



BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT

Lot B DP 38869 No.60 Bonner Road,
AGNES BANKS NSW 2753

Report prepared for: - Susan King

Report Documentation Control

<i>Title</i>	Lot B DP 38869 No.60 Bonner Road, AGNES BANKS NSW 2753
<i>Date</i>	Date of Issue 4 April 2018
<i>Date</i>	Date of Site Inspection 13 February 2018
<i>Author(s)</i>	Bushfire Management Consultants
<i>The Client</i>	Susan King
<i>Expiry</i>	13 February 2019 (The information in this report is valid for 12 months from the date of issue.)
<i>Job No.</i>	2018045 Rev B
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Date: - 4 April 2018

Development Application Number: - Unknown

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OUR REFERENCE	<i>2018045 Rev B</i>
DATE OF THIS CERTIFICATE	<i>4 April 2018</i>
APPLICATION TYPE	<input checked="" type="checkbox"/> <i>Development Application S100B RFA</i>
SUBJECT SITE	Lot B DP 38869 No.60 Bonner Road, AGNES BANKS NSW 2753
PROPOSED DEVELOPMENT	<i>One Into Two Lot Subdivision</i>
PLAN REFERENCE	<i>Plan of Detail Survey, Matthew Freeburn, Sheet 1 of 1, Surveyors Reference 36 031 PPD SUB Date of Survey: 04/08/17, REVISION 03</i>

1.0 PROJECT BRIEF

Bushfire Management Consultants have been engaged by Susan King to assess the potential threat to the proposed development in the event of a bushfire and prepare a Bushfire Attack Level Assessment to determine the level of Bushfire Attack to the proposed development and compliance with Planning for Bush Fire Protection 2006 (PBP).

Maps prepared by Penrith City Council in accordance with Section 146 of the Rural Fires Act 1979 (RF Act) indicate that the subject property is bushfire prone land. The aim of this report is to determine compliance with Planning for Bush Fire Protection 2006 (PBP) and AS3959 – 2009 *Construction of Buildings in Bushfire Prone Areas* and to determine if any further requirements are needed for the proposal with regard to bushfire protection. This assessment included a site assessment to determine the actual site characteristics.

An assessment has been conducted in accordance with the methodology set out in Planning for Bush Fire Protection (PBP) 2006 and AS3959-2009 (Amendment 3).

The proposal is to seek approval for a proposed one into two lot subdivision.

The following information has been used to assess the potential bushfire threat to the property:-

- (a) Plan of Detail Survey, Matthew Freeburn, Sheet 1 of 1, Surveyors Reference 36 031 PPD SUB Date of Survey: 04/08/17, REVISION 03
- (b) Inspections of the site and surrounding development
- (c) Advice from the Susan King and City Scape Planning and Projects



2.0 EXECUTIVE SUMMARY

This report provides an assessment of the subject property and proposed development as required by Section 100B of the Rural Fires Act and The NSW Rural Fire Service Guide; *Planning for Bush Fire Protection (2006) – A Guide for Councils, Planners, Fire Authorities and Developers*, to determine compliance with Planning for Bush Fire Protection 2006. Subsequently the subject site has been identified as Bushfire Prone Land and has been identified on the bushfire prone land maps adopted by Penrith City Council. (Refer Attachment B)

The subject site is known as Lot B DP 38869 No.60 Bonner Road, Agnes Banks NSW and is currently rural land containing a single dwelling, detached granny flay/secondary dwelling and sheds. The existing allotment is a large rural lot with an approximate area of 2.023ha. If the subdivision is approved proposed lot 1 will be a vacant allotment with a direct street frontage to Bonner Road, whilst Lot 2 is a battle-axe type allotment containing the existing dwelling and secondary dwelling (multiple occupancy lot).

The existing allotment is generally managed land with short grasses and scattered trees. Forest vegetation exists to the front (north) of the property on the northern side of Bonner Road and again to the south on adjoining lands. Grasslands in the form of grazed paddocks exists to the east and west also on adjoining lands.

The assessment determined that the proposed development can comply with the requirements within *Planning for Bush Fire Protection (2006) – A Guide for Councils, Planners, Fire Authorities and Developers* with regard to asset protection zone requirements in Appendix 2 Table A2.4 for the proposed development type and can comply with same for services, access etc. Ember protection upgrades and additional water supplies are recommended for the existing dwelling and secondary dwelling located on proposed Lot 2.



3.0 PROPOSED DEVELOPMENT

The applicant proposes a one into two lot subdivision on Lot B DP 38869 No.60 Bonner Road, Agnes Banks. The area of the existing site is approximately 2.023ha and is currently vacant rural land. It is proposed to subdivide the existing property into 2 lots being proposed Lot 1 and proposed Lot 2. Proposed Lot 1 is 1.01ha and is a vacant allotment with scattered trees and subject to a separate development application for a future dwelling. Proposed Lot 2 is 1.013ha including the access handle and contains an existing dwelling, secondary dwelling and sheds. Both lots being proposed Lot 1 and Lot 2 will have access from Bonner Road. The access for Lot 2 will be via an access handle adjacent to the eastern boundary of the site.

A copy of the proposed site is at Attachment 'A' of this report



Figure 1 – Subject Site – Proposed Lot 1 – Bonner Road Street Frontage

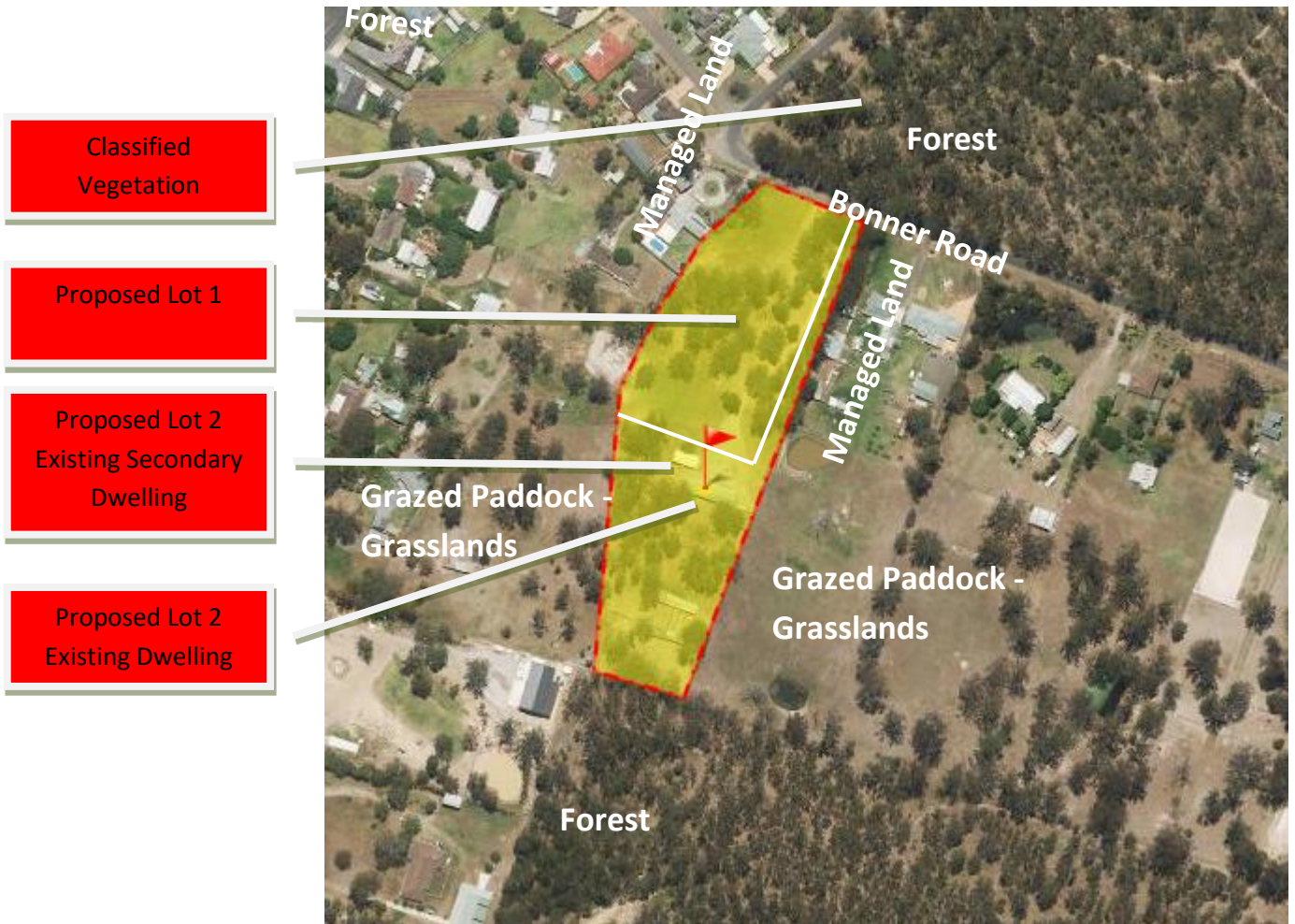


Figure 2 – Subject Site – Proposed Lot 1 and 2

4.0 SITE ASSESSMENT AND CHARACTERISTICS

4.1 Site Description

The site is located in the Local Government Area of Penrith in the suburb of Agnes Banks with a street frontage to Bonner Road which is a local road providing a bitumen sealed access to the property and surrounding developments. The site is currently rural land containing a single dwelling, detached granny flay/secondary dwelling and sheds.

The existing site is an irregular shaped allotment with a length of approximately 270m and a width of approximately 85m through the widest point and a site area of approximately 20,230m² (2.023ha). An aerial photo of the site is shown in Figure 2. Access to the site is via Bonner Road which is a bitumen sealed public road that provides free access for fire fighting vehicles.



4.2 Surrounding Development

4.2.1 North

To the north adjoining the site is Bonner Road. Further to the north is 'Forest' Type vegetation.



Figure 3 – North

4.2.2 South

To the south adjoining the site are other rural properties containing 'Forest' type vegetation.



Figure 4 – South



4.2.3 East

To the east adjoining the site are rural properties. The Bonner Road frontage to the east contains a managed area with a dwelling and sheds, the rear of the adjoining property to the east is grazed paddocks. For the purposes of this report the adjacent paddock has been recommended as ‘Grasslands’.



Figure 5 – East –Grazed Paddocks and existing dwellings

4.2.4 West

To the west adjoining the site are rural properties. The Bonner Road frontage to the east contains a managed area with a dwellings and sheds, the rear of the adjoining property to the west is grazed paddocks. For the purposes of this report the adjacent paddock has been recommended as ‘Grasslands’



Figure 6 – West- Grazed Paddocks and existing dwellings



5.0 DETERMINING APZ REQUIREMENTS

5.1 Methodology

Planning for Bush Fire Protection Appendix 2 Table A2.4 sets the minimum specifications for Asset Protection Zones (APZ) for Residential and Rural Subdivision to determine the minimum APZ requirements requires determination of the following:-

1. The relevant Fire Danger Index (FDI)
2. The classified vegetation types
3. The effective slope under the classified vegetation
4. The Minimum APZ Specification from the appropriate table

In addition Planning for Bush Fire Protection S4.1.3 requires that radiant heat levels at any point on a proposed building will not exceed 29kw/m² (BAL 29). AS3959-2009 sets the methodology for assessment and determination of the applicable Bushfire Attack Level (BAL) for development. The method required the determination of the following:-

1. The relevant Fire Danger Index (FDI)
2. The classified vegetation types
3. The distance of the site from the classified vegetation
4. The effective slope under the classified vegetation
5. The BAL level from the appropriate table

The following addresses the method for determining the minimum APZ and BAL for the subject site.

5.2 FDI

FDI is determined by Table 2.1 AS3959-2009. In this case the subject site is within NSW and the Greater Sydney Region.

NSW Greater Sydney FDI 100

5.3 Vegetation Type

The Classification of vegetation in Table 2.3 AS3959 is:-

TABLE 1, CLASSIFICATION OF VEGETATION

Vegetation Type
Forest – North and South
Grasslands – East and West



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5.4 Slope

The slope of the land within 100m of a proposed dwelling together with other factors reflects the intensity and rate of spread of an approaching bushfire. Fires spread quicker when burning upslope than they generally do when burning downslope. The slope within 100m of proposed Lots 1 and 2 have been assessed accordingly.

TABLE 2, SLOPE IDENTIFICATION

Direction	Slope	Degrees (°)
North	Downslope	0-5 ⁰
South	Downslope	0-5 ⁰
East	Downslope	0-5 ⁰
West	Downslope	0-5 ⁰

5.5 Planning for Bush Fire Protection Appendix 2 Table A2.4

Planning for Bush Fire Protection Appendix 2 Table A2.4 requires a minimum specifications for asset protection zones as required.

TABLE 3, PBP APZ REQUIREMENTS

	Proposed Lot 1 – Proposed Building Envelope		Proposed Lot 2 (Existing Dwelling)	
	Required	Proposed	Required	Proposed
North	25m	<input checked="" type="checkbox"/> 71m (Complies) (15m in Road Reserve plus minimum 56m setback)	25m	<input checked="" type="checkbox"/> >100m (Complies) Maintain Lot 1 as IPA
South	25m	<input checked="" type="checkbox"/> >100m (Complies) Maintain Lot 1 and 2 as IPA	25m	<input checked="" type="checkbox"/> 32m (Complies) (minimum 32m setback)
East	10m	<input checked="" type="checkbox"/> 15m (Complies) (minimum 10m setback plus 5m access handle)	10m	<input checked="" type="checkbox"/> 10m (Complies) (minimum 10m setback)
West	10m	<input checked="" type="checkbox"/> 40m (Complies)	10m	<input checked="" type="checkbox"/> 10m (Complies) (minimum 10m setback)



5.6 AS3959-2009 BAL 29 Assessment

TABLE 4, PROPOSED LOT 1 TABLE OF COMPLIANCE (Building Envelope)

Proposed Lot 1	North	South	East	West
Vegetation Structure	Forest	Forest	Grasslands	Grasslands
Vegetation Width	>100m	>100m	>100m	>100m
Slope	Downslope 0-5 ⁰	Downslope 0-5 ⁰	Downslope 0-5 ⁰	Downslope 0-5 ⁰
Asset Protection Zone	Bonner Road and Subject Site	Lot 2 and Subject Site	Subject Site	Subject Site
Distance to vegetation	71m	>100m	15m	40m
Bushfire Attack Level	BAL 12.5	BAL LOW	BAL 19	BAL 12.5

As such a future dwelling could be recommended for construction on proposed Lot 1 at BAL 19 or less depending on siting.

TABLE 5, PROPOSED LOT 2 TABLE OF COMPLIANCE

Proposed Lot 2	North	South	East	West
Vegetation Structure	Forest	Forest	Grasslands	Grasslands
Vegetation Width	>100m	>100m	>100m	>100m
Slope	Downslope 0-5 ⁰	Downslope 0-5 ⁰	Downslope 0-5 ⁰	Downslope 0-5 ⁰
Asset Protection Zone	Bonner Road and Lot 1	Subject Site	Subject Site	Subject Site
Distance to vegetation	>100m	32m	10m	10m
Bushfire Attack Level	BAL LOW	BAL 29	BAL 29	BAL 29

As such a future dwelling could be recommended for construction on proposed Lot 2 at BAL 29 or less depending on siting. An independent assessment of the existing dwelling and granny flat on proposed Lot 2 was undertaken that recommends BAL 29 for the existing dwelling and BAL 29 for the granny flat being less than 10m from the primary dwelling. As such the existing dwellings comply with the minimum BAL 29 requirement. Ember protection upgrades and water supplies are recommended to the primary and secondary dwellings as part of this report.



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TABLE 6, PBP OBJECTIVES FOR ASSET PROTECTION ZONES

OBJECTIVE	PBP COMPLIANCE
Radiant heat levels at any point on the proposed building will not exceed 29kw/m ² . Compliance with Table A2.4	☑ Complies
APZ's are managed and maintained to prevent the spread of fire towards the building	☑ Complies
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated	☑ Complies

Figure 7 Indicates the minimum APZ's as part of this proposal under PBP.

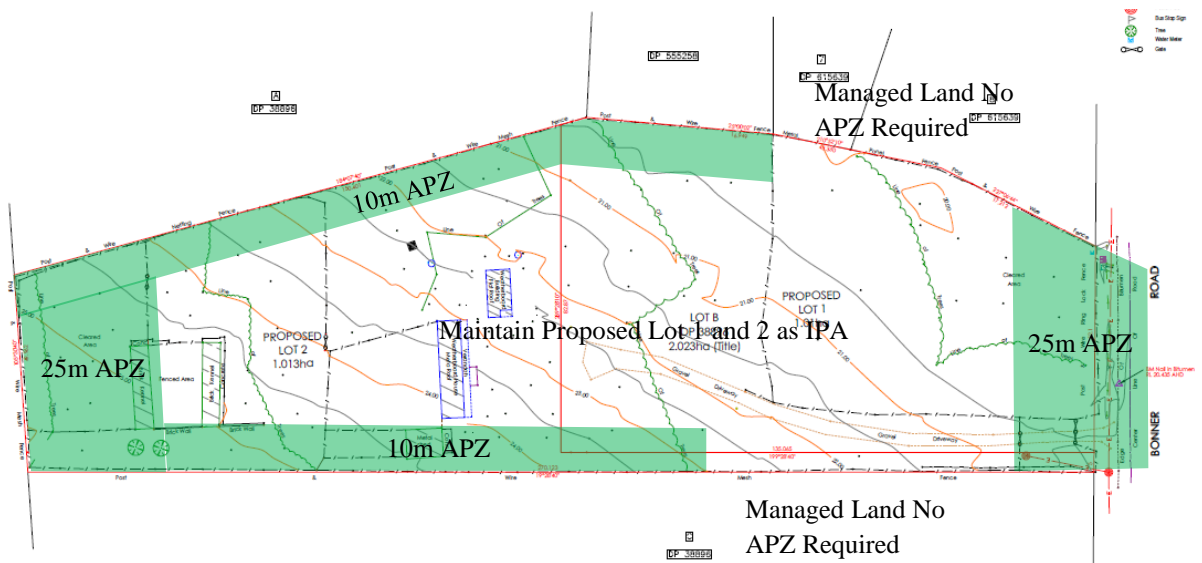


Figure 7 – Proposed APZ's

6.0 WATER SUPPLY AND FACILITIES

6.1 Water Supply

Reticulated water supply is available to the subject site and surrounding allotments. Future dwellings will be required to provide a water supply for fire fighting purposes. A 65mm storz fitting and ball or gate valve installed in the water tank. Gate and ball valve shall be made of metal.

The existing primary and secondary dwelling currently do not have a fire fighting water supply. As part of this application it is proposed to provide a minimum two 20,000 litre water tanks for the dwellings.

The following requirements should be provided to assist in supplementing the reticulated water supply in the event of a bushfire for the proposed tanks:-



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- A 65mm storz fitting and ball or gate valve installed in the tanks. Gate and ball valve shall be made of metal.
- New above ground tank are to be manufactured of concrete or metal.
- All new above ground water supply pipes including taps are to be metal.
- Obtain and fix a static water supply marker at the front of the property in a highly visible location.
- Water supply is to comply with Section 4.1.3 of Planning for Bush Fire Protection 2006.

6.2 Gas Services

If gas is provided to the proposed lots the following shall be adhered to for gas connections:-

- All external gas lines shall be made of metal.
- Reticulated and bottled gas shall be installed and maintained in accordance with AS 1596 – 2008.
- Gas Services are to comply with Section 4.1.3 of Planning for Bush Fire Protection 2006.

6.3 Electrical Services

Origin Energy provides electrical services to the subject lot and as such the service provider has systems in place in the event of a bushfire. In addition electricity supply is to comply with Section 4.1.3 of Planning for Bush Fire Protection 2006. New lines to proposed Lot 1 will be provided underground.

7.0 ACCESS

7.1 Public Road

Access to the site is via Bonner Road. Bonner Road is a bitumen sealed road with a width of approximately 6m which allows free access for fire fighting vehicles.

TABLE 7, PBP OBJECTIVES FOR PUBLIC ROAD

OBJECTIVE	PBP COMPLIANCE
Fire fighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources)	<input checked="" type="checkbox"/> Complies
Public road widths and design allow safe access for firefighters while residents are evacuating an area	<input checked="" type="checkbox"/> Existing
The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles	<input checked="" type="checkbox"/> Existing
Road and clearly sign posted (with easily distinguishable names) and buildings/properties that are clearly numbered	<input checked="" type="checkbox"/> Existing
There is clear access to reticulated water supply	<input checked="" type="checkbox"/> Existing
Parking does not obstruct the minimum paved width	<input checked="" type="checkbox"/> Existing



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7.2 Property Access

Access to proposed Lot 1 is directly off Bonner Road and Lot 2 is via a proposed battle-axe handle off Bonner Road. The existing access handle is proposed at 5m wide and capable of providing a minimum 4.0m wide sealed driveway. The provision of passing bays is not required as the access handle is less than 200m long.

Access to the site shall be upgraded to comply with S4.1.3(2) of Planning for Bush Fire Protection.

TABLE 8, PBP OBJECTIVES FOR PROPERTY ACCESS

OBJECTIVE	PBP COMPLIANCE
Access to properties is provided in recognition of the risk to fire fighters and /or evacuating occupants	<input checked="" type="checkbox"/> Complies
The capacity of road structures and bridges is sufficient to carry fully loaded fire fighting vehicles	<input checked="" type="checkbox"/> Can Comply
All weather access is provided	<input checked="" type="checkbox"/> Can Comply
Road widths and design enable safe access for vehicles	<input checked="" type="checkbox"/> Existing

7.3 Fire Trails

The provision of fire trails are not required for this type of development.

TABLE 9, PBP OBJECTIVES FOR FIRE TRAILS

OBJECTIVE	PBP COMPLIANCE
The width and design of the fire trails enables safe and ready access for firefighting vehicles	Not Applicable
Fire trails are trafficable under all weather conditions. Where the fire trail adjoins a public road, access shall be controlled to prevent use by non-authorised persons	Not Applicable
Fire trails designed to prevent weed infestation, soil erosion and other land degradation	Not Applicable



8.0 PBP FOR SUBDIVISION

Planning for Bush Fire Protection S 4.1.2 sets specific objectives for subdivisions both residential and rural. In addition proposed Lot 2 contains a primary and secondary dwelling. NSW Rural Fire Service, Community Resilience Fast Fact 4/12 “*Increased Density on a single Parcel of Land*” requires that multiple occupancies are required to meet the specifications and requirements outlined in Section 4.3.5 of PBP. This includes the provision of APZ as required by Appendix 2, Table A2.4 in Planning for Bush Fire Protection.

Planning for Bush Fire Protection (2006) S4.3.6 a) states:-

“Where the erection of a development is proposed, it is assumed that the proposal will be subdivided and as such will be assessed as if submitted under section 100B of the RF Act for a BFS. A development assessed under section 100B of the RF Act will not be required to be reassessed under section 79BA of the EP&A Act.”

As such by addressing the requirements for the 2 lot subdivision the requirements for the multiple occupancy are deemed to be satisfied also.

TABLE 10, PBP OBJECTIVES FOR SUBDIVISION/DUAL OCCUPANCY

OBJECTIVE	PBP COMPLIANCE
Minimise perimeters of the subdivision exposed to the bushfire hazard.	<input checked="" type="checkbox"/> Existing
Minimise bushland corridors that permit the passage of a bushfire.	<input checked="" type="checkbox"/> Existing
Provide for the siting of future dwellings away from ridge-tops and steep slopes	<input checked="" type="checkbox"/> Complies
Ensure that separation distances (APZ) between the bushfire hazard and the future dwellings comply with the deemed-to-satisfy requirements of the BCA	<input checked="" type="checkbox"/> Complies
Provide and locate, open space and public recreation areas as accessible public refuge areas or buffers	<input checked="" type="checkbox"/> Existing
Ensure the ongoing maintenance of asset protection zones	<input checked="" type="checkbox"/> Complies
Provide clear and ready access from all properties to the public road system for residents and emergency services	<input checked="" type="checkbox"/> Existing
Ensure the provision of adequate supply of water and other services to facilitate effective fire fighting.	<input checked="" type="checkbox"/> Existing



9.0 RECOMMENDATION

The assessment recommends that:-

- Access to the site shall be upgraded to comply with S4.1.3(2) of Planning for Bush Fire Protection.

This includes but is not limited to:-

- A minimum 4.0m wide all weather access shall be provided from Bonner Road through the access handle to connect to proposed Lot 2. Curves to have a minimum inner radius of six metres. The minimum distance between inner and outer curves is six metres.
 - A minimum vertical clearance of four metres to any overhanging obstructions
 - Incorporate a turning circle to allow fire fighting vehicles to turn around
 - Other requirements as per PBP
- Water supply is to comply with Section 4.1.3 of Planning for Bush Fire Protection 2006.
 - Gas Services are to comply with Section 4.1.3 of Planning for Bush Fire Protection 2006.
 - Electrical Services are to comply with Section 4.1.3 of Planning for Bush Fire Protection 2006. New lines to the building will be provided underground.
 - All above ground water supply pipes including taps are to be metal
 - Proposed Lot 1 and proposed Lot 2 shall be managed in perpetuity as an Inner Protection Area (IPA) as outlined within section 4.1.3 and appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.

The Inner Protection Area (IPA) shall comprise the following:

- Minimal fine fuel at ground level;
 - Vegetation that does not provide a continuous path to the building for the transfer of fire;
 - Shrubs and trees that do not form a continuous canopy;
 - Vegetation that is cleared into clumps rather than continuous rows;
 - Species that retain dead material or deposit excessive quantities of ground fuel are to be avoided;
 - Shrubs and trees are pruned and removed so they do not touch or overhang the building (minimum 2.0m);
 - Vegetation is located far enough away from the building so that the plants will not ignite the building by direct flame contact or radiant heat emission.
- The existing dwellings (primary and secondary dwellings) on the subject site (proposed Lot 2) is required to be upgraded to improve ember protection. This is to be achieved by enclosing all openings (excluding the roof tile space) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable this includes any sub floor areas, openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.
 - In recognition that an unreliable reticulated water supply exists a minimum 20,000 litre water supply tank shall be provided for fire fighting purposes for the existing dwelling and secondary dwelling. The tank shall be non-combustible or shielded from the bushfire hazard. In



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accordance with the RFS fact sheet 3/08 (version 3) dated February 2012 the BASIX tank may be used for the purposes of circulating water to the development and is not a “dedicated” water supply

- A 65mm storz fitting and ball or gate valve installed in the BASIX tank. Gate and ball valve shall be made of metal.
- Above ground tanks are to be manufactured of concrete or metal.
- All above ground water supply pipes including taps are to be metal

10.0 CONCLUSION

This assessment determined that the proposal for a one into two lot subdivision can comply with the requirements of *Planning for Bush Fire Protection (2006) – A Guide for Councils, Planners, Fire Authorities and Developers*.

Planning for Bushfire Protection

“no development in a bush fire prone area can be guaranteed to be entirely safe from bush fires

Australian Standard A.S 3959

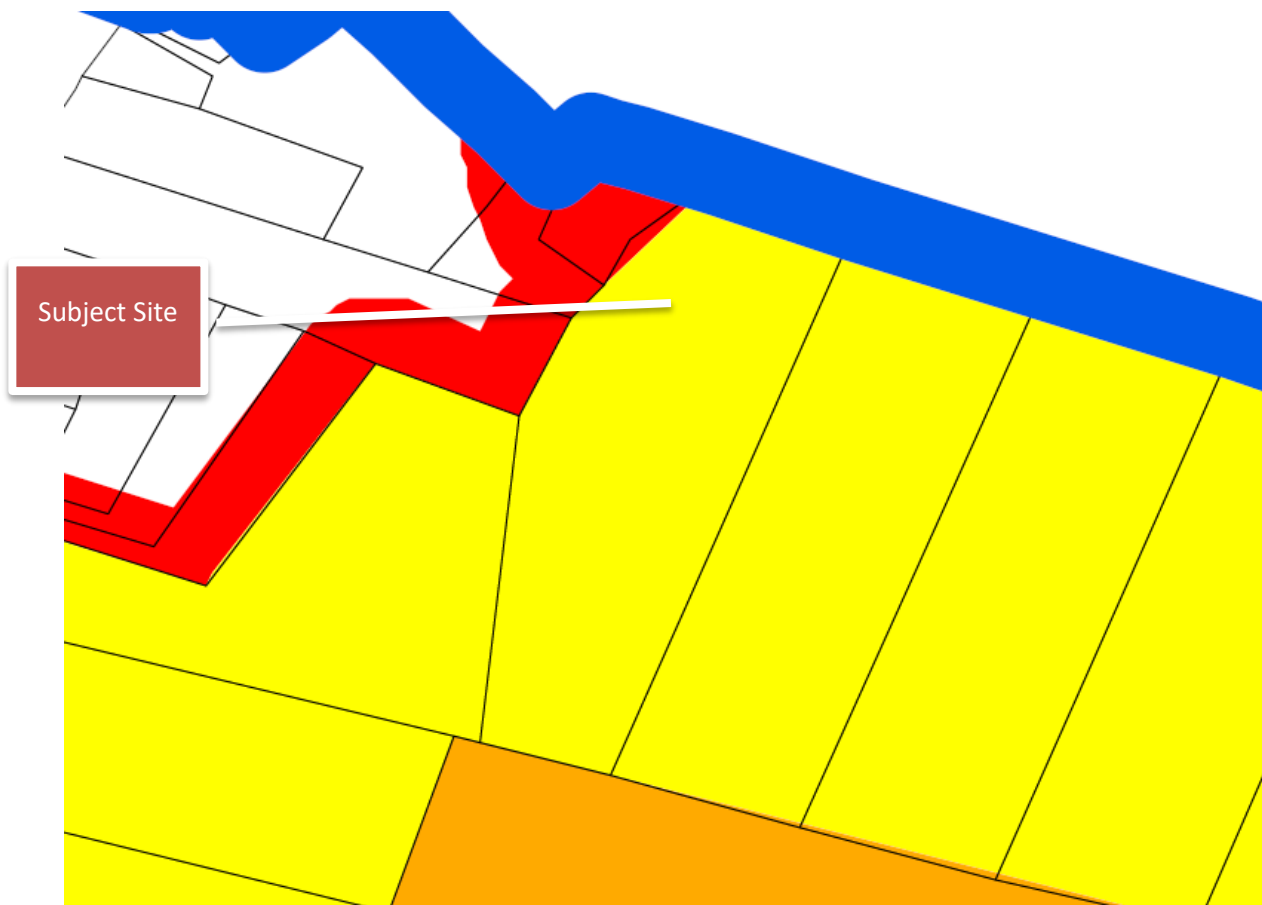
“it should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions”

REFERENCES

1. *Australian Standard AS 3959-2009 (Incorporating Amendment Nos 1,2 and 3)*
2. *Planning for Bush Fire Protection (2006)*
3. *Penrith City Council Website*
4. *Ocean Shores to Desert Dunes – David Keith*
5. *Google Maps*
6. *RFS Website*
7. *NSW Environment and Heritage website*



Attachment B *Bushfire Prone Land Map Penrith City Council*



Bushfire Prone Land

-  Bushfire Prone Land
-  Bushfire Category 1
-  Bushfire Category 2
-  Bushfire Buffer



Attachment C *Photographic Record*



Bonner Road West



Bonner Road East



North across Bonner Road



Vegetation to South



Primary Dwelling



Secondary Dwelling



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Rear of proposed Lot 2



Dwellings to West



Grazed to East



Grazed to East



Managed to West



Subject Site