

Attachment 5 – Bushfire Assessment Report



Australian**Bushfire**Solutions

BUSHFIRE ASSESSMENT REPORT

FOR PROPOSED SUBDIVISION OF

Lot 6 DP 1128635

11 Westminster Place

Razorback NSW 2571

Site Visit: 12 October 2015

Report Date: 16 October 2015

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REVISIONS

DATE	AUTHOR	CHECKED	REASON/CHANGES
16 Oct 2015	Jane Brandon	Paul Brandon	Original issue
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10 Oct 2017	Jane Brandon		Consolidation of Rev B and additional RFS correspondance

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Executive Summary

This report has been prepared for Samuel Cavanagh by Australian Bushfire Solutions, PO Box 498, Bowral NSW 2576. It has been prepared as a bushfire assessment for a subdivision into five allotments in the Local Government Area of Wollondilly, NSW.

The land has been identified as being bushfire prone land, and hence as the development application is for subdivision, is subject to consideration under Section 91 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in combination with 100B of the *Rural Fires Act*, and must be submitted to the NSW RFS for a Bushfire Safety Authority.

The subject land is located at the terminus of Westminster Place, at a southern spur off a ridgeline in the rural-residential area of Razorback. Approximately 55.79Ha in size at an altitude ranging from 180-306m, there is a gully with 13-15° downslopes, and escarpment drops of >18° present on the property, as well as lightly wooded areas, and cleared grazed paddocks. The subject land is not reticulated, and presently there are 3 dams on the property with power to the site being above ground as is normal in the area.

On proposed lot 5 exists a large habitated shed near the end of the spur. [An approved DA for a dwelling exists on the subject land/this proposed lot, and the DA number for this is 010.2010.00000634.001.](#)

The subject land is zoned RU2 – Rural Landscape and E4 – Environmental Living, as are most of the adjacent lots. The edge of the E4 zoning approximately aligns with the escarpment.

The Flora and Fauna report by Woodlands Environmental Management identifies that the vegetation present on the subject land is:

Moist Shale Woodland in the Sydney Basin Bioregion is listed as Endangered under the NSW *Threatened Species Conservation Act 1995*.

Western Sydney Dry Rainforest and Moist Woodland on Shale is listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

As required by PBP 2006, these vegetation classifications are converted to the classification used by Keith and equates to [Grassy Woodland](#), and then [Woodland](#) as per AS3959-2009

The required APZ's can be met on the subject land, and a dwelling to BAL 29 or lower would be possible on proposed lots 1-4; an existing approved DA for dwelling on subject land to be located on proposed lot 5. At infill stage, removal of a minimum number of trees *may* be required for proposed lot 3 (subject to council approval).

For any infill development on the proposed new lots a separate bushfire report assessed under Section 79BA of the *Environmental Planning and Assessment Act 1979* may be required.

[Performance criteria required as per PBP 2006 have been assessed and the performance criteria to be satisfied have been outlined in Section 4 of this report.](#) The subject land is located >200m from a public through road, so an alternate solution has been presented in 4.2.3.1.

[Additional information was requested by the RFS through the assessment of this DA, and the additional information provided for these requests can be found in Appendix 10 . As a result of the additional information provided, a Bushfire Safety Authority was issued on 9 Nov 2016, RFS Reference D16/0335.](#)

Pending acceptance and compliance with the recommendations following (also in Section 4.4 this report does not find sufficient justification for the proposal to be rejected due to any bushfire considerations.

Pending compliance with the below conditions, the performance criteria and deemed to satisfy provisions outlined in Section 4.1 of PBP 2006 are found to be satisfied.

BAL, APZ and Landscaping Recommendations

- BAL 29 or lower has been established as possible for proposed lots 1-4; an existing approved DA for dwelling on subject land to be located on proposed lot 5
- APZ's can be met on subject land, and in combination with the curtilage of the proposed lots
- It is advised that the site continue to be maintained as per Standards for Asset Protection Zones (RFS) which outline in detail management of APZ's – see Appendix 9

Access

- Alternate solution recommended as per sec 4.2.3.1 as proposed lots >200m from a public through road, and an alternate access is not being proposed.
- It is recommended that the driveway structure be conditioned to be a min 6m wide within the reciprocal right of carriageways to ensure passing is possible. Further it is recommended that the driveway be kept clear of any continuous planting to ensure that these accesses always remain clear and safe access/egress.

Services Recommendations

- Gas installation and maintenance to be in accordance with Australian Standard AS/NZS 1596:2002. Metal piping to be used.
- Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used
- All above ground water and gas service pipes external to the building are metal, including and up to any taps.



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1 Introduction

This Bush Fire Assessment Report has been compiled regarding the proposed staged subdivision of Lot 6 DP 1128635, known as 11 Westminster Place Razorback NSW, as part of a Development Application to be submitted to Wollondilly Shire Council, and referred to the NSW RFS for a Bushfire Safety Authority for the purpose of a five lot subdivision and assessment under Section 91 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Section 100B of the *Rural Fire Act*.

The report has been prepared in accordance with the submission requirements of Appendix 4 of *Planning for Bush Fire Protection* (NSW RFS 2006), and identifies if the proposal can meet the appropriate objectives and performance criteria of Section 4.1 *Planning for Bush Fire Protection* (NSW RFS 2006).

2 Site Description

2.1 Location

The subject land is located at the terminus of Westminster Place, at a southern spur off a ridgeline in the rural-residential area of Razorback, near Picton NSW in the LGA of Wollondilly.



Figure 2-1 Street Map of subject land © SIX

2.2 Description

Cadastre of the subject land can be found in Appendix 1 and proposed cadastre in 0

An approved DA for a dwelling exists on the subject land, the location of which would be in the residual lot, proposed lot 5. The DA number for this is 010.2010.00000634.001.

- Size:** approximately 55.79Ha in size
- Aspect:** Varied
- Altitude:** Approximately 180-306m
- Slope:** Varied – from a minor upslope in a small area on the west, to a gentle approximate 3° slope, to a gully with 13-15° downslopes, and escarpment drops of >18° (Slopes have been established by survey - Australian Survey Solutions – see Appendix 2)
- Existing:** A large habituated shed near the end of the spur, fencing and 3 dams
- Water:** The subject land is not reticulated. Three dams are currently present.
- Electricity:** Above ground to the subject land as is normal in the area
- Gas:** Unknown whether installed, or to be installed.
- Access:** To residential component of land (on top of the ridge) via Westminster Place. Westminster Place is a dead end street, approximately 530m long and currently terminating at the end of the drive to the subject land (the drive to the main part of the property being approximately 150m long)
- The subject land is also bounded/accessible from Remembrance Drive at the bottom of the escarpment.



Figure 2-2 General aerial photo of subject land © Nearmap



Figure 2-3 Aerial photo of subject land © Nearmap

2.3 Zoning

The subject land is zoned RU2 – Rural Landscape and E4 – Environmental Living, as are most of the adjacent lots. The edge of the E4 zoning approximately aligns with the escarpment.

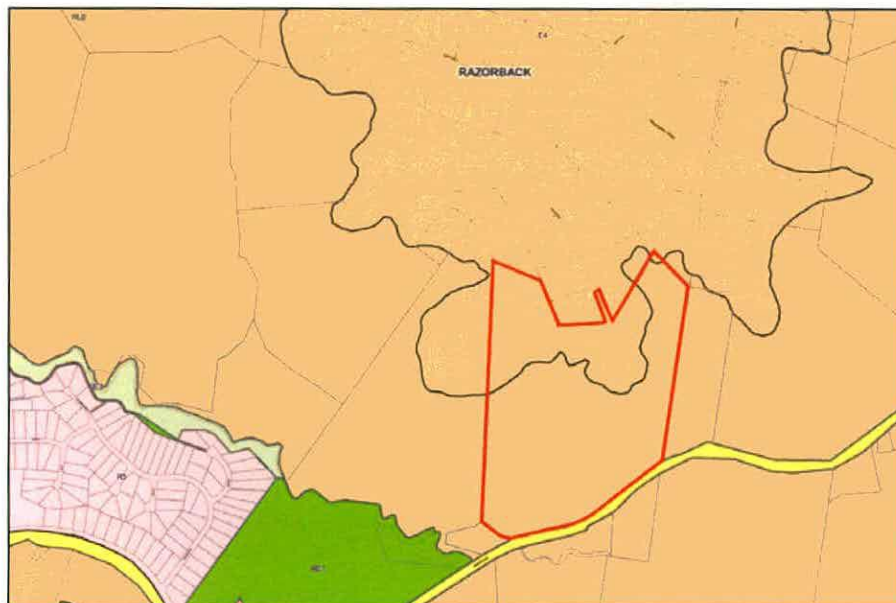


Figure 2-4 - Zoning of subject land (full map in Appendix 2)

2.4 Proposal

The proposal is for a staged five-lot subdivision. As such in regards to bushfire it must comply the performance criteria and acceptable solutions as outlined in *Planning for Bushfire Protection* (PBP 2006) Chapter 4, section 4.1 (NSW RFS 2006).

The proposed new lot sizes are:

- Lot 1: 4.09Ha
- Lot 2: 4.28Ha
- Lot 3: 4.02Ha
- Lot 4: 4.01Ha
- Lot 4: 38.92Ha

3 Bushfire Hazard and Risk Assessment

3.1 Bushfire Prone Land

The current land is identified as bushfire prone land vegetation types 1 and 2 and buffer, as per the below.

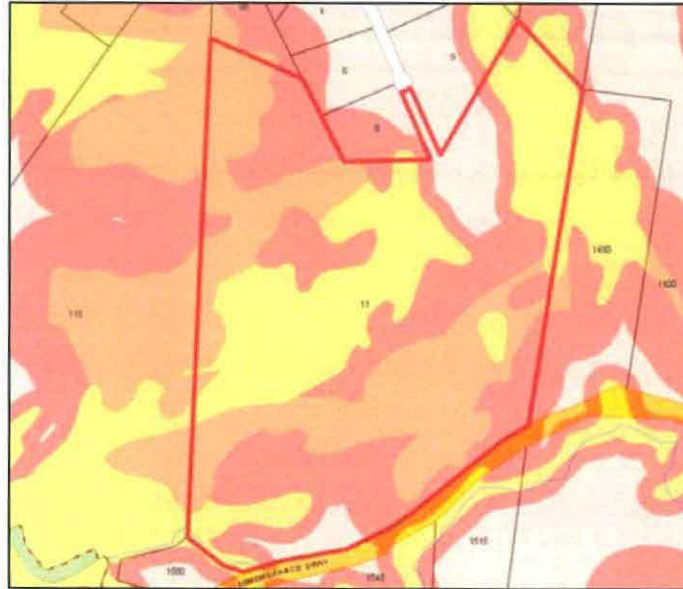


Figure 3-1 Bushfire Prone Land Map © Wollondilly Shire Council

3.2 Vegetation

The aerial images that can be found in Appendix 5 show the mapping and identification of the vegetation present on the subject and surrounding lots. As per Tozer (2003) in the Mapping of the Cumberland Plains, the vegetation is identified as a combination of *Shale Hills Woodland*, *Moist Shale Woodland*, *Western Sydney Dry Rainforest* and even a small section of *Alluvial Woodland*. As required by PBP 2006, this is converted to the classification used by Keith and equates to *Grassy Woodland and rainforest*, and then *Woodland and rainforest* as per AS3959-2009.

The Flora and Fauna report by Woodlands Environmental Management identifies that:

Moist Shale Woodland in the Sydney Basin Bioregion is listed as Endangered under the NSW *Threatened Species Conservation Act 1995*.

Western Sydney Dry Rainforest and Moist Woodland on Shale is listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The images in Appendix 5 show the vegetation present during the site visits.

3.2.1 Vegetation on subject lot

As noted above, the subject land is predominantly vegetated with woodland, with some sections of rainforest.

Fence lines, as noted on the survey, can identify the edge of the more heavily vegetated sections of the subject land.

3.2.2 Vegetation on nearby land

The adjacent lots to the north of the subject land along Westminster Place are developed residences with managed gardens, and hence considered BAL LOW as per AS3959-2009 2.2.3.2.

The adjacent lots to the south, east and west are large rural lots similarly vegetated to the subject land, with a developed residence located on a small part of the lot.

3.2.3 Vegetation to 140m & Effective slope under hazard to 100m

NB – distances are taken from boundaries of proposed building envelopes.

Table 1 - Proposed lot 1 - Predominant vegetation; Effective slope; BAL and APZ

Aspect	Distance to Hazard	Vegetation up to 140m	Effective Slope under hazard to 100m	BAL	Required APZ
North West	0-21m 21m+	Grazed Woodland	0-5° Downslope	BAL 29	15m IPA
North & East	>140m	Developed residences with managed gardens	n/a	BAL LOW	n/a
South & South West	0-58m 58m+	Grazed to fence line Woodland	10-15° Downslope	BAL 29	20m IPA

Table 2 - Proposed lot 2 - Predominant vegetation; Effective slope; BAL and APZ

Aspect	Distance to Hazard	Vegetation up to 140m	Effective Slope under hazard to 100m	BAL	Required APZ
North	0-32m 32m+	Grazed Woodland	0-5° Downslope	BAL 29	15m IPA
East	>140m	Proposed lot 1 then Developed residence with managed gardens	n/a	BAL LOW	n/a
South	0-41m 41m+	Grazed to fence line Woodland	10-15° Downslope	BAL 29	20m IPA
West	0-16m 16m+	Scattered trees in grazed land Woodland	Upslope	BAL 29	10m IPA

Table 3 - Proposed lot 3 - Predominant vegetation; Effective slope; BAL and APZ

Aspect	Distance to Hazard	Vegetation up to 140m	Effective Slope under hazard to 100m	BAL	Required APZ
North	>140m	Grazed then Developed residence with managed gardens	n/a	BAL LOW	n/a
South	0-130m 130m+	Grazed land to fence Escarpment and woodland	15-20° Downslope	BAL 12.5	30m IPA
South East	0-90m 90m+	Grazed land to fence Escarpment and woodland	15-20° Downslope	BAL 12.5	30m IPA
West @ NW corner	0-33m 33m+	Scattered trees in grazed land Woodland	10-15° Downslope	BAL 29	20m IPA
West @ SW corner	0-87m 87m+	Scattered trees in grazed land Woodland	10-15° Downslope	BAL 12.5	20m IPA

Table 4 - Proposed lot 4 - Predominant vegetation; Effective slope; BAL and APZ

Aspect	Distance to Hazard	Vegetation up to 140m	Effective Slope under hazard to 100m	BAL	Required APZ
North	>140m	Grazed then Developed residence with managed gardens	n/a	BAL LOW	n/a
South	0-68m 68m+	Grazed land to fence Escarpment and woodland	15-20° Downslope	BAL 19	30m IPA
East	0-49m 49m+	Grazed land to fence Escarpment and woodland	15-20° Downslope	BAL 29	30m IPA
North West	0-95m 95m+	Grazed land Woodland	10-15° Downslope	BAL 12.5	20m IPA

Proposed lot 5

An approved DA for a dwelling already exists on the subject land and would be located on this proposed lot, and the DA number for this is 010.2010.00000634.001

3.2.4 Predominant Vegetation and Closest threat of Bushfire

The closest threat is the woodland and rainforest vegetation present, in the NW corner, the gully on the western side of the lot, and the escarpment that run around the south and around to the east.

3.3 Hazard Assessment**3.3.1 Fire and Ember Attack**

Fire and ember attack would be possible from hazardous vegetation in a number of locations on the subject land.

3.3.2 Fire History

MyRFS does not indicate fire on the subject land or nearby lots.

3.3.3 Bushfire Attack Level

The BAL's as established in Table 1 above indicate that each lot would be able to have a dwelling built to BAL 29 or lower for proposed lots 1-4. The subject land already has an approved DA for a dwelling that would be located on proposed lot 5.

3.3.4 Asset Protection Zone - APZ

The required APZ's can be found in Table 1 above and can be met on the proposed lots or in combination with what would be the proposed curtilage of the proposed lots – see Appendix 6

3.4 Significant Environmental Features**3.4.1 Heritage**

In accordance with the Wollondilly Shire Council Heritage map, there are no heritage considerations on the subject land.

3.4.2 Aboriginal Heritage

A search of the AHIMS database, maintained by DECC reveals no objects of interest in the vicinity,

3.4.3 Flora and Fauna

Endangered Ecological Communities are mapped as being present on the subject land, so a Flora and Fauna study has been undertaken by Woodlands Environmental Management. The conclusions from that report state:

Summary

This report concludes that the development as proposed is unlikely to have a significant impact on threatened species, population, communities or their habitats.

Conclusions

I. Cavanagh Cranes and Transport Pty Ltd proposes a five lot residential subdivision. Approval has been previously granted for a dwelling on the proposed lot 5.

II. This report assesses the potential impacts of building envelopes, Asset Protection Zones, access tracks and associated infrastructure on the proposed lots 1, 2 and 4, requiring the clearing or disturbance of c. 11,000m² of Modified Grassland dominated by exotic species

III. An assessment of impacts on the proposed lot 3 will be provided as an annexure to this report.

IV. The vegetation to be cleared or disturbed is Modified Grassland dominated by exotic species classified as Highly disturbed areas with no or limited native vegetation.

V. Moist Shale Woodland in the Sydney Basin Bioregion Endangered Ecological Community is present within the study area, but will not be cleared or disturbed by the development as proposed.

VI. No threatened species of flora was located within the subject site

VII. No threatened species of fauna was located by the survey, however the subject site supports habitat suitable for, and potentially utilised by, six threatened species for foraging.

VIII. The Assessment of Significance for Moist Shale Woodland in the Sydney Bioregion concludes that the activities undertaken in association with the proposed development are unlikely to have any impact on the Endangered Ecological Community.

IX. Assessments of Significance for Spotted Harrier, Little Eagle, Swift Parrot, Eastern Bentwing-bat, Eastern Freetail-bat and Southern Myotis conclude that the activities undertaken in association with the proposed development are unlikely to have a significant impact on the threatened species or their habitat.

Recommendations

I. No recommendations

Hence, there are no known significant environmental constraints or considerations on the subject land that would preclude the approval of this proposal.

3.5 Overall Assessment

Pending the satisfaction of section 4.2 below, the level of bushfire hazard risk identified in relation to the subject land and the proposed development is not considered to be such that the proposal should be denied due to bushfire considerations.

4 Bushfire Protection Measures

Section 4.1 of The NSW Rural Fire Services' *Planning for Bushfire Protection* (PBP 2006) provides the standards, performance criteria and acceptable solutions for subdivision in bushfire prone areas.

The tables below outline the performance criteria specified in PBP 2006 that must be satisfied for this subdivision to be approved.

4.1 Asset Protection Zone – APZ

Intent of measures: to provide sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels at buildings are below critical limits and to prevent direct flame contact with a building. (PBP 2006)

4.1.1 How PBP 2006 APZ requirements satisfied

Performance Criteria The intent may be achieved where:	Satisfied	Acceptable Solutions and how satisfied for this subdivision
• radiant heat levels at any point on a proposed building will not exceed 29 kW/m ²	• YES	• Any future buildings would be subject to their own bushfire assessments, but proposed lots 1-4 can have a dwelling built to BAL 29 or lower and the subject land has an approved DA that would be located on proposed lot 5
• APZs are managed and maintained to prevent the spread of a fire towards the building.	• YES	• Subject land should continue to be managed in accordance with the requirements of Standards for Asset Protection Zones (RFS 2005) and Appendix 5 PBP (see Appendix 9)
• APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated	• YES	• Slope of APZ is <18°

4.2 Access (1&2) – Public Roads & Property Access

Public Roads - Intent of measures: to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.

4.2.1 Public Roads and Property Access

As part of this proposal Westminster Place is to be extended and a new cul-de-sac created. Four of the proposed new lots will be directly accessible from this, and the fifth residual lot will be accessible from a right of carriageway through proposed lot 4. This right of carriageway is the existing driveway on the subject land.

4.2.2 How PBP 2006 Access (1) – Public Roads - requirements satisfied

Performance Criteria The intent may be achieved where:	Satisfied	Acceptable Solutions and how satisfied for this subdivision
<ul style="list-style-type: none"> • fire fighters are provided with safe all weather access to structures (thus allowing more efficient use of fire fighting resources) 	<ul style="list-style-type: none"> • YES 	<ul style="list-style-type: none"> • Public roads are two-wheel drive all weather roads • Existing driveway to be upgraded to a public road and to comply
<ul style="list-style-type: none"> • public road widths and design that allow safe access for fire fighters while residents are evacuating an area. 	<ul style="list-style-type: none"> • YES / NO 	<ul style="list-style-type: none"> • Traffic management devices are constructed to facilitate access by emergency services vehicles • Public roads have a cross fall not exceeding 3° • All roads are through roads, but if a dead end not more than 200m in length, incorporate a min 12m outer radius turning circle and are clearly sign posted as a dead end • Curves of roads are a minimum inner radius of 6m and minimal in number to allow for rapid access and egress • The min distance between inner and outer curves is 6m • There is a minimum vertical clearance to a height of 4m above the road at all times • Existing driveway to be upgraded to a public road and to comply • Road will not be <200m – alternate solution recommended – see below
<ul style="list-style-type: none"> • the capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles. 	<ul style="list-style-type: none"> • YES 	<ul style="list-style-type: none"> • The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (approx 15 tonnes). • Recommend new extension and terminus of road to comply
<ul style="list-style-type: none"> • parking does not obstruct the minimum paved width 	<ul style="list-style-type: none"> • YES 	<ul style="list-style-type: none"> • Parking bays are a minimum of 2.6m wide from kerb edge to road pavement • Existing driveway to be upgraded to a public road and to comply

4.2.3 How PBP 2006 Access (2) – Property Access - requirements satisfied

Performance Criteria The intent may be achieved where:	Satisfied	Acceptable Solutions and how satisfied for this subdivision
<ul style="list-style-type: none"> • access to properties is provided in recognition of the risk to fire fighters and/or evacuating occupants 	<ul style="list-style-type: none"> • NO 	<ul style="list-style-type: none"> • At least one alternative property access road is provided for individual dwellings that are located more than 200m from a public through road. • Alternative Solution recommended – see below
<ul style="list-style-type: none"> • the capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles • all weather access is provided 	<ul style="list-style-type: none"> • YES 	<ul style="list-style-type: none"> • Roads do not traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge) • Property access complies
<ul style="list-style-type: none"> • road widths and design enable safe access for vehicles 	<ul style="list-style-type: none"> • YES 	<ul style="list-style-type: none"> • Minimum carriageway of 4m • A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches • The crossfall is not more than 10° • Maximum grades for unsealed roads do not exceed 10° • Internal roads provide a loop road around any dwelling or incorporate a 12m outer radius turning circle • Property access complies

4.2.3.1 Alternative Solution – Public Roads and Property Access

The proposed lots and the existing dwelling on proposed lot 5 satisfies the requirements of PBP with the exception that they are located >200m from a public through road.

Existing Public Roads:

- Westminster Place is a public road of approximately 540m in length, currently terminating with a cul-de-sac at the existing drive to the subject land. 10 large lots are currently located along Westminster Place
- The start of Westminster place is off Mount View Close. This public road terminates approximately 90m from the intersection with Westminster Place. 5 large lots are accessed from the cul-de-sac at the end of Mount View Close
- It is approximately 1050m from the beginning of Westminster place back to the closest public through road being Mount Hercules Road.
- Mount View Close is most likely considered a through road in relation to roads that come off it closer to Mount Hercules Road, specifically Crawford Creek Place and Clintara Crescent, which have 10 and 7 lots respectively located along them.
- The existing driveway for proposed lot 5 is currently approximately 630m long.

Proposed Changes:

- Approximately 160m of this driveway is to be upgraded to a public road, with the cul-de-sac termination of the road being located at the beginning of proposed lots 3 & 4.
- The proposed size of the new cul-de-sac goes well beyond the minimum requirement of 12m min radius, being instead a **boundary radius of 21m**, thus easily allowing a 12m min radius of paved cul-de-sac with additional verge allowing easy flow of traffic in the cul-de-sac in an emergency situation.

Access to Proposed Lots:

- The building envelopes of proposed lots 1, 3 and 4 will be within 200m of a public road, but not a public through road (Westminster Place being a dead end street). Proposed lot 2 is approximately 280m from the new cul-de-sac of Westminster Place – 110m of this being open land after the driveway. For proposed lot 5 – the internal access – there will be no change in distance from a public through road from the existing situation.
- Access from the extended Westminster Place termination to Proposed lots 1 and 2 will be by two adjacent rights of carriageway 160m long from the extension of Westminster Place.
- Each right of carriageway to proposed lots 1 and 2 is 7.5m wide, which being >4m wide would satisfy the requirements of PBP 2006, however this drive is by two right of carriageway's rather than as long handled driveways as the drive is to be one 15m wide drive for access and services, not 2 x 7.5m drives.
- It is recommended that the driveway structure be conditioned to be a min 6m wide within the reciprocal right of carriageways to ensure passing is possible. Further it is recommended that the driveway be kept clear of any continuous planting to ensure that these accesses always remain clear and safe access/egress.

Intent of Planning for Bushfire Protection 2006 and how met:

"To provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from and area" and "to provide safe operational

access to/from the public road system for firefighters during a bushfire and for occupants faced with an evacuation”

- Deemed to satisfy solution of being within 200m public through road cannot be met as the closest public through road is >1500m away. Lot 5 is >200m from a public road, and already has DA approval under those circumstances. Building Envelope of Lot 2 is 280m from Westminster Place, but 110m of this is in open space at end of drive.
- An alternative access public road or driveway is not possible due to the location of the subject land, the topography and site circumstances.
 - The subject land is located along a ridge and spur. The lots are located off the ridge line (that has the existing driveway along it), and the driveway runs along to the spur, thus the lots are also bounded by gullies which create the ridge and spur
 - There is an escarpment located between the proposed lots and the closest public through road (Remembrance Drive at the southern end of the property) and a road access is not possible from the top of the property where the lots are located down to Remembrance Drive. Further, if it were possible it would also be directing residents *towards* potential hazard on the escarpment, rather than away from it towards Westminster Place.
- The subdivision for Westminster Place was registered in 2007, and this length of a dead end road, and distance from a public through road, was considered acceptable then. Nothing has changed since then.
- Westminster Place is a well formed road with the paved area wide enough for passing of vehicles and appliances AND also with approximately 7m of verge on each side allowing parking and or additional passing if required.
- The increase in number of people who might need to evacuate in a fire situation would not be dramatically increased by a subdivision of the subject land into the five proposed lots – an additional four potential dwellings.
- At present, there are two trees located in close proximity to/adjacent to the existing driveway that services lot 4 and 5, with cleared land around these, so it would be a very low risk or likelihood for this single access to be cut off by fallen trees. The drive area for proposed lots 1 and 2 does not have woody vegetation along it. Lot 3 is accessed directly from the new cul-de-sac head of Westminster Place.
- A search for fire history for the area does not indicate fire on or near the subject land.
- Further, the woodland and rainforest vegetation is located in gullies that go down to intermittent water courses, or on an escarpment – all of which would be a short fire run directly at or any of the proposed building envelopes.
- The grass on the subject land is currently grazed, and hence kept to a non hazardous level. It is expected that the proposed lots when developed would be maintained in keeping with the nearby developed lots, being large residential lots with managed gardens.
- Re proposed lot 5 – there is no change from the existing situation and approved DA for a dwelling, rather 160m of existing driveway will be upgraded to a public road, which can *if anything it can be considered to be an improvement on the current situation*.

For all of the above reasons, it is believed that the intent of *PBP 2006 to provide safe access and egress for occupants and firefighters* would be able to be met with the existing and proposed access, being a public road to the subject land and driveway accesses of quality to satisfy *PBP*.

4.3 Services – Water, electricity and gas

Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building

4.3.1 Existing water, electricity and gas

The subject land is not on reticulated water. Electrical lines servicing the subject land are above ground to the lot (as is normal in the Shire).

Any future buildings that could include a residence will have to comply with performance criteria, as specified in PBP 2006 Section 4.2 or 4.3 as part of any future infill development.

4.3.2 Services – Water, electricity and gas

Performance Criteria The intent may be achieved where:	Satisfied	Acceptable Solutions and how satisfied for this subdivision
Non-Reticulated water supplies <ul style="list-style-type: none"> a water supply reserve dedicated to firefighting purposes is installed and maintained. 	<ul style="list-style-type: none"> YES 	<ul style="list-style-type: none"> Existing dwelling/proposed lot 5 has adequate water in the dam, Minimum 20,000l for proposed lot 5 and minimum 10000l for proposed lots 1-4 for fire fighting purposes is required when dwellings built, to be installed as per 4.2.3 below All above ground water and gas service pipes external to the building are metal, including and up to any taps.
Electricity Services <ul style="list-style-type: none"> location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings regular inspection of lines is undertaken to ensure they are not fouled by branches. 	<ul style="list-style-type: none"> YES 	<ul style="list-style-type: none"> Where practicable, electrical transmission lines are underground Existing power is in keeping with the standards and requirements of the LGA and/or local Electricity supplier.
Gas services <ul style="list-style-type: none"> location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings 	<ul style="list-style-type: none"> PENDING 	<ul style="list-style-type: none"> If reticulated gas is installed, then it is to be installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used.

4.4 Recommendations

4.4.1 BAL, APZ and Landscaping Recommendations

- BAL 29 or lower has been established for proposed lots 1-4; existing approved DA for dwelling on subject land to be located on proposed lot 5

- APZ's can be met on subject land or in combination with what would be the proposed curtilage of the proposed lots
- It is advised that the site continue to be maintained as per Standards for Asset Protection Zones (RFS) which outline in detail management of APZ's – see Appendix 9

4.4.2 Access

- Alternate solution recommended as per 4.2.3.1 above as proposed lots >200m from a public through road, and an alternate access is not being proposed.
- It is recommended that the driveway structure be conditioned to be a min 6m wide within the reciprocal right of carriageways to ensure passing is possible. Further it is recommended that the driveway be kept clear of any continuous planting to ensure that these accesses always remain clear and safe access/egress.

4.4.3 Service Recommendations

- Gas installation and maintenance to be in accordance with Australian Standard AS/NZS 1596:2002. Metal piping to be used.
- Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used
- All above ground water and gas service pipes external to the building are metal, including and up to any taps.

5 Summary of Findings and Recommendations

This report finds that the proposed subdivision would allow buildings to be located on proposed lots 1-4 satisfying the requirement of being able to be built to a level of construction of BAL 29 or lower; an existing approved DA for dwelling on subject land to be located on proposed lot 5.

If the proposal incorporates the recommendations in 4.4 above, then the proposed subdivision design is considered acceptable in satisfying the performance criteria outlined in Section 4.1 of PBP 2006 (detailed in section 4 above).

Hence this report does not believe that the proposal should be rejected due to bushfire considerations.

6 Appendices

Appendix 1 Cadastre

Ref : surv:epin-brandonp 150715

Cadastral Records Enquiry Report

Requested Parcel : Lot 6 DP 1128635

Identified Parcel : Lot 6 DP 1128635

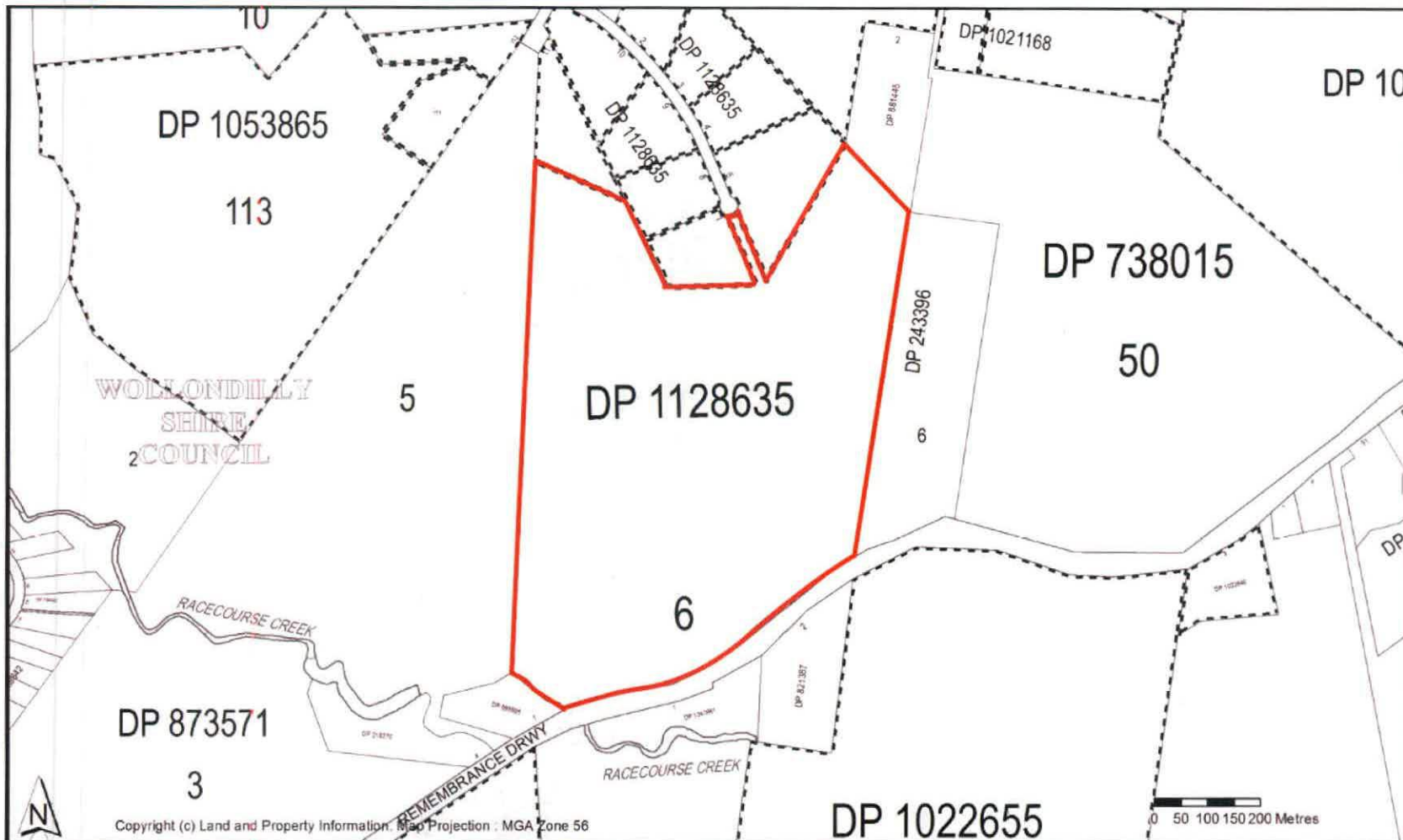
NSW Land & Property Information
A Division of the Department of Finance & Services

Locality : RAZORBACK

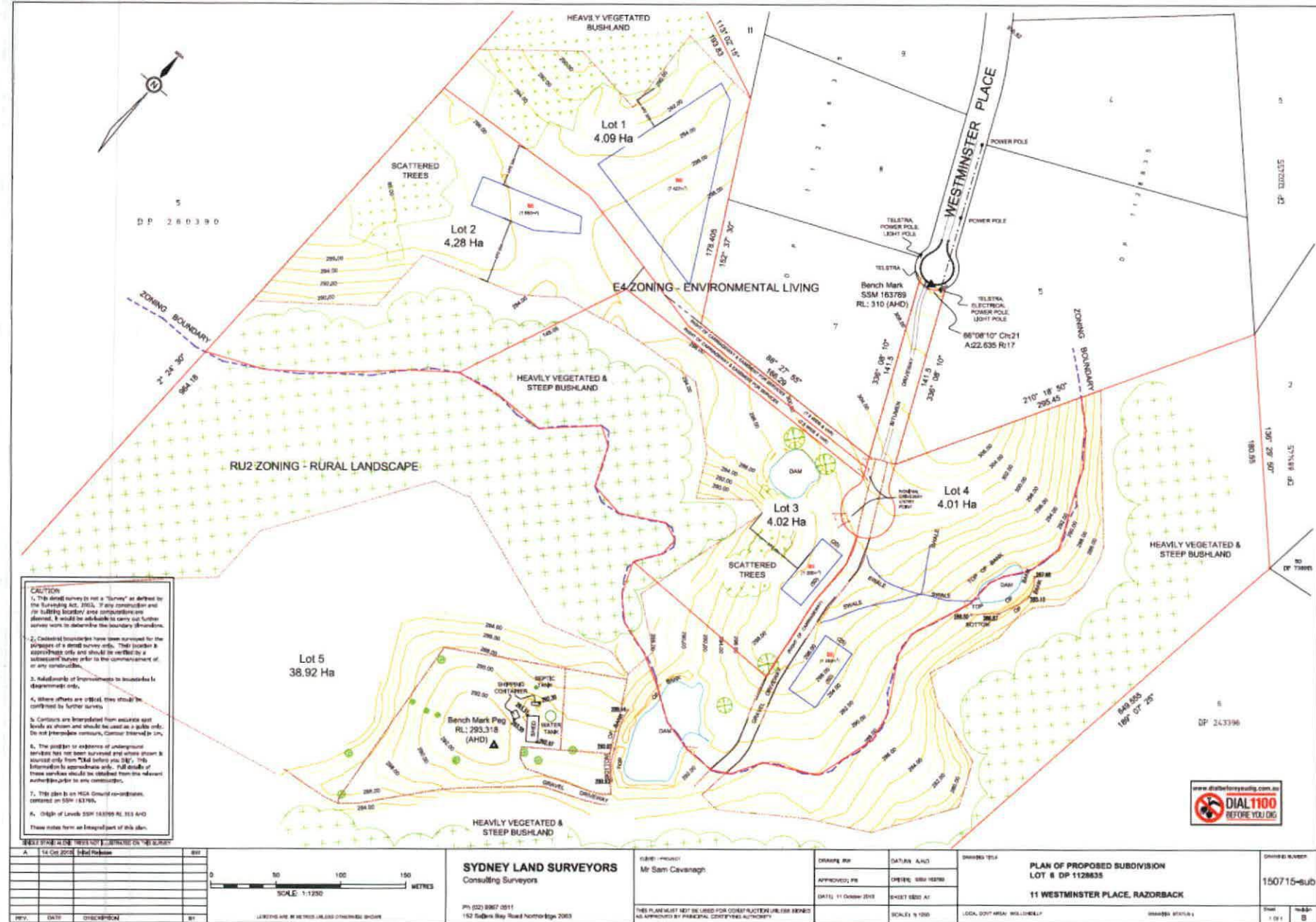
LGA : WOLLONDILLY

Parish : PICTON

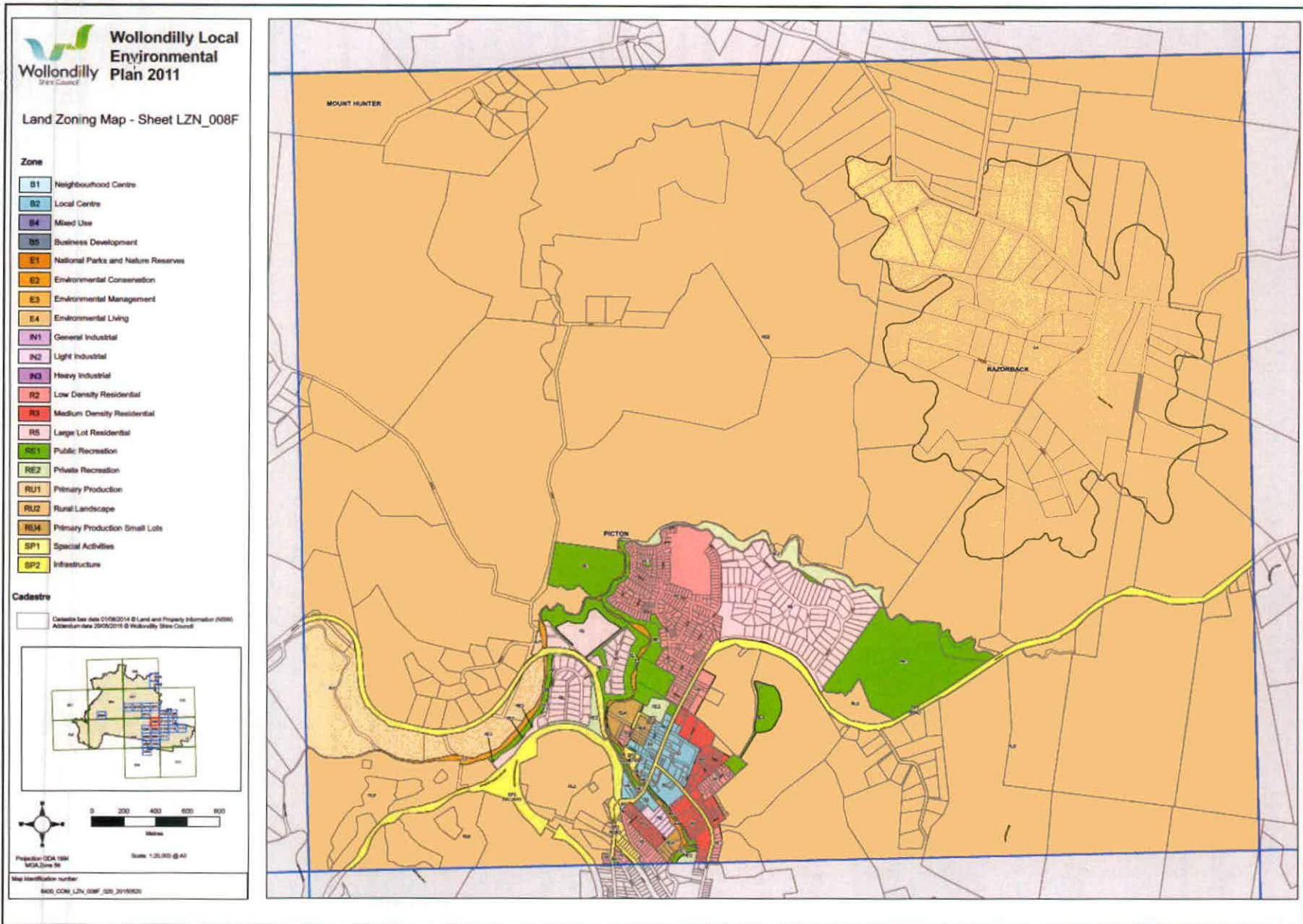
County : CAMDEN



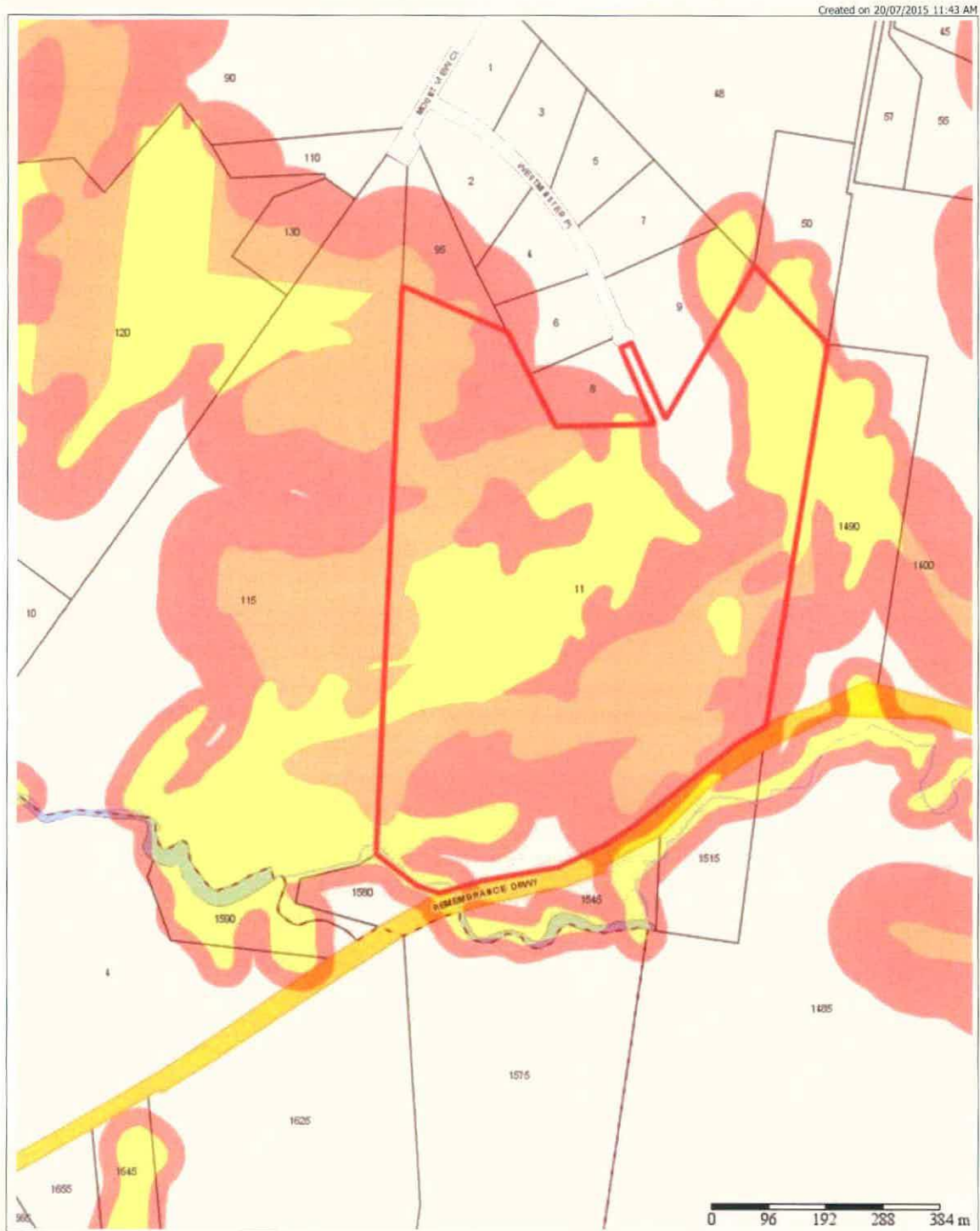
Appendix 2 Proposed Cadastre with 1m contours



Appendix 3 Zoning of area



Appendix 4 Bushfire Prone Land Map



 <p>Wollondilly Shire Council</p>	<p align="center">Site Plan</p> <p><small>Data supplied by various Stakeholders under MLCIA* Licences. This information is provided as a guide only. It is not intended to be used as a basis for any legal action. The Stakeholders take no responsibility for errors or omissions or any loss or damage that may result from the use of this information. * Wollondilly Shire Council Land Information Council</small></p>	<p>LEGEND</p> <p>Bushfire Prone Land</p> <ul style="list-style-type: none"> Vegetation Category 1 Vegetation Category 2 Vegetation Buffer <p><small>Created By: Anonymous Date Printed: 20/07/2015 Data Certified: 20/07/2015</small></p>	<p>Wollondilly Shire Council PO Box 21 PICTON NSW 2571 Ph: (02) 4677 1100 Fax: (02) 4677 2339 Web: www.wollondilly.nsw.gov.au</p> <p>© Wollondilly Shire Council. © LPI Department of Planning and Services, Panorama Avenue, Bathurst, 2795. www.lpi.nsw.gov.au</p> <p>While every care is taken to ensure the accuracy of this product, Wollondilly Shire Council and the Local / State / Federal Government departments and non-government organisations whom supply datasets, make no representation or warranty about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all responses, losses, damages (including indirect or consequential damages) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.</p>
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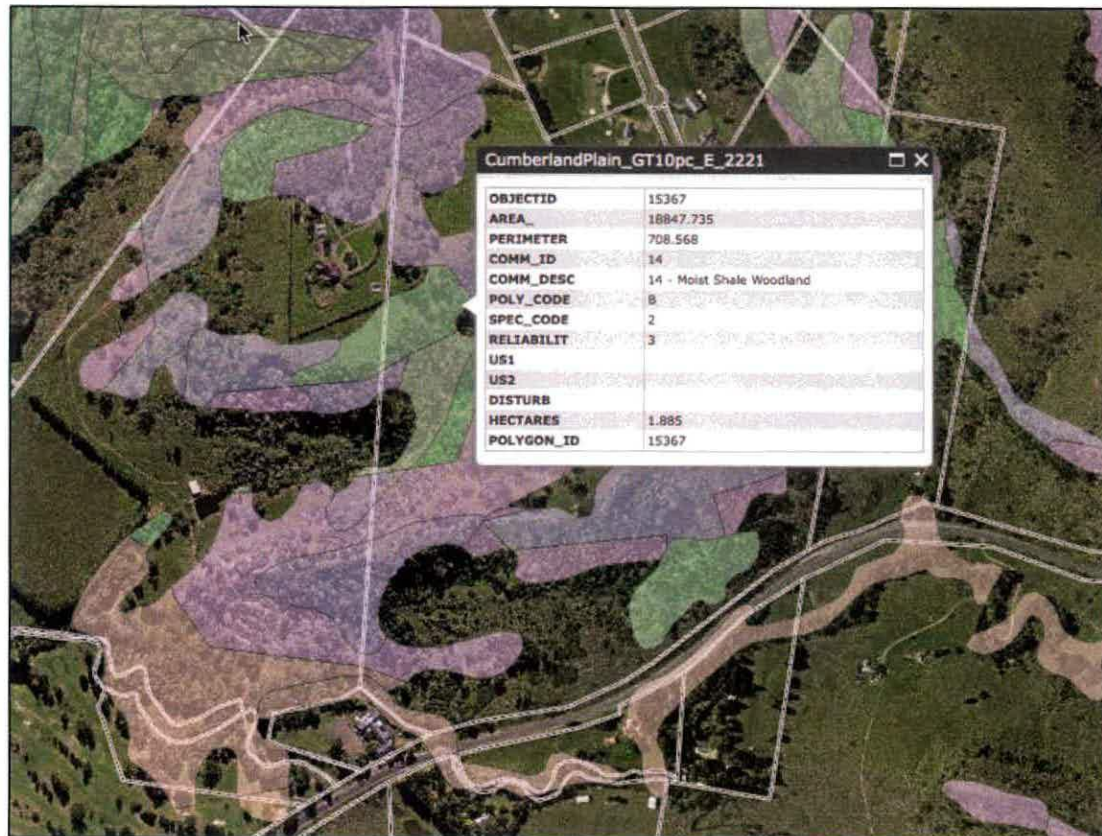
Appendix 5 Vegetation Mapping

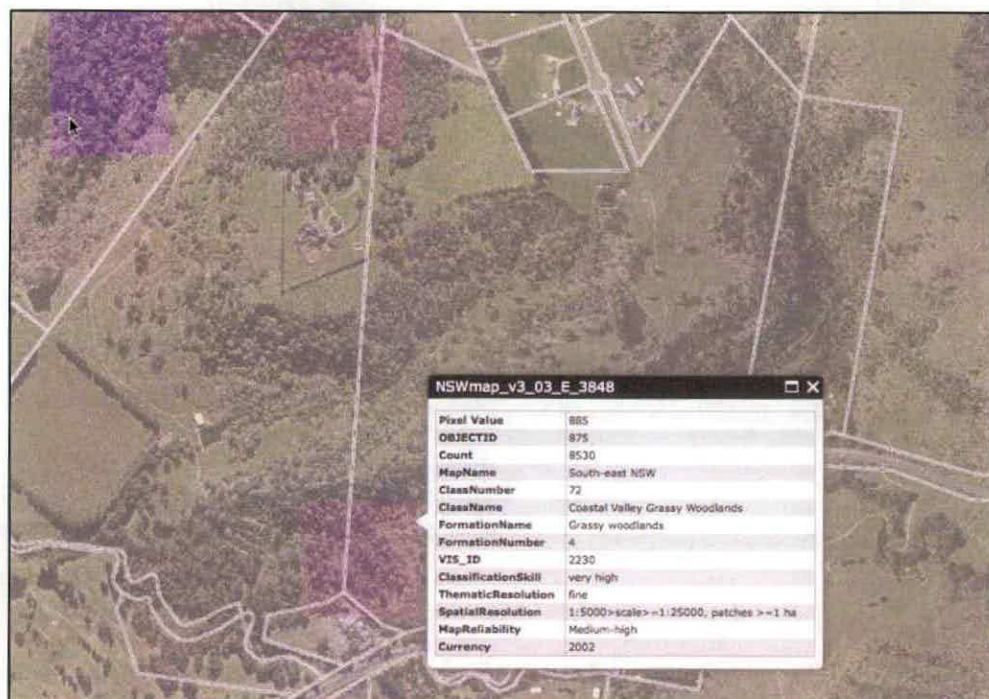


Tozer, M. (2003). - The Native Vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities. *Cunninghamia*, vol 8(1):1-75.

See following for identification of the various vegetation types







Keith, D. A. and Simpson, C. C. (2010) Vegetation Formations of NSW (version 3.0): A seamless map for modelling fire spread and behaviour. Report to the Rural Fire Service. NSW Department of Environment & Climate Change. October 2010

[illegible]

Appendix 7 Site photos



Figure A-1 - Subject land from Remembrance Drive, looking up to escarpment and proposed lot 5



Figure A-2 - Subject land from Remembrance Drive, looking up to escarpment and proposed lot 5



Figure A-3 - Looking up Westminster Place from cul-de-sac/entrance to subject land



Figure A-4 - Looking down driveway from Westminster Place cul-de-sac



Figure A-5 - Looking up driveway – to be upgraded to be extension of Westminster Place



Figure A-6 - Looking down driveway – new cul-de-sac to be located past this gate



Figure A-7 - Looking along the fence at the southern edge of the escarpment on proposed lot 5 – near existing shed



Figure A-8 - View south from edge of escarpment on proposed lot 5



Figure A-9 - View south from edge of escarpment on proposed lot 5



Figure A-10 - Looking along fenceline on proposed lot 5 – back towards the gully



Figure A-11 - Looking back to existing shed on proposed lot 5 from near escarpment edge



Figure A-12 - Looking into gully on proposed lot 5



Figure A-13 - Vegetation in the gully – identified in Flora and Fauna assessment as woodland



Figure A-14 - Scattered trees on upper edge of gully on proposed lot 5



Figure A-15 - Looking SE from proposed lot 4 – Remembrance Drive



Figure A-16 - Looking north along the fence/escarpment line in proposed lot 4



Figure A-17 - Looking north across building envelope of proposed lot 4



Figure A-18 - Looking north across proposed lot 4



Figure A-19 - Looking north up proposed lot 3 from near large dam



Figure A-20 - Looking south across large dam from proposed lot 3



Figure A-21 - Looking west towards gully on proposed lot 3



Figure A-22 - Looking north up proposed lot 3



Figure A-23 - Looking west towards gully on proposed lot 3



Figure A-24 - Looking south across proposed lot 3 and building envelope



Figure A-25 - Looking west across proposed right of carriageway for proposed lot 1 and 2



Figure A-26 - Adjacent property to the north



Figure A-27 - Adjacent property to the north



Figure A-28 - Dam on top of proposed lot 3



Figure A-29 - Proposed lot 2



Figure A-30 - Proposed lot 1

Appendix 8 AHIMS Report



Office of
Environment
& Heritage

AHIMS Web Services (AWS) Search Result

Purchase Order/Reference : 150715

Client Service ID : 195114

Australian Solutions Pty Ltd

Date: 16 October 2015

PO Box 498

BOWRAL New South Wales 2576

Attention: Jane Brandon

Email: jane@ausbushfire.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 6, DP:DP1128635 with a Buffer of 50 meters, conducted by Jane Brandon on 16 October 2015.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
---	--

0	Aboriginal places have been declared in or near the above location. *
---	---

Appendix 9 Appendix 5 of PBP – Bush Fire Provisions – Landscaping and Property Maintenance

Appendix 5

Bush Fire Provisions - Landscaping and Property Maintenance

A5.1 Introduction

Bush fires are a natural and periodic event in the Australian landscape. Many Australian plants and animals have adapted to fire over thousands of years and require fire as part of their life cycle.

However, development adjacent to bushland areas has increased the risk of fire impacting on people and their assets. Fire management needs to strike a balance between the protection of life and property and the maintenance of ecological processes and systems.

In Australia, bush fires are inevitable and an essential aspect of the landscape.

However, the impact on property and life can be reduced with responsible preparation and management of bush fire hazards. This is the responsibility of all land managers, as well as communities and individuals taking responsibility for their own fire safety.

The level of protection for life or whether or not a house or other assets survive a bush fire ultimately depends on the landowner and their level of preparedness against bush fire attack.

The planning system can be used to better effect in protecting human life, property and environmental values from the impacts of bush fire events.

In some cases this will involve land use planning and development controls, construction standards, APZs and subdivision layout, siting, design and provision of services. It also involves careful and deliberate consideration of the environmental impacts of these and how we can recognise the need to protect our wetlands, rainforests, koala habitat and other biodiversity and cultural values.

However, the best planning can be undone by poor maintenance and lack of forethought when landscaping a development. Therefore house survival ultimately depends on the householder.

Some maintenance also depends upon adjoining neighbours and upon fuel management in adjacent bush land areas by the owners, occupiers or managers of that land. General housekeeping and maintenance of the grounds by the householder is equally important and, in some cases, may even be more so.

Experience from the Canberra 2003 fires suggests that house losses are greatest in the area up to 250 metres from the bush interface. Distances of

less than 100 metres are particularly vulnerable to flame contact, radiant heat and ember attack.

Hence it is within this distance that efforts should be made to prepare for the onslaught of major bush fire events.

While other legislation provides the impetus for planning objectives, the RF Act provides the legislative vehicle to achieve bush fire management objectives.

In this appendix consideration will be given to the principles for landscaping and management, and the role of property maintenance during the fire event.

A5.2 Principles of Protection

Bush fire attack takes essentially five forms;

- wind,
- smoke,
- ember,
- radiant heat and
- flame.

Evidence indicates ember attack is responsible for most bush fire related house fires. Strong winds resulting from severe bush fires will drive embers into vulnerable areas of a building, preheat and dry fuel ahead of a fire, lift roofing and extend flames along a more horizontal plane closer to building elements. Embers can also cause spotting in advance of the bush fire and provide piloted ignition to building elements. To effectively protect a building, strategies must be implemented that separate it from the hazard and reduce the intensity of bush fires to minimise the combined impact of ember, wind, flame and heat attack.

While smoke will cause minimal damage to property, it can severely affect the health of residents. Smoke is a significant factor in areas in which aged or disabled persons reside – hospitals and nursing homes – and more so where residents are susceptible to respiratory disorders.

Radiant heat (measured in kW/m²) can severely impair firefighting operations, the health of residents and the integrity of building elements. Radiant heat in excess of 10kW/m² can prevent emergency services personnel assisting residents of SFPP developments.

Flame attack will severely restrict firefighting operations, provide piloted ignition to building elements and threaten the health of residents and their capacity to evacuate the area.

Appendices

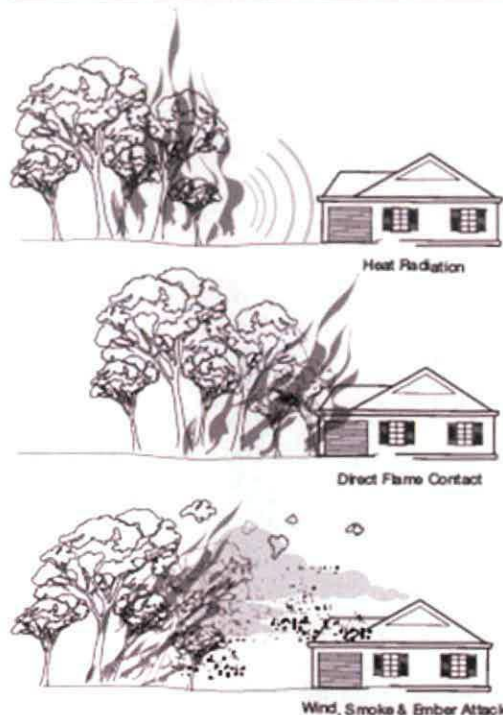


Figure A 5. 1 Bush Fire Attack Mechanisms

Overall the intention of bush fire protection measures should be to prevent flame contact to a structure, reduce radiant heat to below the ignition thresholds for various elements of a building, to minimise the potential for wind driven embers to cause ignition and reduce the effects of smoke on residents and firefighters.

A5.3 Principles of Landscaping Properties for Bush Fire Protection

The principles of landscaping for bush fire protection aim to:

- Prevent flame impingement on the dwelling;
- Provide a defendable space for property protection;
- Reduce fire spread;
- Deflect and filter embers;
- Provide shelter from radiant heat; and
- Reduce wind speed.

(a) Vegetation choices

All vegetative material can burn under the influence of bush fire.

With this in mind, careful attention must be paid to species selection, their location relative to their flammability, avoidance of continuity of vegetation (horizontally and vertically), and ongoing maintenance to readily remove flammable fuels (leaf litter, twigs and debris).

In the paper "Landscape and Building Design for Bushfire Areas" G.C. Ramsay and L. Rudolph have provided 14 attributes of vegetation which affect bush fire attack. In summary these attributes are:

- Moisture content of leaves;
- Volatile oil content of leaves;
- Mineral content of leaves;
- Leaf fineness;
- Density of foliage;
- Continuity of plant form;
- Height of lowest foliage above ground;
- Size of plant;
- Dead foliage on the plant;
- Bark texture;
- Quantity of ground fuels;
- Fineness of ground fuels;
- Compaction ability of ground fuels; and
- Mineral content of ground fuel.

What is clear is that the higher moisture content of leaves (mesic), the less bark that will be available and the lower the leaf drop, all of which will assist with maintenance of the understorey and will also assist in reducing bush fire attack.

Work in the USA and elsewhere has also suggested that in addition to removal of understorey species, the trimming of lower limbs of trees also assists in reducing fire penetration into the canopy. Trees such as 'pencil pines' and African olive have been attributed with high fire propagation due to the high fine fuel and/or oil content captured within the canopy. This leads to significant flame height. Avoid such species in favour of rainforest species such as Figs and Syzygium.

When choosing plants, be sure not to introduce weed species into an area. Fire events may provide the opportunity for weed species to spread and may contribute fuel to an area of otherwise lower fuel loads.

Contact local councils, plant nurseries and plant societies to determine suitable species for your area.

(b) Trees as Windbreaks

The use of trees as windbreaks is a common practice but trees also provide a useful function, trapping embers and flying debris, which would otherwise reach the house. The tree crown will rarely carry fire unless there is a significant fuel loading on the ground.

By reducing the wind speed, a row of trees also slows the rate of spread of a bush fire and a dense foliage traps radiant heat, lowering bush fire radiant heat.

Because of the effect of turbulence, a balance has to be struck between a high density of trees (that

maximises the trapping of embers and radiant heat but also maximises turbulence) and a lower density (that allows more embers and radiant heat to pass through but minimises turbulence). A windbreak that allows 30–60% of the wind to pass through is ideal as less than this becomes too solid with ember laden winds being carried over the top of the break.

To be effective a windbreak must:

- be located on the side of the lot from which fire weather normally approaches;
- be of sufficient length (generally 100 metres minimum length);
- be located at a distance of one to three times the height of fully grown trees but not within the IPA;
- use smooth barked eucalypts, rainforest trees or deciduous trees;
- make sure there are no breaks of sufficient size to allow winds to funnel through; and
- be separated by sufficient distance from the hazard so as not to be consumed and become a hazard itself.

A5.4 Vegetation Management

Where APZs have been incorporated as part of the development approval for subdivision or for dwelling construction, the environmental aspects of the development should have already been taken into account.

In general, it is expected that APZs will be maintained by the owner of the land including maintenance of any fire trail constructed as part of the development.

It is accepted practice that after construction of a dwelling, gardens will be established and landscaping of the grounds will be undertaken. It is essential that efforts to reduce fuels on adjoining properties are therefore not negated by actions within the immediate curtilage of the building.

In terms of priorities of addressing bush fire attack, priority should be given to preventing flame impingement by not allowing fine debris to accumulate close to the building. Secondly, removal of understorey fuels aids in the reduction of flame heights and likely canopy fire, thereby reducing overall radiant heat. Removal of loose bark and fine fuels reduces both heat output and ember generation, while the retention of taller trees with canopies will also assist in filtering out embers.

To maintain a garden that does not contribute to the spread of bush fires, it is necessary to plan the layout of the garden beds and take an active decision to minimise certain features in favour of other features. These should include:

- maintaining a clear area of low cut lawn or pavement adjacent to the house;
- keeping areas under fences, fence posts and

- gates and trees raked and cleared of fuel;
- utilising non-combustible fencing and retaining walls
- breaking up the canopy of trees and shrubs with defined garden beds;
- organic mulch should not be used in bush fire prone areas and non flammable material should be used as ground cover, eg Scoria, pebbles, recycled crushed bricks.
- planting trees and shrubs such that:
 - the branches will not overhang the roof;
 - the tree canopy is not continuous; and
 - there is a windbreak in the direction from which fires are likely to approach.

The RFS has developed its document "Standards for Asset Protection Zones" which should be consulted for APZ specifications. This is also available on the RFS web page at www.rfs.nsw.gov.au.

A5.5 Maintenance of Property

Sensible arrangements for landscaping and maintenance of the property are critical in the prevention of losses.

In considering property maintenance the following items should therefore be implemented in advance of the bush fire season:

- removal of material such as litter from the roof and gutters;
- ensure painted surfaces are in good condition with decaying timbers being given particular attention to prevent the lodging of embers within gaps;
- check pumps and water supplies are available and in working order;
- driveways are in good condition with trees not being too close and forming an obstacle during smoky conditions;
- check tiles and roof lines for broken tiles or dislodged roofing materials;
- screens on windows and doors are in good condition without breaks or holes in flyscreen material and frames are well fitting into sills and window frames;
- drenching or spray systems are regularly tested before the commencement of the fire season;
- hoses and hose reels are not perished and fittings are tight and in good order;
- doors are fitted with draught seals and well maintained;
- mats are of non combustible material or in areas of low potential exposure; and
- woodpiles, garden sheds and other combustible materials are located downslope and well away from the house.

Trees and other vegetation in the vicinity of power lines and tower lines should be managed and trimmed in accordance with the specifications in "Vegetation Safety Clearances" issued by Energy Australia (NS179, April 2002).

Appendix 10 Responses to requests for additional information

Letter attached to revised report - Version B (this report excluding this appendix)

**AustralianBushfireSolutions**

Wollondilly Shire Council
PO Box 21
PICTON NSW 2571

Our Ref: 150715
Council Ref: 010.2015.775.001

Date: 28 April 2016

Attn: Mr D S Lukic

Re: Lot 6 DP 1128635 – 11 Westminster Place Razorback

I refer to your letter dated 4 April 2016 in response to an integrated development application for the above property, and a request for additional information by the NSW Rural Fire Service (RFS) in a letter dated 18 March 2016, to aid in determination of the application.

Please find attached a reissue of the bushfire assessment, addressing these questions.

Should you wish to discuss any of the above further, please do not hesitate to contact me.

Prepared by:

Jane Brandon
Grad Dip in Bushfire Protection
BPAD Accredited Practitioner L3 - BPD-23617



PO Box 498 • Bowral • NSW 2576 • ABN 54 146 524 585
telephone 1300 52 57 57 • email info@ausbushfire.com.au • web www.ausbushfire.com.au

Letter and revised plans provided to second request for information – Aug 2016



AustralianBushfireSolutions

Wollondilly Shire Council
PO Box 21
PICTON NSW 2571

Our Ref: 150715
Council Ref: 010.2015.775.001

Date: 23 Aug 2016

Attn: Mr D S Lukic

Re: Lot 6 DP 1128635 – 11 Westminster Place Razorback

I refer to your letter dated 8 August 2016 in response to an integrated development application for the above property, and a request for additional information by the NSW Rural Fire Service (RFS), to aid in determination of the application.

(a) Regarding the proposed Right of Way to proposed lots 1 and 2

- I. The proposed Right of Way to these lots is not two individual access drives, rather a *single driveway with reciprocal rights*. This 15m wide access is significantly wider than the minimum width driveway required as per *Planning for Bushfire Protection 2006*
- II. Additional clearing along this driveway is not proposed, however the proponent is agreeable to an 88B instrument being drafted to ensure that the vegetation within the right of carriageway be managed in perpetuity.

(b) APZ's contained within each lot

- I. See attached plan identifying APZ's for each building envelope
- II. Building envelope of proposed lot 1 has been amended, with the southern edge of the building envelope being moved north of the proposed lot boundary to ensure the 25m APZ as per Table A2.4 *Planning for Bushfire Protection 2006* is wholly contained within the lot. This changes the BAL for this elevation to BAL 12.5
- III. 88B instrument as indicated in (a)II above would ensure grazed land would remain clear access and non-hazardous

(c) Slopes under vegetation

- I. As noted in the bushfire assessment report, slopes identified were established from survey of the subject land – a copy of the survey plan was already included in the report. Please contact the author should a PDF version be required.
- II. The survey of the subject land was undertaken by Paul Brandon of Australian Survey Solutions. In addition to being a registered surveyor, Paul is also an accredited BPAD consultant and thus is very familiar with the importance of accurate slopes in bushfire areas.
- III. Further, Paul Brandon has confirmed that regarding the natural surface level shots obtained to ascertain the slope:

PO Box 498 • Bowral • NSW 2576 • ABN 54 146 524 585
telephone 1300 52 57 57 • email info@ausbushfire.com.au • web www.ausbushfire.com.au

BUSHFIRE ASSESSMENT REPORT – 150715 – 11 WESTMINSTER PLACE RAZORBACK

- i. the natural surface points were taken at the top and bottom of the slope (the bottom located is the actual vertex of the gully);
 - ii. that the slope between these points was a consistent slope not a variable slope
- IV. The slope at the most western edge of the subject land is $>15^\circ$ downslope into this gully. However, this slope is *not* in the direction of any of the building envelopes – see the new plan for where this slope is located and the direction of this slope.
- V. The separation from the hazard to the south to the building envelope on proposed lot 2 is 50m, and as such does allow a building to be built to BAL 29 or lower.
- VI. Screenshots of the survey data bearings and distances used to identify the slopes have been included after this letter.
- (d) Plan showing APZ for each lot
- I. See attached plan identifying APZ's for each building envelope – as per Table A2.4 PBP 2006

I trust this information adequately addresses the matters raised by the RFS. Should you or the NSW RFS wish to discuss any of the above further, please do not hesitate to contact me.

Prepared by:



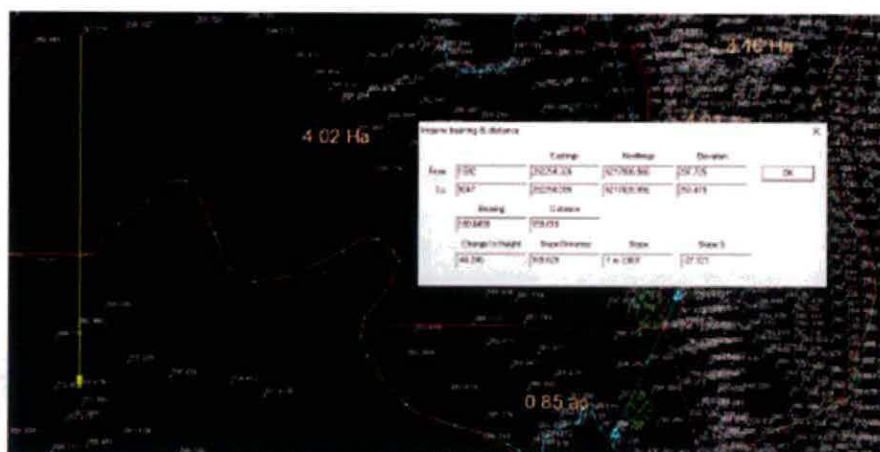
Jane Brandon
Grad Dip in Bushfire Protection
BPAD Accredited Practitioner L3 - BPD-23617



BUSHFIRE ASSESSMENT REPORT – 150715 – 11 WESTMINSTER PLACE RAZORBACK



14.939°



15.4939°

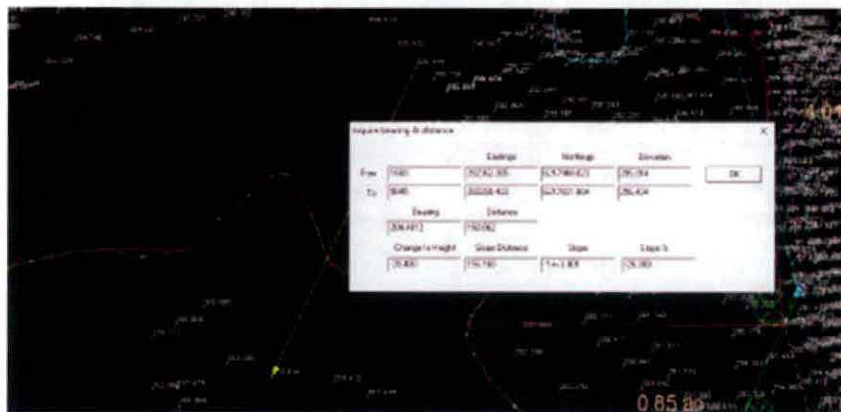


12.99°

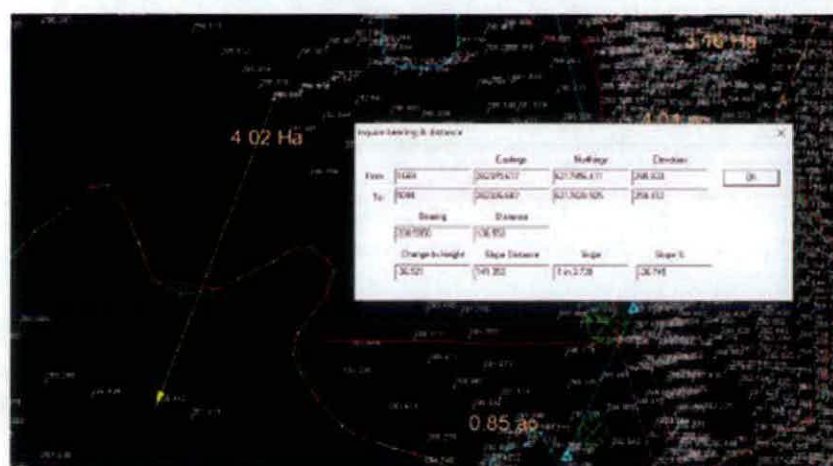
BUSHFIRE ASSESSMENT REPORT – 150715 – 11 WESTMINSTER PLACE RAZORBACK



14.49°

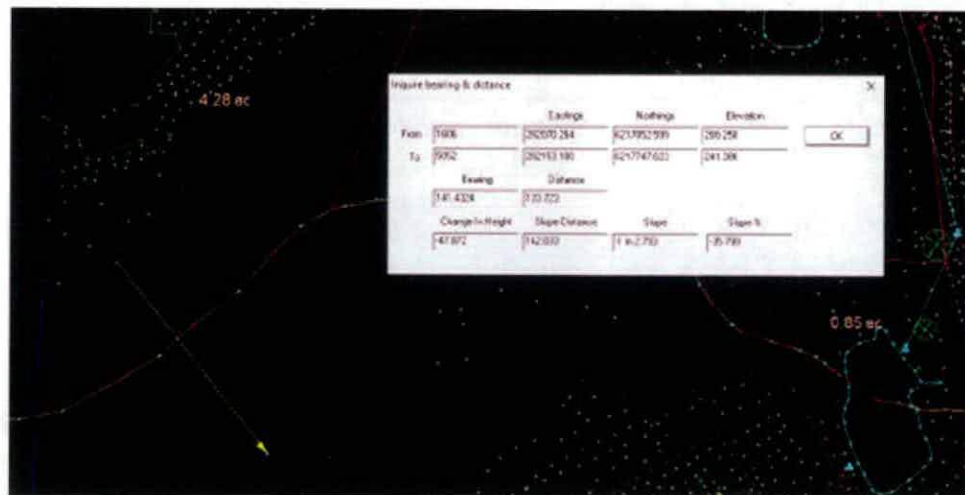
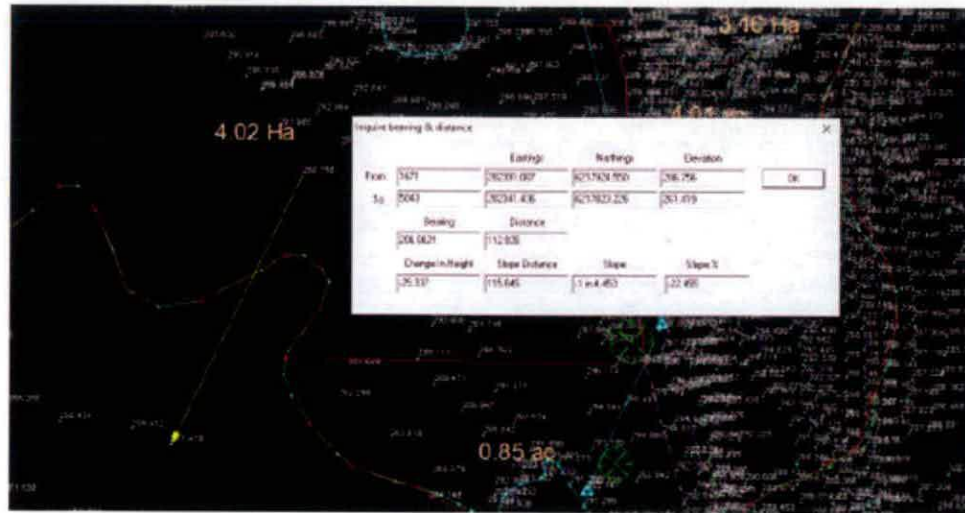


14.7399°



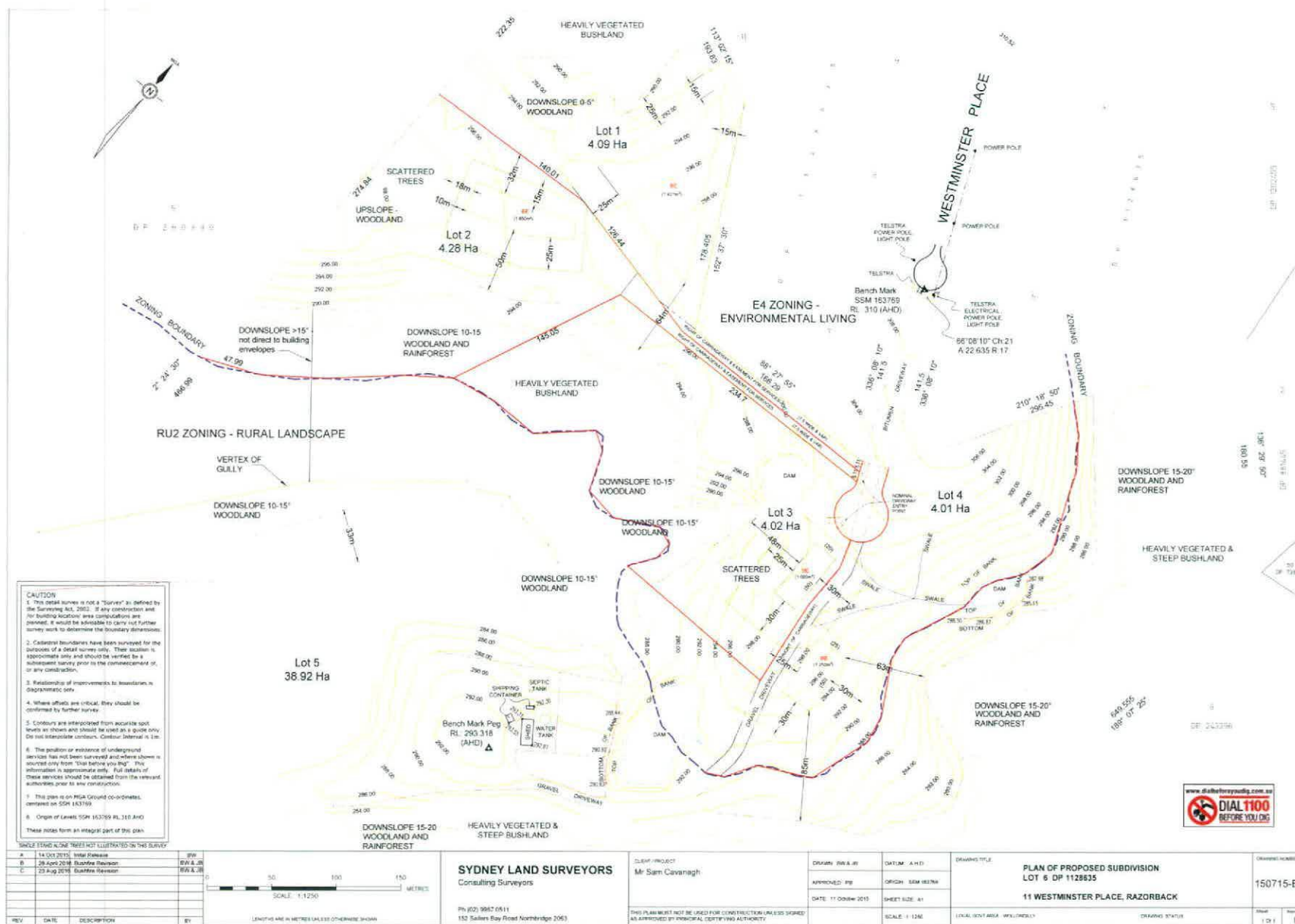
14.9733°

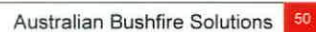
BUSHFIRE ASSESSMENT REPORT – 150715 – 11 WESTMINSTER PLACE RAZORBACK



19.69° – this is further west and not in line to any building envelope

Amended Plans submitted Aug 2016





7 References

Google Maps 2015, <http://maps.google.com.au/>, viewed October 2015

Keith D. (2004) Ocean Shores to Desert Dunes, National Parks and Wildlife, Department of Environment and Conservation- Hurstville NSW.

Keith, D. A. and Simpson, C. C. (2010) Vegetation Formations of NSW (version 3.0): A seamless map for modelling fire spread and behaviour. Report to the Rural Fire Service. NSW Department of Environment & Climate Change. October 2010

MyRFS, <http://MyRFS.nsw.gov.au>, NSW Government, NSW Rural Fire Service, viewed October 2015

NSW Rural Fire Service (2006) Planning for Bushfire Protection, A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners. NSW Rural Fire Service Sydney.

Spatial Information Exchange 2015, <https://six.lands.nsw.gov.au> viewed October 2015

Standards Australia 2009, AS 3959 – 2009 Construction of Buildings in Bushfire-prone Areas. Standards Australia, Sydney.

Tozer, M. (2003). - The Native Vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities. Cunninghamia, vol 8(1):1-75.

Wollondilly Shire Council Dated 2015, <http://www.Wollondilly.nsw.gov.au> viewed October 2015

Attachment 6 – Bushfire Safety Authority

All communications to be addressed to:

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The General Manager
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WOLLONDILLY SHIRE COUNCIL	
TRIM NO.	010.2015.00000775.00
PROP. NO.	1510 2015-775.1
- 9 NOV 2016	
AUTH. No.	9 November 2016
ASSIGNED TO:	D Lukic

Our Ref: D16/0335
DA16020400543 LE

ATTENTION: D S Lukic

Dear Sir / Madam

Integrated Development for 11 Westminster Place Razorback 2571

I refer to your letter dated 1 February 2016 seeking general terms of approval for the above Integrated Development in accordance with Section 91 of the 'Environmental Planning and Assessment Act 1979'.

This response is to be deemed a bush fire safety authority as required under section 100B of the 'Rural Fires Act 1997' and is issued subject to the following numbered conditions:

1. The development proposal is to comply with the subdivision layout identified on the drawing prepared by Sydney Land Surveyors numbered 150715-BF, dated 23 August 2016.

Water and Utilities

The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building. To achieve this, the following conditions shall apply:

2. Installations of water, electricity and gas are to comply with section 4.1.3 of 'Planning for Bush Fire Protection 2006'.

Access

The intent of measures for public roads is to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area. To achieve this, the following conditions shall apply:

3. The extension of Westminster Place access road shall comply with the following requirements of section 4.1.3 (1) of 'Planning for Bush Fire Protection 2006':

- Shall be two wheel drive, all weather roads.
- Shall be two way, with a carriageway 8 metres minimum kerb to kerb.
- Traffic management devices are constructed to facilitate unobstructed access by emergency services vehicles.
- Have a cross fall not exceeding 3 degrees.
- Curves of roads (other than perimeter roads) are a minimum inner radius of 6 metres.
- The minimum distance between inner and outer curves is 6 metres.
- Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient.
- There is a minimum vertical clearance to a height of 4 metres above the road at all times.
- The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicate load rating.
- Public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road.
- Dead end roads shall incorporate a 12 metre outer radius turning circle and be clearly signposted as a dead end.

The intent of measures for property access is to provide safe access to/from the public road system for fire fighters providing property protection during a bush fire and for occupants faced with evacuation. To achieve this, the following conditions shall apply:

4. Property access roads constructed as part of the subdivision shall comply with section 4.1.3 (2) of 'Planning for Bush Fire Protection 2006'.
5. The proposed Right of Ways (ROWs) to proposed lots 1 and 2 are to be mutually beneficial to ensure available access to both lots at all times. Both access handles are to remain unobstructed at all times. This includes ensuring no fencing or vegetation is present within the access to these lots in perpetuity. This is to be ensured through the creation of an 88B instrument in accordance with the 'Conveyancing Act 1919'.
6. A Right of Way (ROW) is to be created for access to proposed lot 5. The ROW is to be created in accordance with section 88B of the 'Conveyancing Act 1919', and shall be designed to ensure width requirements for property access as outlined in section 4.1.3 Access (2) can be achieved.

General Advice – consent authority to note

Any future development application lodged within this subdivision under section 79BA of the 'Environmental Planning & Assessment Act 1979' will be subject to requirements as set out in 'Planning for Bush Fire Protection 2006'.

For any queries regarding this correspondence please contact Lauren Ellefsen on 1300 NSW RFS.

Yours sincerely



Amanda Moylan
Team Leader Development Assessment and Planning

The RFS has made getting information easier. For general information on 'Planning for Bush Fire Protection, 2006', visit the RFS web page at www.rfs.nsw.gov.au and search under 'Planning for Bush Fire Protection, 2006'.

