


**Proposed Building Development
 Bushfire Assessment Report
 Lot 342 DP 1231225
 180 Forestwood Drive
 Glenmore Park NSW 2745**



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<p>Author:</p>	<p>Scott Jarvis BPAD-Level 3 Certified Practitioner BPD-PA-18593 FPAA Member No. 18593</p>	
<p>Reviewed by:</p>		

Executive Summary – Achievable (Recommended) AS 3959:2018 Level of Compliance

Construction Standard	Building Elevation
Flame Zone	
BAL 40	
BAL 29	South, East & West Elevations
BAL 19	North Elevation
BAL 12.5	
NCC Provisions Only	

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General Introduction

The following report outlines an assessment for the statutory compliance of the proposed building development to occur within 180 Forestwood Drive, Glenmore Park NSW 2745 – Lot 342 DP 1231225 (herewith ‘the subject property’), and at least 140m beyond (herewith ‘the study area’). Appendix 1 / Map 1 denote the subject property and study area.

Methodology for this site assessment for bushfire attack is based on the planning guideline ‘*Planning for Bush Fire Protection 2019 (PBP 2019)*’, produced by the NSW Rural Fire Service.

‘*Australian Standard 3959:2018 – Construction of buildings in bush fire prone areas*’, or alternately ‘*NASH Steel Framed Construction in Bush Fire Areas (NASH 2014)*’, pursuant to the ‘*National Construction Code – Building Code of Australia 2021 (NCC – BCA 2021)*’, are the primary building compliance documents considered for this assessment.

Terrain (slope) considered by this assessment is based on the Department of Lands Online Six Viewer contours and a site inspection (15/6/2021) of the subject property.

Vegetation extent within the subject area has been derived from available online public vegetation mapping studies, aerial photo interpretation and a site inspection (15/6/2021) conducted prior to finalising this report.

The extent and location of the proposed new residential building are based on DA drawings by Wisdom Homes (Job No. 207916, Sheet Nos. 1 – 17, Issue A-4, Dated 3/05/21).

Photographic evidence of the subject property and surrounds is appended to this report (Appendix 2 – Site Photos 15/6/2021).

1.0 Property Details

Applicants Name: Wisdom Homes (herewith, 'the proponent')

Council: Penrith City Council (Penrith LGA)

Council Reference: N/A

Lot: 342 **DP:** 1231225 **Area:** 1008m²

Address/Location: 180 Forestwood Drive, Glenmore Park NSW 2745.

Zoning: 'R2 – Low Density Residential'
Penrith LEP 2010

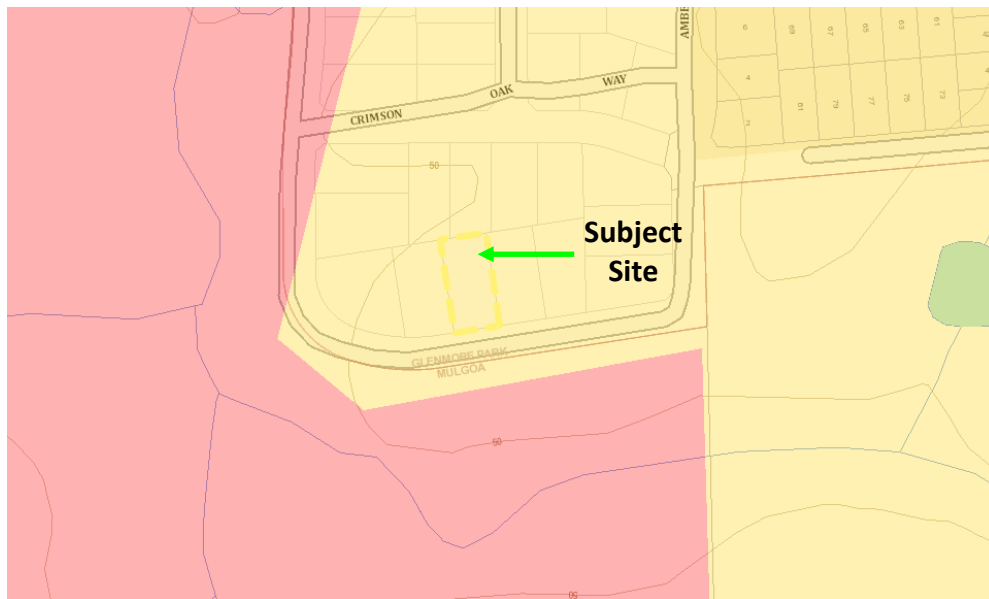
Bushfire Prone Land: YES

The subject property is mapped as being bushfire prone as currently shown by the Penrith City Council LGA Bushfire Prone Land Map (*s10.3 EP&A Act 1979*). The site is constrained by vegetation classified as 'Category 1 Bushfire Vegetation'. In this regard, any new building development should conform to the specifications and requirements of the document '*Planning for Bush Fire Protection 2019*', produced by the NSW Rural Fire Service, that are relevant to the development; as otherwise required under *Section 4.14 Environmental Planning & Assessment Act 1979 (EP&A Act 1979)*.

Other Known Constraints:

A desktop assessment of the publicly available council mapping and planning enquiry system has found no constraints to be considered in regard to development upon the subject property.

No known significant environmental features have been noted, recorded or advised of as part of this assessment.



Extract Penrith City Council LGA Bushfire Prone Land Map

2.0 Description of Proposal

- New Building** **Urban** Dual Occupancy
 Rural Residential Alterations/Additions Isolated Rural

Proposal Description

The proposed building development is to construct a new residential building/dwelling structure (Class 1 (a) – as defined by NCC – BCA).

The extent and location of the proposed new residential building are based on DA drawings by Wisdom Homes (Job No. 207916, Sheet Nos. 1 – 17, Issue A-4, Dated 3/05/21).

The approximate location/site of the proposed building (herewith ‘the subject development’) is as denoted in Appendix 1 – Map 1.

3.0 Bushfire Assessment

3.1 Vegetation (bushfire hazard) within 100m of the proposed building

The vegetation within the study area is mapped as ‘Bushfire Prone Vegetation Category 1’ on Council Bushfire Prone Land Maps.

All adjoining residential allotments form part of a large new residential subdivision, and present as ‘managed lands’ with vacant sites, building under construction and new infrastructure (public roads etc.).

However, an area of vegetation, located within the reserve to the South & West of the subject site, has been identified as an ongoing bushfire risk to the development. All vegetation is mapped within local studies as 'Coastal Valley Grassy Woodlands'

Based on a determination of vegetation formation using the Keith 2004 Identification Key, the bushfire vegetation having the potential to affect the subject development, based on a site visit, is most representative of 'Woodland'.

The subject development would potentially (currently) be prone to bushfire attack from the South & West directions. The extent of the current bushfire vegetation (hazard) is clearly denoted in Appendix 1 – Map 1.

PBP 2019 (Appendix 1 Section A1.10) states, 'The following exclusions of AS3959 apply, and are not required to be considered for the purposes of PBP, as detailed below:

- *Single areas of vegetation less than 1 hectare in area and greater than 100metres separation from other areas of Category 1 and 2 vegetation.*
- *Multiple areas of vegetation less than 0.25 hectares in area and not within 20m of the site, or each other or of other areas of vegetation being classified vegetation.*
- *Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or other areas of vegetation being Category 1, 2 or 3 vegetation.*
- *Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load, including grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses such as playing areas and fairways, maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens and other non-curing crops, cultivated gardens, arboretums, commercial nurseries, nature strips and windbreaks.*
- *Existing areas of managed gardens and lawns within curtilage of buildings.*
- *Non-vegetated areas including waterways, roads, footpaths, buildings and rocky outcrops.*

The proposed development is located within a large new residential subdivision. All adjoining residential sites are clear of all persistent vegetation and could be considered 'cleared and managed lands'.

Councils bushfire map overstates the amount of vegetation within the area, as the clearing for the new subdivision has not yet been captured at this stage in the bushfire risk mapping.

The proposed development will also adjoin the Forestwood Drive road reserve along the Southern boundary.

The approximate / estimated extent of these managed lands is clearly denoted in Appendix 1 – Map 1.

Relevant photos attached (Appendix 2 Site Photos).

3.2 Distance/Separation between building line and bushfire hazard

For the purposes of bushfire safety compliance, this assessment notes that the subject property is clear of all persistent bushfire vegetation. Considering the location of the proposed development and the extent of the bushfire vegetation on adjoining lands, the achievable separation distance has been assessed as:

Direction	North	South	East	West
Distance	>100m	>21m	>19m	>83m

3.3 Effective slope that will influence bushfire behaviour

The effective slope within approximately 100m of the subject development site, which would influence bushfire behaviour, has been assessed as predominately;

Direction	North	South	East	West
Slope	N/A	>0 – 5 Degrees Downslope	N/A	>0 – 5 Degrees Downslope

3.4 Fire Danger Index (FDI) for Local Government Area (LGA)

100 80 50

Penrith City Council – Greater Sydney Region
(NSW Local Government Areas Community Resilience May 2017 – NSW RFS)

3.5 Determination of Bushfire Attack Level (PBP 2019 – Table A1.12.5)

Direction	Vegetation	Slope	Minimum Distance	BAL Exposure Level
South	Woodland	>0 – 5 Degrees Downslope	>21m	BAL – 29
West	Woodland	>0 – 5 Degrees Downslope	>83m	BAL – 12.5

4.0 AS 3959:2018 Construction Standard for Bushfire Attack Level (NCC – BCA Dts)

Elevations	Vegetation	Slope	Minimum Distance	BAL Exposure Level
South, East & West	Woodland	>0 – 5 Degrees Downslope	>21m	BAL – 29
North	N/A	N/A	N/A	BAL – 19

Considering the subject developments location and the calculated extent of the APZ area recommended by this report, the residential development is technically capable of complying with AS 3959:2018 / NASH 2014.

5.0 Bushfire Protection Measures

Pursuant to 'PBP 2019 – Section 7 Residential Infill Development', there is a requirement to address certain 'Bushfire Protection Measures' (BPM) under the *Section 4.14 EP&A Act 1979* for new residential 'infill' development in bushfire prone areas. The intent of the BPM's 'is to minimise the risk of bushfire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities'.

It is also noted 'where a development expectation arises from the zoning of the land to build, rebuild, alter or add to a dwelling in pre-existing subdivisions, attempts should be made to find a solution taking into account the risk present. The expectation of building or altering a house is recognised even though the ability to provide for APZs or access requirements now required for residential development may not be possible'.

Proposals for 'infill development' are to:

- Provide a defensible space to enable unimpeded access for firefighting around the building.
- Provide better bushfire outcomes on a redevelopment site than currently exists, commensurate to the level of development.
- Provide access, services and landscaping to aid firefighting operations.
- Not impose an increased bushfire management and maintenance responsibility on adjoining land owners.
- Increase the level of bushfire protection to existing dwellings based on the scale of the proposed work and level of bushfire risk.

5.1 Asset Protection Zones

PBP 2019 acceptable solutions for Asset Protection Zones (for this specific development location) state that;

- An APZ is provided in accordance with Table A1.12.2 or A.1.12.3 in Appendix 1.
- APZs are managed in accordance with the requirements of Appendix 4 of PBP.
- APZs are wholly within the boundaries of the development site.
- APZs are located on lands with a slope less than 18 degrees.

The subject site benefits from managed lands within the site, and external to the site (being a managed road reserve). All adjacent residential lands are also free from any bushfire risk.

Asset Protection Zone recommendations are as listed in Section 6.1 (Bushfire Safety & Compliance Recommendations).

5.2 Access (Property Access)

PBP 2019 acceptable solutions for access (for this specific development location) state that;

'There are no specific access requirements apply in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles'.

Access to the new development will be by way of a short sealed all-weather driveway, directly off Forestwood Drive. Forestwood Drive is a sealed all weather road that is 8m wide, contained within a road reserve 15m wide. Forestwood Drive is part of the public road system. The local speed limit is 50 kph.

The public road system servicing the proposed development is able to provide safe operational access for emergency services and egress in varying directions for evacuating residents.

5.3 Water Supplies (Reticulated)

Yes No Proposed

PBP 2019 acceptable solutions for a reticulated water supply area (relevant to the subject development) state that:

- Reticulated water is to be provided to the development.
- Fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005.
- Hydrants are not located within any road carriageways.
- Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.
- Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.
- All above-ground water service pipes external to the building are metal, including and up to any taps.

The subject development/building will be connected to a reticulated water supply. Apart from the above, the proponent has not provided any specific advice (at the time of this assessment) regarding the reticulated water infrastructure and mains size, supply pressure or guarantee of delivery.

Considering the building siting denoted by this report (and corresponding access / driveways), the subject building will be <90m from the nearest and reasonably available fire hydrant connection point (approximately 40m).

Firefighting water supply recommendations are as listed in Section 6.4 (Bushfire Safety & Compliance Recommendations).

5.4 Electricity Services

PBP 2019 acceptable solutions for electrical services (relevant to the subject development) state that:

- *Where practicable, electrical transmission lines are located underground; and*
- *Where overhead electrical transmission lines are proposed, as follows:*
 - *Lines are installed with short pole spacings (30m), 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 'ISSC3 Guideline for Managing Vegetation Near Power Lines'.*

The subject site will be serviced by a below ground electrical supply grid which will service the residential subdivision within Forestwood Drive. The connection to the subject site will also be located below ground.

Electrical service recommendations are as listed in Section 6.5 (Bushfire Safety & Compliance Recommendations).

5.5 Gas Services

Reticulated Gas: **Yes** **No** (available)

Bottled Gas: **Yes** **No**

PBP 2019 acceptable solutions for gas services (relevant to the development) state that:

- Reticulated gas is installed and maintained with AS/NZ 1596:2014 and the requirements of relevant authorities, and metal piping is used.
- Polymer-sheathed flexible gas supply lines are not used.
- Above-ground gas service pipes are metal, including up to any outlets.

Gas service recommendations are as listed in Section 6.6 (Bushfire Safety & Compliance Recommendations).

6.0 Bushfire Safety & Compliance Recommendations

6.1 Defendable Space / Asset Protection Zone (APZ) Recommendations

Recommendation 1.

Inner Protection Area

As denoted in Appendix 1 – Map 1, the area identified as ‘**Inner Protection Area**’ (IPA) is to be managed / maintained as an APZ for the life of the development.

The IPA is the area closest to the building and creates a fuel managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens. When establishing and maintaining an IPA the following requirements apply.

Trees

- Tree canopy cover should be less than 15% at maturity;
- Trees at maturity should not touch or overhang the building;
- Lower limbs should be removed up to a height of 2m above the ground;
- Tree canopies should be separated by 2m to 5m; and
- Preference should be given to smooth barked and evergreen trees.

Shrubs

- Create large discontinuities or gaps in the vegetation, to slow down or break the progress of fire towards buildings;
- Shrubs should not be located under trees
- Shrubs should not form more than 10% ground cover; and
- Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- Grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- Leaves and vegetation debris should be removed.

6.2 Construction Standard Recommendations

Construction standards have been determined from the following sections of the planning guidelines and are based on the relevant bushfire assessment as discussed above.

AS 3959:2018 Section 6 Construction for Bushfire Attack Level 19 (BAL – 19)
(See Recommendation 3)

AS 3959:2018 Section 7 Construction for Bushfire Attack Level 29 (BAL – 29)
(See Recommendation 3 & 4)

Recommendation 2.

Where any part of a garage, carport, veranda or similar roofed structure is attached to, or shares a common roof space with, or is within 6m of, a building required to comply with the standard, the entire structure shall comply with the construction requirements of the standard (as per Recommendation 3), as applicable to the subject building.

Alternatively, the structure may be separated from the subject building by a wall complying with *AS 3959:2018 Section 3.2.1 a) or b)* i.e. fire rated construction as specified.

Recommendation 3.

Predicated upon the maintenance of the APZ area as per Recommendation No. 1 of this report, it is recommended the proposed development incorporate, as a minimum, the following levels of construction as per *AS 3959:2018 Construction of buildings in bushfire prone areas*;

South, East & West Elevations

Construction for Bushfire Attack Level 29 (BAL – 29) – Section 7 (AS3959:2018)

North Elevation

Construction for Bushfire Attack Level 19 (BAL – 19) – Section 6 (AS3959:2018)

Sarking

All sarking used shall be:

- Non-combustible, **or**
- Breather type sarking complying with AS/NZS 4200.1 and with a flammability index of not more than 5 (see AS 1530.2) and sarked on the outside of the frame, **or**
- An insulation material conforming to the appropriate Australian Standard for that material.

North Elevation – Verandas, Decks, Steps, Ramps and Landings

The provisions of **AS 3959:2018 Clause 6.7** relating **only** to the construction of verandas, decks, steps, ramps and landings within Section 6 – BAL 19 **shall be replaced** with the provisions of **AS 3959:2018 Clause 7.7** (Section 7 – BAL 29).

Recommendation 4.

Fences & Gates

All new fences and gates should be constructed of a non-combustible material.

Retaining Walls

All new retaining walls should be constructed of a non-combustible material.

6.3 Vehicle Access / Egress Recommendations

Recommendation 5.

The subject site will incorporate an all-weather driveway area for vehicle access and parking within the subject property.

The access road / driveway will provide direct access from Forestwood Drive.

No additional vehicle access requirements are recommended.

6.4 Water Supplies Recommendations

Recommendation 6.

- Reticulated water is to be provided to the development.
- Fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005 (**reasonably assumed**).
- All exposed water supply pipes external to the building are metal, including any fittings.

6.5 Electricity Services Recommendations

Recommendation 7.

As the electricity supply will be located underground, no additional electricity supply conditions (above and beyond standard Council and Energy Supplier conditions) are required for *PBP 2019* compliance.

6.6 Gas Services Recommendations

Recommendation 8.

- Any future / new reticulated gas connection is installed and maintained with AS/NZ 1596:2014 and the requirements of relevant authorities.
- Metal piping should be used.
- Polymer sheathed flexible gas supply lines to gas meters adjacent to the building are not used.

6.7 Bush Fire Survival Plan Recommendations

Recommendation 9.

Discuss and prepare a simple 'Bush Fire Survival Plan' pursuant to the NSW Rural Fire Service's advice (<https://www.rfs.nsw.gov.au/plan-and-prepare/bush-fire-survival-plan>).

7.0 Compliance or non-compliance with PBP 2019 Specific Objectives for Infill Development (as per *PBP 2019 Section 7.3*)

Specific Objective	Comment
Provide a defensible space to enable unimpeded access for firefighting around the building	A complying APZ (defendable space) has been recommended. This space consists of an area maintained as an IPA.
Provide better bushfire outcomes on a redevelopment site than currently exists, commensurate with the scale of works proposed.	Bushfire fuel management, and other bushfire protection measures, contained within the subject property will effectively reduce the risk to both the subject property and adjoining premises.
Design and construct buildings commensurate with the bushfire risk.	Recommendations, relating to the construction of the residence include BAL 29 & BAL 19.
Provide access, services and landscaping to aid firefighting operations.	The recommendations (above) relating to the design and construction of the development include a range of 'bushfire protection measures' that will enhance the chances of occupant and building survival.
Not impose an increased bushfire management and maintenance responsibility on adjoining landowners.	The subdivision is pre-existing. The construction of this development will not increase the bushfire risk to adjoining land, nor increase bushfire management and maintenance responsibility on adjoining landowners.

Increase the level of bushfire protection to existing dwellings based on the scale of the proposed work and level of bushfire risk.	The site is located within a new residential subdivision, and there is no existing building.
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8.0 Compliance or non-compliance with PBP 2019 Performance Criteria and intent for bushfire safety protection measures for infill development.

Performance Criteria	Comment
<p>APZ</p> <p>APZs are provided commensurate with the construction of the building.</p> <p>A defensible space is provided.</p> <p>APZs are managed and maintained to prevent the spread of fire to the building.</p> <p>The APZ is provided into perpetuity.</p> <p>APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.</p>	<p>Can Comply – Recommendation No. 1</p> <p>A defensible space will be provided within the site boundary with the site being maintained as an IPA.</p> <p>This is complimented by ‘cleared and managed lands’ on adjoining properties.</p>
<p>Access</p> <p>Firefighting vehicles are provided with safe all-weather access to structures and hazard vegetation.</p> <p>The capacity of access roads is adequate for firefighting vehicles.</p> <p>There is appropriate access to water supply.</p> <p>Firefighting vehicles can access the dwelling and exit the property safely.</p>	<p>Can Comply – Recommendation No. 5</p> <p>Access/Egress is provided from Forestwood Drive.</p> <p>The access arrangements are sufficient for operational firefighting and emergency egress.</p>
<p>Water Supplies</p> <p>An adequate water supply is provided for firefighting purposes.</p> <p>Water supplies are located at regular intervals.</p> <p>The water supply is accessible and reliable for firefighting operations.</p> <p>Flows and pressures are appropriate.</p>	<p>Can Comply – Recommendation No. 6</p>

<p>The integrity of the water supply is maintained.</p> <p>A static supply is provided for firefighting purposes in areas where reticulated water is not available.</p>	
<p>Electrical Services</p> <p>Location of the electrical services limits the possibility of ignition of surrounding bushland or the fabric of the buildings.</p>	Can Comply – Recommendation No. 7
<p>Gas Services</p> <p>Location and design of the gas services will not lead to of ignition of surrounding bushland or the fabric of the buildings</p>	Can Comply – Recommendation No. 8
<p>Construction Standards</p> <p>The proposed building can withstand bushfire attack in the form of embers, radiant heat and flame contact.</p> <p>Proposed fences and gates are designed to minimise the spread of bushfire.</p> <p>Proposed Class 10a buildings are designed to minimise the spread of bushfire.</p>	<p>Can Comply – Recommendation Nos. 2 – 4</p> <p>Predicated upon the recommended APZ areas and siting requirements, BAL 29 & BAL 19 construction standards can achieve the performance requirements of the planning legislation.</p>
<p>Landscaping</p> <p>Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions.</p>	Can Comply – Recommendation No. 1

9.0 Statement assessing the environmental impact of any proposed bushfire protection measures.

Bushfire Protection Measure	Likely Environmental Impact	Comment
APZ (Rec. No. 1)	Insignificant	The subject property is currently clear of all persistent vegetation.
Construction Standard (Rec. Nos. 2 - 4)	Insignificant	The building will be constructed within approved building envelope.

Water Supply for fire fighting (Rec. No. 6)	Insignificant	A reticulated water supply will service the development.
Utility service protection (Rec. Nos. 6 - 8)	Insignificant	Utilities will be located within the APZ, or underground.
Vehicle Access (Rec. No. 5)	Insignificant	Direct access to public road system will be by way of short cleared driveways.

10.0 Conclusion/Summary

Based on the above assessment and the 9 recommendations to protect persons and property from danger that may arise from a bushfire, the Consent Authority should determine that this development proposal can comply with *Planning for Bush Fire Protection 2019* as required under *Section 4.14 of the Environmental Planning and Assessment Act 1979*.

As a considered opinion, the recommended mitigation measures and construction requirements as stated in this report would reasonably address the 'aims and objectives' of *PBP 2019*, consistent within the relative and current bushfire risk to the subject development site.

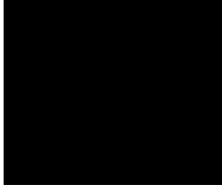
As infill development, the residence will be able to fully comply with the Acceptable Solutions provided within *PBP 2019*.

In this regard, the subject development can reasonably facilitate *PBP 2019* objectives in as far as;

- Afford buildings and their occupants protection from exposure to a bushfire;
- Provide for a defensible space to be located around buildings;
- Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely spread to buildings;
- Ensure the appropriate operational access and egress for emergency service personnel and residents is available;
- Provide for ongoing management and maintenance of bushfire protection measures; and

- Ensure that utility services are adequate to meet the needs of firefighters.

Should any of the above information require clarification or further discussion, please contact the author.



Scott Jarvis

Graduate Diploma Design for Bushfire Prone Areas
Diploma of Building Surveying
Diploma of Public Safety (Fire Fighting Management) (Dip PSFM)
Cert. IV Residential Building Studies
Member No. 18593 Fire Protection Association Australia
BPAD-Level 3 Certified Practitioner BPD-PA-18593
Mob: 0414 808 295 Ph/Fax.: (02) 9369 5579
Email: scott@sydneybushfireconsultants.com.au

(Note: Scott Jarvis is a recognised / suitably qualified consultant pursuant to Rural Fire Service of NSW requirements - Community Resilience Fact Sheet - Requirements for Suitably Qualified Consultants 8/15, Fast Fact 5/10 Version 3 Dated 7 March 2011 & Development Control Practice Note 1/10 Version 2 Dated 4 February 2011)

References/Further Reading

Australian Standard 3959:2018, Construction of buildings in bushfire prone areas – Standards Australia.

Building Best Practice Guide – Upgrading of Existing Buildings (Development Assessment & Planning, NSW Rural Fire Service, Reference 0914).

NASH Standard – Steel Framed Construction in Bushfire Areas (2014) – National Association of Steel-Framed Housing Inc.

National Construction Code – Building Code of Australia (2021) – Australian Building Codes Board, Canprint.

Environmental Planning and Assessment Act (1979) – NSW Government Printer.

- Section 4.14 Consultation and Development Consent Certain Bushfire Prone Land
- Section 10.3 Bushfire Prone Land

Rural Fires Act (1997) – NSW Government Printer

Landscape and building design for bushfire areas (2003) – Ramsay G C & Rudolf L, CSIRO Publishing, Collingwood Victoria.






Ocean shores to desert dunes: the native vegetation of NSW and the ACT (2004) – Keith D, NSW Dept of Environment and Conservation, Hurstville NSW.

Planning for Bush Fire Protection. A guide for councils, planners, fire authorities and developers (November 2019) – NSW Rural Fire Service.

Appendix 1

Map 1 – Study Area / Subject Lot / Slopes / APZ extent



-  Subject development (approximate)
-  Subject Property
-  Hydrant
-  Study Area
-  Inner Protection Area

Appendix 2 – Site Photos (15/6/2021)



Subject site, looking North



Adjacent subdivision, looking North



Adjacent subdivision, looking East



Adjacent subdivision, looking West



Forestwood Drive, looking West



Forestwood Drive, looking East



Reticulated water supply



Underground electrical supply



Regenerating vegetation, looking South East from subject site



Regenerating vegetation, looking South West from subject site