Bushfire Planning & Design
Central Coast, Hunter & Sydney
0406077222

Bushfire Hazard Assessment

58 Parni Place, Frenchs Forest, 2086 (Lot 25/-/DP238711).

Project Details	
Assessed as:	Infill development
Assessed by	Matthew Noone Accreditation No. BPAD-PD 25584
Highest BAL on any facade	BAL-FZ
Planning for Bushfire Protection (2006) Compliance	As the development is assessed as BAL-FZ, the project it falls outside of the deemed to satisfy provisions of the BCA (2019) and must be referred to the NSW Rural Fire Service.
Project Description	Proposed Alterations and Additions.
Report Number	BR-189019-A.

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

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DISCLAIMER

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

Bushfire Planning & Design cannot be held liable for any loss of life or property in the event of a bushfire. This report has been based on all relevant bushfire codes and regulations with regard to the construction of a building in a bushfire prone area. Bushfire Planning and Design has no control over workmanship and is rarely asked by the certifier prior to the release of an occupation certificate to advise if the construction standards and recommendations in this report have been adhered to. Buildings degrade over time and vegetation if not managed will regrow. In addition construction standards are subject to change. Due to significant variance of bushfire behaviour, we do not guarantee that the dwelling will withstand the passage of bushfire if this development is constructed to the prescribed standards.

This report reflects our opinions of bushfire risk, expected radiant heat loads and required asset protection zones relating to the proposed development. Our views are based on our interpretation of Planning for Bushfire Protection (2006), AS3959 (2009) and the methodology for site specific bushfire assessment. The Rural Fire Service have a higher authority and can upon their review, increase a nominated BAL-rating or reject any recommendation contained within this report. Any such recommendations made by the RFS take precedence. Our role is intermediary between our Client and the consenting authority. We apply our knowledge of the standards for bushfire protection to provide the best possible outcome for our Client, both from a bushfire safety and financial perspective. Should the RFS modify our recommendations or reject a proposal we will not be held liable for any financial losses as a result.

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REPORT SUMMARY

Bushfire Planning and Design has been engaged to undertake a bushfire hazard assessment at 58 Parni Place, Frenchs Forest, 2086. The site is mapped as bushfire prone under Section 10.3 (2) of the Environmental Planning and Assessment Act 1979. The proposed development relates to proposed alterations and additions to the existing dwelling.

The subject site is located in a residential area in Frenchs Forest which is under the jurisdiction of the Northern Beaches Council. An existing three story dwelling is located on the site. The site is accessed from Parni Place on the eastern boundary. The site is bounded by managed residential allotments to the north, south and east. Dense forest vegetation is located steeply down-slope to the west, north west and south west of the site.

Due to the proximity of the forest and steep slope to the west, the proposed development is considered to be within the area that could be influenced by flame contact and radiant heat levels in excess of 40 kW/m^2 in the event of a bushfire. There is insufficient space to provide an APZ that can provide defendable space or mitigate flame contact.

The proposed dwelling alterations are assessed as BAL-FZ throughout. The proposed alterations are are required to be constructed in accordance with BAL-FZ as specified in AS3959 (2009). The deemed to satisfy provisions of the NCC G5.2 excludes AS3959 Section 9 Construction for BAL-FZ as an acceptable solution therefore all BAL-FZ development applications should be referred to the NSW RFS for their review. Although Section 9 AS3959 (2009) is excluded in NSW as being a “deemed to satisfy solution”, it is nonetheless used as a basis for proposing a performance-based solution, demonstrating compliance with the performance requirements of the NCC for the construction of a building in the flame zone. The development can comply with the construction requirements of Section 9 (BAL-FZ) as specified in AS3959 (2009).

The public road system is suitable for emergency response vehicles. Access to the site and rear of the property is via pedestrian access only. The development can comply with Planning for Bushfire Protection (2006) with regards to the provision of water, electricity, gas and landscaping.

We trust that the information within this report is satisfactory. Should you wish to discuss any of the above, please contact the undersigned.

Regards,

Matthew Noone

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SECTION 1. BACKGROUND AND BRIEFING NOTES

1.0 INTRODUCTION

Bushfire Planning and Design has been engaged to undertake a bushfire hazard assessment at the subject site. The site is mapped as being bushfire prone under Section 10.3 (2) of the Environmental Planning and Assessment Act 1979.

The development is captured under Section 4.14 of the Environmental Planning and Assessment Act 1979; Consultation and development consent – certain bush fire prone land. For the purpose of bushfire assessment the development is considered infill development as described in the New South Wales Rural Fire Service document Planning for Bushfire Protection (2006). The proposed development relates to proposed alterations and additions to the existing dwelling.

1.2 SITE DESCRIPTION

The subject site is located in a residential area in Frenchs Forest which is under the jurisdiction of the Northern Beaches Council. An existing three story dwelling is located on the site. The site is accessed from Parni Place on the eastern boundary. The site is bounded by managed residential allotments to the north, south and east. Dense forest vegetation is located steeply down-slope to the west, north west and south west of the site.

1.3 PURPOSE OF THE REPORT

•Development applications on bush fire prone land must be accompanied by a Bush Fire Assessment within the Statement of Environmental Effects demonstrating the degree to which the proposed development complies with or deviates from the aims, objectives and performance criteria of Planning for Bushfire Protection 2006 (PBP 2006).

- To determine the expected fire behaviour and threat to the proposed development.
- To provide the land owner, Northern Beaches Council, the RFS and other relevant stakeholders with a bushfire report that determines the bushfire hazard on and surrounding the subject site.
- To identify compliance with the BCA – Building Code of Australia (Also known as NCC).
- To identify compliance with the specific objectives and performance requirements of Planning for Bushfire Protection 2006, including Appendix 3 2010 where applicable.
- To determine the required level of construction required by AS3959 – Australian Standard for the Construction of Buildings in Bushfire Prone Areas.

1.4 SCOPE OF THE REPORT

This report has been prepared as a requirement for a bush fire assessment to be prepared to accompany the development application for the proposed development. This report has considered all current relevant bushfire legislation, planning instruments, codes and standards for the construction of a building in a bush fire prone areas. For the purposes of this report it is necessary to describe the surrounding vegetation to 140m from the boundary and slope to 100m from the boundary. This report does not directly assess the bushfire hazard on any adjacent site and cannot be used to support any other development application.

1.5 METHODOLOGY

The methodology for the bushfire hazard assessment follows the method described in the Rural Fire Service publication 'Planning for Bushfire Protection' Appendix 3. These steps are as follows;

• Determine the vegetation formation types and sub-formations around the building using Appendix 2 of PBP, 2006.

(i) Identify all the vegetation types within 140 metres of the site using Keith(2004);
(ii) Classify the vegetation formations as set out in Appendix 2; and (iii) Convert Keith to Specht.
Note: AS3959-2009 as referenced in the BCA-2010 uses AUSLIG (1990) vegetation classifications while PBP uses Keith.

• Determine the distance between each vegetation formation identified (from the edge of the foliage cover) and the building.

• Determine the effective slope of the ground for each vegetation group.

• Determine the relevant FDI for the council area in which the development is to take place.

• Match the relevant FDI, appropriate vegetation, distance and effective slope classes to determine the bush fire attack levels using method 1 of AS3959-2009.

• Where a more detailed analysis is required, method 2 of AS3959-2009 will be employed.

1.6 REGULATORY FRAMEWORK

The main legislation, planning instruments, development controls and guidelines that are related to this project are as follows;

4.14 Consultation and development consent— certain bush fire prone land

(1) Development consent cannot be granted for the carrying out of development for any purpose (other than a subdivision of land that could lawfully be used for residential or rural residential purposes or development for a special fire protection purpose) on bush fire prone land unless the consent authority:

(a) is satisfied that the development conforms to the specifications and requirements of the document entitled Planning for Bush Fire Protection, prepared by the NSW Rural Fire Service in co-operation with the Department of Planning (or, if another document is prescribed by the regulations for the purposes of this paragraph, that document) that are relevant to the development ("the relevant specifications and requirements"), or

(b) has been provided with a certificate by a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment stating that the development conforms to the relevant specifications and requirements. (EPA & A, 1979).

All new developments must comply with the Building Code of Australia. The BCA is a performance based code which derives its statutory power from the Environmental Planning and Assessment Act 1979.

The BCA contains both performance requirements and deemed-to-satisfy provisions for all aspects of building, including the construction of buildings in bush fire prone areas. Compliance with the performance requirements of the BCA is achieved by way of a deemed to satisfy solution which is satisfied by complying with AS3959, the Australian Standard for the Construction of Buildings in Bushfire Prone Areas. There is

a New South Wales variation in the BCA which excludes BAL FZ construction standards as a deemed to satisfy solution. Buildings exposed to radiant heat levels greater than 40kW/m^2 are considered to be in the flame zone, BAL FZ. For developments that require a BAL FZ level of construction, an alternative solution is required to be submitted. An alternative solution is one which is different to the deemed to satisfy provisions but meets the performance requirements of the BCA and the Objectives of Planning for Bushfire Protection.

The EP&A Regulation requires a Certifying Authority, prior to issuing a construction certificate or complying development certificate, to be satisfied that the relevant requirements of the BCA will be met.

SECTION 2. BUSHFIRE ATTACK LEVEL ASSESSMENT

2.1 INTRODUCTION

For the purpose of this bushfire assessment, the vegetation is required to be described to a distance of 140m from the boundary and the slope to 100m from boundary. Vegetation type and slope under vegetation are the factors that will significantly affect bushfire behaviour.

'Research has shown that 85% of houses are lost in the first 100m from bushland and that ember attack is a significant form of attack on properties' (RFS 2006).

TABLE 2.1 - BAL ASSESSMENT (To be read in conjunction with Figure 1)

LGA = Northern Beaches Council	Forest Fire Danger Index = FDI 100		
	SOUTH WEST (W, NW)	SOUTH	NORTH & EAST
Effective slope	38.4% D-S	25.7% D-S	N/A
Site Slope	Not Applicable	N/A	N/A
Vegetation classification	Forest	Managed Land	Managed Land
Separation from vegetation	< 10m	32.2m	> 100m
Required level of construction	BAL-FZ	BAL-FZ	BAL-FZ
Assessment methodology	Method 1	Method 1	Method 1

2.2 EXECUTIVE SUMMARY OF TABLE 2.1

To clarify the findings above, the site is bounded by managed residential allotments to the north, east and south. Dense forest vegetation is located to the west, north west, south west and south of the site. The land to the to the north and east is managed residential land for more than 100m from the site boundary.

The effective slope to the south west is approximately 21^0 down-slope which falls outside of the deemed to satisfy provisions of AS3959 (2009). The development setbacks from the vegetation to the west and south are insufficient to avoid potential flame contact and radiant heat loads greater than 40 kW/m^2 in the event of a bushfire. The development is to be constructed to BAL-FZ as specified in AS3959 (2009).

Fig. A: Extract from the bushfire prone land map accessed from www.planningportal.nsw.gov.au (22.11.19).

Figure 1 - Site Analysis Drawing

Date of Issue 22/11/19

Aerial image modified from Near Map (www.nearmap.com.au)

LEGEND

- Not used
- Not used
- Not used

NOTES:

The slope data used for this assessment has been based on 1m LIDAR contours. The source data-sets have been captured to standards that are generally consistent with the Australian ICSM LiDAR Acquisition Specifications with require a fundamental vertical accuracy of at least 95% confidence (Geoscience Australia 2019).

North Point

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SECTION 3. PBP 2006 SPECIFIC OBJECTIVES (INFILL)

The following tables indicate the extent to which the proposed development complies with or deviates from Planning for Bushfire Protection 2006.

ENSURE THAT THE BUSH FIRE RISK TO ADJOINING LANDS IS NOT INCREASED.	**ACCEPTABLE SOLUTION**
PROVIDE A MINIMUM DEFENDABLE SPACE.	**NON COMPLIANT**
PROVIDE BETTER BUSH FIRE PROTECTION ON A RE-DEVELOPMENT SITE, THAN THE EXISTING SITUATION. THIS SHOULD NOT RESULT IN NEW WORKS BEING EXPOSED TO GREATER RISK THAN AN EXISTING BUILDING	**ACCEPTABLE SOLUTION**
ENSURE THAT THE BUSH FIRE RISK TO ADJOINING LANDS IS NOT INCREASED.	**ACCEPTABLE SOLUTION**
ENSURE THAT THE FOOTPRINT OF THE PROPOSED BUILDING DOES NOT EXTEND TOWARDS THE HAZARD BEYOND EXISTING BUILDING LINES ON NEIGHBOURING LAND.	**ACCEPTABLE SOLUTION**
DEVELOPMENTS ARE NOT TO RESULT IN AN INCREASED BUSH FIRE MANAGEMENT AND MAINTENANCE RESPONSIBILITY ON ADJOINING LAND OWNERS UNLESS THEY HAVE AGREED TO THE DEVELOPMENT.	**ACCEPTABLE SOLUTION**
ENSURE BUILDING DESIGN AND CONSTRUCTION ENHANCES THE CHANCES OF OCCUPANT AND BUILDING SURVIVAL.	**NON COMPLIANT**

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SECTION 4. CONSTRUCTION REQUIREMENTS

PERFORMANCE CRITERIA (PBP 2006)	ALTERNATE SOLUTION
This section has been provided upon request from Council. Once the application has been determined the construction provisions for BAL-FZ will be in strict accordance with AS3959 (2009) or as modified by the NSW Rural Fire Service (RFS). It must be demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact. The construction requirements have been determined in accordance with Planning for Bushfire Protection Appendix 3 2010 and the requirements for attached garages and others structures in Section 4.3.5 (PBP 2006). The proposed development is located in within the area that could be susceptible to radiant heat loads in excess of 40 kW/m^2 and possible flame contact in the event of a bushfire. Given the significant risk associated with developments in the flame zone and the complexity of the protection measures required, the RFS for the purposes of life safety, does not support a 'one size-fits-all' deemed-to-satisfy solution for buildings in the flame zone. To support this, the BCA has established a NSW variation that excludes AS3959 Section 9 Construction for Bushfire Attack Level FZ (BAL-FZ). In NSW, the National Construction Code Series 2019 (NCC) Ancillary Provisions Part G5 references AS3959-2009 Construction of buildings in bushfire-prone areas. The NCC also establishes Ancillary Provisions (Volumes One Part G5 Construction in Bushfire Prone Areas) where a Building Solution is proposed to comply with the deemed-to-satisfy provisions; Performance Requirements GP5.1 is satisfied by complying with G5.1 and G5.2. The deemed to satisfy provisions of the NCC G5.2 excludes AS3959 Section 9 Construction for BAL-FZ as an acceptable solution therefore all BAL FZ development applications should be referred to the NSW RFS for their review. Although Section 9 (BAL-FZ specification) of AS3959 2009 and the NASH Standard (2014) is excluded, they are nonetheless used as a basis for proposing performance-based solutions, demonstrating compliance with the performance requirements of the NCC for the construction of a building in the flame zone. To satisfy the performance requirements of GP5.1 the following applies:	

a.	The construction of the development must comply with AS3959 or the NASH Standard (2014) for the assessed BAL-rating with the exception that in NSW, buildings subject to BAL FZ must comply with specific conditions of development consent for construction at this level; or
b.	The requirements above as modified by the development consent following consultation with the RFS under Section 4.14 of the Environmental Planning and Assessment Act 1979.

SECTION 5. ASSET PROTECTION ZONE (APZ) REQUIREMENTS

PERFORMANCE CRITERIA (PBP 2006)
Intent of measures: to provide sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels at buildings are below critical limits and to prevent direct flame contact with a building. • A defendable space is to be provided within the boundary of the site. • An asset protection zone is provided and maintained for the life of the development.

The asset protection zones (APZ) requirements have been derived from the methodology of Appendix 2 of Planning for Bushfire Protection 2006. Asset protection zones and in particular the Inner Asset Protection Zones are critical for providing defendable space and reducing flame length and rate of spread (PBP 2006). APZs are designed to provide sufficient open space for emergency workers to operate and for occupants to egress the site safely. They are divided into Inner and Outer Asset Protection Zones (IPAs and OPAs) and are required to be maintained for the life of the development. The IPA provides for defendable space and a reduction of radiant heat levels at the building line and the OPA provides for the reduction of the rate of spread and filtering of embers.

The required Asset Protection Zones are identified in table 5 below.

TABLE 5.0		
	SOUTH WEST (W / NW)	**NORTH AND EAST**
REQUIRED APZ	> 50m (to achieve BAL-40).	Not Applicable - Managed Land.
ACHIEVED APZ	< 10m - Manage as IPA.	Manage as IPA.

With less than 10m separation between the proposed development and forest to the west, there is insufficient space to provide an APZ that can provide defendable space or mitigate flame contact in the event of a bushfire. The site is to be managed as an inner APZ for perpetuity.

The following points are to be considered for providing the nominated APZs.

•	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 ground.
•	Individual canopies should be separated by 2 to 5m.
•	Where small clusters of trees are present, they should be separated by 2 to 5m from other clusters.
•	Preference should be given to smooth barked and evergreen trees.
•	Shrubs should not form more than 10% ground cover.
•	Clumps of shrubs should be separated from exposed windows and doors by a distance of at Least twice the height of the vegetation.
•	Grass should be kept mown < 100mm in height) leaves and organic debris to be removed regularly.

ADDITIONAL COMMENTS IN RELATION TO ASSET PROTECTION ZONES	ALTERNATE SOLUTION
The proposed development does not comply with PBP (2006) with regards to asset protection zones.	

SECTION 6. ACCESS REQUIREMENTS

PERFORMANCE CRITERIA (PBP 2006)
Intent of measures: to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupants faced with evacuation. Safe, operational access is to be provided (and maintained) for emergency services personnel in suppressing a bush fire while residents are seeking to relocate, in advance of a bush fire, (satisfying the intent and performance criteria for access roads in sections 4.1.3 and 4.2.7 as defined in Planning for Bushfire Protection (2006).

PUBLIC ROADS - SPECIFIC REQUIREMENTS
Access to the site is via Parni Place. Parni Place is a short dead end road with a 12m turning circle. The public road system deemed to be adequate for emergency services vehicles.

PROPERTY ACCESS - SPECIFIC REQUIREMENTS
Due to the infill nature of the development only pedestrian site access is provided. Access to the rear of the property is within 50m from the public road system. Planning for Bushfire Protection (2006) page 22 states: *"A distinction is drawn between rural private access roads and those in urban areas..... By comparison, urban areas have an existing infrastructure and requirements are generally less of a problem. In addition, it is acknowledged that fire appliances will generally operate from the public road system".* Refer to the guidelines from NSW fire and Rescue (figure 2 below).

7.1.4 If the minor residential development will have a private carriageway providing fire appliance access as per section 6, the distance from a fire appliance on the carriageway to the nearest street fire hydrant should not exceed 60m (see Figure 6).

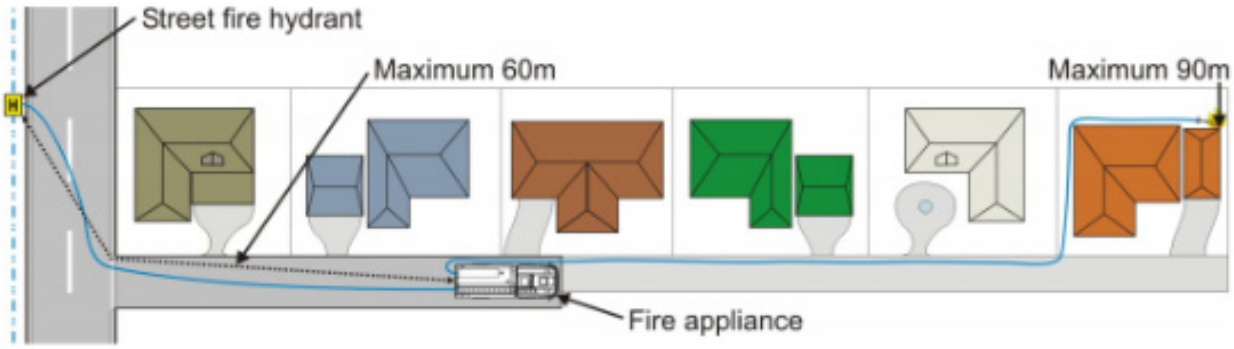

Figure 2: Extract from NSW Fire and Rescue requirements (2016) "Fire Requirements for Minor Residential Development" - the subject site has a fire hydrant within 12m of the boundary. Therefore suitable water provisions are provided for fire fighting (with regard to proximity and access).

ADDITIONAL COMMENTS IN RELATION TO ACCESS	ACCEPTABLE SOLUTION
The proposed development complies with the intent of PBP (2006).	

SECTION 7. SERVICES REQUIREMENTS - WATER

PERFORMANCE CRITERIA (PBP 2006)
Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building • Adequate water and electricity services are to be provided for fire fighting operations.

WATER - SPECIFIC REQUIREMENTS

The proposed development can comply with the PBP (2006) with regards to water requirements. Reticulated water is provided however the hydrant sizing, spacing or pressures have not been tested. No additional water for the suppression of bushfire is required for the proposed development. The following points are to be adhered to for the life of the development.

•	All above ground water and gas service pipes and fittings external to the building are metal.

ADDITIONAL COMMENTS IN RELATION TO THE PROVISION OF WATER	ACCEPTABLE SOLUTION
A fire hydrant is located within 12m of the south west boundary. The proposed development can comply with PBP (2006).	

SECTION 8. SERVICES REQUIREMENTS - ELECTRICITY & GAS

PERFORMANCE CRITERIA (PBP 2006)
Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building • Gas and electricity services are to be located so as not to contribute to the risk of fire to a building.

ELECTRICITY AND GAS - SPECIFIC REQUIREMENTS

The proposed development can comply with the PBP (2006) with regards to electricity and gas requirements. The following points are to be adhered to (where applicable) for the provision of electricity and gas services where applicable.

ELECTRICITY REQUIREMENTS	
•	Where practicable place electrical transmission lines are underground or,
•	If 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 REQUIREMENTS	
•	Reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities.
•	Metal piping is to be used.
•	All fixed gas cylinders are to be kept clear of all flammable materials to a distance of 10m and shielded on the hazard side of the installation.
•	Release valves are directed away from the building and at least 2m away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are to be metal.
•	Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

ADDITIONAL COMMENTS IN RELATION TO THE PROVISION OF ELECTRICITY AND GAS.	ACCEPTABLE SOLUTION
No gas services proposed. The proposed development can comply with PBP (2006) if required.	

SECTION 09. LANDSCAPING AND PROPERTY MAINTENANCE

GENERAL REQUIREMENTS (PBP 2006)
It is expected that the nominated APZs will be maintained by the owner of the land as part of the development. It is accepted practice that after construction of a dwelling, gardens will be established and landscaping of the grounds will be undertaken. The following principles should be applied for the establishment of gardens and property maintenance. Note the following are provided as general advice and will not relate to every project.

GARDEN DESIGN	
•	Apply the principles for APZ and vegetation management as attached to the appendix of this report.
•	Maintain short cropped grass less than 100mm high adjacent to the house;
•	Keep areas under fences, fence posts and gates and trees raked and cleared of fuel.
•	Utilising non-combustible fencing and retaining walls.

MAINTENANCE	
Prior to the bushfire season which runs from October to March the site should be maintained utilising the following guidelines from Appendix 5 PBP (2006).	
•	Remove organic material from the roof and gutters and valleys.
•	Check tiles and roof lines for broken tiles or dislodged roofing materials.
•	Ensure painted surfaces are in good condition with decaying timbers being given particular attention to prevent the lodging of embers within gaps.
•	Doors are fitted with draught seals and well maintained.
•	Mats are of non combustible material or in areas of low potential exposure.

•	Screens on windows and doors are in good condition without breaks or holes in fly screen material and frames are well fitting into sills and window frames.
•	Where applicable, check pumps and water supplies are available and in working order.
•	Where applicable, drenching or spray systems are tested before the fire season.
•	Hoses and hose reels are not perished and fittings are tight and in good order.
•	Woodpiles, garden sheds and other combustible materials are located away from the house.

SECTION 10. RECOMMENDATIONS

1	Prior to the bushfire season which runs from October to March, the property should be maintained in accordance with the guidelines in Section 9
2	The applicant should make themselves familiar with the “Plan and Prepare” section on the RFS website and download the RFS app “fires burning near me” found at https://www.rfs.nsw.gov.au.
3	We strongly recommend that in the event of a bushfire all doors and windows are to be locked and the bushfire shutters are to be in a closed position. The dwelling should not be used as a refuge. The public road system is more than adequate to safely egress the site until bushfire threat has dissipated.

SECTION 11. DEVELOPMENT REQUIREMENTS

The following points are to be complied with as part of this development.

1. Comply with the construction requirements as detailed in Section 2 and Section 4.

2. Comply with the APZ requirements nominated in Section 5.

3. Comply with the provision of water, electricity and gas (where applicable) as discussed in Section 7 & 8.

4. Comply with the landscaping and property maintenance requirements in Section 9.

Space left intentionally blank.

SECTION 12. CONCLUSION

Bushfire Planning and Design has been engaged to undertake a bushfire hazard assessment at 58 Parni Place, Frenchs Forest, 2086. The site is mapped as bushfire prone under Section 10.3 (2) of the Environmental Planning and Assessment Act 1979. The proposed development relates to proposed alterations and additions to the existing dwelling.

Due to the proximity of the forest and steep slope to the west, the proposed development is considered to be within the area that could be influenced by flame contact and radiant heat levels in excess of 40 kW/m^2 in the event of a bushfire. There is insufficient space to provide an APZ that can provide defendable space or mitigate flame contact.

The proposed dwelling alterations are assessed as BAL-FZ throughout. The proposed alterations are are required to be constructed in accordance with BAL-FZ as specified in AS3959 (2009). The deemed to satisfy provisions of the NCC G5.2 excludes AS3959 Section 9 Construction for BAL-FZ as an acceptable solution therefore all BAL-FZ development applications should be referred to the NSW RFS for their review. Although Section 9 AS3959 (2009) is excluded in NSW as being a “deemed to satisfy solution”, it is nonetheless used as a basis for proposing a performance-based solution, demonstrating compliance with the performance requirements of the NCC for the construction of a building in the flame zone. The development can comply with the construction requirements of Section 9 (BAL-FZ) as specified in AS3959 (2009).

The public road system is suitable for emergency response vehicles. Access to the site and rear of the property is via pedestrian access only. The development can comply with Planning for Bushfire Protection (2006) with regards to the provision of water, electricity, gas and landscaping.

We trust that the information within this report is satisfactory. Should you wish to discuss any of the above, please contact the undersigned.

Regards,

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SECTION 13. REFERENCES

Australian Standard 3959 2009, Australian Standard Construction of Buildings in Bushfire Prone Areas, Sydney 2009

Building Code of Australia 2015, Building Code of Australia ,Australian Building Codes Board, Canberra 2015.

Environmental Planning and Assessment Act 1979, NSW Government, NSW, legislation found at www.legislation.nsw.gov.au

Rural Fire Service 2006, Planning for Bushfire Protection, a Guide for Councils,Planners, Fire Authorities and Developers, NSW Rural Fire Service 2006, Sydney

Rural Fires Act 1997, NSW Rural Fires Act, NSW Government, NSW, legislation found at www.legislation.nsw.gov.au

See reference

AS- Australian Standards
BCA- Building Code of Australia
EPA&A –Environmental Planning and Assessment Act
PBP- Planning for Bushfire Protection
RFS – Rural Fire Service

Main reference under full name as above.

SECTION 14. APPENDICES

Appendix A - Standards for Asset Protection.

Appendix B - Architectural Drawings.

Appendix C - Site photos.

APPENDIX A -

STANDARDS FOR ASSET PROTECTION

RFS STANDARDS FOR ASSET PROTECTION

The following information has been taken directly from the RFS document "Standards for Asset Protection". The full version of this document can be found at www.rfs.nsw.gov.au.

The intensity of bush fires can be greatly reduced where there is little to no available fuel for burning. In order to control bush fire fuels you can reduce, remove or change the state of the fuel through several means.

Reduction of fuel does not require removal of all vegetation, which would cause environmental damage. Also, trees and plants can provide you with some bush fire protection from strong winds, intense heat and flying embers (by filtering embers) and changing wind patterns. Some ground cover is also needed to prevent soil erosion.

RAKING OR MANUAL REMOVAL OF FINE FUELS

- Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis. This is fuel that burns quickly and increases the intensity of fire.
- Fine fuels can be removed by hand or with tools such as rakes, hoes and shovels.

MOWING OR GRAZING OF GRASS

- Grass needs to be kept short and, where possible, green.

REMOVAL OR PRUNING OF TREES, SHRUBS AND UNDERSTOREY

- The control of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation.
- Prune or remove trees so that you do not have a continuous tree canopy leading from the hazard to the asset. Separate tree crowns by two to five metres. A canopy should not overhang within two to five metres of a dwelling.
- Native trees and shrubs should be retained as clumps or islands and should maintain a covering of no more than 20% of the area.

WHEN CHOOSING PLANTS FOR REMOVAL, THE FOLLOWING BASIC RULES SHOULD BE FOLLOWED

- Remove noxious and environmental weeds first. Your local council can provide you with a list of environmental weeds or 'undesirable species'. Alternatively, a list of noxious weeds can be obtained at www.agric.nsw.gov.au/ noxweed/;
- Remove more flammable species such as those with rough, flaky or stringy bark; and
- Remove or thin understorey plants, trees and shrubs less than three metres in height
- The removal of significant native species should be avoided.

GARDEN DESIGN

The following information has been taken directly from the RFS document “Standards for Asset Protection”. The full version of this document can be found at www.rfs.nsw.gov.au.

LAYOUT OF GARDENS IN AN APZ

When creating and maintaining a garden that is part of an APZ you should:

- ensure that vegetation does not provide a continuous path to the house;
- remove all noxious and environmental weeds;
- plant or clear vegetation into clumps rather than continuous rows;
- prune low branches two metres from the ground to prevent a ground fire from spreading into trees;
- locate vegetation far enough away from the asset so that plants will not ignite the asset by direct flame contact or radiant heat emission;
- plant and maintain short green grass around the house as this will slow the fire and reduce fire intensity. Alternatively, provide non-flammable pathways directly around the dwelling;
- ensure that shrubs and other plants do not directly abut the dwelling. Where this does occur, gardens should contain low-flammability plants and non flammable ground cover such as pebbles and crush tile; and
- avoid erecting brush type fencing and planting “pencil pine” type trees next to buildings, as these are highly flammable.

LAYOUT OF GARDENS IN AN APZ

When designing your garden it is important to consider the type of plant species and their flammability as well as their placement and arrangement.

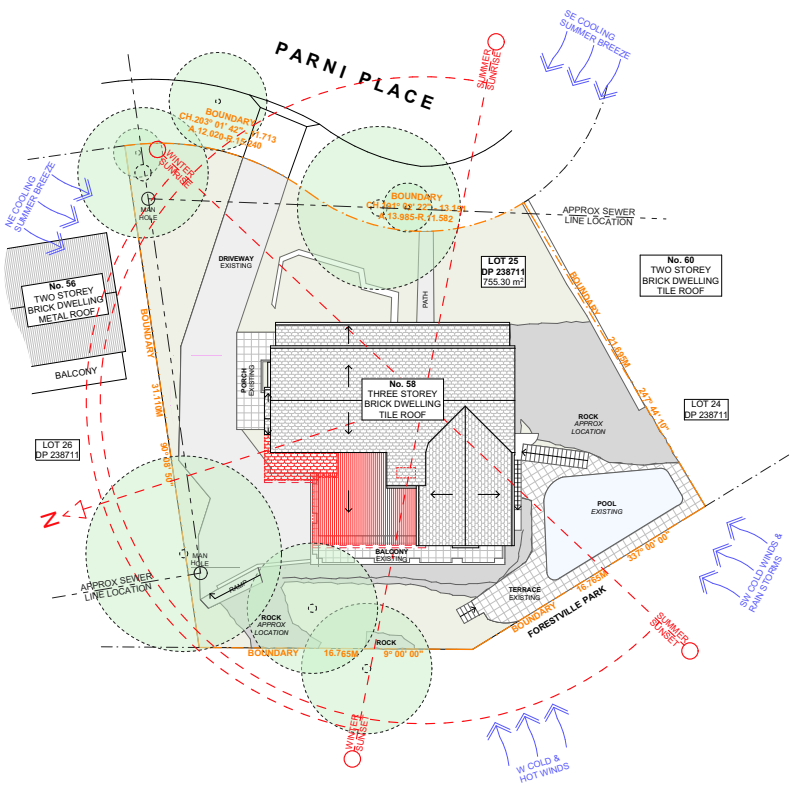
Given the right conditions, all plants will burn. However, some plants are less flammable than others.

- Trees with loose, fibrous or stringy bark should be avoided. These trees can easily ignite and encourage the ground fire to spread up to, and then through, the crown of the trees.

Plants that are less flammable, have the following features:

- high moisture content
- high levels of salt
- low volatile oil content of leaves
- smooth barks without “ribbons” hanging from branches or trunks; and
- dense crown and elevated branches.

APPENDIX B -
ARCHITECTURAL DRAWINGS




EXTERNAL VIEW


LOCATION VIEW


AERIAL MAP

NOTE: BUSHFIRE PRONE LAND, REFER TO TABLE ON COVER PAGE

1 SITE ANALYSIS 1:200

NOTE: ALL DEMOLISHED ELEMENTS TO ENG. SPECIFICATIONS AND AS. 2601 - 2001

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REV.	DATE	COMMENTS	DRWN
A	18/06/19	DA SET	EAS

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All errors and omissions are to be verified by the Builder/Contractor and referred to the designer prior to the commencement of works.

LEGEND
- LANDSCAPING
- CONCRETE
- TILES
- DEMOLISHED
- EXISTING METAL ROOF
- EXISTING TILED ROOF
- PROPOSED METAL ROOF
- PROPOSED TILE ROOF

CLIENT
BEN CRAIG & CLEO SOMERS

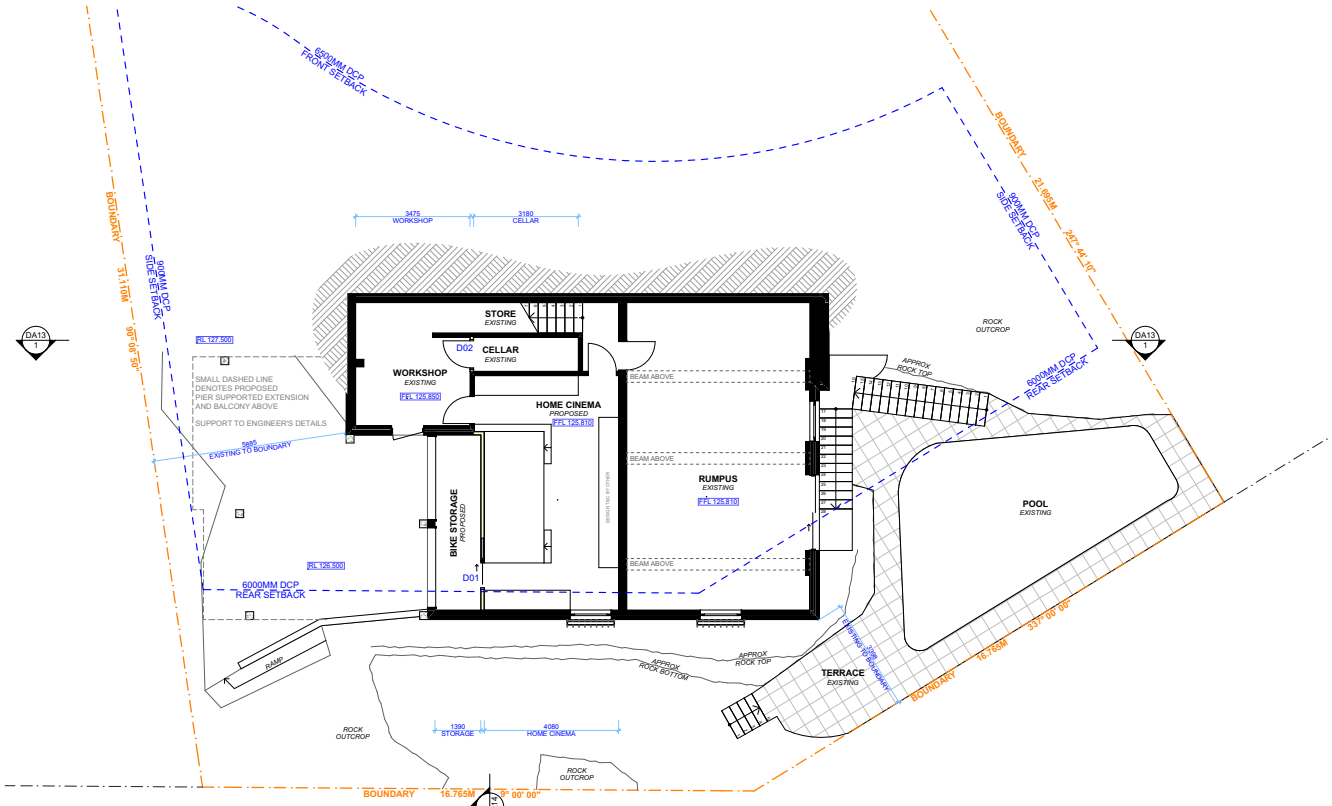
PROJECT ADDRESS
58 PARNI PLACE FRENCHS FOREST, NSW, 2086

DRAWING NO.
DA01

DATE
Tuesday, 18 June 2019

DRAWING NAME
SITE ANALYSIS

SCALE
1:200 @A3



1 PROPOSED LOWER GROUND FLOOR PLAN 1:100

NOTE: BUSHFIRE PRONE LAND, REFER TO TABLE ON COVER PAGE

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LEGEND
- EXISTING
- PROPOSED
- DEMOLISHED
- TIMBER
- BRICKWORK
- EXISTING METAL ROOF
- EXISTING TILED ROOF
- PROPOSED METAL ROOF
- PROPOSED TILE ROOF

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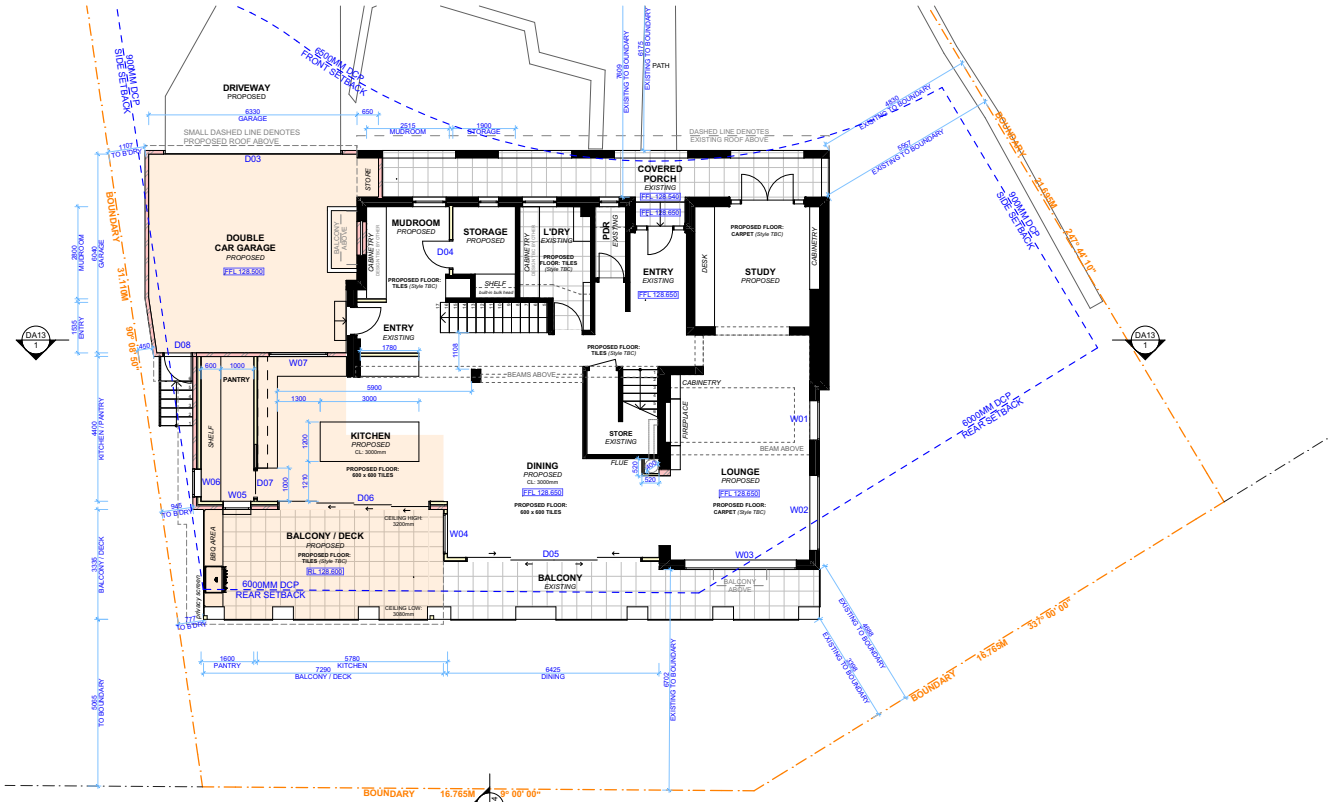
DRAWING NO.
DA06

DATE
Tuesday, 18 June 2019

DRAWING NAME
PROPOSED LOWER GROUND FLOOR PLAN

SCALE
1:100 @A3



1 **PROPOSED GROUND FLOOR PLAN** 1:100

NOTE: BUSHFIRE PRONE LAND, REFER TO TABLE ON COVER PAGE

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REV.	DATE	COMMENTS	DRWN
A	18/06/19	DA SET	EAS

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LEGEND
EXISTING
PROPOSED
DEMOLISHED
TIMBER
BRICKWORK
EXISTING METAL ROOF
EXISTING TILED ROOF
PROPOSED METAL ROOF
PROPOSED TILE ROOF

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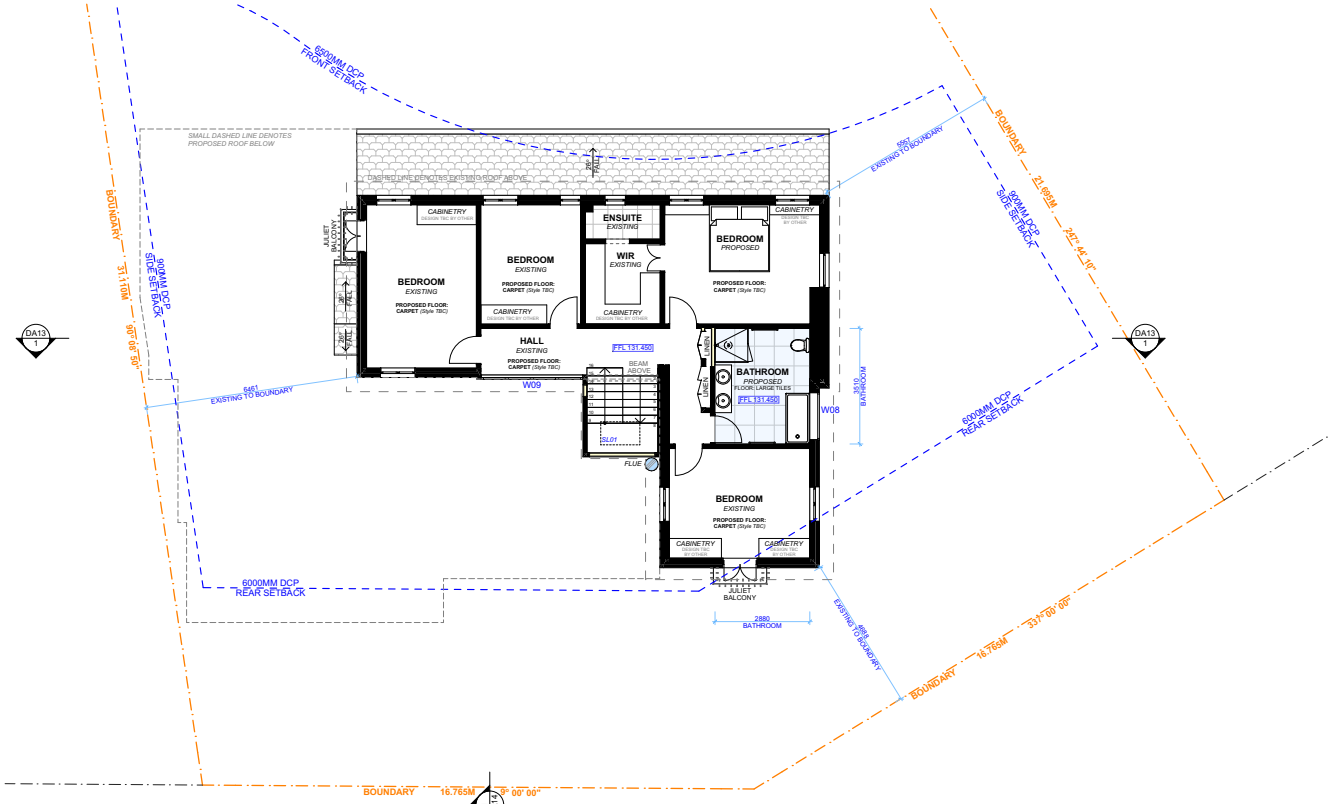
DRAWING NO.
DA07

DATE
Tuesday, 18 June 2019

DRAWING NAME
PROPOSED GROUND FLOOR PLAN

SCALE
1:100 @A3



1 **PROPOSED FIRST FLOOR PLAN** 1:100

NOTE: BUSHFIRE PRONE LAND, REFER TO TABLE ON COVER PAGE

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REV.	DATE	COMMENTS	DRWN
A	18/06/19	DA SET	EAS

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LEGEND
EXISTING
PROPOSED
DEMOLISHED
TIMBER
BRICKWORK
EXISTING METAL ROOF
EXISTING TILED ROOF
PROPOSED METAL ROOF
PROPOSED TILE ROOF

CLIENT
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PROJECT ADDRESS
58 PARNI PLACE
FRENCHS FOREST, NSW, 2086

DRAWING NO.
DA08

DATE
Tuesday, 18 June 2019

DRAWING NAME
PROPOSED FIRST FLOOR PLAN

SCALE
1:100 @A3

APPENDIX C -

SITE PHOTOS

1: View looking north from Parni Place. Fire hydrant within 12m of the boundary of the site.

2: View looking south west. Typical forest vegetation to the west of the subject site.

3: View looking south. Typical forest vegetation to the west of the subject site.

4: View looking south east. Typical forest vegetation to the west of the subject site.