development is not a Special Fire Protection Purpose Development.

Accordingly, the development falls under “Other Development”.

3 Compliance with PBP

In order to comply with PBP there are three key areas, as set out in this section, which are identified for “other development” in Section 8.1. These are:

- Consistency with the Aims and Objectives
- Review of issues for specific purposes, and
- Proposing appropriate BPMs

3.1 Aims and Objectives of PBP

- **afford buildings and their occupants protection from exposure to a bush fire.** The key approach here is to focus on safety of life. The two key buildings which are proposed to be upgraded to meet an appropriate BAL rating are the existing dwelling, and the meeting hall, with this latter building proposed as a fire refuge. While evacuation is a preferred approach in high risk scenarios, the ability to “stay in place” is critical for those situations where evacuation may not be feasible or safe.
- **provide for a defensible space to be located around buildings.** The report identifies APZs for the key buildings.
- **provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings.** This will be done through APZ identification as well as through managing a core woodland area close to the development.
- **ensure that appropriate operational access and egress for emergency service personnel and occupants is available.** Vehicle access is addressed, with the existing fire trail as well as internal access tracks to meet PBP requirements. It is noted that some constraints on access across the creek line exist, and these are further discussed in this report.
- **provide for ongoing management and maintenance of BPMs.** The Society has developed, with advice, a Bushfire Emergency Management Plan which is aimed at ensuring the long-term maintenance of the BPMs in a way that is within the resources of the Association.

- **ensure that utility services are adequate to meet the needs of firefighters.** Utility services predominantly relate to access to water supplies. This is addressed in the report.

In summary, it is considered that development of the site, as proposed, can be carried out in a way that is consistent with the objectives.

3.2 Issues for a specific purpose

The closest “fit” for the proposed use is outlined in Section 8.3.8. “Outdoor events in bush fire prone areas”. This identifies key considerations. The approach to these is outlined below:

- **holding events outside the gazetted bush fire danger period for the area;** This approach has been adopted for the Star Party, which is the key on-site event on an annual basis. Smaller scale events are considered able to take place during the gazetted bushfire danger period subject to the site use exclusions that have been detailed in this report, and accommodated in the Bush Fire Emergency Management and Evacuation Plan.
- **areas of accommodation should be strategically located to ensure maximum time to warn and evacuate people who may be sleeping and slow to respond. This also ensures that highly flammable and combustible materials, such as tent fabric, vehicle fuels and gas cookers are in areas that will not facilitate the spread of fire;** The accommodation is hubbed around defensible structures and in close proximity to fire marshals who can warn and evacuate people as set out in the Bush Fire Emergency Management and Evacuation Plan.
- **a Bush Fire Emergency Management and Evacuation Plan must be prepared that is acceptable to relevant stakeholders, including crowd management and security. It should be consistent with the NSW RFS document: *A guide to developing a bush fire emergency management and evacuation plan*;** A Bush Fire Emergency Management and Evacuation Plan has been developed, and is presented as Document B.
- **access and egress routes for emergency services and patrons in the event that evacuation is required;** These routes have been given consideration in both site physical upgrades to internal access tracks, together with measures outlined in the Bush Fire Emergency Management and Evacuation Plan
- **a refuge building of suitable capacity to contain all participants and staff that complies with the NSW RFS *Neighborhood Safer Place Guidelines* (see www.rfs.nsw.gov.au);** Two refuges are identified, with the key refuge being the site’s main hall. The existing dwelling is also proposed as a refuge for the upper portion of the site, but is not the preferred refuge, and has only been designated as a fall-back measure.
- **an open air bush fire emergency assembly area capable of accommodating all participants and staff that complies with the NSW RFS *Neighborhood Safer Place Guidelines* (see www.rfs.nsw.gov.au);** This is proposed in the Bush Fire Emergency Management and Evacuation Plan.
- **a suitable method of staging evacuation, ensuring that evacuation flow is directed through different stages/areas of the site, moving from areas of higher**

- risk to lower risk;** This is outlined in the Bush Fire Emergency Management and Evacuation Plan.
- **expected evacuation timeframes;** This is outlined in the Bush Fire Emergency Management and Evacuation Plan
 - **on severe or higher fire danger rating days the event will not proceed;** Based on the recent re-categorisation of the fire danger rating system, the Bush Fire Emergency Management and Evacuation Plan does not support events proceeding under the categories of Catastrophic and Extreme.
 - **advance warning to patrons identifying that the event is located on BFPL and giving advice on any fire restrictions;** This is addressed in the material distributed to patrons, and also during the site induction processes proposed.
 - **ability to cease and override P.A. and audio systems throughout the site to announce emergency warnings, alerts or safety information, which can be clearly heard from all areas of the site; and** The PA system is able to be used to announce warnings, safety information and the like which can be heard throughout the eastern area of the site.
 - **a prescribed ratio of trained fire wardens to participants.** This is detailed in the Bush Fire Emergency Management and Evacuation Plan.

In summary, the key considerations can all be addressed.

Section 8.3.8 also identifies other BPMs that should be considered:

- **bulk water supplies on site that are specifically allocated to firefighting purposes;** This is set out in the section of the report dealing with firefighting water supplies.
- **unobstructed APZs of suitable width surrounding the site along the boundaries adjacent to the bush fire threat. Slashing of grassed areas needs to occur in the lead-up to the event and maintained throughout its duration;** APZs are as set out later in this report. Management is addressed in the Bush Fire Emergency Management and Evacuation Plan.
- **emergency management planning during the event organisation stage to be undertaken in consultation with the NSW RFS and all other relevant stakeholders; and** This is set out in the Bush Fire Emergency Management and Evacuation Plan. This document would be updated each year in consultation with the relevant stakeholders.
- **fires for cooking and heating in approved fire places only and addressed by a Fire Management Plan.** Fires would only be permitted in approved places, as set out in the Bush Fire Emergency Management and Evacuation Plan. The fire management plan is incorporated into the Bush Fire Emergency Management and Evacuation Plan.

There is general commentary in Section 8.3.8 regarding outdoor events in bush fire prone areas. This material is quoted below with commentary:

Outdoor events often cater for large numbers of people in isolated locations, can continue over a number of days and may include on-site accommodation. They include music festivals, cultural festivals, sporting events, and regional shows. Events that involve overnight camping, multiple days, or attract large numbers of people in high risk/ isolated bush fire

prone areas during the bush fire danger period require careful consideration. Such events create a number of logistic and operational issues if evacuation is required due to a bush fire.

Comment: This is acknowledged and is addressed in the planning and operation of the event.

Crowd control and operational access at the venue during bush fire events can prove to be challenging especially if they are held in remote locations.

Comment: Crowd control is set out in the South Pacific Star Party Information 2019, (Document F) which is provided to all guests. Specific induction, together with an emergency drill is held. Further detail is provided in the Bush Fire Emergency Management and Evacuation Plan.

Consideration should be given to holding events outside the gazetted bush fire danger period for the area and should include:

Comment: The major event, the Star Party is generally held in May. This event would have up to 320 people. This is outside the bushfire period. Smaller events are held approximately monthly however these have much smaller number of participants, up to approximately 40 people. The site is closed when fire-risk is above “high”.

- *Areas of accommodation should be strategically located to ensure maximum time to warn and evacuate people who may be sleeping and slow to respond. This also ensures that highly flammable and combustible materials, such as tent fabric, vehicle fuels and gas cookers are in areas that will not facilitate the spread of fire.*

Comment: Constructed accommodation is located in two areas. Evacuation protocols have been developed for each area in the Bushfire Emergency Management and Evacuation Plan. Tents are utilised, but are located in areas with managed groundcover. An emergency siren with backup is available to wake participants if needed, noting the site access protocols in the Bushfire Emergency Management and Evacuation Plan would substantially reduce risk due to the site access protocols.

- *A bush fire emergency management and evacuation plan must be prepared that is acceptable to relevant stakeholders, including crowd management and security. It should be consistent with the NSW RFS document: ‘A guide to developing a bush fire emergency management and evacuation plan’.*

Comment: A Bushfire Emergency Management and Evacuation Plan has been prepared and is appended. Consideration has been given to ‘A guide to developing a bush fire emergency management and evacuation plan’.

- *The following items should also be considered:*
 - *access and egress routes for emergency services and patrons in the event that evacuation is required.*
 - *a refuge building(s) that ensures radiant heat exposure of greater than 10 kW/m² is not experienced within the operational environment for emergency service personnel and occupants during firefighting and emergency management, and be of suitable capacity to contain all participants and staff*
 - *an open air bush fire emergency assembly area of suitable size that complies with the requirements for Neighbourhood Safer Places (refer to section 2.6.4 in this document).*

- *a method of staging evacuation, ensuring that evacuation flow is directed through different stages/areas of the site, moving from areas of higher risk to lower risk and progressing through evacuations zones.*
- *expected evacuation timeframes*
- *on severe or higher fire danger rating days the event will not proceed.*
- *advance warning to patrons identifying that the event is located on BFPL and giving advice on any fire restrictions.*
- *ability to cease and override P.A. and audio systems throughout the site to announce emergency warnings, alerts or safety information, which can be clearly heard from all areas of the site.*
- *a prescribed ratio of trained fire wardens to participants.*

Comment: The main hall would have a maximum exposure on the face addressing the vegetation of 10kW/m². This is consistent with the recommended level. The other matters are all addressed in the Bushfire Emergency Management and Evacuation Plan, attached.

- *A suitable package of other protection measures should be proposed based on individual event characteristics which considers the following:*
 - *Bulk water supplies on site that are specifically allocated to firefighting purposes.*
 - *Unobstructed APZs of suitable width surrounding the site along the boundaries adjacent to the bush fire threat. ‘*
 - *Slashing of grassed areas needs to occur in the lead-up to the event and maintained throughout its duration.*
 - *Emergency management planning during the event organisation stage to be undertaken in consultation with the NSW RFS and all other relevant stakeholders.*
 - *Fires for cooking and heating in approved fire places only and addressed by a Fire Management Plan (covering, for example, the operation and supervision of a communal bonfire).*

Comment: These matters are all addressed in the Bushfire Emergency Management and Evacuation Plan, attached.

3.3 Package of BPMs

The key to the proposed BPMs is the hierarchy of controls. This includes this report, but also the other identified material. The hierarchy is set out following in diagrammatic form. This report makes recommendations regarding the BPMs which are then reflected in the operational documents. As indicated, these are “live” and would operate on a continuous improvement model.

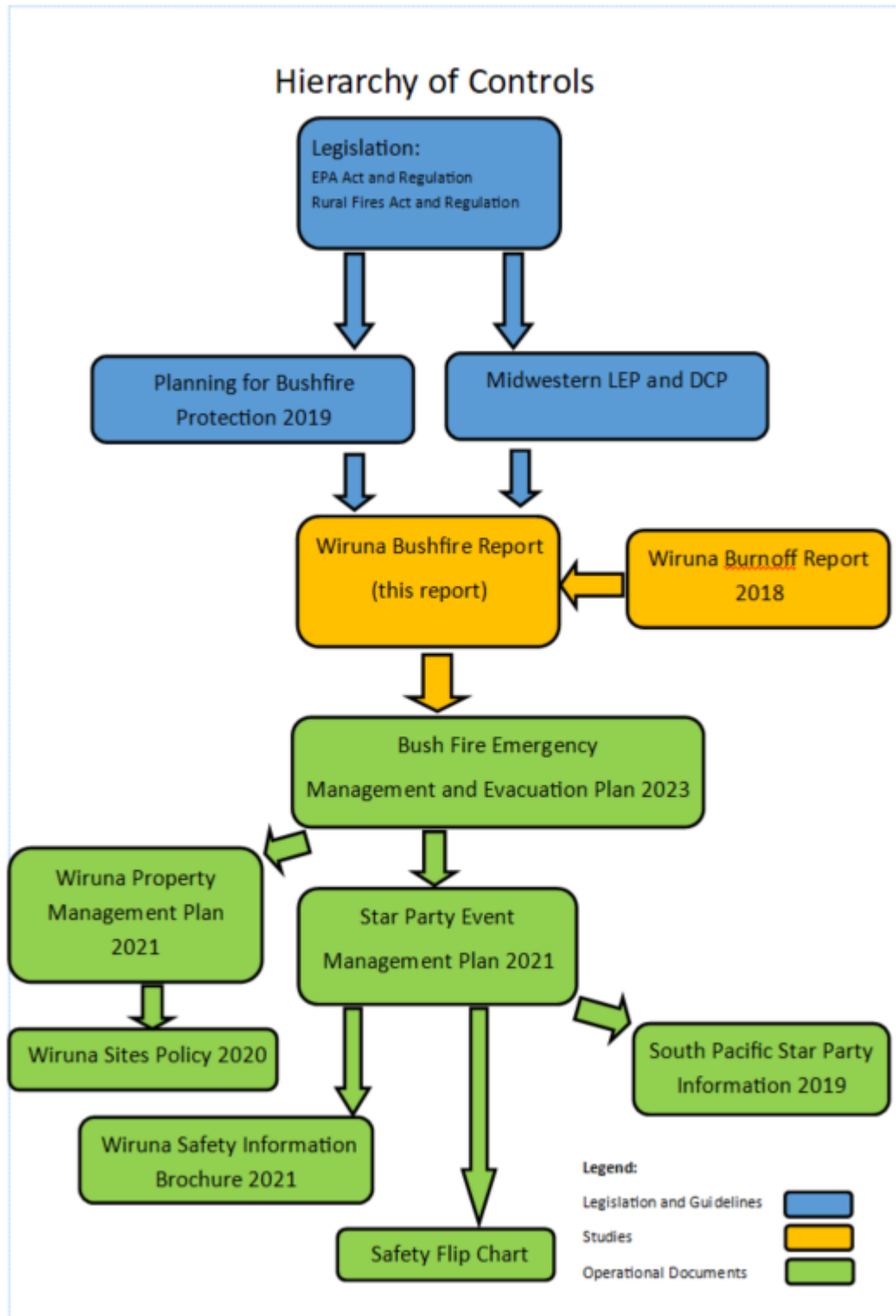


Figure 11 - Hierarchy of Controls

4 Consideration of APZs and BAL ratings

This section reviews the APZ requirements, and considers appropriate BAL ratings for the main hall and dwelling.

4.1 Determination of vegetation formations

Vegetation type is after Keith (2004). The core vegetation type relevant to this study is shown below:



Photo courtesy Catherine Ryland

Woodland

Dominated by an open to sparse layer of eucalypts with the crowns rarely touching. Typically 15-35m high (may be shorter at sub-alpine altitudes). Diverse ground cover of grasses and herbs. Shrubs are sparsely distributed. Usually found on flat or undulating ground.

Figure 12 - Vegetation Category – Woodland

Areas of wet sclerophyll forest also occur on the site. Wet sclerophyll forest is associated with the main drainage line, and the associated south-facing slopes. This is characterised as follows:



Photo courtesy Ken Turner

Wet Sclerophyll Forest

High open tree canopy dominated by tall (typically >30m), straight trunked eucalypt species. Luxuriant understorey composed of soft leaved shrubs, ferns and herbs. Many understorey plants are rainforest species. Found on moderately fertile soils in areas of high (>900mm) rainfall.

Figure 13 – Vegetation Category - Wet Sclerophyll - associated with the creek line

4.1.1 Reasons for classification

Both the managed woodland on the lower flat and the vegetation in the close vicinity of the upper dwelling have canopies that are generally not touching, although the vegetation on the flat is of a denser character. In addition, both have grasses predominating as groundcover. As the land near the upper dwelling drops away towards the creek, the south-facing slopes grade to wet sclerophyll.

Vegetation was reviewed within 140m of the two relevant buildings. These are assessed below:

4.1.2 Site 1 – Existing Dwelling

This building is located in a cleared area towards the brow of a hill. (See Figure 2 and Figure 6). The dwelling is accessed via a trail, which goes to the south of the development, prior to proceeding up to the hilltop, where an observing area is located. Part of this track traverses land in the adjoining property via a right of way, and permission would need to be sought from the adjoining owner for any upgrade.

The significant vegetation is located to the south of the site, where the land falls steeply away to a creek. The figures below show this vegetation type.



Figure 14 - Vegetation west of Dwelling



Figure 15 - Vegetation south of Dwelling

After Keith (2004) the vegetation type is assessed as woodlands at the top of the slope, grading to wet sclerophyll forest on the steeper southern slope down to the creek. Figure 16 below shows the 140m radius, superimposed on the aerial view of the site. As can be seen, the 140m distance reaches fully down the slope to the creek line at the bottom.



Figure 16 - 140m vegetation radius – Dwelling

4.1.3 Site 2 – Main Hall

This building is located in a cleared area on flat land on the eastern end of the site (see Figure 2, Figure 4 and Figure 5). The main area of vegetation is the managed vegetation directly to the west and south of the building. For the purposes of calculating bushfire risk the vegetation is categorised as unmanaged. The area has excellent access to Old Ilford Road, as well as to extensive cleared areas to the north and east.

The significant vegetation is located to the south and west of the site, with the land being flat to gently sloping. The figures below show the vegetation type.



Figure 17 - Vegetation South East of Main Hall



Figure 18 - Vegetation South of Main Hall

After Keith (2004) the vegetation type is assessed as woodland. The Figure below shows the 140m radius, superimposed on the aerial view of the site. As can be seen, the 140m distance reaches part-way into the vegetated area, which is some 185m wide to Old Illford Road. It is noted that a small pine plantation is located on the other side of the road.

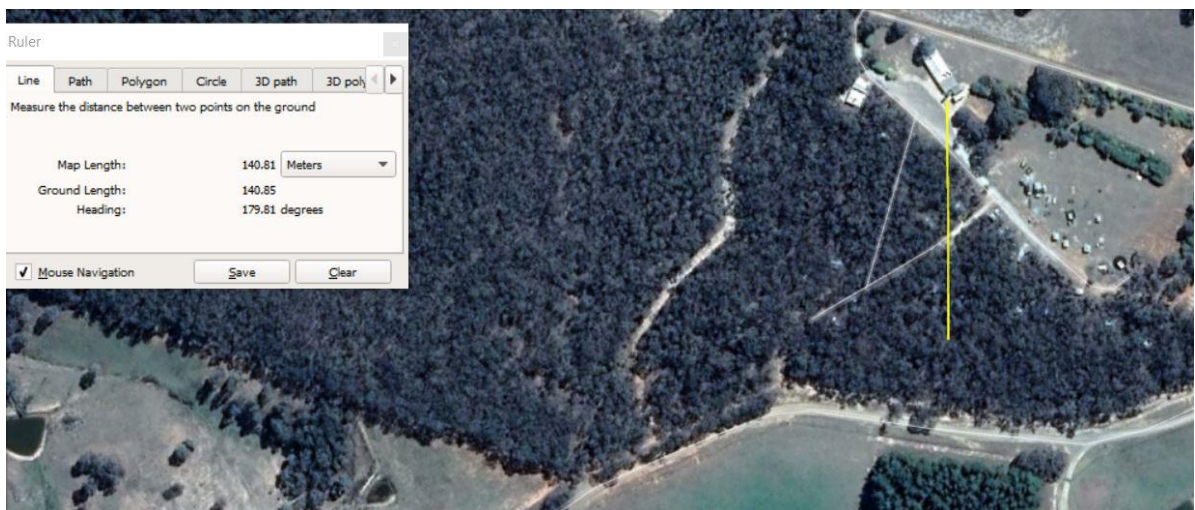


Figure 19 - 140m distance – Main Hall

4.2 Slope of the land

4.2.1 Site 1 – Existing Dwelling

Slope was assessed for a distance of 100m from the building footprint. Slope was assessed both in terms of the most likely fire vector (from the south west) as well as straight down-slope. Slope is calculated from the topographic information in Six Maps together with site observations. Slope is complicated by the fact that this is estimated at some 5% for some 40m from the dwelling towards the main slope. There is 20m clear area to the edge of the existing trees, which are categorised as woodland. The land then slopes sharply downwards directly to the creekline with a slope of 20%. The downslope on the most likely fire vector is similar. The effective slope is therefore estimated taken to be 20% which is 11.3 degrees.

4.2.2 Site 2 – Main Hall

Slope was assessed for a distance of 100m from the building footprint. Slope was assessed both in terms of the most likely fire vector (from the south west). Slope is calculated from the Six Viewer topographic map together with site observations. The land is very gently undulating but is essentially flat.

4.3 Fire weather area

The area is located in the Central Ranges fire area, which has an FDI rating of 80.

4.4 Appropriate setbacks

Based on the above, the minimum specifications for asset protection zones are as follows:

4.4.1 Site 1 – Existing Dwelling

Table A.1.12.6 was adopted. Based on the assessed vegetation type and effective slope, and a current setback of 13m from the edge of the vegetation, the BAL is FZ. To achieve the BAL 29, a setback of 39m to vegetation is required. This would require clearing to the “break of slope” for the primary APZ. There is shielding of the northern faces of the building, which would permit the next lowest BAL to be utilised for these faces.

AS3959 standards for the relevant BAL levels would need to be imposed to bring the dwelling up to appropriate resistance on all faces. These standards would apply to at least the southern and eastern faces of the building. It should be noted that the verandah and western faces of the dwelling do not have direct exposure and should be able to be constructed to a lower BAL. BAL 19 is the lowest permissible level being one level below BAL 29.

Firefighting requirements including 10,000 litres of dedicated storage in a non-flammable tank would also be required together with RFS compliant Stortz fittings. Hardstanding is also required to be provided. The relevant Deemed to Comply provisions from PBP 2019 need to apply.

It is noted that the dwelling has an approximate distance to Old Ilford Road of 930m. In addition, only a single access is available for the first 490m at which point, with the agreement of the adjoining landholder, an alternate access would be available. The recommended maximum access length is 200m.

It is noted that the existing dwelling access track traverses a treed area. This section will require additional clearing to achieve a minimum of 4m width plus minimum clearing of 1m

per side, together with an overhead clearance of 4m. An effective width of 6m is required for all internal access tracks, so that a vehicle and a truck can safely pass.

The acceptable solutions of Table 5.3b are recommended to be adopted.

Given the non-compliance with access, the dwelling needs to be able to act as a refuge in a fire event. It is noted, however, that the preferred scenario would be a staged evacuation to the main hall.

Set out following is a review against the acceptable solutions of Part 5.

Table 5.3a	
Item	Acceptable Solution Compliance
Asset protection zones	Complies with conditions applied
Landscaping	Complies with conditions applied

Table 5.3b	
Item	Acceptable Solution Compliance
Access – General Requirements	No roads are proposed. Access to water would meet the acceptable solution.
Perimeter Roads	No roads are proposed.
Non-perimeter Roads	No roads are proposed.
Property Access	Complies with conditions applied.

Table 5.3c	
Item	Acceptable Solution Compliance
Water Supplies	Static water only. To comply with Table 5.3d Provisions for integrity of the water supply comply with application of conditions.
Electricity Services	N/A Development is off-grid utilising solar and backup generators.
Gas Services	Comply with application of conditions.

Recommendations

- A minimum APZ, completely cleared, of 40m be provided in all directions
- The existing dwelling be brought up to BAL 29 construction under AS3959 on the exposed faces (East and South) with the shielded faces brought up to BAL 19.
- The APZ shall be tightly managed with slashing to prevent grasses growing above 100mm.
- Property access and property access tracks shall comply with Table 5.3b of PBP.

- Additional clearing shall be undertaken along the 150m section of the access track which traverses woodland vegetation to achieve 6m cleared width and 4m vertical cleared width. A passing bay, 6m wide, shall be provided mid-length.
- Services be upgraded to comply with Table 5.3c acceptable solutions.
- Water supply capacity of 20,000 litres be adopted from Table 5.3d.
- APZ management is to comply with Appendix 4 and this is to be detailed in the Property Management Plan.
- A Bush Fire Emergency Management and Evacuation Plan is to be prepared and implemented in accordance with Table 6.8d utilising the Variations.

4.4.2 Site 2 – Main Hall

Table 1.12.1 was adopted. Based on the assessed vegetation type and effective slope, and a distance of 25m, the current BAL is assessed at 12.5. Noting the proposed use of the building as a fire refuge, it is recommended that this building be upgraded on all faces to achieve BAL 19.

Although the use is not a SPPF, it will perform a refuge function, albeit not for the general public. Accordingly,

It is noted that the access road provides an excellent APZ on the most exposed face being of hardstand with no fire source features whatsoever.

The distance to Old Illford Road is some 340m, which is over the recommended 200m. Nevertheless, there are three feasible access paths; one using the fire trail, one using the main access, and the third northwards to the adjoining property which has extensive cleared areas. In practice, however, the main access would be preferred in every case due to the direction of fire vectors.

Set out following is a review against the acceptable solutions of Part 6.

Table 6.8a	
Item	Acceptable Solution Compliance
Asset protection zones	Complies with conditions applied.
Landscaping	Complies with conditions applied
Construction Standards	Complies with conditions applied

Table 6.8b	
Item	Acceptable Solution Compliance
Access	No roads are proposed. Access to water would meet the acceptable solution.
Perimeter Roads	No roads are proposed.
Non-perimeter Roads	No roads are proposed.

Table 6.8b	
Item	Acceptable Solution Compliance
Property Access	Variations – comply with application of conditions.

Table 6.8c	
Item	Acceptable Solution Compliance
Water Supplies	Static water only. Comply with application of conditions.
Electricity Services	N/A Development is off-grid utilising solar and backup generators.
Gas Services	Comply with application of conditions.

Table 6.8d	
Item	Acceptable Solution Compliance
Emergency Management	Comply with variations with the application of conditions. Noted that health care facilities not relevant.

Recommendations:

- An APZ is to be provided to the south-west to limit the radiant heat on the building to no more than 10kW/m². This APZ is to be a minimum of 42m which will involve clearing of 17m.
- The cleared area is to be maintained as hardstand at all times.
- A minimum APZ of 42m be provided in all other directions with all non-grass vegetation to be cleared.
- 6m to other (proposed) structures to be observed.
- The building be upgraded to BAL 19.
- All accommodation is to be provided within 100m of the building, including temporary accommodation, except for accommodation areas within 200m of Old Ilford Road by the most direct access.
- The main internal access road be upgraded to a minimum 6m in width from Old Ilford Road to the turnout to the building.
- Services be upgraded to comply with Table 6.8c acceptable solutions.
- Water supply capacity of 20,000 litres be installed to the main building, located on the north-east face.
- Any separate buildings constructed are to have a minimum of 10,000 litres per building after Table 6.8c.
- APZ management is to comply with Appendix 4 and this is to be detailed in the Property Management Plan.
- A Bush Fire Emergency Management and Evacuation Plan is to be prepared and implemented in accordance with Table 6.8d utilising the Variations.

5 Conclusions and Recommendations

The development is supportable on bushfire grounds provided the recommendations of this report are fully adopted, or an alternative solution is developed by an accredited bushfire consultant.

APPENDIX

Plans

1. Existing Overall Property Usage Diagram
2. Existing Property Detail A
3. Existing Property Detail B
4. Existing Property Detail C
5. Detail D – Proposed New Development
6. Lopping Zones
7. Elevations (typical)

Documents

- A. Wiruna Bushfire Report
- B. Wiruna Bushfire Emergency Management and Evacuation Plan
- C. Wiruna Property Management Plan August 2021
- D. Star Party Event Management Plan August 2021
- E. Wiruna Burnoff Report Aug 2018
- F. South Pacific Star Party Information 2019
- G. Wiruna Sites Policy 2020
- H. Safety Flip Chart
- I. Wiruna Safety Information Brochure 2021
- J. Main Observing Field Management Plan 2023