

# Bushfire Assessment Report

***Proposed:***  
**Special Fire Protection  
Purpose development**

***At:***  
**Green Hills Residential  
Care Service /  
7 Martin Close,  
East Maitland NSW**

*Reference Number:* 190616B

*Prepared For:*  
Churches of Christ Community  
Care

## **DRAFT 01**

**20<sup>th</sup> May 2020**

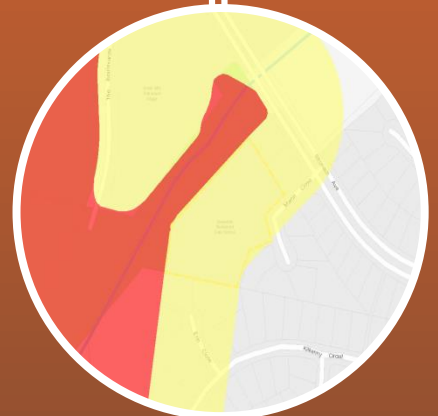


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S100B applications under the Rural Fires Act 1997 (subdivisions and Special Fire Protection Purpose Developments), Flame Zone determinations and Alternate Solutions *must be* referred by Council to the NSW Rural Fire Service for review and receipt of a Bushfire Safety Authority (BSA) or other such recommended conditions from the NSW Rural Fire Service before the consent can be granted.

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## List of Abbreviations:

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|          |  |
|----------|--|
| APZ      | Asset Protection Zone                            |
| AS3959   | Australian Standard 3959 – 2018 as amended       |
| BAL      | Bushfire Attack Level                            |
| BCA      | Building Code of Australia                       |
| BPMs     | Bushfire Protection Measures                     |
| BPLM     | Bushfire Prone Land Map                          |
| Council  | Maitland City Council                            |
| ELVIS    | Elevation and Depth Foundation Spatial Data      |
| EP&A Act | Environmental Planning and Assessment Act - 1979 |
| ESD      | Ecologically Sustainable Development             |
| FRNSW    | Fire and Rescue NSW                              |
| IPA      | Inner Protection Area                            |
| NCC      | National Construction Code                       |
| NSP      | Neighbourhood Safer Place                        |
| OPA      | Outer Protection Area                            |
| PBP      | Planning for Bush Fire Protection – 2019         |
| 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

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The development proposal relates to the demolition of an existing sixty bed (60) aged care facility and construction of a new one-hundred and sixty-eight (168) bed aged care facility.

The existing aged care facility known as Green Hills Residential Care Service (operated by Fresh Hope Care) and is located at 7 Martin Close, East Maitland. The subject site also includes 42 Stronach Avenue, East Maitland.

The subject site is within Maitland City Council's local government area.

Maitland City Council's Bushfire Prone Land Map identifies the subject property as containing the 100 metre buffer zone from Category 1 Vegetation therefore the application of Planning for Bush Fire Protection - 2019 (PBP) must apply in this instance.

As the proposal relates a Special Fire Protection Purpose (SFPP) development which is identified as being on bushfire prone land it is captured under section 100b of the *Rural Fires Act 1997*. A Bushfire Safety Authority (BSA) must therefore be obtained from the NSW Rural Fire Service (RFS).

The subject site has street frontage to Stronach Avenue to the northeast and Martin Close to the east and abuts neighbouring private residential allotments to the northeast and south and Brooklyn Park to the northwest.

As part of the planning phase of this proposal a Plan of Management (PoM) was prepared in cooperation with Maitland City Council over part of the adjacent Brooklyn Park. The agreed PoM ensures ongoing management of the area referred to as 'Central Corridor' in accordance with an Asset Protection Zone for perpetuity.

In consideration of the unique characteristics of the proposal Pre-Da Advice was also sought and received from the NSW Rural Fire Service (RFS) (attached).

The Pre-DA request sought in principle support for a marginal encroachment within the minimum required Asset Protection Zone for Special Fire Protection Purpose development in acknowledging the proposal relates to the redevelopment of an existing SFPP facility and would result in a significantly better bushfire safety outcome.

The advice received from the NSW RFS was that it was deemed "practically achievable" for a new development to be sited entirely within the area achieving full compliance with the less than 10kW/m<sup>2</sup> requirement for new SFPP development.

In further correspondence with the NSW RFS in principle support was received for the use of bushfire design modelling which reflects the reduced flame / vegetation width present onsite.

The proposal results in a significantly better bushfire safety outcome, including

- Demolition of existing aged care building which predates any bushfire safety measures, has an extremely limited defendable space and is within the designated Flame Zone;
- Construction of new aged care building which will comply with the BAL 12.5 under section 5 of Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2018, being the relevant Bushfire Attack Level;

- The new building will not exceed the 10kW/m<sup>2</sup> requirement for new SFPP development;
- Improved access provisions for attending fire services, including perimeter access;
- Improved Bushfire Emergency Planning;
- Improved fire fighting water supply; and
- Implementation of a PoM which will ensure a vegetated corridor does not bisect the two existing aged care developments, placing both developments in the Flame Zone and substantially increasing the hazard interface for attending fire services.

## 2.0 Purpose of Report

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The purpose of this Bushfire Assessment Report is to provide the Fresh Hope Care, Maitland City Council and the Rural Fire Service 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 issued for the subject development.

## 3.0 Scope of this Report

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

## 4.0 Referenced Documents and Persons

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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 – 2019' for the purposes of bushfire hazard determination and Australian Standard 3959 – 2018 titled 'Construction of buildings in bushfire-prone areas' for building/structural provisions.

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



## 5.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2019*.

|  | Northeast   | Southeast                                      | Southwest                 | West  |
|--|---|--|---------------------------|---|
| <b>Vegetation Structure</b>              | Forest  | Managed Land                                   | Forest                    | Managed Land  |
| <b>Vegetation Width</b>                  | 100 metres  | n/a  | 40 metres*                | n/a   |
| <b>Hazard Slope</b>                      | 0 - 5° down                                       | n/a  | 1° up                     | n/a   |
| <b>Minimum Required APZ for new SFPP</b> | 79 metres   | n/a  | 46 metres**               | n/a   |
| <b>Available APZ</b>                     | >90 metres  | >100 metres                                    | >47 metres                | >100 metres   |
| <b>Significant Landscape Features</b>    | Existing residential allotments / Stronach Avenue | Martin Close / existing residential allotments | Proposed perimeter access | Managed Central Corridor / Green Hills Retirement Village |
| <b>Threatened Species</b>                | APZ Existing                                      | APZ Existing                                   | APZ Existing              | APZ Existing  |
| <b>Aboriginal Relics</b>                 | APZ Existing                                      | APZ Existing                                   | APZ Existing              | APZ Existing  |
| <b>Bushfire Attack Level</b>             | BAL 12.5  | n/a  | BAL 12.5                  | BAL Low   |
| <b>Required Construction Level</b>       | BAL 12.5  | BAL 12.5                                       | BAL 12.5                  | BAL 12.5  |

\* The maximum vegetation width exposed to the proposed building was measured to be 29 metres however as a redundancy a 40 metre width was adopted for the bushfire design modelling.

\*\* Determined from bushfire design modelling.

### Asset Protection Zones Compliance

The minimum required Asset Protection Zones were determined from Table A1.12.1 of Planning for Bush Fire Protection 2019 and bushfire design modelling to be 79 metres to the northeast and 46 metres to the southwest.

The closest point of the proposed building exceeds the minimum required Asset Protection Zones for new Special Fire Protection Purpose development to both aspects.

The Asset Protection Zones consist of maintained land within the subject site and land considered to be equivalent to an APZ being existing managed private residential allotments and Stronach Avenue.

## Construction Level Compliance

The highest Bushfire Attack Level to the proposed building was determined from Table A1.12.5 of PBP 19 to be 'BAL 12.5'. The proposed building is required to comply with section 3 and BAL 12.5 section 5 under AS 3959 – 2018 and the section 7.5 of PBP 19.

## Access and Services

| Guideline Ref. | Proposed Development Determinations  |
|----------------|--|
| Internal Roads | <p>The subject site has street frontage to Stronach Avenue to the northeast and Martin Close to the east.</p> <p>Existing vehicle access to the existing aged care facility is available via two points along Martin Close.</p> <p>The proposal retains two access points from Martin Close and also includes an additional access point from Stronach Avenue.</p> <p>The proposed access arrangements result in more comprehensive access for attending fire services around the building and to the south-western hazard interface.</p> <p>The proposed internal access arrangements result in a better bushfire safety outcome.</p> |
| Water Supply   | <p>Existing hydrants are available throughout the subject property and along the surrounding public roads. A new internal fire hydrant system will be installed as part of this proposal, including along the proposed perimeter access. The hydrant location, sizing and pressures must comply with AS2419.1-2005.</p>  |
| Evacuation     | <p>It is recommended that the Bush Fire Emergency Management Plan be prepared in accordance with the NSW Rural Fire Service publication 'Development Planning – A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan December 2014'.</p>   |



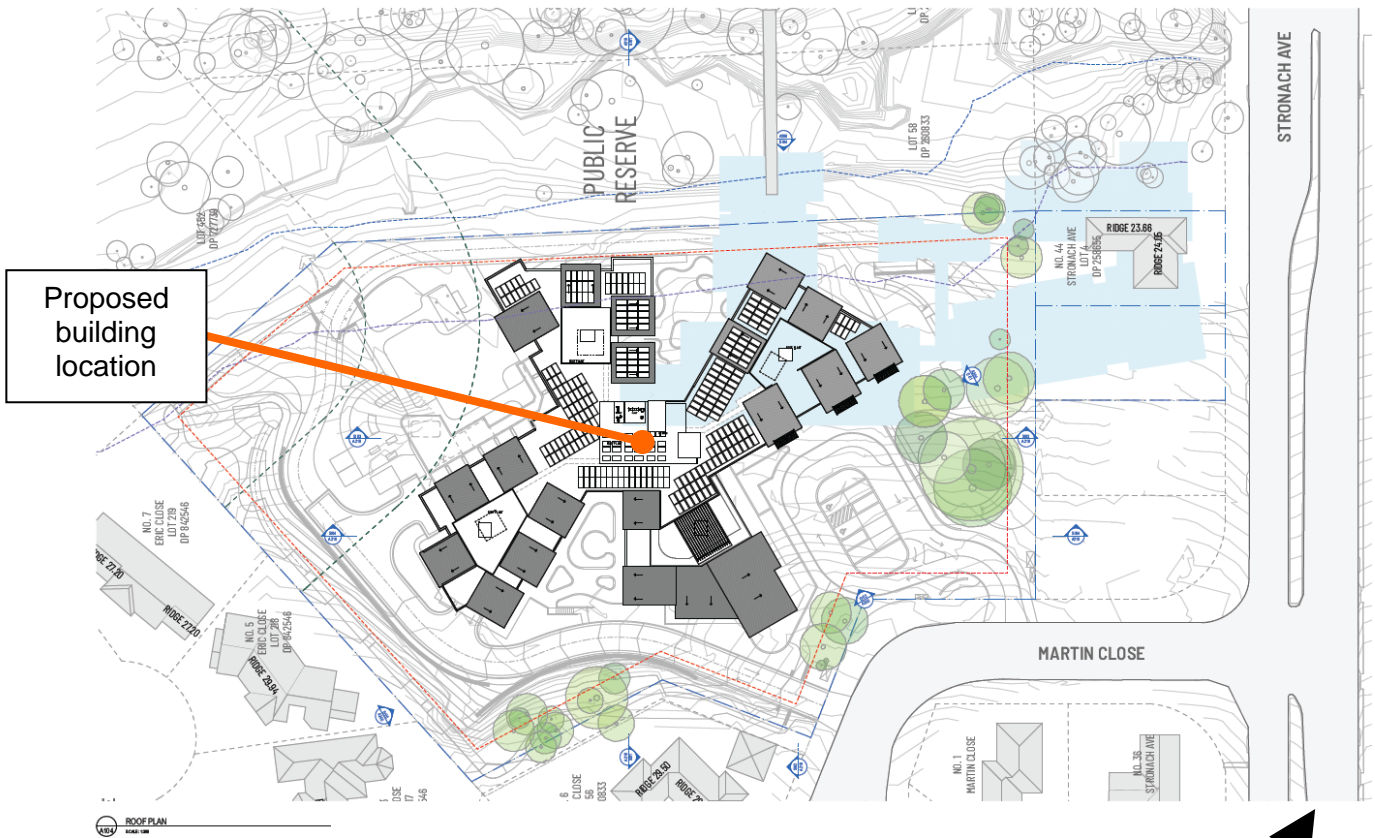


Figure 01: Extract from the Roof Plan



## 6.0 Aerial view of the subject site



Figure 02: Aerial view of the subject area c/- Nearnmap



## 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 - 2019’ (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 – 2018 ‘Construction of buildings in bushfire prone areas’.

Planning for Bush Fire Protection – 2019, (PBP) formally adopted on the 1<sup>st</sup> March 2020 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 located on land containing Category 1, 2 or 3 Vegetation and / or their associated buffer zones.

The subject development relates to the redevelopment of an existing aged care facility.

The development is listed as Special Fire Protection Purpose under section 100b of the *Rural Fires Act 1997*. A Bushfire Safety Authority (BSA) must therefore be obtained from the NSW Rural Fire Service (RFS).

The site contains a functional SFPP development and has therefore the proposal has been assessed under section 6.4 ‘Development of existing SFPP facilities’ of Planning for Bush Fire Protection 2019.

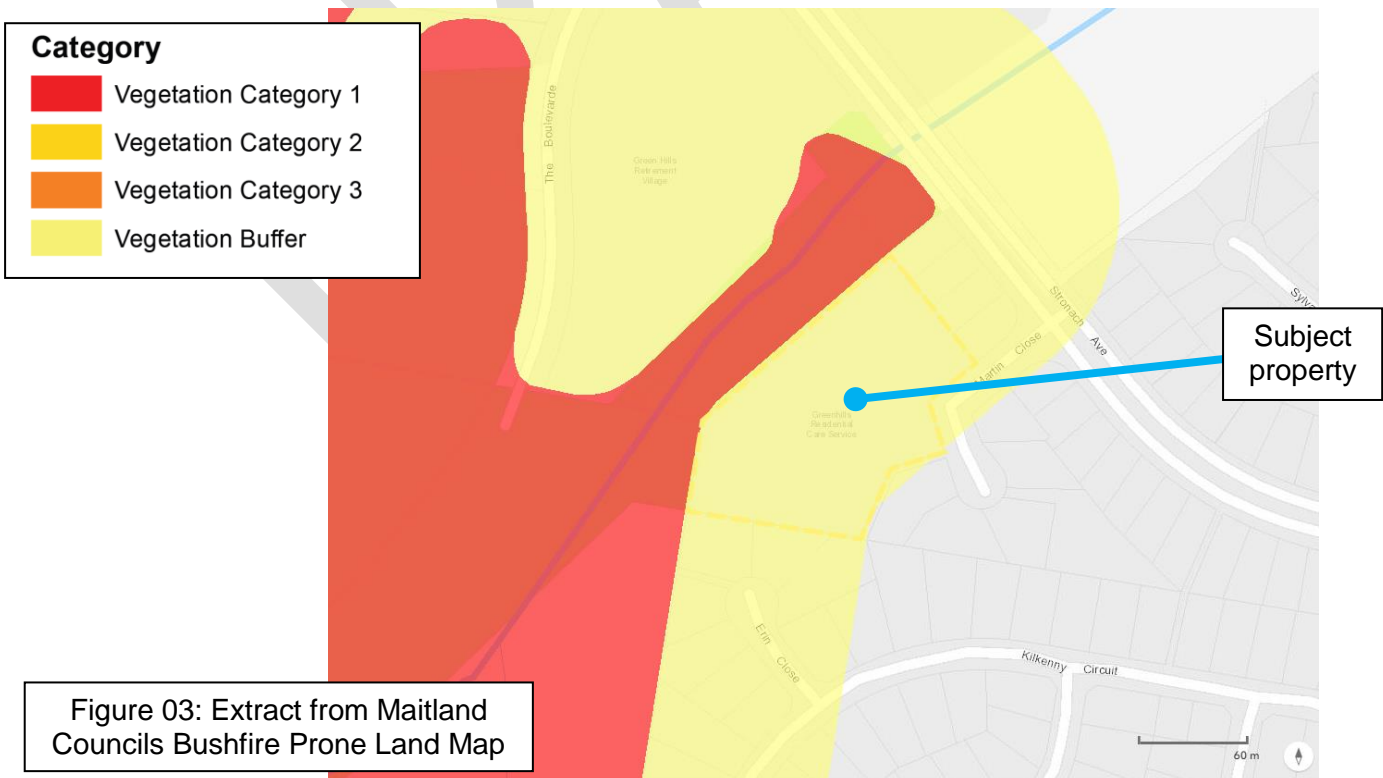


Figure 03: Extract from Maitland Councils Bushfire Prone Land Map

### 7.02 Location

The subject site is known as Green Hills Residential Care Service (operated by Fresh Hope Care) and is located at 7 Martin Close, East Maitland (Lot 57 DP 260833). The subject site also includes 42 Stronach Avenue, East Maitland (Lot 5 DP 258655).

The subject site is zoned R1 'General Residential' and is located within Maitland City Council's local government area.

The subject site has street frontage to Stronach Avenue to the northeast and Martin Close to the east and abuts neighbouring private residential allotments to the northeast and south and Brooklyn Park to the northwest.

The vegetation identified as posing a bushfire hazard is located to the northeast and southwest of the proposed building.



Photograph 01: View west from Martin Close toward the subject site

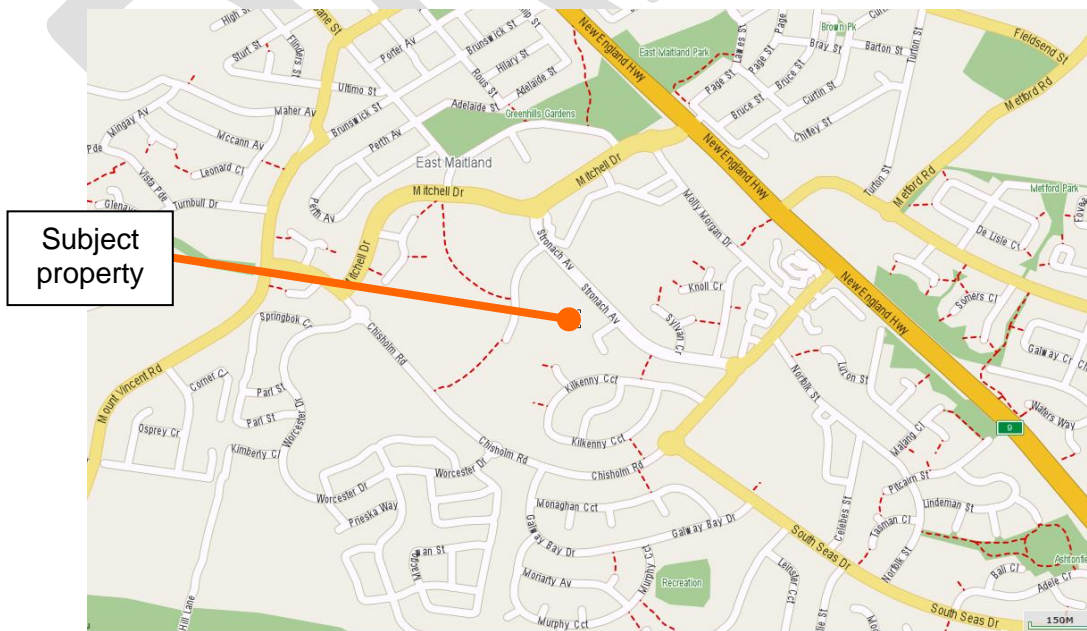


Figure 04: Extract from street-directory.com.au

## 7.03 Vegetation

The predominant vegetation within the subject site was found to consist of maintained lawns and gardens within scattered matured trees.

As part of the planning phase of this proposal a Plan of Management (PoM) was prepared in cooperation with Maitland City Council over part of the adjacent Brooklyn Park. The agreed PoM (attached) ensures ongoing management of the area referred to as 'Central Corridor' in accordance with an Asset Protection Zone for perpetuity. The land identified as 'Central Corridor' was therefore not considered to pose a bushfire threat.

The vegetation identified as posing a bushfire hazard to the proposed building is located to the northeast associated with Green Hills Shopping Centre and southwest associated with Brooklyn Park.

The vegetation posing a hazard to the northeast was found to consist of trees 15-20 metres in height, having a 30-70% canopy foliage cover and an understorey of low trees, shrubs and grasses. While it is acknowledged that this vegetation is not identified as being Category 1, 2 or 3 Vegetation on Council's Bush Fire Prone Lands Map, it does not achieve the criteria for 'Low threat vegetation – exclusions' under A1.10 of PBP and has subsequently been assessed as a hazard.

The vegetation posing a hazard to the southwest was found to consist of trees 15-20 metres in height, having a 30-70% canopy foliage cover and an understorey of low trees, shrubs and grasses.

For the purpose of assessment we have determined the vegetation posing a hazard to the northeast and southwest to be Forest.

As part of the Pre-DA engagement with the NSW RFS in principle support was received for the use of bushfire design modelling which reflects the reduced flame / vegetation width present onsite to the southwest.

The maximum vegetation width exposed to the proposed building was measured to be 29 metres however as a redundancy a 40 metre width was adopted for the bushfire design modelling.

The NSW RFS also requested it be demonstrated where a  $\geq 100\text{m}$  flame width is possible that the building is still in compliance with the  $< 10\text{kW/m}^2$  radiant heat requirement from this point. The proposed building is located  $> 79$  metres from the point of the hazard where a  $\geq 100\text{m}$  flame width is possible, satisfying the  $< 10\text{kW/m}^2$  radiant heat requirement.





Image 01: Aerial image of the Bushfire Fuel Management Plan extent

Figure 05: Extract from the Plan of Management showing the 'Central Corridor'

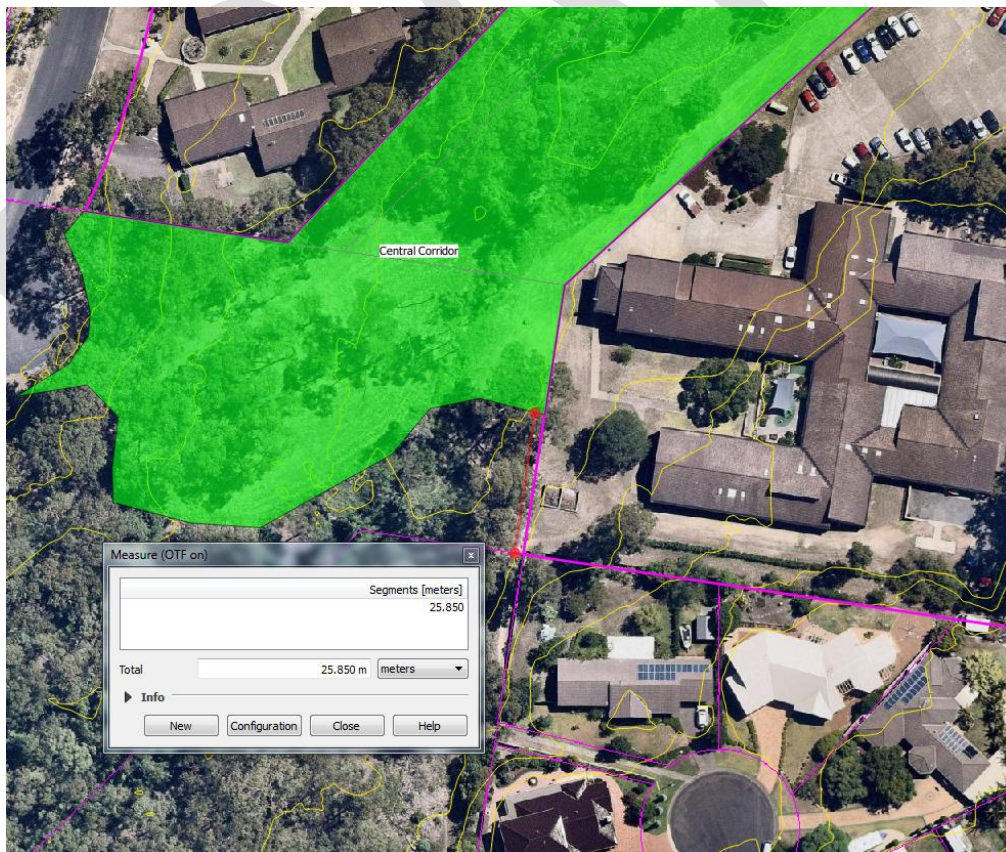


Figure 06: Measurement 01 of the flame / vegetation width



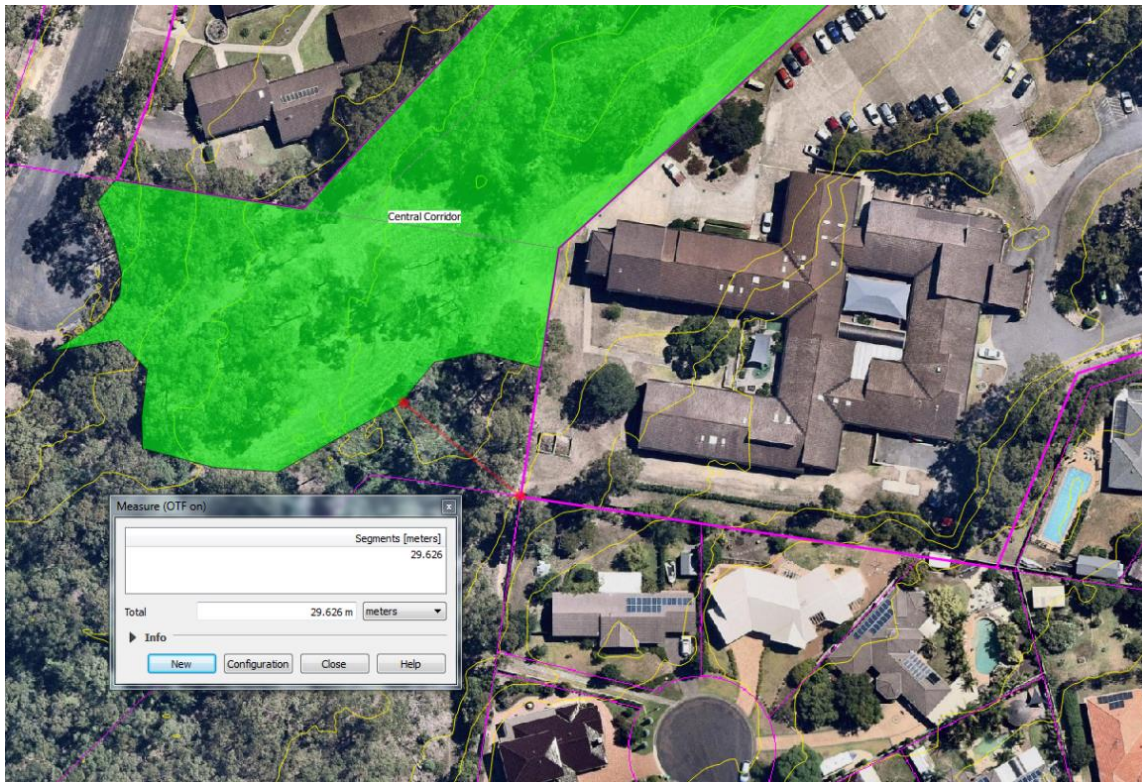


Figure 07: Measurement 02 of the flame / vegetation width

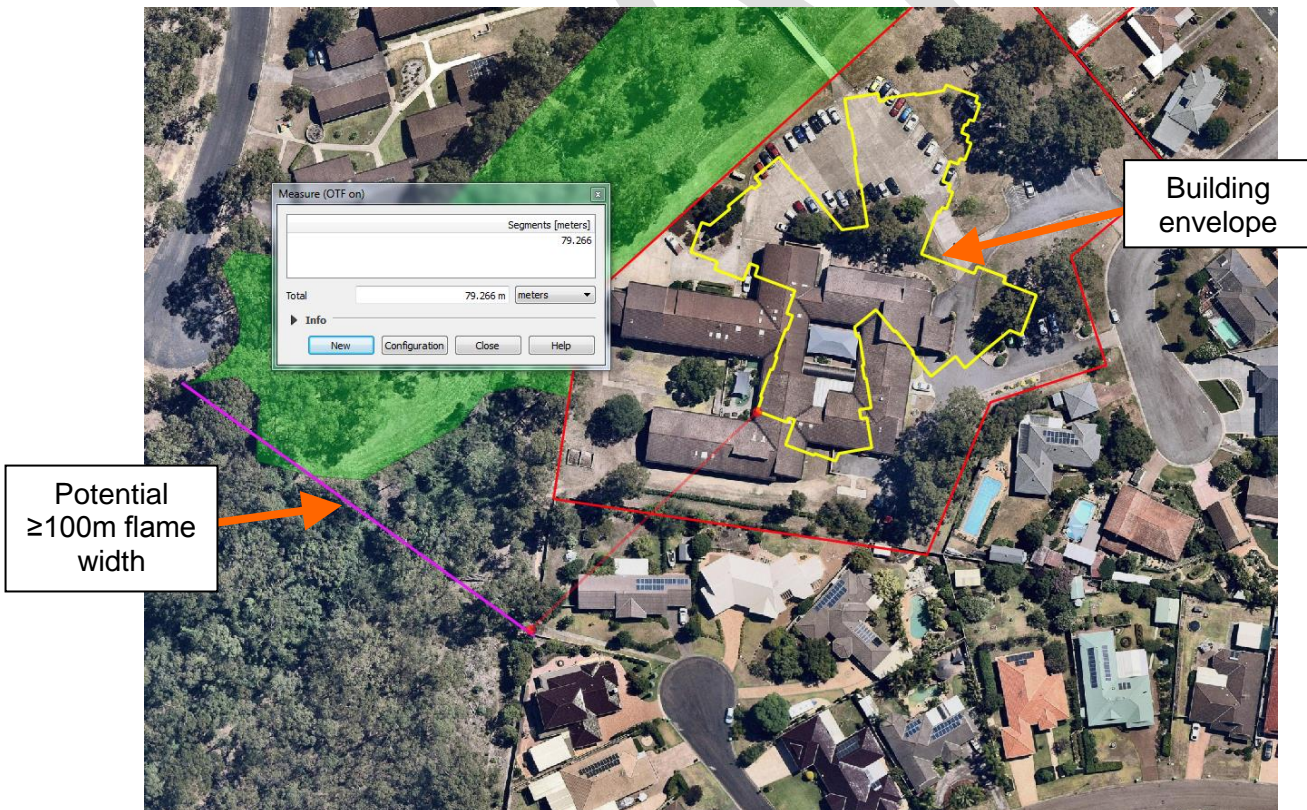


Figure 08: Measurement from point where  $\geq 100\text{m}$  flame width is possible



## 7.04 Slope and Topography

The slope that would most significantly affect bushfire behaviour within the hazard must be assessed for at least 100 metres from within the bushfire hazards. The slope was measured onsite using an inclinometer and verified from topographic imagery of the area. The results are as follows:

- 0 – 5 degrees down slope within the hazard to the northeast
- 1 degree up slope within the hazard to the southwest

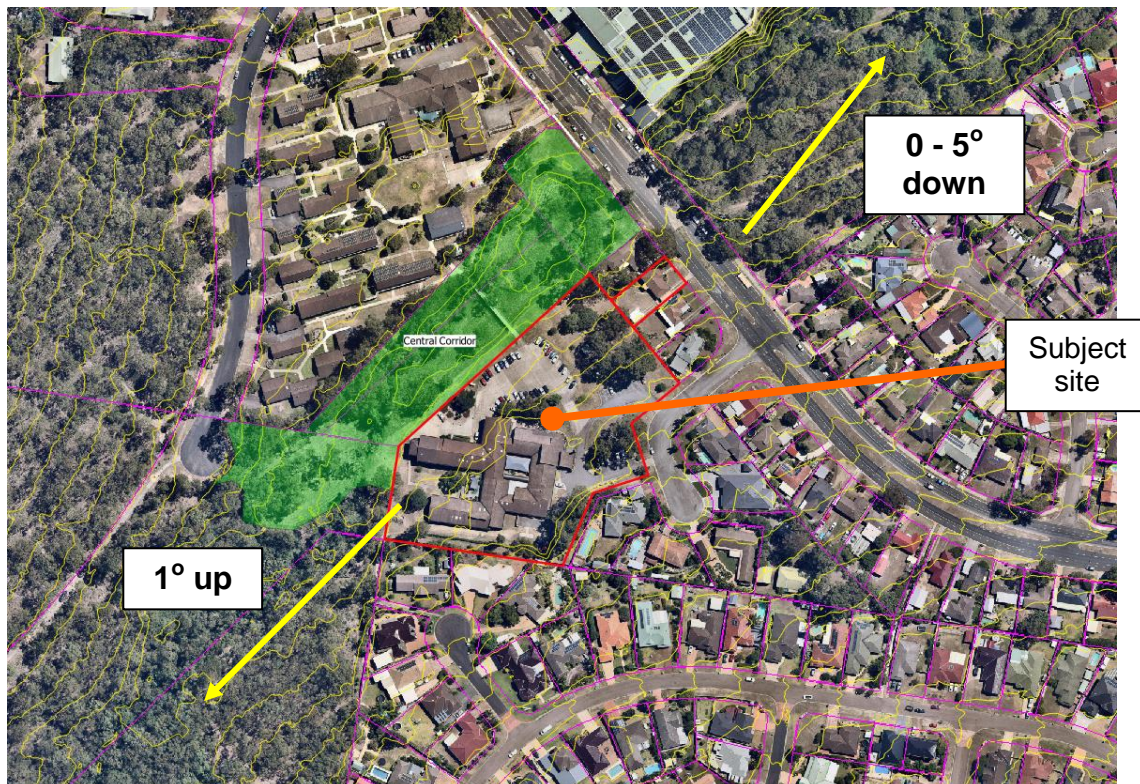


Figure 09: Elevation and Depth Foundation Spatial Data – Geoscience Australia (1m contours)

## 7.05 Asset Protection Zones

Asset Protection Zones for new Special Fire Protection Purpose (SFPP) development are determined from Table A1.12.1 of PBP or bushfire design modelling achieving a radiant heat impact of no more than  $10\text{kW/m}^2$  at the closest point of the available building footprint.

The minimum required Asset Protection Zones were determined from Table A1.12.1 of Planning for Bush Fire Protection 2019 and bushfire design modelling to be 79 metres to the northeast and 46 metres to the southwest.

The closest point of the proposed building exceeds the minimum required Asset Protection Zones for new Special Fire Protection Purpose development to both aspects.

The Asset Protection Zones consist of maintained land within the subject site and land considered to be equivalent to an APZ being existing managed private residential allotments and Stronach Avenue.

The primary objective of an Asset Protection Zone (APZ) is to provide sufficient space, which has maintained reduced fuel loads, from an identified bushfire hazard so as to ensure radiant heat levels of buildings are below critical limits and to prevent direct flame contact with a building.

The secondary objective for a requirement to maintain a site as an APZ is to ensure that vegetation within the site is maintained to a standard that it is not conducive to bushfires. This ensures the balance of the landscape does not unnecessarily draw on fire service resourcing, cause localised / intermediate impact to the subject building or inhibit evacuation activities.

I have reviewed the **Landscape Plans prepared by Arterra Design Pty Ltd (ref.....)** in the view of satisfying the primary and secondary objective and in conjunction with advice received from Mr Robert Smart, Director Arterra Design note the following:

- The primary Asset Protection Zones (a.k.a. minimum setbacks) will strictly satisfy the requirements for an Inner Protection Area, including maximum 15% canopy foliage cover;
- Trees, shrubs and groundcover selection immediately surrounding the proposed building are known hard to burn species;
- The landscape immediately surrounding the proposed building will be irrigated;
- The native meadow is surrounded by footpaths and access roads;
- The native meadow comprises of existing / proposed trees and groundcovers;
- The proposed landscape does not result in laddering of fuels;
- The ground covers within the native meadow will comprise of native grasses planted in clumps and islands separated by known hard to burn species (e.g. 'Dichondra repens' and 'Viola hederaceae') or cleared areas to provide a mixed composition of planting.
- The proposed tree planting adjacent the proposed perimeter access trail will maintain 4 metre vertical clearance;

It is of my opinion that the proposed landscape design is acceptable and will provide sufficient space for firefighters and other emergency services personnel, ensuring radiant heat levels permit operations under critical conditions of radiant heat, smoke and embers, while supporting or evacuating occupants.



Photograph 02: View southeast along Stronach Avenue of the existing external APZ



## 7.06 Fire Fighting Water Supply

An internal boosted hydrant system is available throughout the site. In ground hydrants are available along Stronach Avenue, Martin Place and surrounding streets.

A new internal fire hydrant system will be installed as part of this proposal, including hydrant points along the proposed perimeter access trail.

The hydrant location, sizing and pressures must comply with AS2419.1-2005.

The proposed water supply is considered adequate for the replenishment of attending fire services and will satisfy section 6.8.3 of PBP.

## 7.07 Internal Roads

The subject site has street frontage to Stronach Avenue to the northeast and Martin Close to the east.

Existing vehicle access to the existing aged care facility is available via two points along Martin Close.

The proposal retains two access points from Martin Close and also includes an additional access point from Stronach Avenue.

The existing access arrangements include a one-way loop from Martin Close. This loop provides a 3.5 metre carriageway and an access point to staff parking at the rear of the building, adjacent Central Corridor. Currently there is no perimeter vehicle access available around the existing building or to the south-western hazard interface.

The proposed access arrangements result in more comprehensive access for attending fire services around the building and to the south-western hazard interface. The proposed access arrangements include:

- Internal two-way roads providing a minimum 6 metre carriageway, exceeding the requirements for Access under section 6.8.2 of PBP;
- Internal one-way roads providing a minimum 3.5 metre carriageway, achieving the requirements for Access under section 6.8.2 of PBP;
- Complying 'T' turning head provided on the southern side of the building, prior to the commencement of the perimeter access trail; and
- Provision of a 4 metre wide perimeter access trail, providing through access from Martin Close to Stronach Avenue, significantly improving access for attending fire services.

The proposed internal access arrangements result in a better bushfire safety outcome.

It is recommended that the Bush Fire Emergency Management Plan be prepared in accordance with the NSW Rural Fire Service publication 'Development Planning – A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan December 2014'.

## 8.0 Site & Bushfire Hazard Determination

### 8.01 Planning for Bush Fire Protection - 2019

Planning for Bush Fire Protection – 2019 (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;*

- *containing or within 100m of Category 1 Vegetation; or*
- *containing or within 30m of Category 2 or 3 Vegetation.*

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

### 8.02 Australian Standard AS 3959 – 2018 ‘Construction of buildings in bushfire –prone areas’

Australian Standard 3959 – 2018 ‘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 – 2019 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 - 2018.

### 8.03 Correlation between bushfire impact and AS3959

| Bushfire Attack Level | Maximum radiant heat impact (kW/m <sup>2</sup> ) | Level of construction under AS3959-2018 |
|-----------------------|--|---|
| 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 Viable Construction Method

One of the objectives of Planning for Bush Fire Protection – 2019 are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and the consent authority should be in a position to consider such applications.

The highest Bushfire Attack Level to the proposed building was determined from Table A1.12.5 of PBP 19 to be ‘BAL 12.5’. The proposed building is required to comply with section 3 and BAL 12.5 section 5 under AS 3959 – 2018 and section 7.5 of PBP 19.

## 9.0 Recommendations

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The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2019 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas' - 2018. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

### Asset Protection Zones

1. That all grounds within the minimum required Asset Protection Zone as shown on the Site Plan prepared by **Calderflower (ref.....)** are to be maintained as an Asset Protection Zone (Inner Protection Area) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of *Planning for Bush Fire Protection 2019*.

### Landscaping

2. That all new landscaping is to comply with the **Landscape Plans prepared by Arterra Design Pty Ltd (ref.....)**.

### Construction

3. New construction must comply with Sections 3 and 5 (BAL 12.5) Australian Standard AS3959-2009 Construction of buildings in bush fire-prone areas or NASH Standard (1.7.14 updated) 'National Standard Steel Framed Construction in Bushfire Areas – 2014' as appropriate and section A3.7 Addendum Appendix 3 of Planning for Bush Fire Protection 2006.

### Bushfire Emergency Management

4. A Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the:
  - The NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan;
  - Australian Standard AS 3745:2010 Planning for emergencies in facilities; and
  - Australian Standard AS 4083:2010 Planning for emergencies – Health care facilities (where applicable).
5. An Emergency Planning Committee is established to consult with residents (and their families) and staff in developing and implementing an Emergency Procedures Manual; and
6. Detailed plans of all emergency assembly areas including on site and off-site arrangements as stated in AS 3745:2010 are clearly displayed, and an annually emergency evacuation is conducted (where deemed necessary in the Bush Fire Emergency Management and Evacuation Plan).

Note: A copy of the Bush Fire Emergency Management and Evacuation Plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.



## Water

7. That the proposal must comply with the following requirements of section 6.8.3 of PBP:
  - fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005;
  - hydrants are not located within any road carriageway;
  - reticulated water supply to SFPPs 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.

## Access

8. That the proposed access road locations and carriageways comply with the Site Plan prepared by **Calderflower (ref.....)**.
9. That 'No Parking' signs are erected along the entire length of the internal roads and perimeter access trail.
10. That the proposed internal roads and perimeter access trail shall comply with the following requirements for Access as detailed in section 6.8.2 of PBP:
  - SFPP access roads are two-wheel drive, all-weather roads;
  - traffic management devices are constructed to not prohibit access by emergency services vehicles;
  - access roads must provide suitable turning areas in accordance with Appendix 3;
  - the capacity of road surfaces and any bridges/ causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges and causeways are to clearly indicate load rating.
  - hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;
  - hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005;
  - parking is provided outside of the carriageway width;
  - hydrants are located clear of parking areas;
  - curves of roads have a minimum inner radius of 6m;
  - the maximum grade road is 15 degrees and average grade of not more than 10 degrees;
  - the road crossfall does not exceed 3 degrees; and
  - a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

## Electricity Services

11. Electrical transmission lines are underground.

## Gas Services

12. Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;
13. All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;
14. Connections to and from gas cylinders are metal;
15. If gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion;
16. Polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and
17. Above-ground gas service pipes external to the building are metal, including and up to any outlets.

## 10.0 Conclusion

---

The development proposal relates to the demolition of an existing sixty bed (60) aged care facility and construction of a new one-hundred and sixty-eight (168) bed aged care facility.

Maitland City Council's Bushfire Prone Land Map identifies the subject property as containing the 100 metre buffer zone from Category 1 Vegetation therefore the application of Planning for Bush Fire Protection - 2019 (PBP) must apply in this instance.

As the proposal relates a Special Fire Protection Purpose (SFPP) development which is identified as being on bushfire prone land it is captured under section 100b of the *Rural Fires Act 1997*. A Bushfire Safety Authority (BSA) must therefore be obtained from the NSW Rural Fire Service (RFS).

The vegetation identified as posing a bushfire hazard to the proposed building is located to the northeast associated with Green Hills Shopping Centre and southwest associated with Brooklyn Park.

The minimum required Asset Protection Zones were determined from Table A1.12.1 of Planning for Bush Fire Protection 2019 and bushfire design modelling to be 79 metres to the northeast and 46 metres to the southwest.

The closest point of the proposed building exceeds the minimum required Asset Protection Zones for new Special Fire Protection Purpose development to both aspects.

The highest Bushfire Attack Level to the proposed building was determined from Table A1.12.5 of PBP 19 to be 'BAL 12.5'. The proposed building is required to comply with section 3 and BAL 12.5 section 5 under AS 3959 – 2018 and section 7.5 of PBP 19.

The proposal results in a significantly better bushfire safety outcome, including;

- Demolition of existing aged care building which predates any bushfire safety measures, has an extremely limited defensible space and is within the designated Flame Zone;
- Construction of new aged care building which will comply with the BAL 12.5 under section 5 of Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2018, being the relevant Bushfire Attack Level;
- The new building will not exceed the 10kW/m<sup>2</sup> requirement for new SFPP development;
- Improved access provisions for attending fire services, including perimeter access;
- Improved Bushfire Emergency Planning;
- Improved fire fighting water supply; and
- Implementation of a PoM which will ensure a vegetated corridor does not bisect the two existing aged care developments, placing both developments in the Flame Zone and substantially increasing the hazard interface for attending fire services.

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.

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

Prepared by  
Building Code & Bushfire Hazard Solutions P/L



### **Stuart McMonnies**

G. D. Design in Bushfire Prone Areas.  
 Certificate IV Fire Technology  
 Fire Protection Association of Australia BPAD – L3 Accredited Practitioner  
 Accreditation number – BPAD 9400



## **11.0 Annexure 01**

### **List of Referenced Documents**

- a) Rural Fires Act 1997 as amended
- b) 'Planning for Bush Fire Protection'- 2019 - NSW Rural Fire Services & Planning NSW
- c) 'Construction of buildings in bushfire prone areas' - AS 3959 – 2018  
 – Standards Australia
- d) 'Ocean Shores to Desert Dunes' David Keith
- e) Maitland Council's Bushfire Prone Land Map
- f) Site Plan prepared by Calderflower (ref.....)
- g) Landscape Plans prepared by Arterra Design Pty Ltd (ref.....)
- h) Acknowledgements to:  
 NSW Department of Lands – SixViewer  
 Street-directory.com.au  
 Geoscience Australia  
 Nearmap

### **Attachments**

- Attachment 01: Pre-DA Advice from NSW Rural Fire Service
- Attachment 02: Plan of Management for adjacent Council land
- Attachment 03: Bushfire design modelling



## PRE-DA ADVICE SUMMARY

**Applicant:** Stuart McMonnies c/- Building Code & Bushfire Hazard Solutions P/L

**Subject:** Fresh Hope Care – Maitland (Special Fire Protection Purpose (SFPP) – Aged Care)  
7 Martin Close & 40-42 Stronach Avenue, East Maitland  
RFS Ref. DOC19/69204

### Details of the proposal

- SFPP Demolition of the existing 60 bed building and the construction of a new facility capable of housing 198 beds.
- Residential subdivision
- Other

### Bush fire protection issues discussed

- Hazard Assessment The exclusion of the north-western Riparian corridor as a hazard, subject to a future Plan of Management agreed to by Council.
- Asset Protection Zones The applicable Asset Protection Zones (APZs) required for the SFPP development
- Access
- Construction Standards Proposed construction requirements for the whole building.
- Services
- Emergency and Evacuation Planning

### Documentation / plans referenced

- Preliminary site plans prepared by GroupGSA

### Advice Provided

- The proposed development seeks to increase the density of the number of occupants from 60 beds to 198 beds, presenting as a 330% increase on the current tenancy within the site. Furthermore, it is noted that the existing building will be completely demolished as part of this application.
- As stated within the pre-release edition of *Planning for Bush Fire Protection 2019* regarding the development of existing SFPP facilities “*Intensification of the use or increase in occupancy must be considered and the risk to occupants and firefighters must be justified and an appropriate combination of BPMs applied. Where practically achievable, full compliance should be provided before reductions in the safety standards of the BPMs are considered.*”
- The plans provided within the pre-DA information clearly identify that the majority of the site is located within areas that will be exposed to <10kW/m<sup>2</sup> radiant heat. Therefore it is deemed “*practically achievable*” for a new development to be sited entirely within this area, and full compliance with the <10kW/m<sup>2</sup> requirement, or SFPP APZs, is expected.
- The proposal having an upgraded access road, or other improved access provisions, was not considered substantial enough to warrant a reduction in required APZs for an SFPP development.



- Further details regarding the extent and the proposed management practices for the off-site APZ management along the 'Two Mile Creek' Riparian corridor is to be provided, including the extent to which the management conforms with *Planning for Bush Fire Protection 2019* for it not to be considered a hazard.

### Disclaimer

RFS advice is based on information provided and policy and legislative requirements applicable at the time. The advice should be copied into, or referenced in, any subsequent development application.

All efforts are made to identify issues of relevance and likely concern with the preliminary proposal. However, the comments and views in this document are based only on the plans and information submitted for preliminary assessment and discussion at the pre-DA meeting. You are advised that: -

- The views expressed may vary once detailed plans and information are submitted and formally assessed in the development application process, or as a result of issues contained in submissions by interested parties;
- Given the complexity of issues often involved and the limited time for full assessment, no guarantee is given that every issue of relevance will be identified;
- Amending one aspect of the proposal could result in changes which would create a different set of impacts from the original plans and therefore require further assessment and advice; and,
- The Pre-DA advice given does not bind Council officers, the elected Council members, or other parties to the DA process.

Signed:



Adam Small  
Development Assessment and Planning Officer



Kalpana Varghese  
Team Leader  
Development Assessment and Planning

Date: 22 July 2019





# Fresh Hope Care Bushfire Fuel Management Plan Proposal

Maintenance of Maitland Council Bushland around Two Mile Creek

---

Prepared by: David Hanrahan  
**Project Manager, Fresh Hope**

Date: Friday, 27<sup>th</sup> of April 2020

## Review Sheet

| Reviewed By             | Title   | Organisation   | Discipline             | Signature    |
|-------------------------|---|--|------------------------|--------------|
| <b>Darrell Johnson</b>  | Manager<br>Procurement and<br>Property Services | <b>Fresh Hope</b>  | Client                 |              |
| <b>Stuart McMonnies</b> | Manager,<br>Bushfire Section                    | <b>Building Code &amp;<br/>Bushfire Hazard<br/>Solutions</b> | Bushfire<br>Consultant |              |
| <b>Mitch Palmer</b>     | Principal Ecologist                             | <b>NGH Consulting</b>  | Ecologist              | Mitch Palmer |

**Stuart McMonnies**  
 Manager Bushfire Section  
 G. D. Design in Bushfire Prone Areas.  
 Certificate IV Fire Technology  
 FPA Australia BPAD Level 3 Accredited Practitioner  
 BPAD Accreditation No. BPAD9400



**MITCH PALMER**  
**A/PRINCIPAL ECOLOGIST**  
*BSc. Accredited BAM Assessor (BAAS17051). MEIANZ.*

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## 1. INTRODUCTION

This Bushfire Fuel Bushfire Fuel Management Plan relates to the maintenance of the land owned and currently managed by Maitland Council to the standard of an Asset Protection Zone. This land surrounds and includes Two Mile Creek and bisects an existing Residential Aged Care Facility (RACF) and Retirement Village (RV) both operated by Fresh Hope Care. Without ongoing management vegetation would pose a threat to this facility.

This Bushfire Fuel Management Plan identifies the management works which would be undertaken by Fresh Hope Care to maintain the APZ. This Bushfire Fuel Management Plan will commence prior to the first Occupation Certificate (Interim or Final) following the applied for Development Approval for the construction of a new Residential Aged Care Facility on Lot 57 of DP260833, known as 7 Martin Close, East Maitland.

The extent of the Asset Protection Zone has been delineated by recent flood mitigation works that have been undertaken by Council. The maintenance of this area must be in accordance with an Inner Protection Area (IPA) as detailed within:

- Planning for Bush Fire Protection 2019, published by the NSW Rural Fire Service, and
- Standards for Asset Protection Zones published by the NSW Rural Fire Services.
- Fresh Hope Care is also aware of the document “Bushfire Management Plan; For land held by Maitland City Council” prepared by Travers Bushfire and Ecology in 2017.

The primary purpose of an Asset Protection Zone is to ensure that a progressive reduction of bushfire fuel occurs between the bushfire hazard and any structures or assets.

As detailed within the Rural Fires Act - 1997 it is “the duty of the owner or occupier of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of bush fires on, and to minimise the danger of the spread of bush fires on or from” any land vested in or under its control or management. The development of a Bushfire Fuel Bushfire Fuel Management Plan is essential for land holders or trustee in order to provide an established methodology for the management of vegetation loads for reduction of bushfires within those lands. In this case this Bushfire Fuel Management Plan would be undertaken by Fresh Hope Care as owners of adjacent land impacted by the APZ.

At the time of writing this plan the subject site was identified as being located in a designated 10/50 vegetation entitlement clearing area. Any relevant environmental approvals (where necessary) should be obtained prior to undertaking the works described herein.

## 2. PURPOSE OF PLAN

The purpose of this Bushfire Fuel Bushfire Fuel Management Plan is to provide a tool to be used as a guide for the ongoing maintenance of the subject site, including Asset Protection Zones, in order to maximise its effectiveness as a buffer during a bushfire emergency in this area.

This plan does not guarantee that a small fire or spot fire will not occur within the subject site, it will however provide a method to minimise the intensity of a fire and limit bushfire impact to the buildings within the adjacent Residential Aged Care Facility should a bushfire occur.

### 3. ADMINISTRATION OF BUSHFIRE FUEL MANAGEMENT PLAN

The activation of this Bushfire Fuel Management Plan will be a precondition to achieving the first Occupation Certificate (Interim or Final) associated with the proposed expansion of the RACF services for which a Development Application has been lodged. Fresh Hope Care will inform Maitland Council when the Bushfire Fuel Management Plan is first enacted. Until that time, Maitland Council will remain exclusively responsible for management of the subject land for all purposes.

Once the Bushfire Fuel Management Plan is activated all costs associated with works identified in this Bushfire Fuel Management Plan will be the responsibility of Fresh Hope Care.

This Bushfire Fuel Management Plan makes no change in ownership provision or responsibility for any other element of this parcel of land including Two Mile Creek with respect to maintenance for other purposes, service provision, security or any other matter.

This Bushfire Fuel Management Plan will be reviewed by Fresh Hope Care every five (5) years from activation to ensure that bush fire modelling techniques and surrounding vegetation have not altered in a material way. Every five (5) years from activation this Bushfire Fuel Management Plan will be submitted to Council for their information only. This Bushfire Fuel Management Plan will exist in perpetuity for as long as a Residential Aged Care Facility is in operation on the subject site.

The nominated representative, being Fresh Hope Procurement and Property Services Manager, will be the responsible party for the following components of this plan:

- Review of the Bushfire Fuel Management Plan relevant stake holders every five years
- Compliance with this Bushfire Fuel Management Plan
- Provision of necessary funds to ensure Bushfire Fuel Management Plan is followed
- Arrange an audit of the Asset Protection Zones by a suitably qualified bushfire practitioner prior to each fire season (August)

## 4. LAND COVERED BY BUSHFIRE FUEL MANAGEMENT PLAN

The extent of land covered by this Bushfire Fuel Management Plan is the Maitland Council owned land alongside and including Two Mile Creek between Stronach Avenue and The Boulevard from which Maitland Council have removed overgrown vegetation in recent years.

This land includes the following property lots:

- Lot 3 of DP 258655
- Lot 58 of DP 260833
- Lot 61 of DP 262743
- Lot 2060 of DP 1045875 (only the area previously cleared)

This land is part of the “Figure 37” area as defined in Maitland City Council Bushfire Management Plan.



**Image 01:** Aerial image of the Bushfire Fuel Management Plan extent





*Image 02: Lot numbers identifications of the Plan area*

## Referenced Documents

Comments provided are based on the following documents:

- 'Planning for Bush Fire Protection –2019 (PBP)',
- 'Standards for Asset Protection Zones' and
- 'Bushfire Management Plan; For land held by Maitland City Council', November 2017



## 5. APZ CONSTRUCTION

At the time of writing this document the treatment area was found to have been recently cleared and subject to periodic slashing undertaken by Maitland Council. It is understood these works occurred as a method of flood mitigation.

The treatment area currently complies with the requirements for an Inner Protection Area and therefore there are no new construction works.

## 6. FUEL MANAGEMENT / PROPERTY MAINTENANCE

The purpose of regular maintenance is to ensure that the presence of fuels (which could become involved in a fire) are maintained at the required levels within the APZ. Therefore, the impact of direct flame contact and radiant heat on the adjacent buildings is always at a reduced level.

The maintenance that will be undertaken by or commissioned by Fresh Hope Care will be consistent with the NSW RFS publication 'Standards for Asset Protection Zones' and include:

1. Raking or manual removal of fine fuels.
2. Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis.
3. Mowing / slashing of grass. Grass needs to be kept short (as a guide be kept to no more than 100mm in height) and, where possible, green.
4. Removal or pruning of trees, shrubs and understorey vegetation, as necessary.
5. Do not allow shrubs or trees to re-generate unless they are in areas which comply with an APZ (i.e. not beneath existing trees, not linking existing canopies etc.).
6. Prune the lowest branches of the trees to provide a separation from the ground (up to two meters from the ground).
7. A maximum 15% canopy foliage cover should be maintained.
8. Where shrubs are allowed to regenerate, they should not be beneath trees, be in clumps or islands and not exceed more than 10% ground cover.

## 7. SCHEDULE OF MAINTENANCE

The grounds shall be managed on a routine basis. Particular attention to pruning, crown lifting, and removal of dead fuels will be made prior to the commencement of the bushfire danger period (1<sup>st</sup> October to 31<sup>st</sup> March – unless modified by the NSW Rural Fire Service) and at least once during the bushfire danger period.

### Yearly Schedule

| TIME     | ELEVATED FUELS                      | SURFACE FUELS                       |
|----------|-------------------------------------|-------------------------------------|
| AUGUST   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| NOVEMBER |                                     | <input checked="" type="checkbox"/> |
| FEBRUARY |                                     | <input checked="" type="checkbox"/> |

### Untreated Fuel Clumps



### Treated Fuel Clumps



## 8. METHOD FOR VEGETATION MANAGEMENT

All clearing will be undertaken by hand and / or mechanical means. The use of hand-held machine tools is acceptable including chainsaws.

Mulching will be undertaken well before the summer months however organic mulch will not be applied within 10 meters of any adjacent building.

Raking up of fine ground fuels is also acceptable as a general method of vegetation removal however any large quantities of collected vegetation will be manually moved away from any adjacent buildings and not allowed to “stockpile”.

The processes outlined below are best practice guides for the methodologies of vegetation management and will be complied with to maintain the APZ as outlined within this Bushfire Fuel Management Plan. At the time of preparation of this Bushfire Fuel Management Plan there are no significant trees requiring removal.

### Tree Removal

Existing Trees – Removing Trees or Limbs Overhanging Buildings

1. Clearing within the Asset Protection Zone (APZ) to be the minimum required and retain the maximum allowable vegetation where possible.
2. A physical clearing boundary will be demarcated and installed prior to clearing.
3. All tree lopping shall be conducted by a tree worker with minimum Certificate 3 trainings.
4. Prune or remove trees to:
  - a. Remove the entire identified tree and grind stump OR
  - b. Remove identified limbs overhanging buildings or where dead, diseased, broken, dangerous, or crossing branches
5. Construction machinery will be cleaned using a high-pressure washer (or other suitable device) prior to entering the work site

### Tree Pruning

1. Prune as determined by a qualified arborist or the Landscape Supervisor. Prune in accordance with generally accepted standards for proper pruning.
2. The cutting blades on pruning shears, clippers, blades, saws, etc. shall be sterilized after pruning each tree to minimise the possibility of spreading disease. When pruning trees known or suspected to be diseased, cutting blades shall be sterilized after each cut. Sterilize blades by dipping them in a solution of 1-part bleach and 9-parts water or heavily spray them with a disinfectant spray such as Lysol. After dipping or spraying, wait 20 seconds before using again.
3. All work is to be conducted by or in direct supervision of a Cert 3 (Arboriculture) qualified tree worker.
4. Any tree removal or pruning that requires cherry picker or other machinery will be at the Contractors expense. The operator of the machinery should have an appropriate licence.



## Vegetation Under Scrubbing

1. Under scrubbing should not occur within 20 meters of the highest bank each side of the waterway. Retained areas of vegetation (the riparian zone) will be bordered with non-combustible markers or fencing to protect them from maintenance activities.
2. Notify all personnel and provide signage displaying information of vegetation protection requirements of the conditions.
3. Any non-weed species may be mulched on site if grass is not intended to be maintained.
4. Maintenance of the APZ must continue in perpetuity. Landscape maintenance is to comply with Maitland Council's Bushfire Management Plan (2017) and to generally follow the guidelines set out in Append 4 of Planning for Bush Fire Protection (RFS 2019).

## Management within the Riparian Zone

1. Remove weeds within the riparian zone (defined as within 20 m of the highest bank each side of the waterway). Weed removal should be conducted by hand where possible. If herbicide is required, the CRC guidelines for herbicide use in and around water<sup>1</sup> and the NSW DPI Weed Control Handbook<sup>2</sup> should be consulted. Weed Officers at Maitland Council should also be consulted regarding herbicide use. If entire weed removal is likely to cause erosion or significant loss of habitat, stage weed removal and progressively replant with native riparian species.
2. No under scrubbing or physical removal by machinery shall occur within instream vegetation.
3. Monitoring will be undertaken as follows:
  - a. Photo monitoring points of the riparian zone will be established prior to any works.
  - b. Annual monitoring will be conducted to ensure that shrub densities do not exceed 30% per 100m<sup>2</sup>. Any priority weeds detected during monitoring will require immediate weed control as per measures and duties stated within the *Biosecurity Act 2015* and Weed Wise database for the Hunter region
4. Maintenance: Although not currently apparent, if erosion does become evident, replanting with native riparian species may be required.

---

<sup>1</sup> CRC 2005. Herbicides – Guidelines for use in and around water ([https://www.waternsw.com.au/\\_data/assets/pdf\\_file/0011/56477/Herbicides-Guidelines-for-use-in-and-around-water-whole-saved-document.pdf](https://www.waternsw.com.au/_data/assets/pdf_file/0011/56477/Herbicides-Guidelines-for-use-in-and-around-water-whole-saved-document.pdf)).

<sup>2</sup> NSW DPI (2018). Weed Control Handbook – A guide to weed control in non-crop, aquatic and bushland situations ([https://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0017/123317/weed-control-handbook.pdf](https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0017/123317/weed-control-handbook.pdf))

## General Weed Treatment

Where intensive weed growth and disturbance has replaced native ground cover and mulch and caused little regrowth in indigenous plants, the application of a herbicide may be adopted as a method of weed removal. Herbicide application may only be used where there is no possibility of damage to existing plants due to overspray, wind drift or potential damage to native seedlings.

1. Weed references (but not limited to):
  - a. *Biosecurity Act 2015*
  - b. Hunter Local Land Services Region priority weeds list
  - c. Australian Association of Bush Regenerators
  - d. There may be plants not classified as weeds yet considered to have 'weedy' qualities on site. These should be assessed by an ecologist, qualified horticulturist or bush regenerator, documented and distributed to all staff and Contractors dealing with landscape maintenance on site.
2. Eradicate weeds by environmentally acceptable methods using herbicide suitable and approved for use near waterways. Alternatively, for larger weeds the tree roots should be removed by machinery or hand tools. The cost of all weed control work shall be included in the contract price for landscape maintenance. Regular maintenance of the mulch will help minimise weeds in shrub and groundcover areas.
3. **Herbicide Spray:** Herbicide should be sprayed at the manufacturer's recommended rates and in accordance with the CRC guidelines for herbicide use in and around water (CRC 2005) and the NSW DPI Weed Control Handbook (2018). Observance of the withholding period (minimum period of time between application of a chemical) stated on a registered herbicide label is a legal requirement. Remove dead weeds and stockpile in the depot. Do not spray prior to forecast significant rainfall events and not within one week following significant rainfall events.
4. **Approved Herbicide:** (unless otherwise approved): the use of herbicides in and around water (if required) should be species-specific in accordance with the NSW DPI Weed Control Handbook (2018). Weed Officers at Maitland Council would be consulted to approve use of specific herbicides. The use of surfactants should be avoided. All use of chemicals to be compliant with the *Work Health and Safety Act 2011* and WorkCover NSW's Code of Practice for safely using and storing chemicals.
5. **Mulching:** Following the herbicide application the area sprayed should be mulched with chippings free of seed, weeds or green plant material, mulch to a depth of 70 mm with appropriate mulch.
6. Keep a logbook of all spraying, type of spray used, quantity/dosage and areas sprayed.

## Asset Protection Zone – Instream vegetation

### Site Description:

Grassed Inner Protection Area. There are few shrubs within this area therefore reducing the potential for sustained fire.

### Fire Behaviour:

If the area is regularly maintained a canopy fire may be restricted to the instream creek bed.

Minimal fire could occur. Any canopy fire from the instream vegetation concerning flying debris will be unsustainable and is likely to self-extinguish.

### Vegetation

#### Maintenance:

Maintain grass at a maximum of 10 cm and rake and remove litter. No under scrubbing of vegetation.





## Asset Protection Zone – Riparian Corridor

**Site Description:**  
Grassed Inner Protection Area with a sloped grassed bank. There are minimal shrubs within this area therefore reducing the potential for sustained fire.

**Fire Behaviour:**  
If the area is regularly maintained a canopy fire may be restricted to the creek bed area.

Minimal fire could occur. Any canopy fire from the creek bed concerning flying debris will be unsustainable and is likely to self-extinguish

**Vegetation Maintenance:**

This Inner Protection Area is managed by mowing and litter removal.







## 9. ACKNOWLEDGEMENT OF PARTIES

This document represents an agreement for the maintenance of lands owned by Maitland City Council including and alongside Two Mile Creek, and adjacent to lands owned by Fresh Hope Care including Lot 57 in DP 260833, known as 7 Martin Close, East Maitland, for the purposes of providing an Asset Protection Zone.

The activation of this agreed Bushfire Fuel Management Plan will take place only when Fresh Hope Care so advises Maitland Council. This will be a pre-requisite to the granting of any Occupation Certificate for future development of the Fresh Hope Care Residential Aged Care Facility.

This Bushfire Fuel Management Plan will exist for the lifetime of the Fresh Hope Care Residential Aged Care Facility.

### Fresh Hope Care Representative

**Name:**

**Title:**

**Signature:**

**Date:**

---

### Maitland City Council Representative

**Name:**

**Title:**

**Signature:**

**Date:**

---



# NBC Bushfire Attack Assessment Report V2.1

AS3959 (2009) Appendix B - Detailed Method 2

Print Date: 12/08/2019

Assessment Date: 29/07/2019

**Site Street Address:** Fresh Hope Care, Maitland  
**Assessor:** Stuart McMonnies; Building Code & Bushfire Hazard Solutions Pty Ltd  
**Local Government Area:** Maitland **Alpine Area:** No

## Equations Used

Transmissivity: Fuss and Hammins, 2002  
Flame Length: RFS PBP, 2001  
Rate of Fire Spread: Noble et al., 1980  
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005  
Peak Elevation of Receiver: Tan et al., 2005  
Peak Flame Angle: Tan et al., 2005

---

**Run Description:** Southwest

## Vegetation Information

|                                 |           |                                 |                     |
|---------------------------------|-----------|---------------------------------|---------------------|
| <b>Vegetation Type:</b>         | Forest    | <b>Vegetation Group:</b>        | Forest and Woodland |
| <b>Vegetation Slope:</b>        | 1 Degrees | <b>Vegetation Slope Type:</b>   | Upslope             |
| <b>Surface Fuel Load(t/ha):</b> | 22        | <b>Overall Fuel Load(t/ha):</b> | 36.1                |

## Site Information

|                                 |           |                           |       |
|---------------------------------|-----------|---------------------------|-------|
| <b>Site Slope</b>               | 0 Degrees | <b>Site Slope Type:</b>   | Level |
| <b>Elevation of Receiver(m)</b> | Default   | <b>APZ/Separation(m):</b> | 46    |

## Fire Inputs

|                             |    |                      |      |
|-----------------------------|----|----------------------|------|
| <b>Veg./Flame Width(m):</b> | 40 | <b>Flame Temp(K)</b> | 1200 |
|-----------------------------|----|----------------------|------|

## Calculation Parameters

|                                  |       |                              |     |
|----------------------------------|-------|------------------------------|-----|
| <b>Flame Emissivity:</b>         | 95    | <b>Relative Humidity(%):</b> | 25  |
| <b>Heat of Combustion(kJ/kg)</b> | 18600 | <b>Ambient Temp(K):</b>      | 308 |
| <b>Moisture Factor:</b>          | 5     | <b>FDI:</b>                  | 100 |

## Program Outputs

|                               |          |                                       |       |
|-------------------------------|----------|---------------------------------------|-------|
| <b>Category of Attack:</b>    | LOW      | <b>Peak Elevation of Receiver(m):</b> | 9.43  |
| <b>Level of Construction:</b> | BAL 12.5 | <b>Fire Intensity(kW/m):</b>          | 45957 |
| <b>Radiant Heat(kW/m2):</b>   | 10       | <b>Flame Angle (degrees):</b>         | 68    |
| <b>Flame Length(m):</b>       | 20.35    | <b>Maximum View Factor:</b>           | 0.113 |
| <b>Rate Of Spread (km/h):</b> | 2.46     | <b>Inner Protection Area(m):</b>      | 46    |
| <b>Transmissivity:</b>        | 0.79     | <b>Outer Protection Area(m):</b>      | 0     |

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