

Bushfire Assessment Report

Proposed:
**Residential Aged
Care Facility**

At:
**5 – 7 Floribunda Avenue
Glenmore Park NSW**

Reference Number: 190919

Prepared For:
Opal Aged Care
C/- Pure Projects

20th June 2019



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MEMBER**
Fire Protection
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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.

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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 Council
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act - 1979
ESD	Ecologically Sustainable Development
FRNSW	Fire Rescue NSW
IPA	Inner Protection Area
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection – 2006
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

1.0 Introduction

The development proposal relates to the demolition of an existing Royal Deaf and Blind Children Association building to allow for the construction of a new aged care facility.

The subject property is known as 5 – 7 Floribunda Avenue, Glenmore Park and is located within Penrith Council local government area. The subject property has street frontage to Floribunda Avenue to the southwest and abuts Floribunda Community Centre to the northwest, Rotary Park to the northeast and neighbouring residential allotments to the southeast.

Penrith Council's Bushfire Prone Land Map (BPLM) identifies the subject site as partially containing the 100 metre buffer zone from Category 1 Vegetation therefore the application of Planning for Bush Fire Protection - 2006 (PBP) must apply in this instance.

In accordance with section 100b of the *Rural Fires Act* 1997 the proposed development is captured as Special Fire Protection Purpose and as such requires referral to the NSW Rural Fire Service for a Bushfire Safety Authority.

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide the owners, the Rural Fire Service and 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 hazard assessment and recommendations for the subject site. 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 site.

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 AS3959 – 2009 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

A company representative has made a site inspection of the subject site and the surrounding area.

The Proposed Ground Floor Plan by Calder Flower Architecture, Job No. 18350, Issue P5, Dated 31/05/2019 has been referenced in the preparation of this assessment.

5.0 Compliance Tables & Notes

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

	Northeast	Northwest	Southwest	West
Vegetation Structure	Maintained curtilages	Maintained curtilages	Maintained curtilages	Forest
Slope	n/a	n/a	n/a	0 degrees & up
Required Asset Protection Zone	n/a	n/a	n/a	60 metres
Proposed Asset Protection Zone	n/a	n/a	n/a	>100 metres
Significant Environmental Features	Maintained Rotary Park	Floribunda Community Centre	Floribunda Avenue / Maintained neighbouring residential allotments	Floribunda Avenue / mown lawns and drainage swale within Apple Gum Reserve
Threatened Species	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Aboriginal object / places	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Bushfire Attack Level	BAL Low	BAL Low	BAL Low	BAL Low
Required Construction Level	BAL Low	BAL Low	BAL Low	BAL Low

Asset Protection Zones Compliance

The available Asset Protection Zone from the proposed building to any hazard was measured to be greater than >100 metres. It will be recommended that all grounds within the site continue to be maintained as an Asset Protection Zone.

The APZ consists of maintained grounds within the subject property and land 'equivalent to an APZ' within Floribunda Avenue, neighbouring residential allotments and mown lawns / drainage swale within Apple Gum Reserve.

Construction Level Compliance

The highest Bushfire Attack Level to the subject building was determined to be 'BAL Low' and there are therefore no specific requirements for construction under AS 3959 – 2009 Construction of buildings in bushfire prone areas, specifically this is detailed within section 4 of the standard which states "*The Bushfire Attack Level BAL—LOW is based on insufficient risk to warrant specific bushfire construction requirements*".

Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access (Driveway)	The subject site has street frontage to Floribunda Avenue to the southwest. The proposed access drive to the subject building will provide a one-way loop having a >5 metre wide carriageway. The proposed road exceeds the minimum carriageway requirements for internal roads under 4.2.7 of PBP. The proposed access provisions are considered adequate.
Water Supply	There are existing hydrants along Floribunda Avenue, Freesia Place, surrounding roads and also within the adjacent Floribunda Community Centre allotment for the replenishment of fire service vehicles. The subject property will have hydrants, hose reels and sprinkler systems for fire protection. The required water supply is considered adequate.
Evacuation	Evacuation is possible by utilising existing road infrastructure. It will be recommended that a Bush Fire Evacuation Plan be prepared in accordance with the NSW Rural Fire Service guidelines emergency management plans.
Electrical Supply	Above ground supply provided.

6.0 Aerial view of the subject allotment



Image 01: Aerial view of the subject area (Sixmaps)



Image 02: Closer aerial view of the subject area (Sixmaps)

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 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 inside determined Category 1 or 2 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 bushfire area.

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 subject development relates to the demolition of an existing Royal Deaf and Blind Children Association building to allow for the construction of a new aged care facility. In accordance with section 100b of the *Rural Fires Act* 1997 the proposed development is captured as Special Fire Protection Purpose and as such requires referral to the NSW Rural Fire Service for a Bushfire Safety Authority.

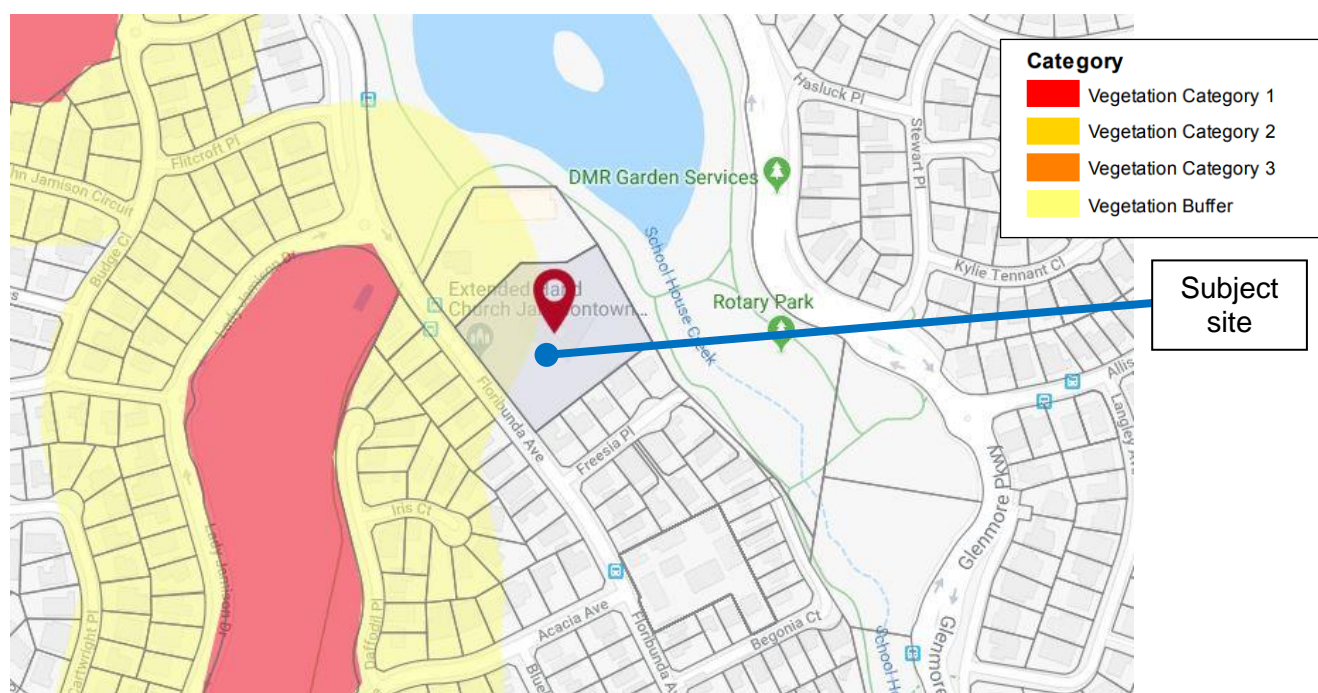


Image 02: Extract from Penrith Council's Bushfire Prone Land Map

7.02 Location

The subject site is an existing allotment known as 5 – 7 Floribunda Avenue, Glenmore Park (Lot 1 DP 825553) and is within Penrith Council local government area. The subject property has street frontage to Floribunda Avenue to the southwest and abuts Floribunda Community Centre to the northwest, Rotary Park to the northeast and neighbouring residential allotments to the southeast.

The vegetation posing a hazard to the subject site is located to the west within Apple Gum Reserve.



Photograph 01: View of the existing building within the subject property from Floribunda Avenue

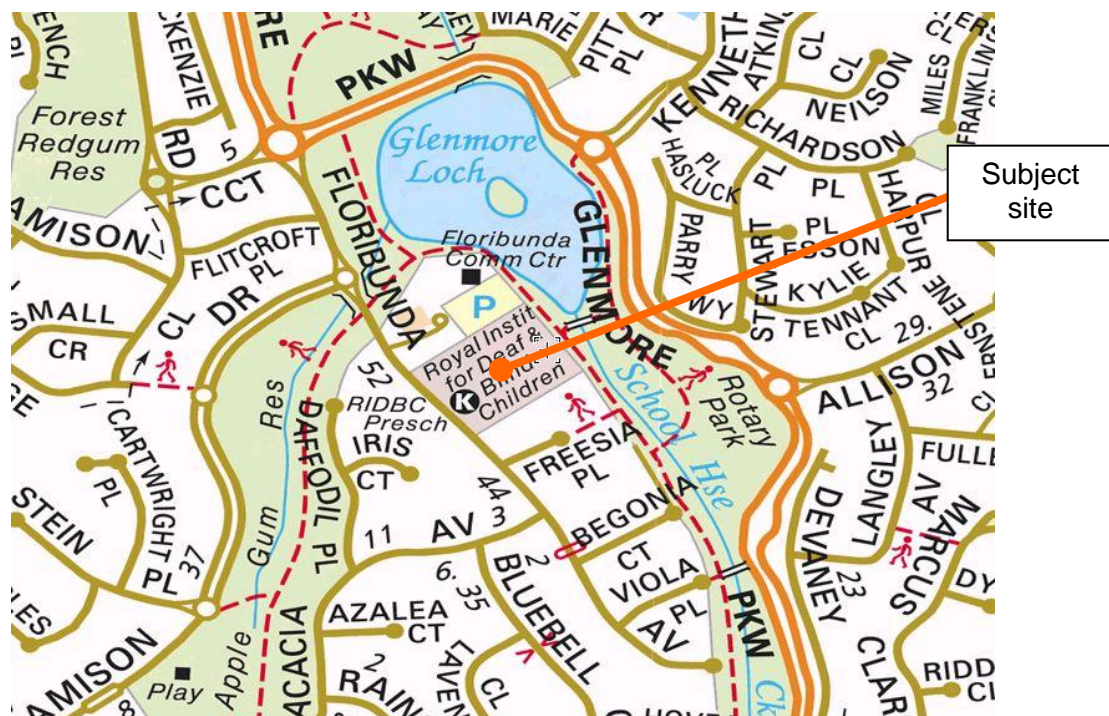


Image 03: Extract from street-directory.com.au

7.03 Vegetation

The predominant vegetation within the subject property and neighbouring properties was found to consist of mown lawns and gardens.

The vegetation posing a hazard to the subject site is located to the west within Apple Gum Reserve. The vegetation posing a hazard was found to consist of trees 10 - 30 metres in height with 30 - 70% foliage cover, the understorey consisted of low trees and grasses. Apple Gum Reserve has a >30 metre wide mown corridor / drainage swale and footpath along its eastern side.

For the purpose of assessment under PBP we have determined the vegetation posing a hazard to the west to be Forest.



Photograph 02: View south along the mown lawns / drainage swale within Apple Gum Reserve



Photograph 03: View into the vegetation hazard within Apple Gum Reserve

7.04 Slope and Topography

The slope that would most significantly affect bushfire behaviour must be assessed for at least 100 metres from within the bushfire hazard.

The most significant bushfire impact from the hazard to the west is expected to be a bushfire travelling down slope toward the subject site.

The slope that would **most significantly** influence bushfire impact was determined onsite using an inclinometer and verified from topographic imagery to be:

- 0 degrees & up slope within the hazard to the west

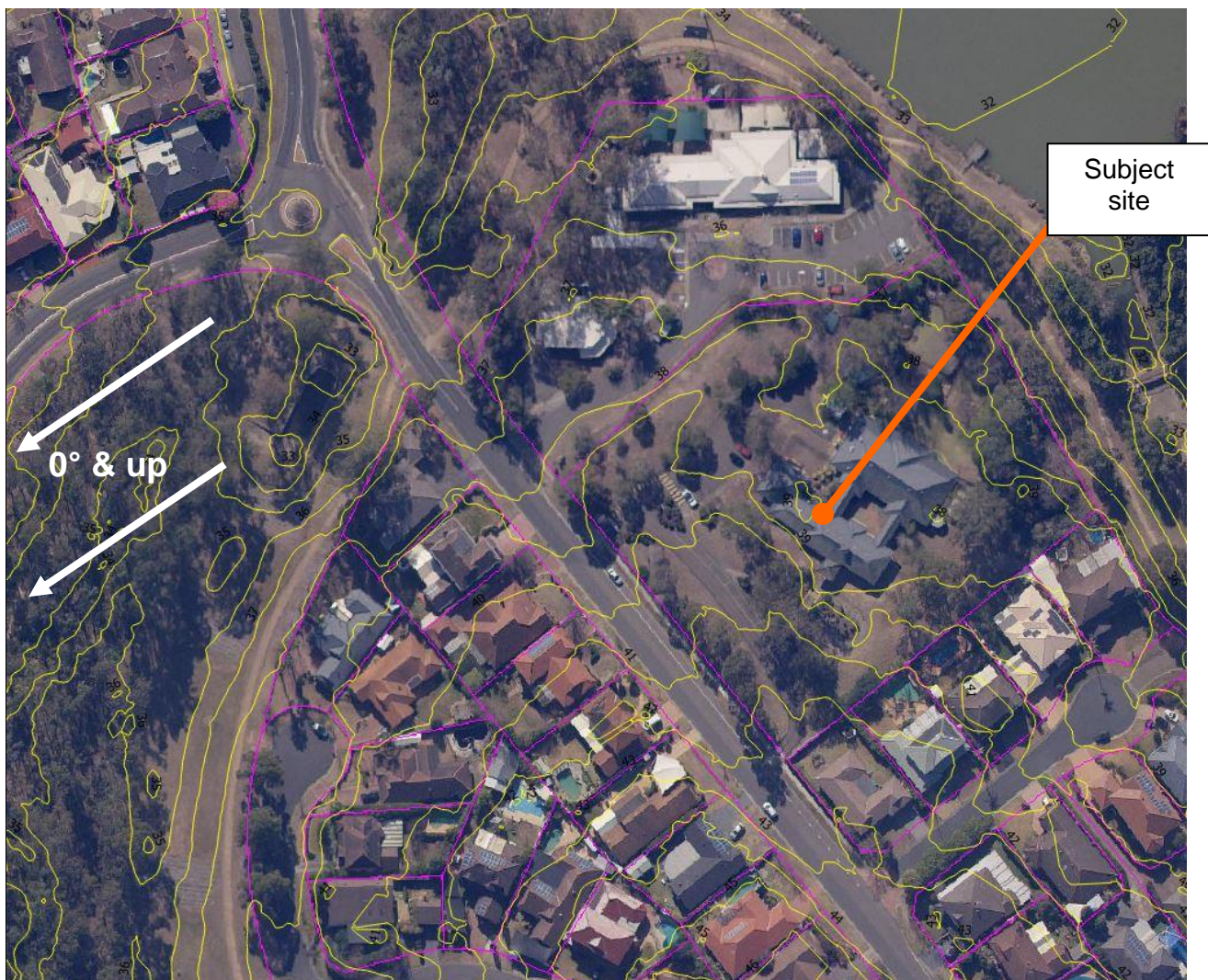


Image 04: Extract from QGIS showing 1m contours

7.05 Asset Protection Zones

The minimum required Asset Protection Zones (APZs) for Special Fire Protection Purpose development are determined from either bushfire design modelling consistent with Appendix 2 of Planning for Bush Fire Protection 2006 (PBP) or the prescribed distances in Appendix 2 of PBP. The minimum required Asset Protection Zone in this instance was determined to be 60 metres from Table A2.6 of PBP.

The available Asset Protection Zone from any bushfire hazard was measured to be greater than 100 metres (108 metres). The APZs consist of maintained grounds within the subject property and land 'equivalent to an APZ' within Floribunda Avenue, neighbouring residential allotments and mown lawns / drainage swale within Apple Gum Reserve.

The proposed building footprint exceeds the minimum required Asset Protection Zones from Appendix 2 of PBP 2006. All grounds within the subject site must be maintained in accordance with an Inner Protection Area as described in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.



Photograph 04: View south along the managed area within Apple Gum Reserve



Photograph 05: View along the managed area within Apple Gum Reserve toward Floribunda Avenue

Drainage
swale



Photograph 06: View south within Apple Gum Reserve of the managed area included in the APZ

Subject site



Photograph 07: View from within Apple Gum Reserve of the available APZ

>100 metre
APZ

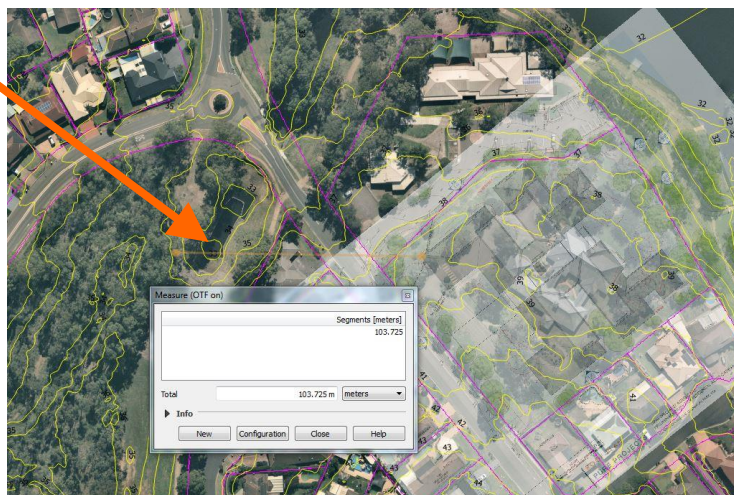


Image 05: Extract from ELVIS – Geoscience Australia showing the >100 metre APZ

7.06 Property Access – Fire Services & Evacuation

The subject site has street frontage to Floribunda Avenue to the southwest. The proposed access drive to the subject building will provide a one-way loop having a >5 metre wide carriageway. The proposed road exceeds the minimum carriageway requirements for internal one-way roads under 4.2.7 of PBP.

Attending fire services have access to the hazard via Floribunda Avenue, Lady Jamison Drive, Daffodil Place and Acacia Avenue for fire suppression or hazard reduction activities.

It will be recommended that a Bush Fire Emergency/Evacuation Management Plan is prepared consistent with the RFS Guidelines for the *Preparation of Emergency/Evacuation Plan*.

The proposed access provisions are considered adequate.

7.07 Fire Fighting Water Supply

There are existing hydrants along Floribunda Avenue, Freesia Place, surrounding roads and also within the adjacent Floribunda Community Centre allotment for the replenishment of fire service vehicles. The subject property will have hydrants, hose reels and sprinkler systems for fire protection.

The required water supply is considered adequate.

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 site 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 Bush Fire 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 5 - 7 Floribunda Avenue, Glenmore Park was assessed against the requirements of Planning for Bush Fire Protection 2006 noting the following:

- a) Proposed water supplies are considered adequate for firefighting purposes
- b) The building footprint exceeds the minimum required Asset Protection Zones.
- c) The proposed access is considered satisfactory for the operational use of fire appliances.
- d) Access to the hazard is available without the need to enter the subject site.
- e) Recommendations to maintain the Asset Protection Zones within the subject site 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.

It has been demonstrated that the subject building exceeds the minimum required APZs. The highest Bushfire Attack Level to the proposed aged care facility within subject site was determined to be 'BAL Low' and therefore no construction provisions are required under AS3959 – 2009 'Construction of buildings in bushfire-prone areas'.

9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2006 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas' - 2009. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

1. That all grounds that all grounds within the subject site continue to be maintained as an Asset Protection Zone (Inner Protection Area) in accordance with Appendix 2 of Planning for Bush Fire Protection and the NSW Rural Fire Service publication 'Standards for Asset Protection Zones'.

Landscaping

2. That any new landscaping is to comply with Appendix 5 'Landscaping and Property Maintenance' under Planning for Bush Fire Protection 2006.

Emergency Management

3. That a Bush Fire Emergency/Evacuation Management Plan is prepared consistent with the RFS Guidelines for the *Preparation of Emergency/Evacuation Plan*.

Access

4. That the proposed new roads comply with the Proposed Ground Floor Plan by Calder Flower Architecture (Job No. 18350, Issue P5, Dated 31/05/2019).
5. That the proposed new road shall comply with the following requirements for Internal Roads as detailed in section 4.2.7 of PBP:
 - Internal roads are two-wheel drive, sealed, all-weather roads;
 - Dead-end roads are clearly sign posted;
 - Traffic management devices are constructed to facilitate access by emergency services vehicles.
 - A minimum vertical clearance of four metres to any overhanging obstructions is provided.
 - Curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.
 - The minimum distance between inner and outer curves is six metres.
 - Roads are clearly sign-posted.
 - The internal road surfaces have a capacity to carry fully-loaded firefighting vehicles (15 tonnes).

Services

6. That new water, electricity and gas are to comply with section 4.2.7 of Planning for Bush Fire Protection 2006. The following are the requirements for the relevant services.

Electricity:

- Electrical transmission lines are underground.

Water:

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

Gas:

- Reticulated or bottled gas is installed and maintained in accordance with AS 1596 - 2002 and the requirements of relevant authorities. Metal piping is to be used.
- All fixed LPG tanks are kept clear of all flammable materials and located on the non hazard side of the development.
- If gas cylinders need to be kept close to the building, the release valves must be directed away from the building and away from any combustible material, so that they do not act as catalysts to combustion.
- Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

10.0 Conclusion

Given that the property is deemed bushfire prone under Penrith Council's Bushfire Prone Land Map any development would need to meet the requirements of Planning for Bush Fire Protection – 2006 and of the construction requirements of Australian Standard 3959 'Construction of buildings in bushfire-prone areas' – 2009. 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 site.

The development proposal relates to the demolition of an existing Royal Deaf and Blind Children Association building to allow for the construction of a new aged care facility. In accordance with section 100b of the *Rural Fires Act* 1997 the proposed development is captured as Special Fire Protection Purpose and as such requires referral to the NSW Rural Fire Service for a Bushfire Safety Authority.

The vegetation posing a hazard to the subject site is located to the west within Apple Gum Reserve. The vegetation posing a hazard was found to consist of trees 10 - 30 metres in height with 30 - 70% foliage cover, the understorey consisted of low trees and grasses. Apple Gum Reserve has a >30 metre wide mown corridor / drainage swale and footpath along its eastern side.

The available Asset Protection Zone from any bushfire hazard was measured to be greater than 100 metres (108m). The APZs consist of maintained grounds within the subject property and land 'equivalent to an APZ' within Floribunda Avenue, neighbouring residential allotments and mown lawns within Apple Gum Reserve.

The highest Bushfire Attack Level to the proposed aged care facility was determined to be 'BAL Low' and therefore there are no construction provisions applicable under AS3959 – 2009.

The proposed water supply and access provisions are considered adequate.

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 P/L



Duncan Armour

Reviewed and endorsed by
Building Code & Bushfire Hazard Solutions P/L



Stuart McMonnies

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Fire Protection Association of Australia BPAD – L3 Accredited Practitioner
Accreditation number – BPAD 9400



11.0 Annexure 01

List of Referenced Documents

- a) Environmental Planning and Assessment Act - 1979
- b) Rural Fires Act 1997 as amended
- c) Rural Fires Regulation 2013
- d) 'Planning for Bush Fire Protection' - 2006 - NSW Rural Fire Services & Planning NSW
- e) 'Construction of buildings in bushfire prone areas' - AS 3959 – 2009 (as - amended) – Standards Australia
- f) 'Penrith Council's Bushfire Prone Land Map
- g) Proposed Site Plan by Calder Flower Architecture, Job No. 18350, Issue P5, Dated 31/05/2019
- h) Acknowledgements to:
 - NSW Department of Lands – SIXMaps
 - Street-directory.com.au
 - Nearmap.com

Attachments

Attachment 01: Nil