

Bushfire Assessment Report

Proposed:
**Staged Residential /
Industrial Development**

At:
**16 Chapman Street,
Werrington NSW**

Reference Number: 191311

Prepared For:
GLN Planning

1st October 2019



Prepared By:
**Building Code & Bushfire
Hazard Solutions Pty Limited**

Tel: (02) 9457 6530
Fax: (02) 9457 6532

PO Box 124
Berowra NSW 2081
ABN 19 057 337 774

www.bushfirehazardsolutions.com.au



**SILVER
MEMBER**
Fire Protection
Association Australia



Contents

	<u>Page No.</u>
Copyright and disclaimers	2
List of Abbreviations	3
1.0 Introduction	4 - 5
2.0 Purpose of Report	5
3.0 Scope of Report	5
4.0 Referenced Documents and Persons	5
5.0 Compliance Table and Notes	6 - 10
6.0 Aerial view, Subdivision Plan and Local Planning Controls	11 - 13
7.0 Bushfire Hazard Assessment	14 - 20
8.0 Site and Bushfire Hazard Determination	21 - 22
9.0 Recommendations	23 - 24
10.0 Conclusion	25
11.0 Annexure	26
- List of referenced documents and attachments	
- Attachments	

Copyright:

Where agreed to by Building Code and Bushfire Hazard solutions Pty. Ltd, this report may only be copied, distributed or forwarded to other parties in its original format. No part of this document including any wording, images, or graphics can be modified, changed or altered in any way without the express permission of Building Code and Bushfire Hazard Solutions Pty. Ltd. (Copyright Act 1968).

Where this document is found to have been used or altered in any way without the express permission of Building Code and Bushfire Hazard Solutions Pty. Ltd. including any wording, images, or graphics, Building Code and Bushfire Hazard Solutions Pty. Ltd. will not be held liable for any incidental or consequential loss or damages, financial or otherwise resulting from the use of the modified document. Building Code & Bushfire Hazard Solutions Pty. Ltd. will if it considers it necessary, seek to advise third parties including authorities of such illegal use or modifications.

Legal status:

This report has been prepared as a submission document in support of a development application to Council and in instances may rely upon information provided by a number of external sources including Councils, State Government Agencies and it is assumed that the information provided was accurate at the time. This report cannot be relied upon for commencement of works or construction until such time as it has been endorsed or otherwise included within the consent conditions issued by Council as part of the DA determination.

Section 4.14 applications (under the Environmental Planning and Assessment Act 1979) and all infill development applications may be referred by Council to the NSW Rural Fire Service for review and concurrence during the DA process. S100B applications under the Rural Fires Act 1997 (subdivisions and Special Fire Protection Purpose Developments), Flame Zone determinations and Alternate Solutions must be referred by Council to the NSW Rural Fire Service for review and receipt of a Bushfire Safety Authority (BSA) or other such recommended conditions from the NSW Rural Fire Service before the consent can be granted.

The onus is on the applicant to cross reference this document with any conditions of consent issued by Council or any requirements supplied by the NSW Rural Fire Service following development approval. BCBHS can review and cross reference these documents however the onus is on the applicant to provide them to us and request this review – Building Code and Bushfire Hazard Solutions Pty. Ltd. is not in a position to track every DA through Council and we rely upon the applicant to undertake this role as project co-ordinator.

Where any discrepancy between this document and the development approval or the NSW Rural Fire Service requirements is found, the conditions of consent always take precedence until such time as an application to review, amend or vary these conditions is approved.

Disclaimer:

This report has been prepared with due care and diligence by Building Code and Bushfire Hazard Solutions Pty. Ltd and the statements and opinions contained in this report are given in good faith and in the belief on reasonable grounds that such statements and opinions are correct and not misleading bearing in mind the necessary limitations noted in previous paragraphs.

Further, no responsibility is accepted by Building Code and Bushfire Hazard Solutions Pty. Ltd. or any of its officers or employees for any errors, including errors in data which is supplied by a third party, or which Building Code and Bushfire Hazard Solutions Pty. Ltd. is required to estimate, or omissions howsoever arising in the preparation of this report, provided that this will not absolve Building Code and Bushfire Hazard Solutions Pty. Ltd. from liability arising from an opinion expressed recklessly or in bad faith.

Any representation, statement of opinion, or advice expressed or implied in this document is made in good faith on the basis that Building Code and Bushfire Hazard Solutions Pty. Ltd. employees and / or agents are not liable (whether by reason of negligence, lack of care or any other reason) to any person, company or their agents for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above.

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 as amended.
BAL	Bushfire Attack Level
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Penrith City Council
DA	Development Application
DCP	Penrith Development Control Plan 2014
EP&A Act	Environmental Planning and Assessment Act - 1979
ESD	Ecologically Sustainable Development
IPA	Inner Protection Area
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Places
NSWFR	NSW Fire & Rescue
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection
ROW	Right of Way
RF Act	Rural Fires Act - 1997
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply
UWS	University of Western Sydney

1.0 Introduction

The development proposal relates to a staged residential / industrial development at 16 Chapman Street, Werrington. The subject site also partial extends over Lot 2 DP 1176624 (Wollemi College).

This Development Application seeks approval for the following:

- Site preparation works, including site clearance, tree and vegetation removal.
- Bulk earthworks and land contouring, including the installation of temporary erosion and sediment control measures
- Staged construction of a new local road network and associated civil infrastructure, including:
 - the construction of the East-West Collector Road
 - the construction of a new four-way roundabout at the intersection of Werrington Road/Rance Road/East-West Collector Road
 - extension of Chapman Street
 - construction of pedestrian footpath and cyclist network
- Staged construction of a stormwater drainage network, including new stormwater detention basins within the future Eastern and Central Parks and associated stormwater network upgrades.
- Staged subdivision to create:
 - 265 Torrens title residential lots and 2 residue residential lots
 - 13 residue lots to accommodate future Integrated Housing DAs for 'smart lot' and 'terrace' housing
 - a single Residential Apartment Building residue lot
 - 14 Torrens title industrial lots and a single residue industrial lot
 - 2 residue open space lots for the future Eastern Park and Central Park
 - a single residue lot comprising land zoned E2 Environmental Conservation
 - a single residue lot to accommodate the extension of Chapman Street west into the University of Western Sydney.
- Establishment and operation of a temporary exhibition village that comprises a sales and information pod and associated car park.

Penrith City Council's Bushfire Prone Land Map identifies that the site contains Category 1 and Category 2 Vegetation and their associated buffer zones therefore the application of Planning for Bush Fire Protection 2006 (PBP) must apply in this instance.

As the proposal includes a residential subdivision it is captured under section 100B of the *Rural Fires Act 1997* and consequently must be issued a Bushfire Safety Authority from the NSW Rural Fire Service.

No new dwellings or buildings (apart from a sales pod) are proposed as part of this Development Application. Those new allotments that are mapped as Bushfire Prone Land following this subdivision may require further assessment under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* or s4.14 of the *Environmental Planning and Assessment Act 1979* at the time of any future application for the construction of any new dwellings / buildings on these newly created allotments.

The subject site forms part of the 'South Werrington Urban Village' under the Penrith Development Control Plan 2014.

The subject site has street frontage to Chapman Street to the north and Walker Street to the northeast and abuts the main western railway and existing residential development to the north, existing residential and commercial development to the east, Wollemi College, Cobham Juvenile Justice Centre and a private allotment to the south and the University of Western Sydney Penrith (Werrington North) Campus to the west.

The vegetation identified as being the hazard is within the proposed northern (E2 Environmental Conservation) residue lot and proposed Central Park.

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide GLN Planning, the Rural Fire Service and Penrith City Council with an independent bushfire hazard determination together with appropriate recommendations for both new building construction and bushfire mitigation measures considered necessary having regard to construction within a designated 'bushfire prone' area.

The recommendations contained within this report may assist in forming the basis of any specific construction conditions and/or bushfire mitigation measures that Council and/or the NSW Rural Fire Service may elect to place within any consent conditions issued for the subject Development Application.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject property. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject property.

4.0 Referenced Documents and Persons

Comments provided are based on the requirements of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act), the Rural Fires Act 1997, the Rural Fires Regulation 2013, the RFS document known as 'Planning for Bush Fire Protection – 2006' for the purposes of bushfire hazard determination and Australian Standard 3959 – 2009 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

A company representative has undertaken a site inspection of the subject property and the surrounding area. The 'Subdivision Plan with Staging' (dwg no 80219053-001-SK080, rev 2, dated 26/09/2019) and 'Tree Removal Plan' (dwg no 80219053-001-SK081, rev 2, dated 26/09/2019) prepared by Cardno has been relied upon for this assessment.

5.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2006*.

Proposed Stage 1A:

	North	East	South	West
Vegetation Structure	Woodland	Woodland	Proposed Stage 1B	Lot threat vegetation
Slope	0 - 5 degrees down	0 – 5 degrees down	N/A	N/A
Required Asset Protection Zone	15 metres	10 metres	N/A	N/A
Available Asset Protection Zone	>19 metres	>16.6 metres	N/A	N/A
Significant Environmental Features	Proposed perimeter road and conservation reserve	Proposed perimeter road and central park	Proposed Stage 1B	UWS Penrith Campus
Threatened Species	Cumberland Plain Woodland	Cumberland Plain Woodland	Not Known By Others	Not Known By Others
Aboriginal Relics	Not Known By Others	Not Known By Others	Not Known By Others	Not Known By Others

Proposed Stage 1B:

	North	East	South	West
Vegetation Structure	Proposed Stage 1A	Proposed Stage 2A	Proposed Stage 4B	Lot threat vegetation
Slope	N/A	N/A	N/A	N/A
Required Asset Protection Zone	N/A	N/A	N/A	N/A
Available Asset Protection Zone	N/A	N/A	N/A	N/A
Significant Environmental Features	Proposed Stage 1A	Proposed Stage 2A	Proposed Stage 4B	UWS Penrith Campus
Threatened Species	Cumberland Plain Woodland	Cumberland Plain Woodland	Not Known By Others	Not Known By Others
Aboriginal Relics	Not Known By Others	Not Known By Others	Not Known By Others	Not Known By Others

Proposed Stage 1C:

	Northwest	East	South	West
Vegetation Structure	Woodland	Maintained curtilages	Woodland	Woodland
Slope	0 degrees & up	N/A	0 – 5 degrees down	0 degrees & up
Required Asset Protection Zone	10 metres	N/A	15 metres	10 metres
Available Asset Protection Zone	>25 metres	N/A	≥32 metres	≥14 metres
Significant Environmental Features	Chapman Street	Webb Street road reservation	Central Park	Central Park
Threatened Species	Cumberland Plain Woodland	Cumberland Plain Woodland	Cumberland Plain Woodland	Cumberland Plain Woodland
Aboriginal Relics	Not Known By Others	Not Known By Others	Not Known By Others	Not Known By Others

Proposed Stage 2A:

	North	East	South	West
Vegetation Structure	Woodland	Proposed Stage 2B	Proposed Stage 4B	Proposed Stage 1B
Slope	0 - 5 degrees down	N/A	N/A	N/A
Required Asset Protection Zone	15 metres	N/A	N/A	N/A
Available Asset Protection Zone	>16.6 metres	N/A	N/A	N/A
Significant Environmental Features	Proposed perimeter road and central park	Proposed Stage 2B	Proposed Stage 4B / Juvenile Detention Centre	Proposed Stage 1B
Threatened Species	Cumberland Plain Woodland	Cumberland Plain Woodland	Cumberland Plain Woodland	Not Known By Others
Aboriginal Relics	Not Known By Others	Not Known By Others	Not Known By Others	Not Known By Others

Proposed Stage 2B:

	North	East	South	West
Vegetation Structure	Maintained curtilages	Proposed Stage 3	Proposed Stage 4A	Woodland
Slope	N/A	N/A	N/A	0 degrees & up
Required Asset Protection Zone	N/A	N/A	N/A	10 metres
Available Asset Protection Zone	N/A	N/A	N/A	≥16 metres
Significant Environmental Features	Neighbouring residential allotments	Proposed Stage 3	Proposed Stage 4A	Central Park (13m external APZ within Central Park)
Threatened Species	Not Known By Others	Not Known By Others	Not Known By Others	Cumberland Plain Woodland
Aboriginal Relics	Not Known By Others	Not Known By Others	Not Known By Others	Not Known By Others

Proposed Stage 3:

	North	East	South	West
Vegetation Structure	Low threat vegetation	Lot threat vegetation	Lot threat vegetation	Proposed Stage 2B
Slope	N/A	N/A	N/A	N/A
Required Asset Protection Zone	N/A	N/A	N/A	N/A
Available Asset Protection Zone	N/A	N/A	N/A	N/A
Significant Environmental Features	Eastern Park / Walker Street	Neighbouring residential & commercial allotments	Stage 4A / Wollemi College	Proposed Stage 2B
Threatened Species	Not Known By Others	Not Known By Others	Not Known By Others	Cumberland Plain Woodland
Aboriginal Relics	Not Known By Others	Not Known By Others	Not Known By Others	Not Known By Others

Proposed Stage 4A (Industrial):

	North	East	South	West
Vegetation Structure	Proposed Stages 2B & 3	Lot threat vegetation	Lot threat vegetation	Proposed Stage 4B
Slope	N/A	N/A	N/A	N/A
Required Asset Protection Zone	N/A	N/A	N/A	N/A
Available Asset Protection Zone	N/A	N/A	N/A	N/A
Significant Environmental Features	Proposed Stages 2B & 3	Wollemi College	Juvenile Detention Centre / Private allotment	Juvenile Detention Centre / Proposed Stage 4B
Threatened Species	Not Known By Others	Not Known By Others	Not Known By Others	Not Known By Others
Aboriginal Relics	Not Known By Others	Not Known By Others	Not Known By Others	Not Known By Others

Proposed Stage 4B (Industrial):

	North	East	South	West
Vegetation Structure	Proposed Stages 1B & 2A	Proposed Stage 4A	Lot threat vegetation	Lot threat vegetation
Slope	N/A	N/A	N/A	N/A
Required Asset Protection Zone	N/A	N/A	N/A	N/A
Available Asset Protection Zone	N/A	N/A	N/A	N/A
Significant Environmental Features	Proposed Stages 1B & 2A	Proposed Stage 4A	Juvenile Detention Centre	UWS Penrith Campus
Threatened Species	Cumberland Plain Woodland	Cumberland Plain Woodland	Not Known By Others	Not Known By Others
Aboriginal Relics	Not Known By Others	Not Known By Others	Not Known By Others	Not Known By Others

Asset Protection Zones Compliance

The minimum required Asset Protection Zones were determined from Table A2.4 of Planning for Bush Fire Protection (PBP).

The subject development achieves and in most instances exceeds the minimum required Asset Protection Zones under PBP.

The separation from the hazard interfaces primarily consists of proposed perimeter roads.

There is a 13 metre external APZ proposed along the eastern boundary of the central park. A suitably worded restriction and Fuel Management Plan will be created to ensure the ongoing management of this area.

All proposed allotments excluding proposed Lot 1000 and the retained Cumberland Plain Woodland (CPW) within Central Park (Lot 2269) will be maintained in accordance with an Asset Protection Zone.

Construction Level Compliance

No new dwellings / buildings (apart from the proposed sales pod) are proposed as part of this Development Application. Those new allotments that are mapped as Bushfire Prone Land following this subdivision may require further assessment under *State Environmental Planning Policy (Exempt and Complying Development Codes)* 2008 or s4.14 of the *Environmental Planning and Assessment Act* 1979 at the time of any future application for the construction of any new dwellings / buildings on these newly created allotments.

Access and Services

Guideline Ref.	Proposed Development Determinations
Public Roads	The subject site has street frontage to Chapman Street to the north and Walker Street to the northeast. The proposed road design provides an additional access /egress route to the east to Werrington Road and also facilities future connections to the south and west in accordance with the Penrith DCP. Further detail regarding the public road infrastructure is included within s7.07 of this report.
Water Supply	The existing hydrant network will be extended into the site to service the proposed residential and industrial allotments. The sizing, spacing and pressures of the new hydrant system must comply with AS2419.1-2005.
Evacuation	Evacuation will be possible by utilising proposed and existing road infrastructure. It is encouraged that the occupants of any future dwelling that is constructed on bushfire prone land complete a Bush Fire Safety Plan addressing "Prepare, Act, Survive" as advocated by the NSW RFS http://www.rfs.nsw.gov.au/ under publications / bushfire safety.
Electrical Supply	New supply will be provided.

6.0 Aerial view, Subdivision Plan & Local Planning Controls

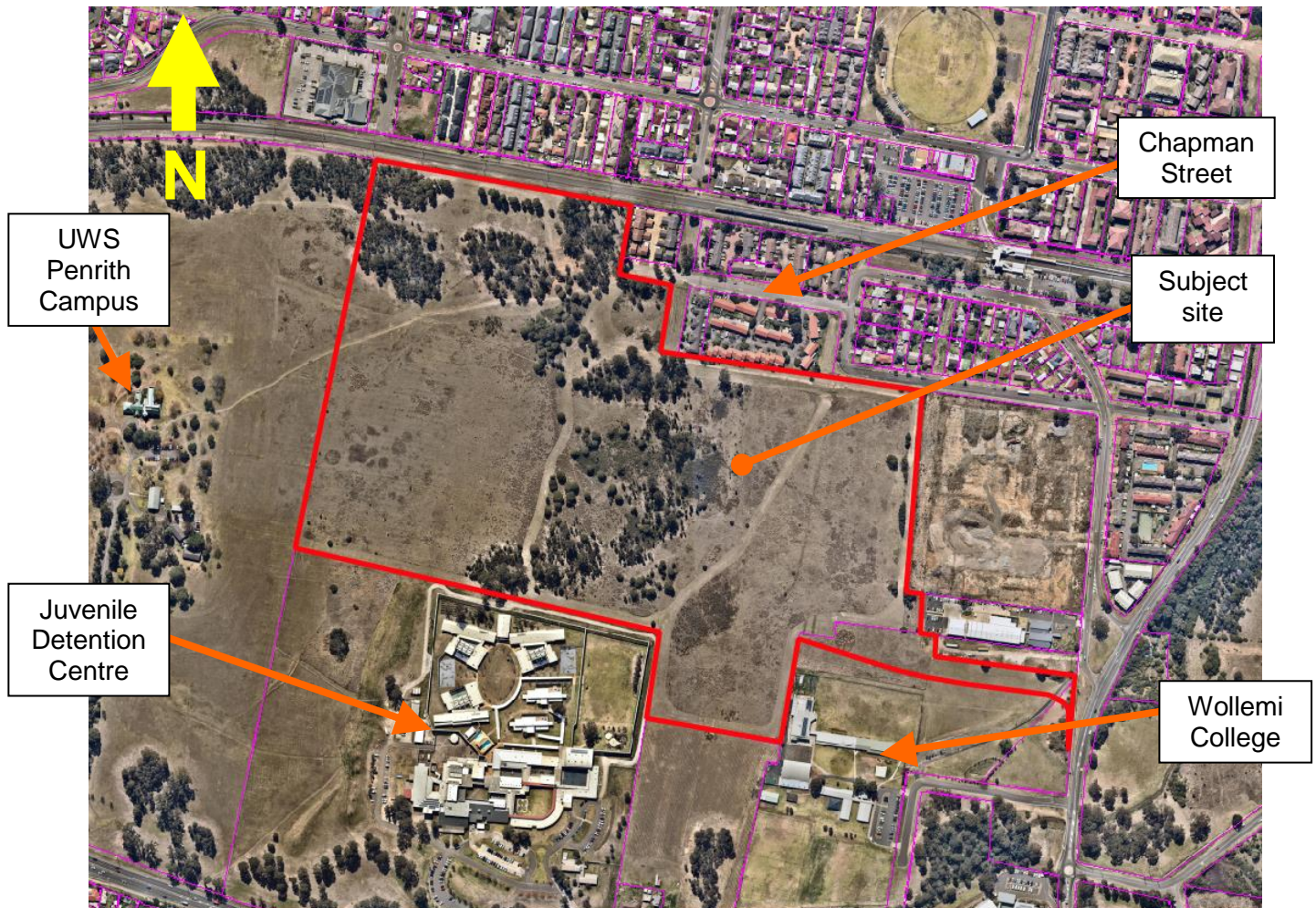


Image 01: Aerial view of the subject area (C/- Nearmap)

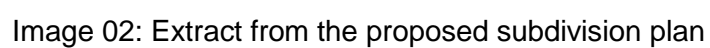




Image 03: Urban Structure Plan (South Werrington Urban Village) – Penrith DCP

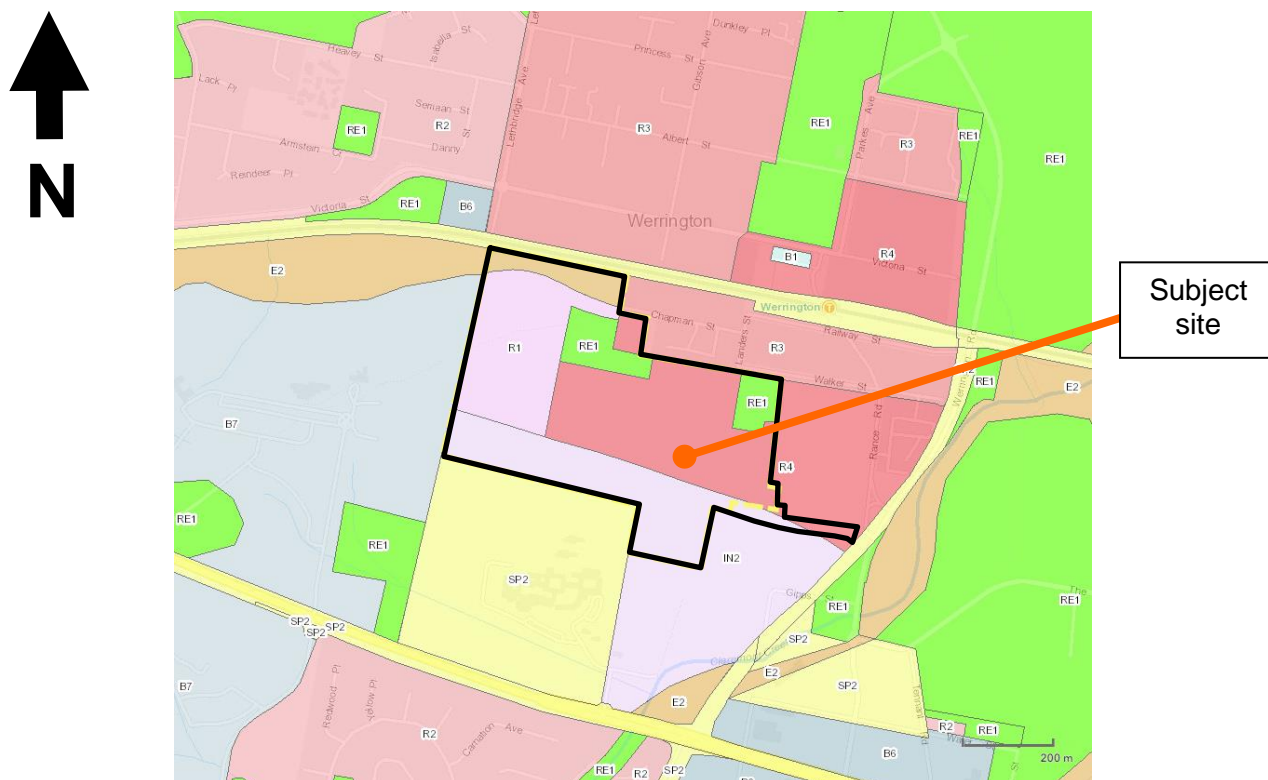


Image 04: Zoning of subject area (C/- NSW Planning Portal)

7.0 Bushfire Hazard Assessment

7.01 Preface

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service. All property development within affected areas is subject to the conditions detailed in the document 'Planning for Bush Fire Protection - 2006' (PBP). Set back distances for the purpose of creating Asset Protection Zones (APZ's) must be applied and any buildings must then conform to corresponding regulations detailed in Australian Standard 3959 – 2009 'Construction of buildings in bushfire prone areas'.

Planning for Bush Fire Protection – 2006, (PBP) formally adopted on the 1st March 2007 and amended 3rd May 2010 (Appendix 3) provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

The thrust of the document is to ensure that developers of new properties or sub-divisions include the constraints associated with the construction of buildings in bushfire prone areas within their proposed development sites. PBP is applicable to proposed development on land that contains Category 1, 2 or 3 Vegetation and / or their associated buffer zones.

The document also acknowledges 'infill' developments associated with re-development of existing properties and allows some higher levels of building safety where the increased 'set backs' (APZ's) may not be achievable.

The development proposal relates to a staged residential / industrial development. As the proposal includes a residential subdivision it is captured under section 100B of the *Rural Fires Act* 1997 and consequently must be issued a Bushfire Safety Authority from the NSW Rural Fire Service.

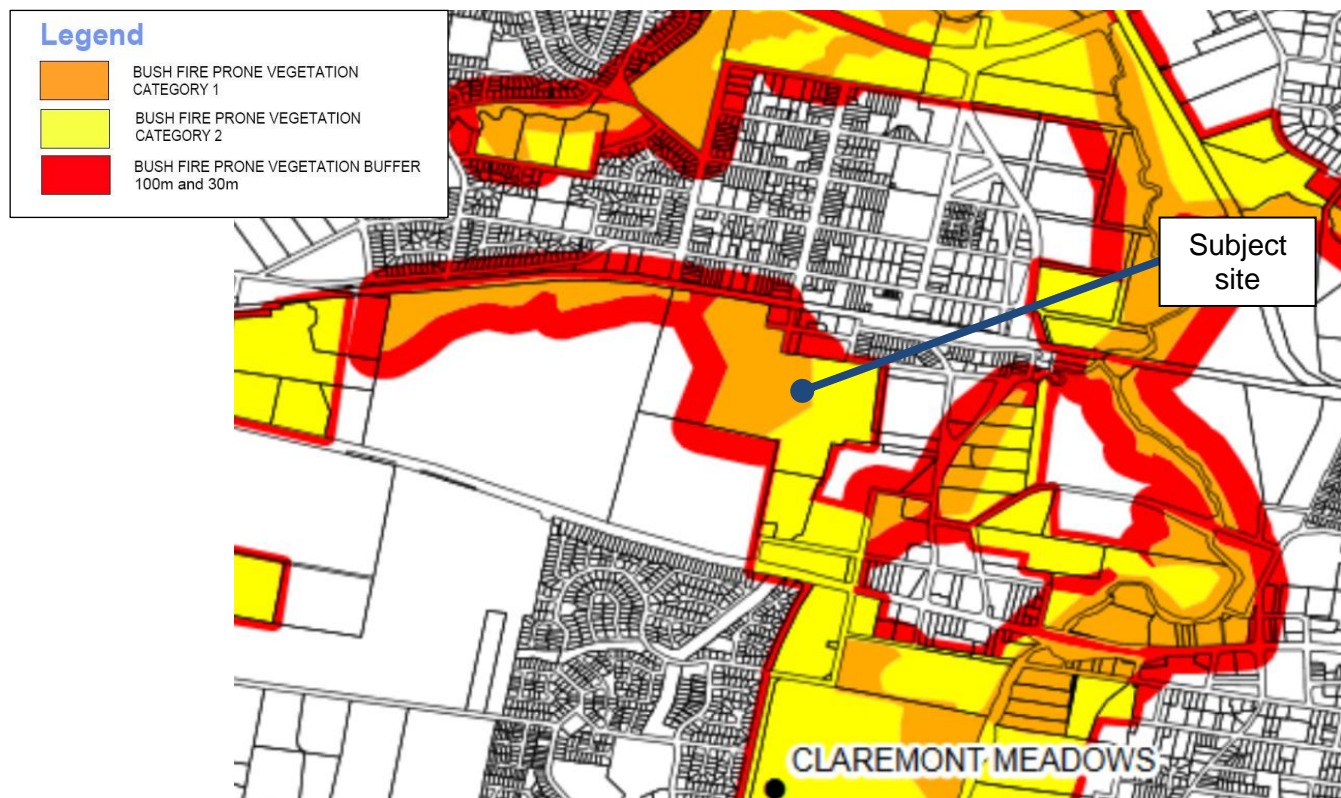


Image 05: Extract from Penrith City Council's Bushfire Prone Land Map

7.02 Location

The subject site is known as 16 Chapman Street, Werrington (Lot 1 DP 1226122) and is located within Penrith City Councils Local Government Area. The subject site also partial extends over Lot 2 DP 1176624 (Wollemi College).

The subject site forms part of the 'South Werrington Urban Village' under the Penrith Development Control Plan 2014 and is zoned 'R1 General Residential', 'R4 High Density Residential', 'IN2 Light Industrial', 'RE1 Public Recreation' and 'E2 Environmental Conservation'.

The subject site has street frontage to Chapman Street to the north and Walker Street to the northeast and abuts the main western railway and existing residential development to the north, existing residential and commercial development to the east, Wollemi College, Cobham Juvenile Justice Centre and a private allotment to the south and the University of Western Sydney Penrith (Werrington North) Campus to the west.

The vegetation identified as being the hazard is within the proposed northern (E2 Environmental Conservation) residue lot and proposed Central Park.

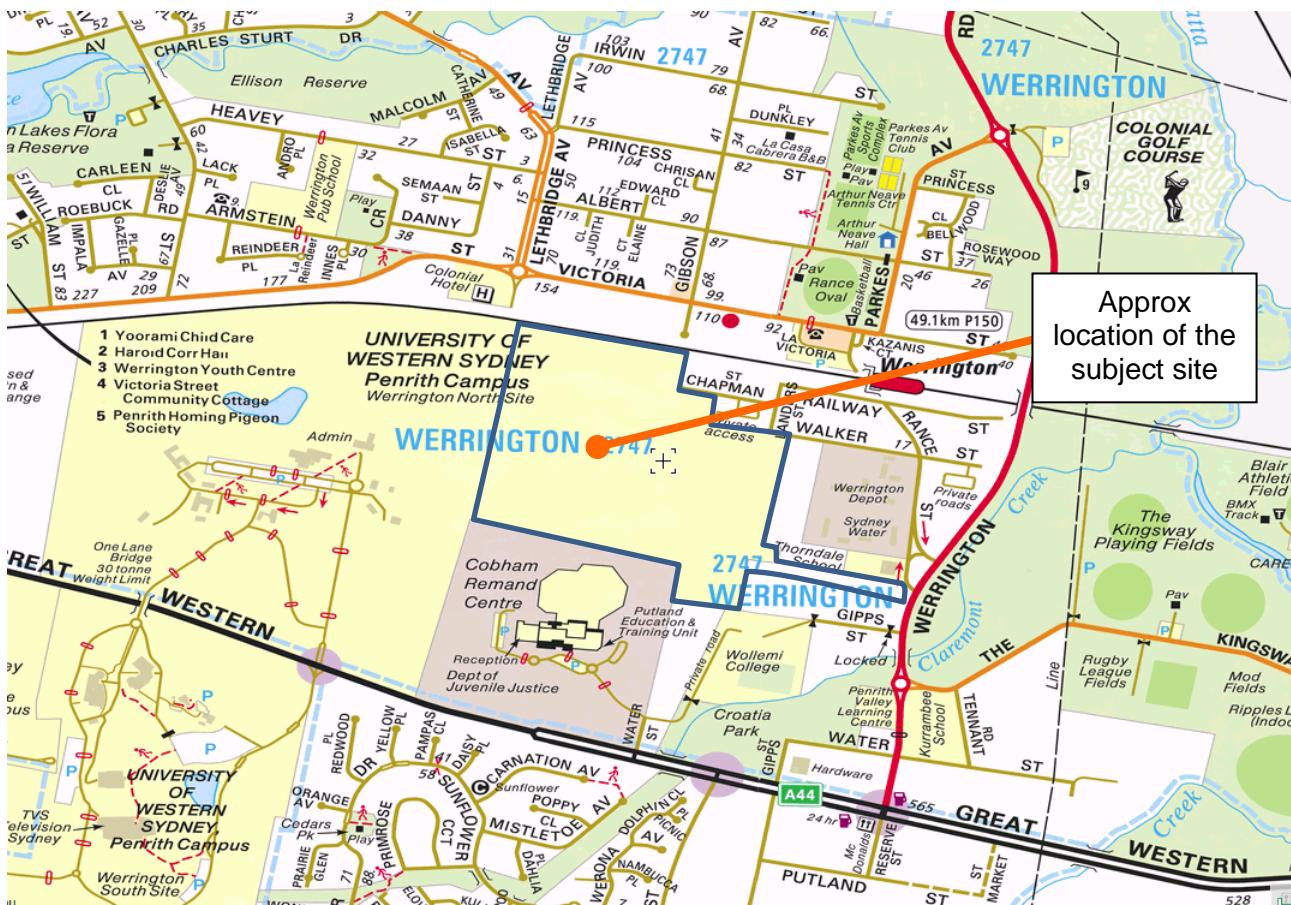


Image 06: Extract from street-directory.com.au

7.03 Vegetation

The subject site was found to be vacant, consisting of periodically slashed pastures and pockets of Cumberland Plain Woodland (CPW), a critically endangered ecological community (CEEC) listed under the *Biodiversity Conservation Act 2016*.

The CPW onsite has been identified as being NSW Plant Community Type 849: Grey Box-Forest Red Gum Grassy Woodland on Flats of the Cumberland Plain, Sydney Basin, being a Grassy Woodland formation.

The proposal includes the creation of two (2) open space allotments (Central and Eastern Parks) and a single residue allotment (Lot 1000) comprising of the land zoned 'E2 Environmental Conservation'.

The proposed Central Park will retain and protect an area of CPW outside the proposed detention basins and 13 metre wide designated APZ (located along its eastern boundary). The Central Park outside the proposed detention basins and 13 metre wide designated APZ (located along its eastern boundary) has been assessed as a Woodland hazard

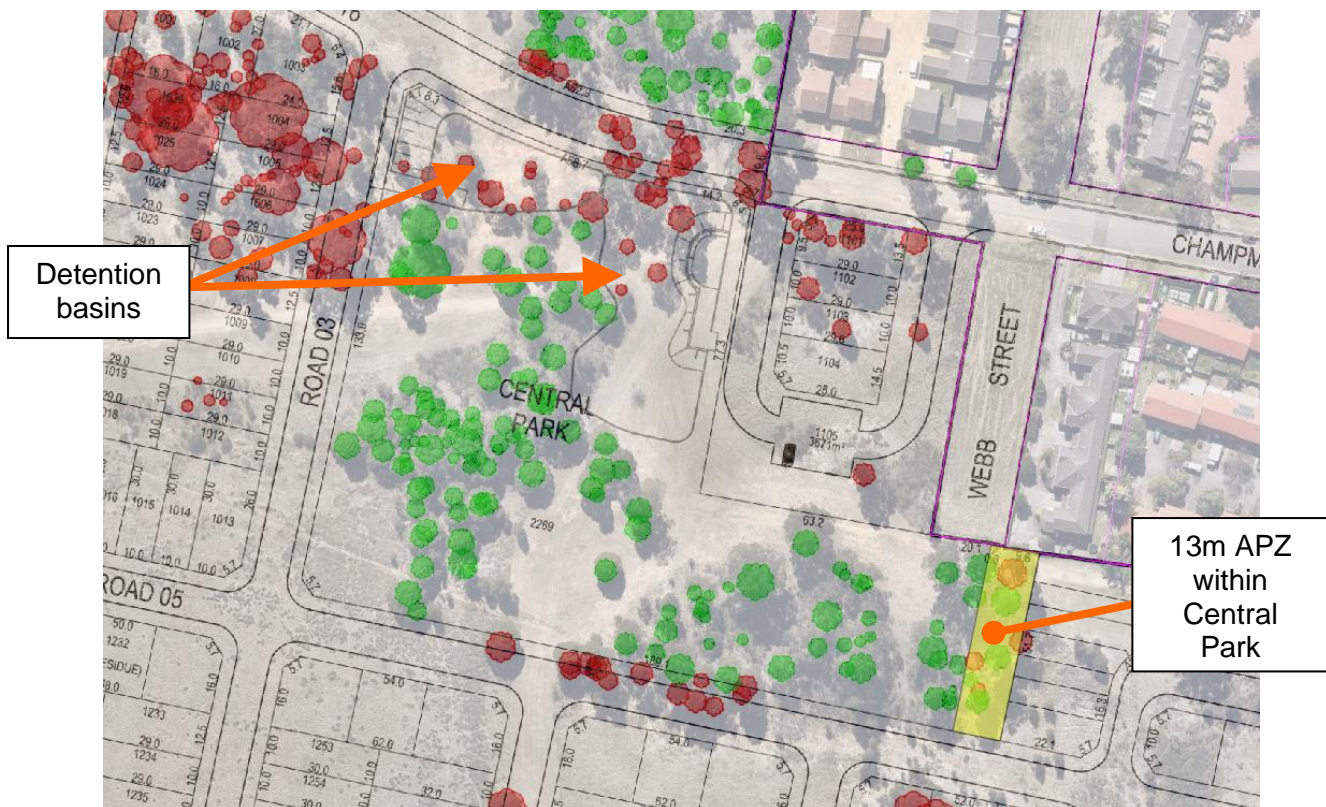


Image 07: Overlay showing APZ and detention basins within Central Park

The proposed Eastern Park will comprise largely of a detention basin. It is understood that this detention basin will be constructed such to provide a secondary function of passive / active recreation space (low cut grass for the southern portion of the basin). This Park has subsequently not been determined to present a bushfire threat.

The proposed single residue allotment (Lot 1000) comprising of the land zoned 'E2 Environmental Conservation' will protect and enhance the existing CPW. A Vegetation Management Plan has been prepared by Horticultural Management Services (dated 14th March 2016) to ensure the conservation measures are achieved. For the purpose of assessment under PBP the entirety of proposed Lot 1000 has been assessed as a Woodland hazard.

A review of historic aerial imagery and onsite observations confirmed that the grassland within the adjacent UWS Penrith Campus, Wollemi College, Cobham Juvenile Justice Centre and private allotment to the south is subject to regular mowing / slashing and consequently not considered to pose a grassfire threat.



Photograph 01: View of pocket of CPW within the subject site



Photograph 02: View of pocket of CPW within the subject site

7.04 Slope and Topography

The slope that would most significantly affect bushfire behaviour within the hazard must be assessed for at least 100 metres. The effective slopes were determined using 1 metre LiDar contour mapping of the subject area in conjunction with site observations and are describe in the Compliance Tables on pages 6 - 9 of this report.



Image 07: Aerial view of the subject area overlaid with 1 metre contours

7.05 Asset Protection Zones

The minimum required Asset Protection Zones were determined from Table A2.4 of Planning for Bush Fire Protection 2006 (PBP). Refer to the Compliance Tables on pages 6 - 9 for these minimum required APZs.

It must be noted that there are no building entitlements for proposed Lots 1066 and 1105.

The available APZs consist of the land entirely within the subject site (including proposed roads).

There is a 13 metre external APZ proposed along the eastern boundary of the central park. A suitably worded restriction and Fuel Management Plan will be created to ensure the ongoing management of this area.

All proposed residential allotments can accommodate a building footprint achieving or exceeding the minimum required Asset Protection Zone for Residential Subdivisions under Appendix 2 of PBP.

All proposed allotments excluding proposed Lot 1000 (E2 Environmental Conservation zoned land) and the retained CPW within Central Park (Lot 2269) will be maintained in accordance with an Asset Protection Zone.

The Asset Protection Zones will be maintained in accordance with an Asset Protection Zone (Inner Protection Area) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

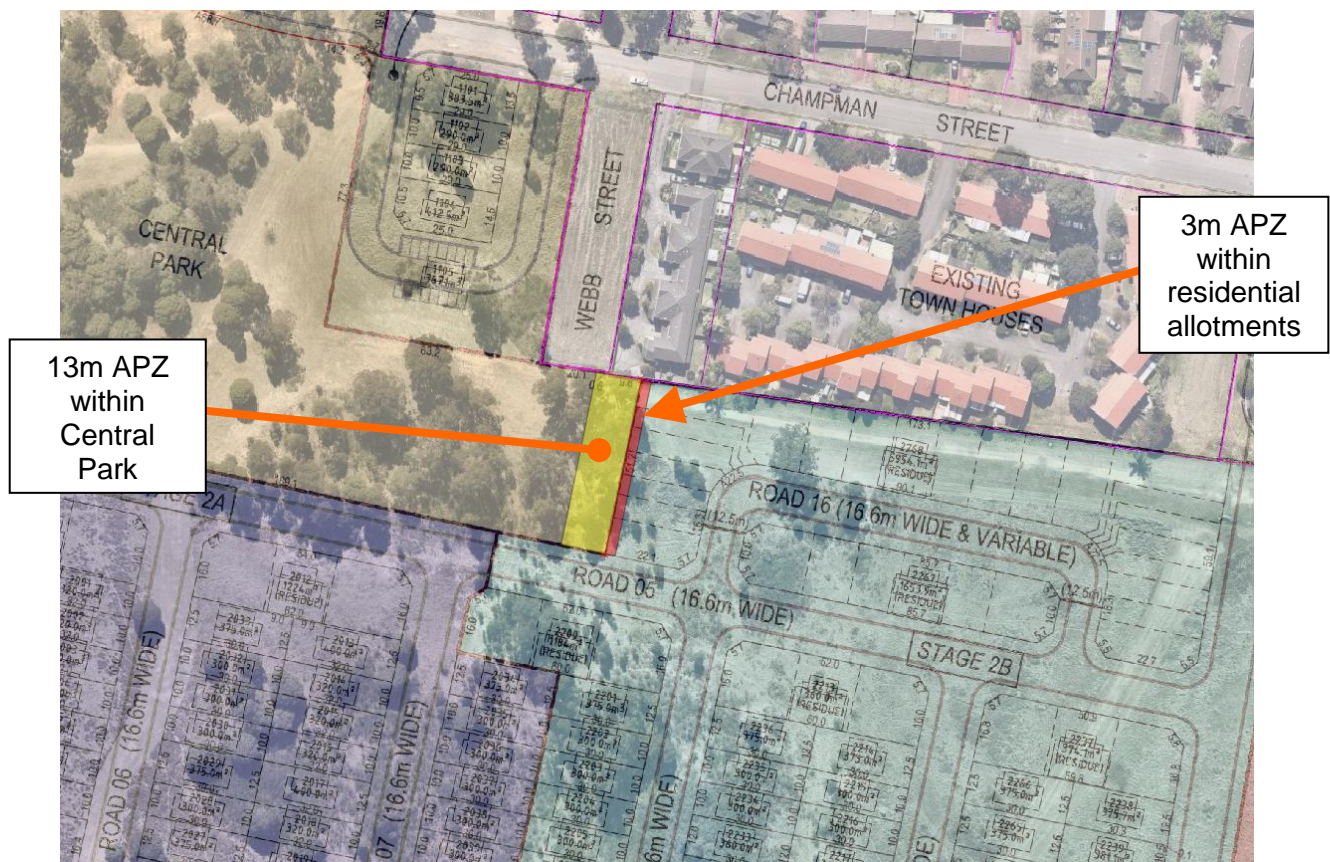


Image 08: APZ Overlay for Stage 2B

7.06 Fire Fighting Water Supply

The development will include the installation of hydrants along the proposed public roads. The sizing, spacing and pressures of the proposed hydrants must be in accordance with AS2419.1-2005.

The required water supply is considered adequate for the replenishment of attending fire services.

7.07 Property Access – Fire Services & Evacuation

The subject site has street frontage to Chapman Street to the north and Walker Street to the northeast.

The proposed road design provides an additional access /egress route to the east to Werrington Road and also facilitates future connections to the south and west in accordance with the Penrith DCP.

A review of the proposed subdivision plan has found that the proposed roads will have a carriageway of 9 metres. This exceeds the minimum carriageway requirements for Public Roads under 4.1.3(1) of PBP.

The most distant external point of all proposed building envelopes are located within 70 metres of the proposed two-way internal roads.

Fire services will have free vehicle access around the subject site via the proposed public roads. Attending fire services can access the hazards via the new roads for hazard reduction or fire suppression activities.

It is noted that the proposed cul-de-sac at the end of road 13 in Stage 3 does not satisfy the minimum outer radius for turning circles described in the Acceptable Solutions for Public Roads in section 4.1.3(1) of PBP. The closest bushfire hazard to any future dwelling that will be serviced by road 13 is >240 metres away and therefore not on land considered 'bushfire prone'.

One of the general principles underlying Planning for Bush Fire Protection is that protection measures are governed by the degree of threat posed to a development. In this regard we are of the opinion that the cul-de-sac at the end of road 13 in Stage 3 should not need to satisfy with the minimum outer radius for turning circles as described in the Acceptable Solutions for Public Roads in section 4.1.3(1) of PBP.

Access for fire services and opportunities for occupant evacuation are considered adequate for this property.

8.0 Site & Bushfire Hazard Determination

8.01 Planning for Bush Fire Protection - 2006

Planning for Bush Fire Protection – 2006 (PBP) is applicable to those lands determined as being within a 'bushfire prone area' in accordance with a local Bushfire Prone Land Map as provided by the Rural Fire Service and Council.

The most appropriate method of determining site bushfire hazard under the terms of PBP is to consider the site in a singular form.

Bushfire prone areas are defined as those areas;

- *within or within 100m of high or medium bushfire hazards; or*
- *within or within 30m of low bushfire hazards.*

In this instance the subject property has been identified as being bushfire prone land therefore it is appropriate to apply PBP.

8.02 Australian Standard AS 3959 – 2009 'Construction of buildings in bushfire –prone areas'

Australian Standard 3959 – 2009 'Construction of buildings in bushfire-prone areas' provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ. The Australian Standard 3959 specifies construction standards for buildings within various Bushfire Attack Levels as determined by the Planning for Bushfire Protection – 2006 document. The NSW Rural Fire Service will not accept deemed to satisfy provisions for BAL Flame Zone and therefore have a NSW variation to the listed standard provisions of BAL FZ under AS3959 - 2009.

8.03 Correlation between bushfire impact and AS3959

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-2009
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

8.04 Site Specific Bushfire Hazard Determination

All property development must be assessed on an individual basis as broad-brush approaches of documents such as PBP may not be applicable in every instance. The proposed development located at 16 Chapman Street, Werrington was assessed against the requirements of Planning for Bush Fire Protection 2006 noting the following:

- a) The proposed public roads will exceed the minimum required for Public Roads as specified in section 4.1.3(1) of Planning for Bush Fire Protection 2006.
- b) The new hydrants will comply with the sizing, spacing and pressures of AS2419.1-2005.
- c) The proposed development achieves and in most instances exceeds the minimum required Asset Protection Zones for Residential Subdivision in accordance with Appendix 2 of PBP.
- d) Recommendations to maintain the Asset Protection Zones within the subject property will be included.

8.05 Viable Construction Method

The objectives of Planning for Bush Fire Protection – 2006 are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and both the Rural Fire Service and Council should be in a position to consider such applications.

No new dwellings / buildings (apart from the proposed sales pod) are proposed as part of this Development Application. Those new allotments that are mapped as Bushfire Prone Land following this subdivision may require further assessment under *State Environmental Planning Policy (Exempt and Complying Development Codes)* 2008 or s4.14 of the *Environmental Planning and Assessment Act* 1979 at the time of any future application for the construction of any new dwellings / buildings on these newly created allotments.

9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2006. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

1. That all grounds not built upon within the proposed allotments, excluding Lot 1000 and the retained CPW within Central Park (Lot 2269) be maintained as an Asset Protection Zone as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 2 of Planning for Bush Fire Protection 2006.
2. At the issue of a subdivision certificate, suitable instruments shall be created pursuant to section 88B of the Conveyancing Act 1919 over the residential allotments within Stage 2B which prohibits the construction of buildings other than class 10 structures within 3 metres of the western stage boundary. The name of the authority empowered to release, vary or modify the instruments shall be Penrith City Council.
3. At the issue of a subdivision certificate, suitable instruments shall be created pursuant to section 88B of the Conveyancing Act 1919 over Central Park (Lot 2269) creating a 13 metre wide Asset Protection Zone along the Parks eastern boundary (as shown in Image 08 of this report). The name of the authority empowered to release, vary or modify the instruments shall be Penrith City Council.
4. That prior to the registration of the subdivision a Fuel Management Plan be prepared for Eastern Park and the Asset Protection Zone within Central Park.

Access

5. That the proposed road design complies with the Subdivision Plan with Staging prepared by Cardno (dwg no 80219053-001-SK080, rev 2, dated 26/09/2019).
6. That the proposed internal roads, excluding the cul-de-sac of road 13, shall comply with section 4.1.3 (1) of Planning for Bush Fire Protection 2006.

Note 01: It should also be noted that the proposed roads will achieve or exceed the minimum carriageway requirements for Public Roads as detailed in section 4.1.3(1) of PBP.

Water Supply

7. That the new hydrant sizing, spacing and pressures must comply with AS2419.1 – 2005.

Services

Electricity:

8. Where practicable, electrical transmission lines are underground.
9. Where overhead electrical transmission lines are proposed:
 - lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and
 - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).

Gas:

10. Reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities.
11. Metal piping is to be used.
12. All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.
13. If gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion.
14. Connections to and from gas cylinders are metal.
15. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.

10.0 Conclusion

The development proposal relates to a staged residential / industrial development at 16 Chapman Street, Werrington.

Given that the property is deemed bushfire prone under Penrith City Council's Bushfire Prone Land Map any development would need to meet the requirements of Planning for Bush Fire Protection 2006. The determination of any bushfire hazard must be made on a site-specific basis that includes an assessment of the local bushland area and its possible impact to the subject property.

The vegetation identified as being the hazard is within the proposed northern (E2 Environmental Conservation) residue lot and proposed Central Park.

The minimum required Asset Protection Zones were determined from Table A2.4 of Planning for Bush Fire Protection 2006. The subject development achieves or in most instances exceeds the minimum required Asset Protection Zones under PBP.

No new dwellings / buildings (apart from the proposed sales pod) are proposed as part of this Development Application. Those new allotments that are mapped as Bushfire Prone Land following this subdivision may require further assessment under *State Environmental Planning Policy (Exempt and Complying Development Codes)* 2008 or s4.14 of the *Environmental Planning and Assessment Act* 1979 at the time of any future application for the construction of any new dwellings / buildings on these newly created allotments.

The proposed water supply and access provisions are considered adequate and will satisfy section 4.1.3 of Planning for Bush Fire Protection 2006.

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is our opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development.

We are therefore in support of the development application.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by
Building Code & Bushfire Hazard Solutions



Stuart McMonnies

Manager Bushfire Section
G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
Fire Protection Association of Australia BPAD – L3 Accredited Practitioner
Certification number – BPAD9400



11.0 Annexure 01

List of Referenced Documents

- a) Environmental Planning and Assessment Act - 1979
- b) Rural Fires Act 1997 as amended
- c) 'Planning for Bush Fire Protection'- 2006 - NSW Rural Fire Services & Planning NSW
- d) 'Construction of buildings in bushfire-prone areas' - AS 3959 – 2009 (as - amended) – Standards Australia
- e) 'Penrith City Council's Bushfire Prone Land Map'
- f) 'South Werrington Urban Village' under the Penrith Development Control Plan 2014
- g) Vegetation Management Plan has been prepared by Horticultural Management Services (dated 14th March 2016)
- h) 'Subdivision Plan with Staging' (dwg no 80219053-001-SK080, rev 2, dated 26/09/2019) and 'Tree Removal Plan' (dwg no 80219053-001-SK081, rev 2, dated 26/09/2019) prepared by Cardno
- i) Acknowledgements to:
 - NSW Department of Lands – SIXMaps
 - Street-directory.com.au
 - Nearmap
 - Geoscience Australia

Attachments

Attachment 01: N/A