

# Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address:

Site visit: Yes  No

Date of site visit (if applicable): Day  Month  Year

Report author or reviewer:

WA BPAD accreditation level (please circle):

Not accredited  Level 1 BAL assessor  Level 2 practitioner  Level 3 practitioner

If accredited please provide the following.

BPAD accreditation number:  Accreditation expiry: Month  Year

Bushfire management plan version number:

Bushfire management plan date: Day  Month  Year

Client/business name:

|  | Yes | No |
|--|-----|----|
| Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?   |     |    |
| Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)? |     |    |

| Is the proposal any of the following (see <a href="#">SPP 3.7 for definitions</a> )? | Yes | No |
|--|-----|----|
| Unavoidable development (in BAL-40 or BAL-FZ)  |     |    |
| Strategic planning proposal (including rezoning applications)                        |     |    |
| High risk land-use   |     |    |
| Vulnerable land-use  |     |    |

None of the above

**Note:** Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer



Date



# Bushfire Management Plan

## Broome North LDP2

Broome Road and Fairway Drive, Bilingurr

Shire of Broome

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**Planning Stage:** Strategic Proposal - Local Structure Plan

**Planning Development Type:** Subdivision - Large Number of Lots

**Bushfire Policy – Specific Development or Use Type:** N/A

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**Job Number:** 190520

**Assessment Date:** 15 July 2020

**Report Date:** 19 February 2021

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## DOCUMENT CONTROL

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| VERSION HISTORY  |   |                    |                          |                                     |
| Version  | Version Details                         | Date               |                          |                                     |
| 1.0  | Original Document Issue                 | 19 February 2021   |                          |                                     |
| -  |   |                    |                          |                                     |
| BMP (Subdivision) Template v8.4  |   |                    |                          |                                     |
| DISTRIBUTION   |   |                    |                          |                                     |
| Destination  | Version                                 | No. Copies         | Hard Copy                | Electronic Copy                     |
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| <p><b>Limitation of Liability:</b> The measures contained in this Bushfire Management Plan, are considered to be minimum requirements and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required bushfire protection measures will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control.</p> <p>All surveys, forecasts, projections and recommendations made in this report associated with the proposed development are made in good faith based on information available to Bushfire Prone Planning at the time. All maps included herein are indicative in nature and are not to be used for accurate calculations.</p> <p>Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents, arising out of the services provided by their consultants.</p> <p><b>Copyright ©2020 BPP Group Pty Ltd:</b> All intellectual property rights, including copyright, in format and proprietary content contained in documents created by Bushfire Prone Planning, remain the property of BPP Group Pty Ltd. Any use made of such format or content without the prior written approval of Bushfire Prone Planning, will constitute an infringement on the rights of the Company which reserves all legal rights and remedies in respect of any such infringement.</p> |   |                    |                          |                                     |

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## EXECUTIVE SUMMARY

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This Bushfire Management Plan is produced to assist with planning amendments to the Broome North Local Development Plan 2 (LDP2). The proposal is situated at the corner of Broome Road and Fairway Drive, Bilingurr in the Shire of Broome.

Since the issue of the previous Bushfire Management Plan for this site, SPP 3.7 "Planning in Bushfire Prone Areas" and the "Guidelines for Planning in Bushfire Prone Areas" have been introduced. Additionally, the Australian Standard AS3959-2009 "Construction of buildings in bushfire prone areas" has been revised and updated. This BMP will reflect the introduction of SPP 3.7 and the associated Guidelines, and the new vegetation classification requirements of AS3959-2018.

The proposed development will have a 150 metre wide Environmental Cultural Corridor running east-west along the southern boundary of the site. This area will remain in its current natural state and be maintained as a portion of the connected cultural access from the Dampier Creek marine wetlands to the Cable Beach dunes.

Two separate multiple use corridors, essentially used for drainage channels, will run east-west across the site and will run through proposed Public Open Space (POS) lots, which will be divided between managed and unmanaged areas of vegetation.

A POS lot runs along the eastern boundary of the subject site between Fairway Drive and the Environmental Cultural Corridor. This area will consist of a drainage basin and swales feeding into the basin. A local park will be located within a portion of this POS close to residential lots. It is expected that the greater part of this area will remain, or return, to its natural state. It is expected that the POS lot located to the north of Fairway Drive will comprise of sporting, recreation and playing fields, and will be managed to a low bushfire threat state.

The assessments and bushfire protection measures detailed in the BMP, assume that environmental approval will be achieved or clearing permit exemptions will apply.

The primary bushfire threat to the development site is from the north and west. Land to the east is able to support a bushfire however bushfire prone vegetation is partially broken by the saline wetlands and mangroves of the Dampier Creek. A large scale bushfire would not approach the proposed development from the south due to existing developed residential and industrial areas.

The topography within and around the proposed development site is generally flat and a bushfire travelling through this vegetation will have no increased intensity or rate of spread.

The ability to establish BAL-29 or lower dimensioned APZs throughout the site removes the threat of greater levels of radiant heat or flame contact upon future dwellings or other buildings.

Ember attack is a remaining threat from vegetation within and external to the subject site. This threat will be mitigated by the application of appropriate building design, bushfire construction standards and the ongoing maintenance of the APZs to ensure the buildings will not be impacted by consequential fire from combustible materials used, stored or accumulated within the APZ.

Required Asset Protection Zones and vegetation management will be constrained to within the subject site and perimeter roads. Development of the subject site will reduce the amount of available bushfire prone vegetation during a bushfire event, and will reduce the impact of bushfire on neighbouring lots from this area.

The proposed development will provide an area of land within each future lot that can be considered suitable for development, as BAL-40 or BAL-FZ construction standards will not be required to be applied.

Portions of some residential lots within the development site are subject to radiant heat levels corresponding to BAL-40 and BAL-FZ ratings. Building cannot occur within these areas as they fall within the R-Code setback distance applicable to the development site ... or ... building will be restricted on the site by the application of a restrictive covenant (129BA Transfer of Land Act 189) as per the WAPC Model Subdivision Conditions Schedule (April 2020) Code F3.

This complies with the Acceptable Solutions (A2.1) of Element 2 of the Bushfire Protection Criteria as stated in the Guidelines for Planning in Bushfire Prone Areas. However, as per the DPLH Position Statement: "Planning in bushfire prone area - Demonstrating Element 1: Location and Element 2: Siting and design" approval for these lots, once the final layout is known, will be at the discretion of the decision maker.

The proposed roads provide safe access and egress in two different directions to two different destinations for all future lots. As sealed public roads, they will be available to all residents and the public at all times and under all weather conditions.

Where battle-axe lots are proposed, justification must be provided that there is no alternative to the designed layout. A reticulated water supply will be available to the subject site and hydrants will be installed in locations as required by the relevant authorities.

# 1 PROPOSAL DETAILS

## 1.1 Description and Associated Plans and Maps

|  |  |
|--|--|
| Proponent:   | DevelopmentWA                              |
| Bushfire Prone Planning Commissioned to Produce the Bushfire Management Plan (BMP) By:   | DevelopmentWA                              |
| For Submission To:   | Shire of Broome                            |
| Purpose of the BMP:  | To support a strategic planning assessment |
| 'Development' Site Total Area:   | Approximately 93 hectares                  |
| No. of Existing/Proposed Lots:   | N/A  |
| Description of the Proposed Development/Use:   |  |
| <p>This Bushfire Management Plan is produced to assist with planning amendments to the Broome North Local Development Plan 2. The proposal is situated at the corner of Broome Road and Fairway Drive, Bilingurr in the Shire of Broome.</p> |  |

Figure 1.1

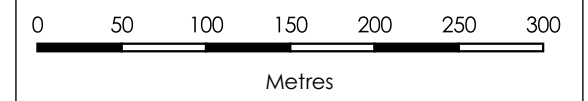
# Broome North LDP2 Proposed Development Map

Lot 360 on Plan 67926, Lot 365 on Plan 74365  
Lot 2605 on Plan 189036, Lot 2606 on Plan  
76023, Pt Lot 9007 on Plan 74189  
Broome Road and Fairway Drive  
BILINGURR  
SHIRE OF BROOME

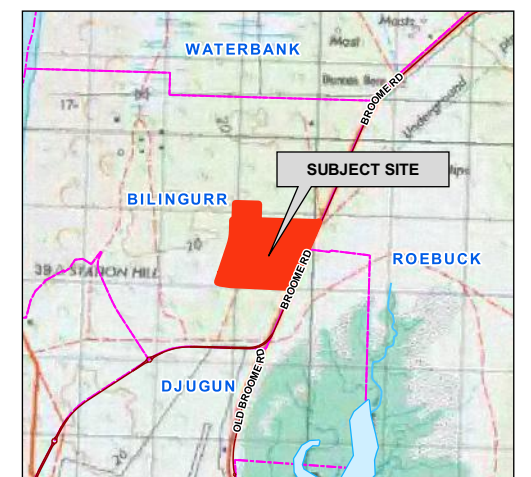
### ----- LEGEND -----

#### Proposed Lots

- Environmental Cultural Corridor
- Parks, Recreation & Drainage
- Public Purpose
- Residential
- Proposed Roads
- Road Carriageway
- LDP2 Drainage Swale
- Subject Site Stage 6
- Localities\_Suburb
- Cadastre



### ----- LOCALITY -----



AERIAL IMAGERY: Landgate/SLIP



Coordinate System: GDA 1994 MGA Zone 50  
Projection: Universal Transverse Mercator Units: Metre  
Map by: Ian Macleod 11-02-2021  
SCALE (A3): 1 : 4500

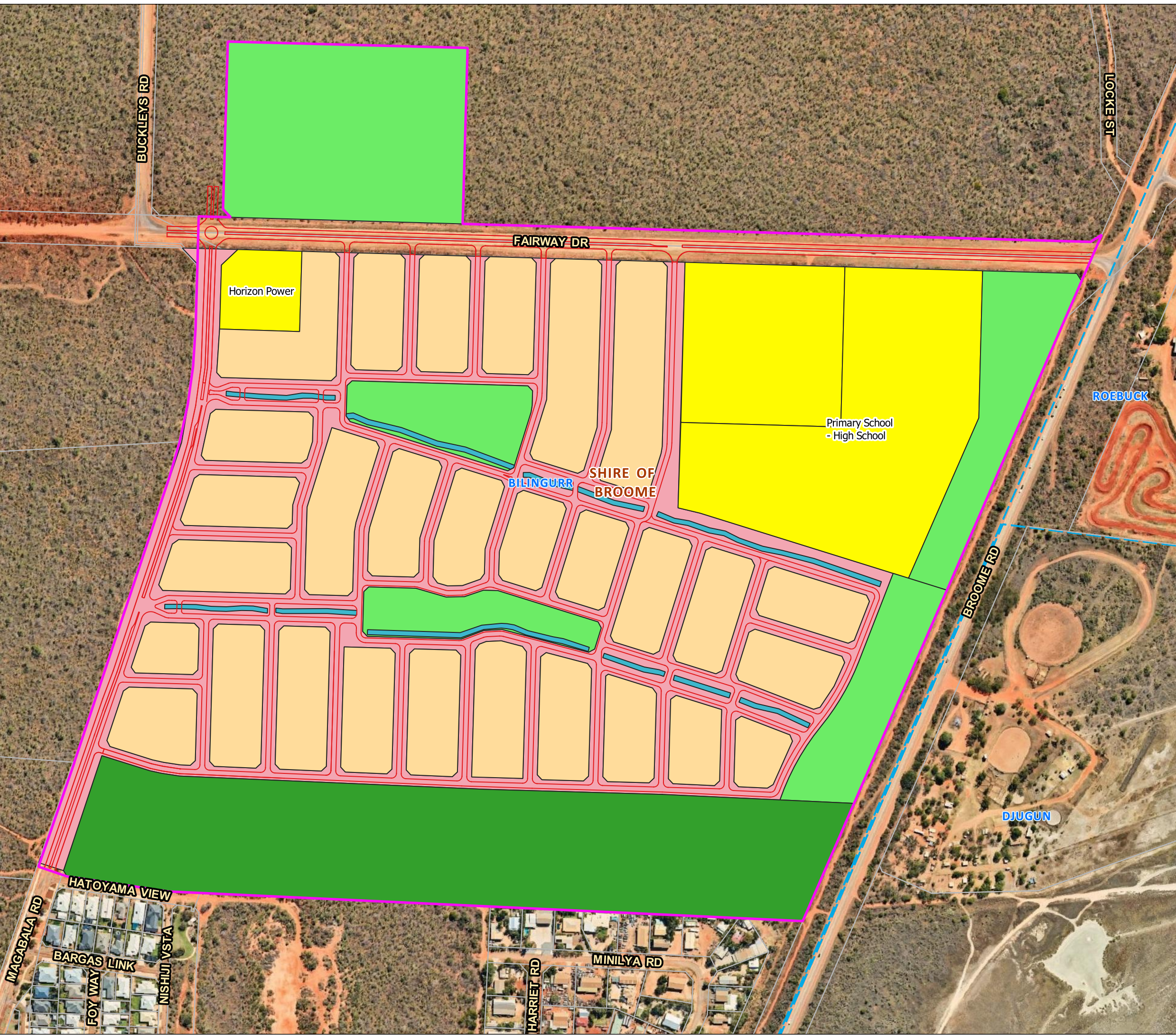




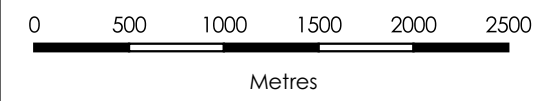
Figure 1.2

# Broome North LDP2 Spatial Context Map

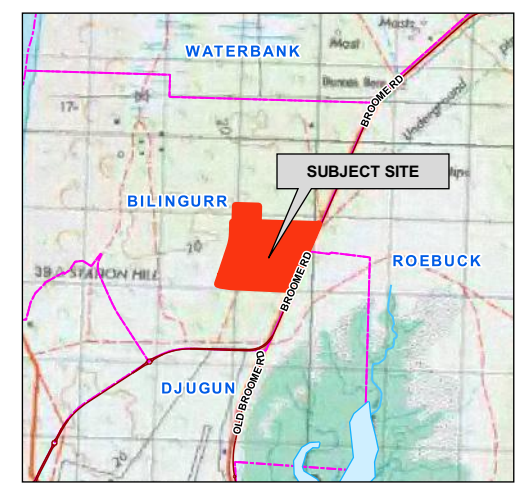
Lot 360 on Plan 67926, Lot 365 on Plan 74365  
 Lot 2605 on Plan 189036, Lot 2606 on Plan 76023, Pt Lot 9007 on Plan 74189  
 Broome Road and Fairway Drive  
 BILINGURR  
 SHIRE OF BROOME

----- LEGEND -----

- ◆ DFES Stations
- Subject Site (Stage 6)
- DBCA - Legislated Lands and Waters**
- Section 5(1)(h) Reserve
- Reserves\_UCL**
- Reserve
- Unallocated Crown Land
- Localities Suburb
- Cadastre



----- LOCALITY -----



AERIAL IMAGERY: Landgate/SLIP



Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Universal Transverse Mercator Units: Metre  
 Map by: Ian Macleod 11-02-2021  
 SCALE (A3): 1 : 40000








Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

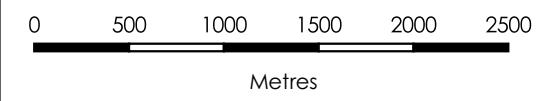
Figure 1.3

### Broome North LDP2 Bushfire Prone Areas Map

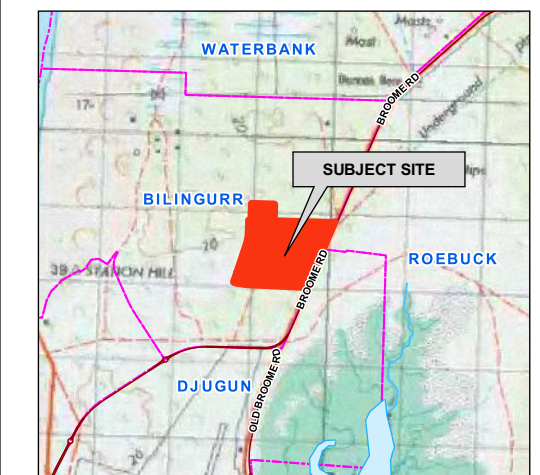
Lot 360 on Plan 67926, Lot 365 on Plan 74365  
Lot 2605 on Plan 189036, Lot 2606 on Plan  
76023, Pt Lot 9007 on Plan 74189  
Broome Road and Fairway Drive  
BILINGURR  
SHIRE OF BROOME

----- LEGEND -----

-  DFES Stations
-  Bush Fire Prone Areas 2019
-  Subject Site (Stage 6)
-  Localities Suburb
-  Cadastre



----- LOCALITY -----



AERIAL IMAGERY: Landgate/SLIP



Coordinate System: GDA 1994 MGA Zone 50  
Projection: Universal Transverse Mercator Units: Metre  
Map by: Ian Macleod 11-02-2021  
SCALE (A3): 1 : 40000



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

## 1.2 Existing Documentation Relevant to the Construction of this Plan

This section acknowledges any known reports or plans that have been prepared for previous planning stages, that refer to the subject area and that may or will impact upon the assessment of bushfire risk and/or the implementation of bushfire protection measures and will be referenced in this Bushfire Management Plan.

Table 2.1: Existing relevant documentation.

| RELEVANT EXISTING DOCUMENTS     |                         |  |
|---------------------------------|-------------------------|--|
| Existing Document               | Copy Provided by Client | Title  |
| Structure Plan                  | Yes                     | Structure Plan – Stage 2: Plan 1 (LAN BRO RD1 200G Stage 2 LSP)                          |
| Environmental Report            | No                      |  |
| Landscaping (Revegetation) Plan | Yes                     | Gujarri Estate, Broome North Structure Plan 2 – Landscape Report (UDLA 2017)             |
| Bushfire Risk Assessments       | Yes                     | Bushfire Management Plan – Gujarri Estate – Broome North Stage 2 (Smith Consulting 2017) |

The above structure plan and landscaping plan have been adopted for the production of this Bushfire Management Plan.

Since the issue of the above Bushfire Management Plan (BMP) the “Guidelines for Planning in Bushfire Prone Areas” and the Australian Standard AS3959-2009 “Construction of buildings in bushfire prone areas” have been revised and updated. This BMP will reflect the changes to the Guidelines and the new vegetation classification requirements of AS3959-2018.

## 2 ENVIRONMENTAL CONSIDERATIONS

### 2.1 Native Vegetation – Restrictions to Modification and/or Clearing

Many bushfire prone areas also have high biodiversity values. SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values (Guidelines s2.3).

There is a requirement to identify the need for onsite modification and/or clearing of native vegetation and whether this might trigger potential environmental impact/referral requirements under State and Federal environmental legislation. Confirmation that any proposed native vegetation modification and/or clearing is acceptable, should be received from the relevant agencies by the proponent and provided to the bushfire consultant for inclusion in the Bushfire Management Plan if it will influence the required bushfire planning assessments and outcomes. The following table details any potential environmental restrictions of which the author of this report is aware.

Table 2.2: Native vegetation and potential environmental considerations and restrictions.

| NATIVE VEGETATION MODIFICATION / CLEARING - POTENTIAL ENVIRONMENTAL RESTRICTIONS IDENTIFIED                    |   |                                      |   |                          |
|--|---|--------------------------------------|---|--------------------------|
| Environmental Considerations / Features  | Potential Mapping Data Source (SLIP / Local Planning) | Relevant to Proposed Development     | Data Applied                                      | Action Required          |
| Onsite clearing of native vegetation is required.  |   | Yes                                  |   |                          |
| Environmental impact/referral requirements under State and Federal environmental legislation may be triggered. |   | Possible                             |   |                          |
| National Park / Nature Reserve   | DBCA-011  | No-Confirmed by Bushfire Consultant  | Relevant Database Reviewed by Bushfire Consultant | None                     |
| Conservation Covenant  | DPIRD-023   | Not Known                            | Data Not Readily Available to Bushfire Consultant | Proponent to Seek Advice |
| Bush Forever Site  | DPLH-019  | No-Confirmed by Bushfire Consultant  | Relevant Database Reviewed by Bushfire Consultant | None                     |
| RAMSAR Wetland   | DBCA-010  | No-Confirmed by Bushfire Consultant  | Relevant Database Reviewed by Bushfire Consultant | None                     |
| Geomorphic and Other Wetland   | DBCA-011-019, 040, 043, 044                           | Not Known                            | Data Not Readily Available to Bushfire Consultant | None                     |
| Threatened and Priority Ecological Communities (TECs or PECs)  | DBCA-038  | Yes-Confirmed by Bushfire Consultant | Relevant Database Reviewed by Bushfire Consultant | Proponent to Seek Advice |
| Threatened and Priority Flora including Declared Rare Flora (DRFs)   | DBCA-036  | No-Confirmed by Bushfire Consultant  | Relevant Database Reviewed by Bushfire Consultant | None                     |

|  |                   |           |   |                          |
|--|-------------------|-----------|---|--------------------------|
| Land Identified as significant through a Local Biodiversity Strategy | LG -<br>Intramaps | Not Known | Data Not Readily Available to Bushfire Consultant | Proponent to Seek Advice |
|--|-------------------|-----------|---|--------------------------|

**Statement of how the identified environmental feature(s) is dealt with in this Bushfire Management Plan (and the location of relevant information):**

The assessments and bushfire protection measures detailed the BMP, assume that environmental approval will be achieved or clearing permit exemptions will apply.

It is advised that the proponent seek further advice from an Environmental Consultant or the WA Department of Biodiversity Conservation and Attractions for further information on the condition and species contained within the proposed development area and the requirement for referral of the proposal.

## Development Design Considerations

Establishing development in bushfire prone areas can adversely affect the retention of native vegetation through clearing associated with the creation of lots and/or asset protection zones. Where loss of vegetation is not acceptable or causes conflict with landscape or environmental objectives, it will be necessary to consider available design options to minimise the removal of native vegetation.

Table 2.3: Development design.

| <b>MINIMISE THE REMOVAL OF NATIVE VEGETATION</b>  |                     |
|---|---------------------|
| Design Option   | Assessment / Action |
| Reduction of lot yield  | N/A                 |
| Cluster development   | N/A                 |
| Construct building to a standard corresponding to a higher BAL as per BCA (AS 3959:2018 and/or NASH Standard)   | N/A                 |
| Modify the development location   | N/A                 |
| <p>The proposed development will have a 150 metre wide Environmental Cultural Corridor running east-west along the southern boundary of the site. This area will remain in its current natural state and be maintained as a portion of the connected cultural access from the Dampier Creek marine wetlands to the Cable Beach dunes.</p> <p>Two separate multiple use corridors, essentially used for drainage channels, will run east-west across the site and will run through proposed Public Open Space (POS) lots, which will be divided between managed and unmanaged areas of vegetation.</p> <p>A POS lot runs along the eastern boundary of the subject site between Fairway Drive and the Environmental Cultural Corridor. This area will consist of a drainage basin and swales feeding into the basin. A local park will be located within a portion of this POS close to residential lots. It is expected that the greater part of this area will remain, or return, to its natural state.</p> <p>It is expected that the POS lot located to the north of Fairway Drive will comprise of sporting, recreation and playing fields, and will be managed to a low bushfire threat state.</p> |                     |
| <b>IMPACT ON ADJOINING LAND</b>   |                     |
| Is this planning proposal able to implement the required bushfire protection measures within the boundaries of the land being developed so as not to impact on the bushfire and environmental management of neighbouring reserves, properties or conservation covenants?  | Yes                 |
| <p>Required Asset Protection Zones and vegetation management will be constrained to within the subject site and perimeter roads. Development of the subject site will greatly reduce the amount of available bushfire prone vegetation during a bushfire event, and will reduce the impact of bushfire on neighbouring lots from this area</p> <p>Compliance will be regulated via the bushfire management plan for the site and the Shire of Broome Fire Break &amp; Fuel Hazard Reduction Notice. Bushfire management measures external to the site are not required as part of this proposal.</p>  |                     |

## 2.2 Retained Vegetation / Re-vegetation / Landscape Plans (including POS)

Riparian zones, wetland/foreshore buffers, road verges and public open space may have plans to re-vegetate or retain vegetation as part of the proposed development. Vegetation corridors may be created between offsite and onsite vegetation and provide a route for fire to enter a development area.

All retained/planned vegetation and its management will be considered in the development of this Bushfire Management Plan.

|  |     |
|--|-----|
| Is re-vegetation of riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?   | Yes |
| Drainage swales throughout the site will retain existing vegetation or be revegetated with local species. Public Open Space areas will be a combination of maintained or revegetated local species and managed grassed or turf areas. Refer to the Gujarri Estate, Broome North Structure Plan 2 Landscape Report (November 2017 - Rev 4). |     |
| Is the requirement for ongoing maintenance of existing vegetation in riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?  | Yes |
| Some areas of Public Open Space will require ongoing management.   |     |
| Has a landscape plan been developed for the proposed development?  | Yes |
| Refer to the Gujarri Estate, Broome North Structure Plan 2 Landscape Report (November 2017 - Rev 4).   |     |

### 3 POTENTIAL BUSHFIRE IMPACT ASSESSMENT

#### 3.1 Assessment Input

##### 3.1.1 Fire Danger Index (FDI) Applied

AS 3959:2018 Table 2.1 specifies the fire danger index values to apply for different regions. The values used in the model calculations are for the Forest Fire Danger Index (FFDI) and for which equivalent representative values of the Grassland Fire Danger Index (GFDI) are applied as per Appendix B. The values can be modified if appropriately justified.

Table 3.1: Applied FDI Value

| FDI VALUE            |                               |                              |               |
|----------------------|-------------------------------|------------------------------|---------------|
| Vegetation Areas     | As per AS 3959:2018 Table 2.1 | As per DFES for the Location | Value Applied |
| All Vegetation Areas | 80                            | N/A                          | 80            |

##### 3.1.2 Vegetation Classification and Effective Slope

**Classification:** Bushfire prone vegetation identification and classification has been conducted in accordance with AS 3959:2018 s2.2.3 and the Visual Guide for Bushfire Risk Assessment in WA (DoP February 2016).

When more than one vegetation type is present, each type is identified separately, and the applied classification considers the potential bushfire intensity and behaviour from the vegetation types present and ensures the worst case scenario is accounted for – this may not be from the predominant vegetation type.

The vegetation structure has been assessed as it will be in its mature state (rather than what might be observed on the day). Areas of modified vegetation are assessed as they will be in their natural unmodified state (unless maintained in a permanently low threat, minimal fuel condition, satisfying AS 3959:2018 s2.2.3.2(f) and asset protection zone standards). Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its revegetated mature state.

**Effective Slope:** Refers to the ground slope under each area of classified vegetation and is described in the direction relative to the view from the building or proposed development site. Effective slope is not the same as 'average slope', rather it is the slope which most significantly influences fire behaviour. This slope has a direct and significant influence on a bushfire's rate of spread and intensity.

Where there is a significant change in effective slope under an area of classified vegetation, that will cause a change in fire behaviour, separate vegetation areas will be identified to enable the correct assessment.

When the effective slope, under a given area of bushfire prone vegetation, will be different relative to multiple proposed development sites, then the effective slopes corresponding to the different locations, are separately identified.

#### Planned Re-vegetation/Landscaping Considerations/Public Open Space Management

The Environmental Cultural Corridor will remain in its naturally vegetated state, with the exception of a six metres wide managed space along its northern boundary (See Broome North Structure Plan Stage 2 Landscape Report).

The Public Open Space to the north of Fairway Drive is expected to be cleared of native vegetation and utilised as a sporting ground. The remaining Public Open Spaces will consist of areas of retained native vegetation and areas of managed parkland for recreation purposes.

Drainage swales will retain their native vegetation to prevent scouring and loss of pindan soils.

All residential lots will be managed to a low bushfire threat state as per the Shire of Broome Fire Break & Fuel Hazard Reduction Notice. It is also expected that the future school lots will be managed and maintained to a low bushfire threat state.

It is expected that the Horizon Power Public Purpose Lot will retain some vegetation to provide a visual buffer from abutting residential lots. For this reason, and to provide an indication of the effect of retained vegetation, the whole of the lot will be assessed as vegetated with the exception of a 3 metre wide firebreak around its perimeter.



Table 3.2: Vegetation classification and effective slope.

| ALL VEGETATION WITHIN 150 METRES OF THE PROPOSED DEVELOPMENT   |   |   |  |                 |
|--|---|---|--|-----------------|
| Vegetation Area  | Identified Vegetation Types <sup>1</sup> or Description if 'Excluded' | Applied Vegetation Classification <sup>1</sup>            | Effective Slope (degrees) <sup>2</sup> (AS 3959:2018 Method 1) |                 |
|  |   |   | Assessed   | Applied Range   |
| 1  | Closed scrub D-13<br>Open scrub D-14                                  | Class D Scrub   | 0  | upslope or flat |
| 2  | Open scrub D-14   | Class D Scrub   | 0  | upslope or flat |
| 3  | Open tussock G-23<br>, Open herffield G-27                            | Class G Grassland   | 0  | upslope or flat |
| 4  | Woodland B-05   | Class B Woodland  | 0  | upslope or flat |
| 5  | Open scrub D-14   | Class D Scrub   | 0  | upslope or flat |
| -  | Areas managed to a low bushfire threat state                          | Excluded as per Section 2.2.3.2 (f) Low Threat Vegetation | N/A  | N/A             |
| Representative photos of each vegetation area, descriptions and classification justification, are presented on the following pages. The areas of classified vegetation are defined, and the photo locations identified on Figure 3.1, the vegetation and topography map. |   |   |  |                 |
| Note <sup>1</sup> : Described and classified as per AS 3959:2018 Table 2.3 and Figures 2.3 and 2.4 (A)-(H)   |   |   |  |                 |
| Note <sup>2</sup> : Effective slope measured as per AS 3959:2018 Section 2.2.5 and Appendix B Part B4  |   |   |  |                 |

A digital copy of the contour survey for the subject site has been adopted to calculate slopes. The land within the subject area generally rises gently from east to west at an average gradient of less than 0.5 degrees. The effective slope is assessed as flat.

**VEGETATION AREA 1**

|  |               |
|--|---------------|
| <b>AS 3959:2018 Vegetation Classification Applied:</b> | Class D Scrub |
|--|---------------|

|                                  |                   |                 |
|----------------------------------|-------------------|-----------------|
| <b>Vegetation Types Present:</b> | Closed scrub D-13 | Open scrub D-14 |
|----------------------------------|-------------------|-----------------|

|                                   |   |
|-----------------------------------|---|
| <b>Description/Justification:</b> | Open drain reserve. Scrub to 5 metres tall, shrubs, occasional small tree, grass understorey. |
|-----------------------------------|---|



Photo ID: 1a

**VEGETATION AREA 2**

|  |               |
|--|---------------|
| <b>AS 3959:2018 Vegetation Classification Applied:</b> | Class D Scrub |
|--|---------------|

|                                  |                 |
|----------------------------------|-----------------|
| <b>Vegetation Types Present:</b> | Open scrub D-14 |
|----------------------------------|-----------------|

|                                   |   |
|-----------------------------------|---|
| <b>Description/Justification:</b> | Open scrub 4 to 6 meters high, occasional shrubs and small trees, grass understorey, recently burnt in areas. |
|-----------------------------------|---|



Photo ID: 2a



Photo ID: 2b

**VEGETATION AREA 2**

**AS 3959:2018 Vegetation Classification Applied:**

Class D Scrub

**Vegetation Types Present:**

Open scrub D-14

**Description/Justification:**

Open scrub 4 to 6 meters high, occasional shrubs and small trees, grass understorey, recently burnt in areas.



Photo ID: 2c



Photo ID: 2d



Photo ID: 2e



Photo ID: 2f

**VEGETATION AREA 3**

**AS 3959:2018 Vegetation Classification Applied:**

Class G Grassland

**Vegetation Types Present:**

Open tussock G-23

Open herbfield G-27

**Description/Justification:**

Regrowth in cleared areas along Fairway Drive.



Photo ID: 3a



Photo ID: 3b



Photo ID:3c

**VEGETATION AREA 4**

**AS 3959:2018 Vegetation Classification Applied:**

Class B Woodland

**Vegetation Types Present:**

Woodland B-05

**Description/Justification:**

Eucalypts to 15 metres high, unmanaged grass understorey, occasional shrub or scrub.

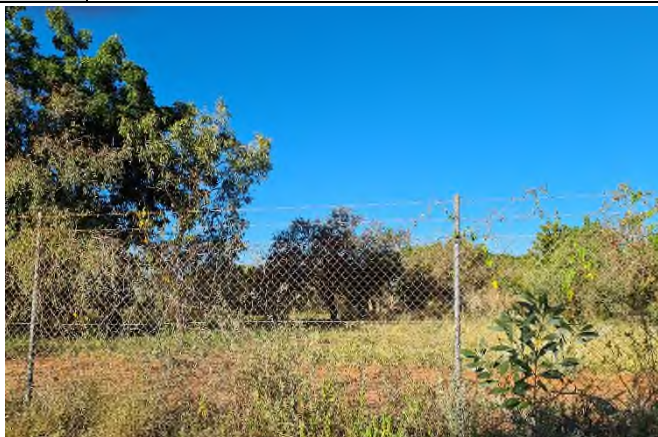


Photo ID: 4a

**VEGETATION AREA 5**

**AS 3959:2018 Vegetation Classification Applied:**

Class D Scrub

**Vegetation Types Present:**

Open scrub D-14

**Description/Justification:**

Open scrub 4 to 6 meters high, occasional shrubs and small trees, grass understorey, recently burnt in areas.



Photo ID: 5a



Photo ID: 5b

**VEGETATION AREA 5**

**AS 3959:2018 Vegetation Classification Applied:**

Class D Scrub

**Vegetation Types Present:**

Open scrub D-14

**Description/Justification:**

Open scrub 4 to 6 meters high, occasional shrubs and small trees, grass understorey, recently burnt in areas.



Photo ID: 5c

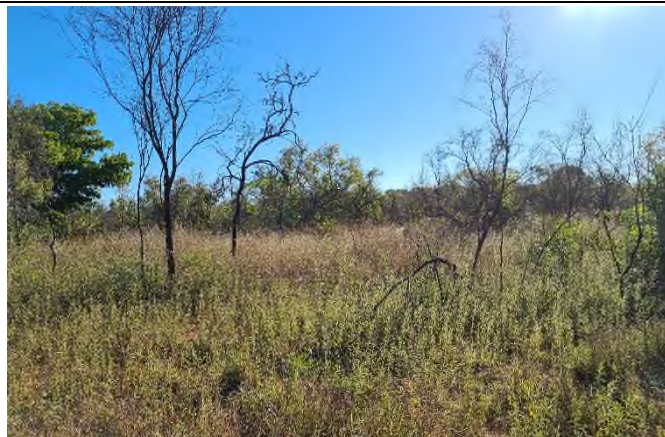




Photo ID: 5d



Photo ID: 5e



Photo ID: 5f

| VEGETATION AREA   |   |
|---|---|
| <b>AS 3959:2018 Vegetation Classification Applied:</b>                            | Excluded as per Section 2.2.3.2 (f) Low Threat Vegetation                             |
| <b>Vegetation Types Present:</b>  | Vegetation managed to a low bushfire threat state.                                    |
| <b>Description/Justification:</b>   | Managed residential gardens and street verges, managed paddocks in horse riding club. |
|  |     |
| Photo ID: 6a  | Photo ID: 6b  |

| Vegetation Area | Vegetation Class | Vegetation Type | Effective Slope |
|-----------------|------------------|-----------------|-----------------|
| 1               | D                | Scrub           | 0               |
| 2               | D                | Scrub           | 0               |
| 3               | G                | Grassland       | 0               |
| 4               | B                | Woodland        | 0               |
| 5               | D                | Scrub           | 0               |

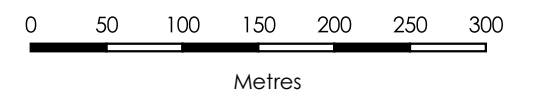
Figure 3.1

### Broome North LDP2 Existing Topography & Classified Vegetation Map

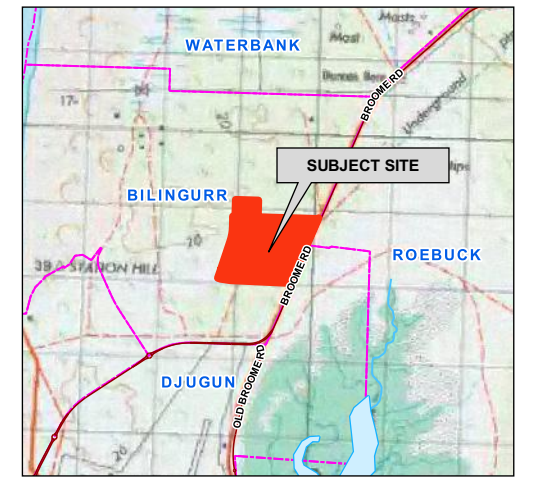
Lot 360 on Plan 67926, Lot 365 on Plan 74365  
Lot 2605 on Plan 189036, Lot 2606 on Plan  
76023, Pt Lot 9007 on Plan 74189  
Broome Road and Fairway Drive  
BILINGURR  
SHIRE OF BROOME

----- LEGEND -----

- Photos
- Subject Site LDP2
- 150m Assessment Area
- Cadastre
- Classified Vegetation**
- Class B - Woodland
- Class D - Scrub
- Class G - Grassland
- Exclusion 2.2.3.2



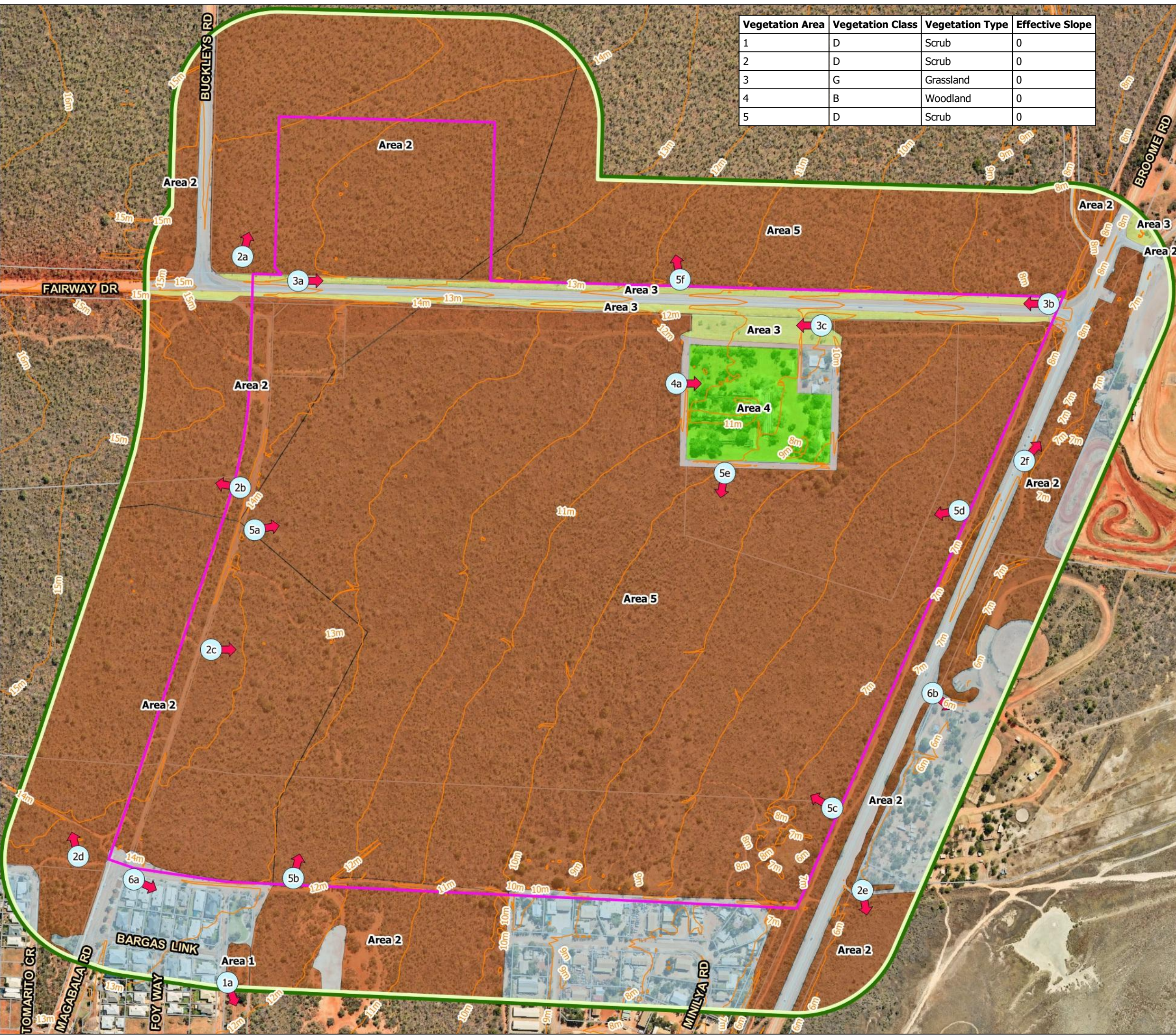
----- LOCALITY -----



AERIAL IMAGERY: Landgate/SLIP



Coordinate System: GDA 1994 MGA Zone 50  
Projection: Universal Transverse Mercator Units: Metre  
Map by: Ian Macleod 11-02-2021  
SCALE (A3): 1 : 5000



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.



### 3.1.3 Vegetation Separation Distance

The vegetation separation distance is the horizontal distance measured from the relevant parts of an existing building or a future building's planned location (within a lot), to the determined edge of an area of classified vegetation.

This separation distance applied to determining a Bushfire Attack Level (BAL) can be either:

- The measured distance – for which the location of the building relative to the edge of classified vegetation must be known. This will result in single determined BAL that will apply to a building. (The measured distance is a required calculation input); or
- A calculated minimum and maximum distance (range) that will correspond to each individual BAL. The calculated distances provide an indicative (or achievable) BAL for which the determined BAL will be dependent on the known location of the building relative to the edge of classified vegetation.

The calculated range of distances corresponding to each BAL can be presented in different formats (tables or a BAL contour map), dependent on the form of information that is most appropriate for the proposed development/use. These distance ranges corresponding to BAL(s) will be presented in Section 3.2: 'Assessment Output'.

For the proposed development/use, the applicable vegetation separation distances will be presented within the Bushfire Management Plan in this location:

In Section 3.2 'Assessment Output' as a table containing the calculated ranges of distance corresponding to each BAL and illustrated as a BAL Contour Map.

## 3.2 Assessment Output

### UNDERSTANDING THE RESULTS OF THE BUSHFIRE IMPACT ASSESSMENT

#### Bushfire Attack Levels (BALs) – Their Application in the Building Environment is Different to the Planning Environment

In the building environment, a **determined BAL** is required for the proposed construction at the building application stage. This is to inform approval considerations and establish the bushfire construction standards that are to apply. An indicative BAL is not acceptable for a building application.

In the planning environment, through the application of SPP 3.7 and associated Guidelines, the deemed to satisfy requirement for a proposed 'development site' or sites (defined by the LPS Amendment Regulations 2015 as "that part of a lot on which a building that is the subject of development stands or is to be constructed"), is that a BAL-29 or lower rating can be achieved once all works associated with the proposal are completed. For planning approval purposes, an **indicative BAL** can provide the required information.

#### Determined Bushfire Attack Level

A determined BAL is to apply to an existing building or the 'development site' on which the building is to be constructed and not to a lot or building envelope. Its purpose is to state the potential radiant heat flux to which the building will be exposed, thereby determining the construction standard to be applied.

A determined BAL cannot be given for a future building whose design and position on the lot are unknown or the vegetation separation distance has not been established. It is not until these variables have been fixed that a determined BAL can be stated, and a BAL Certificate can be issued.

The one exception is when a building **of any dimension** can be **positioned anywhere** on a proposed lot (within R-Code building setbacks) or within a defined building envelope, and always remain subject to the same BAL, regardless of the retention of any existing classified vegetation either onsite or offsite.

#### Indicative Bushfire Attack Level

If a BAL is not able to achieve 'determined' status it will be an indicative BAL. It indicates the BAL that can be achieved by the proposed development/use. However, it is conditional upon an assessment variable(s) being confirmed at a later stage (e.g. the building location is established/changed, or vegetation is modified/removed to establish the vegetation separation distance).

A BAL certificate cannot be issued for an indicative BAL – unless that BAL cannot vary (refer to 'Determined BAL' above).

In table form, a single or a range of indicative BAL(s) may be presented. If a single indicative BAL is stated for a defined area (i.e. the lot or building envelope), this will be the highest indicative BAL impacting the defined area.

In BAL contour map form (refer to Section 3.2.1), the illustrated BAL contours visually identify areas of land for which if any part of an existing or proposed building is located on that land and within the BAL contours, then the highest BAL affecting that building (or part of the land on which the building will be constructed), will be the indicative BAL that is to apply.

The BAL can only become a determined BAL once the actual location of that building on the land is known and/or the required minimum vegetation separation distance corresponding to the relevant BAL contour is established (refer to Table 3.3).

## 3.2.1 Bushfire Attack Level Results - BAL Contour Map Format

### **INTERPRETATION OF THE BUSHFIRE ATTACK LEVEL (BAL) CONTOUR MAP**

The contour map will present different coloured contour intervals extending from the areas of classified bushfire prone vegetation. These represent the different bushfire attack levels that will exist at varying distances away from the classified vegetation in the event of a bushfire in that vegetation.

The areas of classified vegetation to be considered in developing the BAL contours, are those that will remain as the intended end state of the subject development once earthworks, clearing and/or landscaping and re-vegetation have been completed (or each stage completed).

Each bushfire attack level corresponds to a set range of radiant heat flux that is generated by a bushfire. That range is defined by the AS 3959:2018 BAL determination methodology.

The width of each shaded BAL contour is a diagrammatic representation of the separation distances from the classified vegetation that correspond to each BAL for each separately identified area of classified vegetation. They have been calculated by the application of the unique site variables including vegetation types and structure, ground slope and applied fire weather.

(Refer to Section 3.2 'Understanding the Results of the Bushfire Impact Assessment' for the explanation of how BAL(s) for buildings will be assessed from the BAL Contour Map).

## Construction of the BAL Contours

### **VEGETATION AREAS APPLIED TO THE DEVELOPMENT OF THE BAL CONTOUR MAP**

The following conditions are adopted in crating the BAL Contour Map for the subject site.

1. All residential lots and their abutting road verges will be managed to a low bushfire threat state.
2. The proposed primary school and high school lots and their abutting road verges, with the exception of the southern verge where the drainage swale runs alongside, will be managed to a low bushfire threat state.
3. The proposed Horizon Power lot will have a 3 metre wide firebreak installed directly inside the lot boundaries and the abutting road verges will be managed to a low bushfire threat state. The remainder of the lot will be assessed as being vegetated.
4. For the Environmental Cultural Corridor lot an area extending 6 metres into the lot from the north will be managed to a low bushfire threat state.
5. It is expected that the POS to the north of Fairway Drive will be utilised for sporting and playing fields and will be assessed as being managed to a low bushfire threat state.
6. Verges around Neighbourhood and Local Parks and alongside Multiple Use Corridors will be managed to a low bushfire state for the widths stated in the Gujarri estate, Broome North Structure Plan 2 Landscape Report (November 2017 – Revision 4) UDLA. Where there are varying dimensions, the smallest dimension will be adopted (i.e worst case scenario).

## VEGETATION SEPARATION DISTANCES APPLIED

The distances that have been applied to illustrating the width of each BAL contour shown in Figures 3.2 and 3.3 are stated in Table 3.3. These correspond to each Bushfire Attack Level and are specific to the proposed development site.

Table 3.3: Vegetation separation distances applied to construct the BAL contours.

| BAL CONTOUR MAP – APPLIED VEGETATION SEPARATION DISTANCES   |                           |                                |   |        |        |        |         |         |
|---|---------------------------|--------------------------------|---|--------|--------|--------|---------|---------|
| Derived from the Application of Method 1 BAL Determination Methodology (AS 3959:2018 Section 2, Table 2.5) <sup>1</sup> |                           |                                |   |        |        |        |         |         |
| Vegetation Area   | Vegetation Classification | Effective Slope (degree range) | BAL and Corresponding Separation Distance (m) |        |        |        |         |         |
|   |                           |                                | BAL-FZ  | BAL-40 | BAL-29 | BAL-19 | BAL12.5 | BAL-LOW |
| 1   | Class D Scrub             | upslope or flat                | <10   | 10-<13 | 13-<19 | 19-<27 | 27-<100 | >100    |
| 2   | Class D Scrub             | upslope or flat                | <10   | 10-<13 | 13-<19 | 19-<27 | 27-<100 | >100    |
| 3   | Class G Grassland         | upslope or flat                | <6  | 6-<8   | 8-<12  | 12-<17 | 17-<50  | >50     |
| 5   | Class D Scrub             | upslope or flat                | <10   | 10-<13 | 13-<19 | 19-<27 | 27-<100 | >100    |

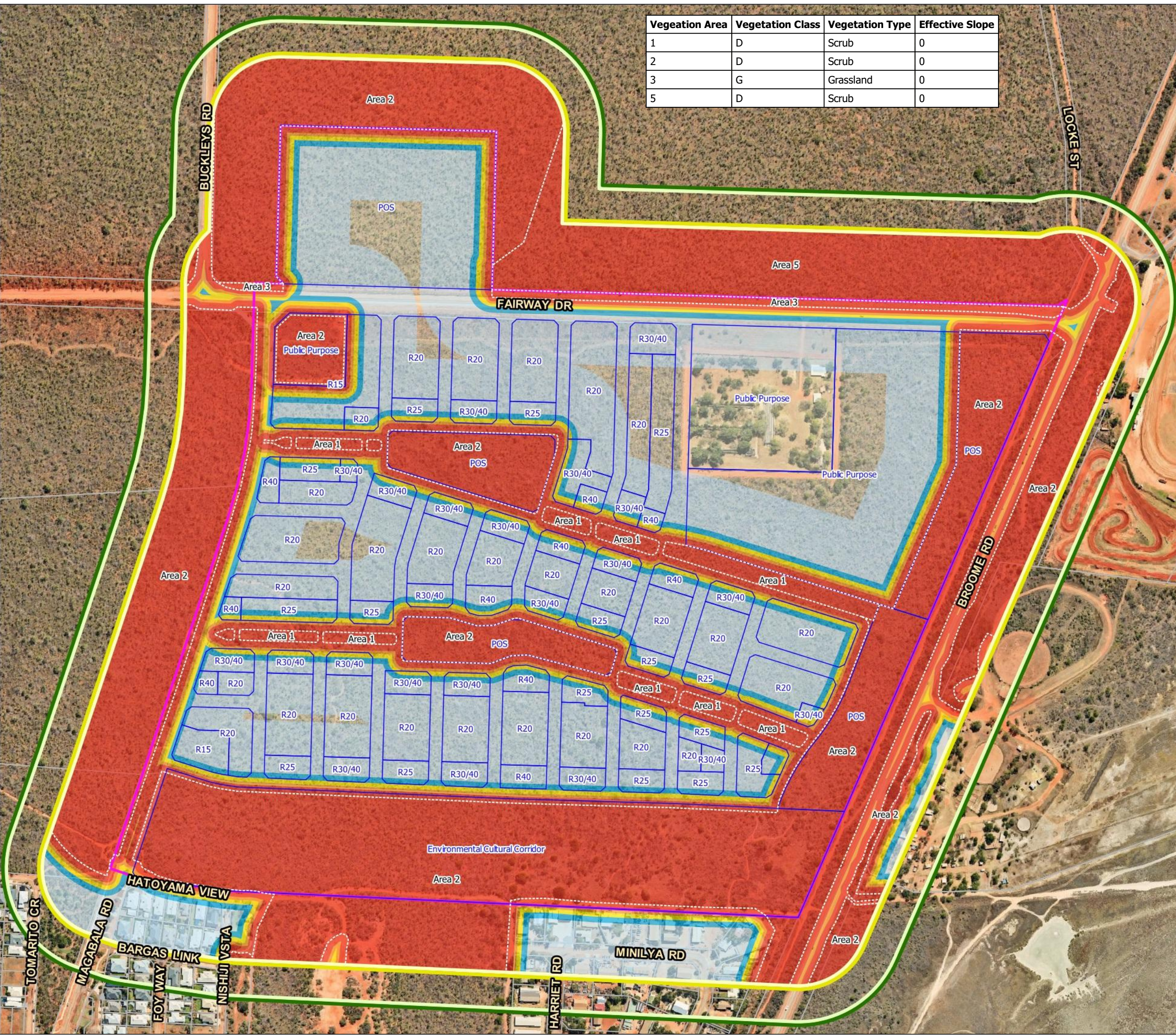
Note<sup>1</sup> All the assessment inputs applied are presented in Section 3.1.  
Vegetation Area 4 is within the school site lots and will be managed to a low bushfire threat state.

| Vegetation Area | Vegetation Class | Vegetation Type | Effective Slope |
|-----------------|------------------|-----------------|-----------------|
| 1               | D                | Scrub           | 0               |
| 2               | D                | Scrub           | 0               |
| 3               | G                | Grassland       | 0               |
| 5               | D                | Scrub           | 0               |

Figure 3.2

### Broome North LDP2 BAL Contour Map

Lot 360 on Plan 67926, Lot 365 on Plan 74365  
 Lot 2605 on Plan 189036, Lot 2606 on Plan 76023, Pt Lot 9007 on Plan 74189  
 Broome Road and Fairway Drive  
 BILINGURR  
 SHIRE OF BROOME

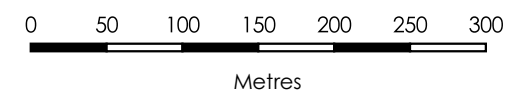


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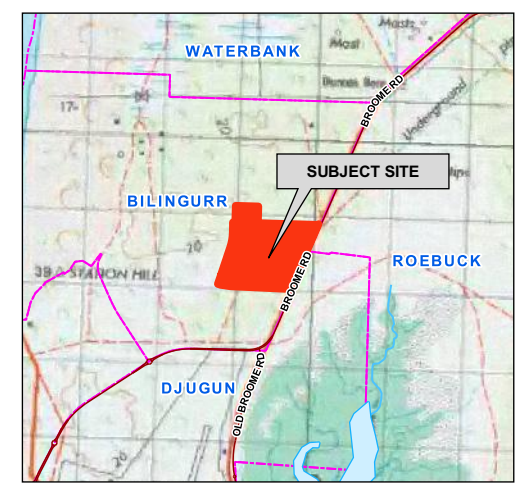
- Lot Detail LDP2
- Subject Site LDP2
- 100m BAL Buffer
- 150m Assessment Area
- Cadastre
- Vegetation Outline

**Bushfire Attack Levels**

- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-LOW



----- LOCALITY -----



AERIAL IMAGERY: Landgate/SLIP



Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Universal Transverse Mercator Units: Metre  
 Map by: Ian Macleod 17-02-2021  
 SCALE (A3): 1 : 5000

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| Vegetation Area | Vegetation Class | Vegetation Type | Effective Slope |
|-----------------|------------------|-----------------|-----------------|
| 1               | D                | Scrub           | 0               |
| 2               | D                | Scrub           | 0               |
| 3               | G                | Grassland       | 0               |
| 5               | D                | Scrub           | 0               |

Figure 3.3

## Broome North LDP2 BAL Contour Map Enlargement

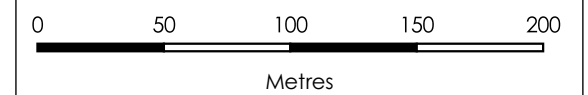
Lot 360 on Plan 67926, Lot 365 on Plan 74365  
 Lot 2605 on Plan 189036, Lot 2606 on Plan 76023, Pt Lot 9007 on Plan 74189  
 Broome Road and Fairway Drive  
 BILINGURR  
 SHIRE OF BROOME

----- **LEGEND** -----

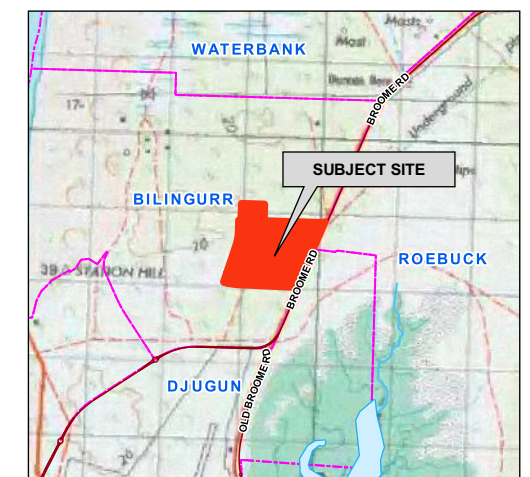
- Lot Detail LDP2
- Subject Site LDP2
- 100m BAL Buffer
- 150m Assessment Area
- Cadastre
- Vegetation Outline

**Bushfire Attack Levels**

- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-LOW



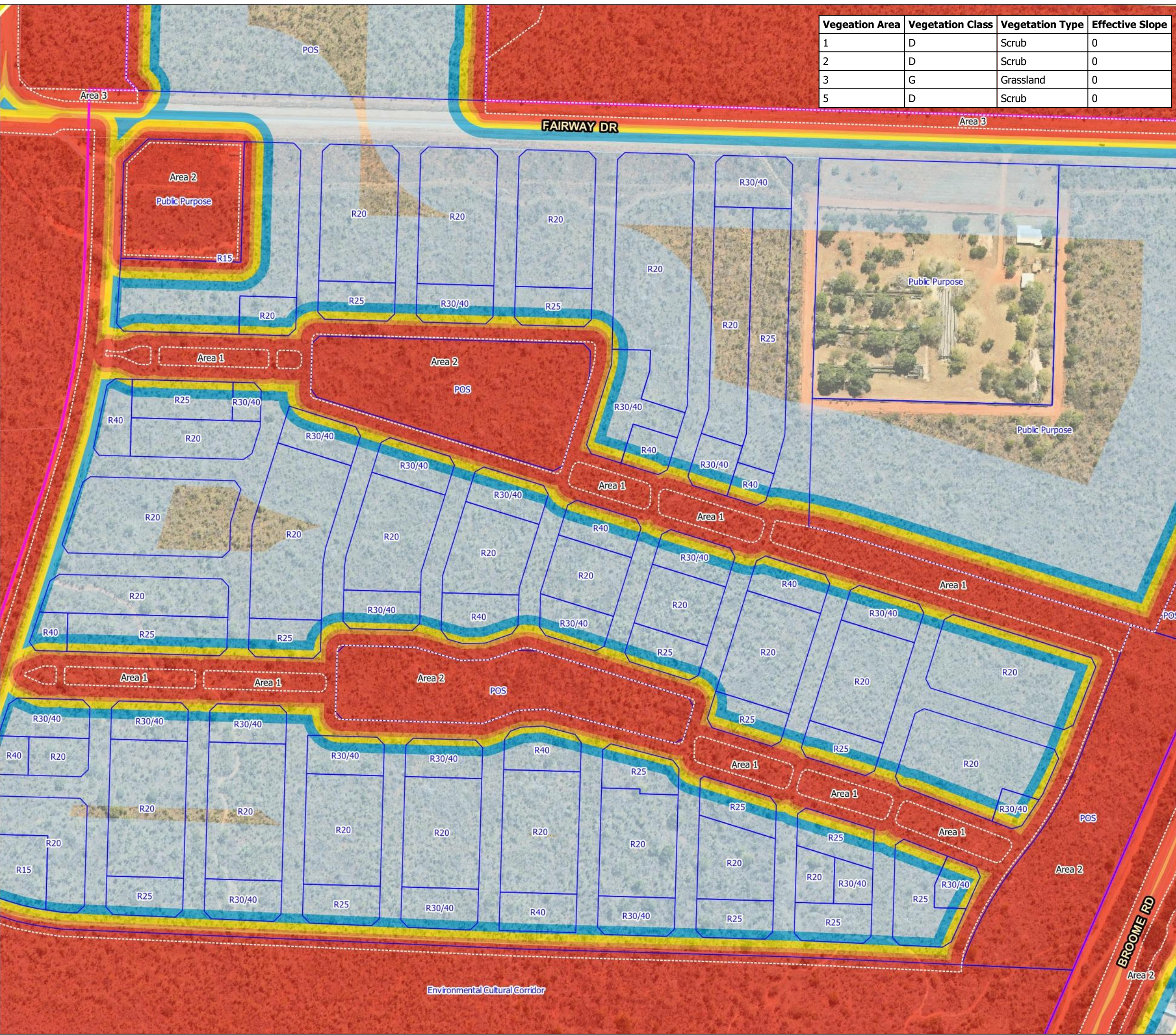
----- **LOCALITY** -----



AERIAL IMAGERY: Landgate/SLIP



Coordinate System: GDA 1994 MGA Zone 50  
 Projection: Universal Transverse Mercator Units: Metre  
 Map by: Ian Macleod 17-02-2021  
 SCALE (A3): 1 : 3000



## 3.2.2 Bushfire Attack Level Results - Derived from The BAL Contour Map

### Public Purpose Lot – Horizon Power

This lot has an area of approximately 9800m<sup>2</sup>. It is expected that the landowner will clear or manage enough vegetation on the lot to achieve the required bushfire attack levels for future buildings. Once LDP2 is fully developed this site will abut road reserves and residential lots managed to a low bushfire threat state.

However, portions of the lot may not be managed to a low bushfire threat state. This BAL Contour Map displays the resultant bushfire attack levels on neighbouring lots when the public purpose lot is unmanaged apart from the required 3 metre firebreak which is located directly inside the lot boundaries.

### Public Purpose Lots – Primary School and High School

It is envisaged that these lots, once developed, will comprise multiple buildings, parking areas and playing and sporting fields, and the lots will be managed and maintained to a low bushfire threat state.

### Residential Lots

On the completion of the development the majority of the proposed residential lots will have a BAL rating of BAL-29 or lower.

Retained vegetation within the multiple use corridors affects the BAL rating of nearby lots. Areas with BAL ratings of BAL-40 and/or BAL-FZ extend into the fronts of these future lots. However, these areas will be contained within the front R-Code set back for the lots and this is compliant with the requirements of the Guidelines for Planning in Bushfire Prone Areas and the DPLH Position Statement: "Planning in bushfire prone area - Demonstrating Element 1: Location and Element 2: Siting and design".

BAL ratings of BAL-40 and BAL-FZ extend from the Horizon Power lot into the rear of the neighbouring residential lots by a distance of 10 metres. These adjoining lots have purposefully been designed to have a greater depth to accommodate for this and to allow a reasonably sized dwelling to be located in an area on the lots, which will be subject to a BAL rating of BAL-29 or less. It is noted that the standard lot depth for an R20 lot in this development is 32 metres and the minimum lot depth for the R15 lots abutting the Horizon Power site is 47 metres. An additional 15 metres in depth providing a greater usable space for construction of a dwelling in an area of BAL-29 or less.

A Restrictive Covenant is to be placed on the lots abutting the Horizon Power public purpose lot, as per the Model Subdivision Conditions Schedule (Code F3), stating that no habitable buildings are to be built within areas identified as BAL-40 or BAL-FZ.

This complies with the Acceptable Solutions (A2.1) of Element 2 of the Bushfire Protection Criteria as stated in the Guidelines for Planning in Bushfire Prone Areas. However, as per the DPLH Position Statement: "Planning in bushfire prone area - Demonstrating Element 1: Location and Element 2: Siting and design" approval for these lots, once the final layout is known, will be at the discretion of the decision maker.

### Staging

The BAL Contour Maps reflect the potential bushfire attack levels on future lots once the whole of the development is complete. Where the proposed development is to be staged each stage must comply with the requirements of the Guidelines for Planning in Bushfire Prone Areas and this Bushfire Management Plan. This may require the creation of roads or management of land or installation of water supply lines outside that particular stage to achieve compliance.

Note that staging of subdivisions can affect BAL ratings of lots, due to the proximity of classifiable vegetation that is to be cleared at a later date. This is particularly the case for areas rated as BAL-LOW where a 100 metre separation distance from classified vegetation is required to achieve that rating.

## 4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

In response to the Bushfire Management Plan requirements established by Appendix 5 of the Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 v1.3), the following statements are made to assist in the understanding of whether the proposal is likely to be able to comply with the bushfire protection criteria now or in subsequent planning stages.

| <b>Spatial Context - Broader Landscape Considerations</b>                           |  |
|---|--|
| Wider road network and access constraints   | <p>The subject site is bounded by the existing Broome Road to the east, the existing Fairway Drive to the north and the proposed extension of Magabala Road to the west. These roads provide multiple access/egress routes from the proposed development to different destinations.</p> <p>Roads within the development site will have multiple access points onto Fairway Drive and the future Magabala Road extension from where routes to different location are available.</p> <p>Broome Road is a controlled access road and there will be no road connections from Broome Road directly into the development site.</p> |
| Proximity of settlements and emergency services                                     | <p>The subject site will join with existing residential and light industrial developments to the south. The main Broome townsite is located south of the Broome International Airport at a distance of approximately 5 kilometres by road.</p> <p>The Broome Volunteer Fire and Rescue Service is the closest fire emergency service and is located approximately 6 kms by road from the subject site. The Broome Volunteer Bush Fire Brigade and Broome state Emergency Service are also located within the Broome Townsite.</p>  |
| Bushfire prone vegetation types and extent (including conserved vegetation)         | <p>Significant extents of bushfire prone vegetation exist across the broader landscape as retained native vegetation (generally endemic scrub species). Nearby, to the west, northwest and south, are developed or partly developed lots where bushfire prone vegetation has been removed or managed to some extent. To the east are areas of open grassland, shrubs and saline wetlands.</p>  |
| Topography and fire behaviour interactions.   | <p>Topography in and around the proposed development site is generally flat and will not impact on bushfire behaviour.</p>   |
| Potential for extreme fire behaviour and pyro convective events.                    | <p>Possible in large tracts of bushfire prone vegetation to the north of the subject site. These phenomena can influence the intensity, rate of growth and impact of bushfires. Although there are studies describing such behaviours and processes behind them, the understanding of the drivers of extreme fire behaviours (EFBs) and their occurrence is still limited.</p>   |
| <b>Environmental Considerations</b>   |  |
| Constraints to implementing required and/or additional bushfire protection measures | <p>Some existing vegetation within the development site is to be retained as a visual buffer or within drainage swales to prevent scouring.</p> <p>The Environmental Cultural Corridor at the south of the development will remain in its naturally vegetated state.</p>   |
| <b>Provision of Access Within the Subject Site</b>                                  |  |
| Potential constraints   | <p>No constraints to establishing the required access will exist.</p>  |
| <b>Potential Bushfire Impacts</b>   |  |
| Flame and radiant heat and ability to establish an APZ                              | <p>The proposed lot sizes and vegetation management requirements stated in this Bushfire Management Plan will allow a BAL-29 or lower dimensioned APZ to be established within each lot. This will prevent flame contact from the classified vegetation. Application of the assessed bushfire construction standard for buildings on each lot will mitigate the risks from radiant heat impact to what is considered an acceptable level.</p>  |



|   |   |
|---|---|
| Embers/firebrands, smoke and fire-driven wind   | These will be the major impacts to most of the proposed development site. The appropriate protection measures of building construction and strict management of APZs will mitigate the risk to what is considered an acceptable level.  |
| <b>Issues to be Considered at Subsequent Planning Stages (additional assessments/documents)</b> |   |
| Specific land uses to be addressed  | When developing the Horizon Power public purpose lot, consideration should be given to the effects of retained bushfire prone vegetation on abutting residential lots.  |
| Additional assessments  | <p>Once the lot layout is known, each lot is to be assessed with respect to SPP 3.7 and the Guidelines for Planning in Bushfire Prone Areas.</p> <p>Where the proposed development is staged each stage must comply with the requirements of the Guidelines for Planning in Bushfire Prone Areas and this Bushfire Management Plan. This may require the creation of roads or management of land or installation of water supply lines outside that particular stage to achieve compliance.</p> <p>Tourism Land Uses proposed within the development site must demonstrate that they comply with the DPLH Position Statement: Tourism Land Uses in Bushfire Prone Areas.</p> <p>High Risk or Vulnerable land uses must comply with the requirements of the Guidelines for Planning in Bushfire Prone Areas.</p> |

## 5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA ESTABLISHED BY THE GUIDELINES

For a subdivision application to be considered compliant with SPP 3.7, it must satisfy (achieve) the intent of each of the four elements of the bushfire protection criteria. These criteria are established by the *Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3*). Compliance can be achieved by either:

- Meeting all applicable acceptable solutions corresponding to each element (i.e. the minimum bushfire protection measures that are deemed to satisfy planning requirements); or
- Where an acceptable solution cannot be met, by developing a performance solution that satisfies the established requirements.

### 5.1 Local Government Variations to Apply

Local governments may add to or modify the acceptable solutions of the Bushfire Protection Criteria (BPC) and/or apply technical requirements that vary from those specified in the *Guidelines for Planning in Bushfire Prone Areas (WAPC)*. In such instances, this Proposal will be assessed against these variations and/or any specific local government technical requirements for emergency access and water. Refer to Appendices 2 and 3 for relevant technical requirements.

|   |            |
|---|------------|
| <p>Will local or regional variations (endorsed by WAPC / DFES) to the applicable acceptable solutions established by the <i>Guidelines</i> or the <i>Position Statement: Tourism land uses in bushfire prone areas WAPC October 2019</i>, apply to this Proposal?</p> | <p>N/A</p> |
|---|------------|

## 5.2 Summary of Assessment Against the Bushfire Protection Criteria

| SUMMARISED OUTCOME OF THE ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA  |   |   |   |  |  |
|--|---|---|---|--|--|
| Element of the Bushfire Protection Criteria  | Basis for the Proposal Achieving Full Compliance with SPP 3.7 |   |   | The Proposal Cannot Achieve Full Compliance with SPP 3.7                           |  |
|  | Acceptable Solutions Met                                      | Achieves the Intent of the Element  |   | Bushfire planning development type that may not require full compliance is applied | An improvement in bushfire performance compared to the existing development is detailed (refer Note 4) |
|  | All applicable solutions are fully met                        | All applicable solutions are not fully met.<br>A merit based assessment and/or a bushfire performance comparison of the proposals residual risk with that of the residual risk of the acceptable solution is conducted (refer Note 4) | A performance principle-based solution is applied |  |  |
| 1. Location  | ✓   |   |   | N/A  |  |
| 2. Siting and Design of Development  | ✓   |   |   |  |  |
| 3. Vehicular Access  | ✓   |   |   |  |  |
| 4. Water   | ✓   |   |   |  |  |
| <p>Note: The development proposal has been assessed:</p> <ol style="list-style-type: none"> <li>Against the requirements established in Appendix 4 of the <i>Guidelines for Planning in Bushfire Prone Areas, WAPC 2017 v1.3 (Guidelines)</i>. The Guidelines are found at <a href="https://www.planning.wa.gov.au/8194.aspx">https://www.planning.wa.gov.au/8194.aspx</a>; and</li> <li>Applying the interpretation guidance provided in <i>Position Statement: Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design (WAPC Nov 2019)</i>.</li> <li>Applying any endorsed variations to the Guideline's acceptable solutions and associated technical requirements that have been established by the local government. If known and applicable these have been stated in Section 5.1 with the detail included as an appendix if required by the local government.</li> <li>When non-compliant with SPP 3.7 and when appropriate, by utilising additional compliance pathways that include the application of merit based assessment and comparative bushfire performance. The validity of this approach is derived from relevant decisions made by the responsible authorities (refer Appendix 2).</li> </ol> |   |   |   |  |  |

## 5.3 Assessment Detail

| Element 1: Location  |   |
|--|---|
| <p><b>Intent:</b> To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.</p>   |   |
| <p><b>Compliance:</b> How the proposed development achieves the intent of Element 1:</p>   | <p>By fully meeting all applicable acceptable solutions established by the bushfire protection criteria (Guidelines v1.3 WAPC 2017)</p> |
| <p><b>ASSESSMENT (COMPLIANCE) STATEMENTS</b></p>   |   |
| <p>For each applicable acceptable solution, the following statements present the results of the assessment of the proposed development/use against the requirements established by the <i>Guidelines (WAPC 2017 v1.3)</i> and apply the interpretation guidance established by the <i>Position Statement: Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design (WAPC Nov 2019)</i>.</p>   |   |
| <p><b>Acceptable Solution: A1.1: Development Location</b></p>  |   |
| <p><b>ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES</b></p>  |   |
| <p>The proposed development will provide an area of land within each lot that can be considered suitable for development, as BAL-40 or BAL-FZ construction standards will not be required to be applied. This meets the requirements established by Acceptable Solution A1.1 and its associated explanatory note.</p>  |   |
| <p><b>ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE POSITION STATEMENT</b></p>  |   |
| <p>The position statement establishes that:</p> <ul style="list-style-type: none"> <li>• The source of risk (the hazard) to be considered in Element 1 is the “level of bushfire exposure” from the type and extent of bushfire prone vegetation and the topography of the land on which it exists; and</li> <li>• “Consideration should be given to the site context” which includes the land both “within and adjoining the subject site”. The “hazards remaining within the site should not be considered in isolation of the hazards adjoining the site, as the potential impact of a bushfire will be dependent on the wider risk context.”</li> </ul> <p>The position statement also recognises:</p> <ul style="list-style-type: none"> <li>• That the proposed development site and its surrounding land may be part of an area “identified for development or intensification of land use prior to the release of SPP 3.7”; consequently</li> <li>• Consideration by decision-makers “should also be given to improving bushfire management of the site and surrounding area, thereby reducing the vulnerability of people property and infrastructure to bushfire”; and</li> <li>• The application of mitigation measures to lessen the risk to the broader area would include improvements to the local road network (including emergency access ways), improvements/additions to firefighting water supply and increasing separation distance from the hazard.</li> </ul> |   |

## Element 1: Location

### **The Hazard Within the Subject Site**

The existing lot is mostly vegetated with native vegetation classified as Class D Scrub. Areas of Class B Woodland and Class G Grassland exist in the northern portion of the development. The greater portion of this vegetation will be removed during development. However, an Environmental Cultural Corridor to the south of the development and the Public Open Space along the eastern boundary will retain largely all of their current natural vegetation.

Additionally, there will be 2 multiple use corridors, including drainage swales, running east-west through the development which will also retain native vegetation.

The topography within and around the proposed development site is generally flat and a bushfire travelling through this vegetation will have no increased intensity or rate of spread.

The ability to establish BAL-29 or lower dimensioned APZs throughout the site removes the threat of greater levels of radiant heat or flame contact upon future dwellings or other buildings.

Ember attack is a remaining threat from vegetation within and external to the subject site. This threat will be mitigated by the application of appropriate building design, bushfire construction standards and the ongoing maintenance of the APZs to ensure the buildings will not be impacted by consequential fire from combustible materials used, stored or accumulated within the APZ.

### **The Hazard Adjoining the Subject Site**

- Significantly intense bushfire behaviour is possible in the large area of native vegetation to the north of the site and currently undeveloped land to the west.
- To the east are areas of open grassland, shrubs and saline wetlands.
- To the south beyond the Environmental Cultural Corridor are developed and managed residential and light industrial lots.

The primary bushfire threat to the development site is from the north and west. Land to the east is able to support a bushfire however bushfire prone vegetation is partially broken by the saline wetlands and mangroves of the Dampier Creek. A large scale bushfire would not approach the proposed development from the south due to existing developed residential and industrial areas.

### **The Potential to Reduce Bushfire Risk to Existing Land Use**

When considered in the broader context of existing land use within the surrounding area, the proposed subdivision can potentially contribute to reducing the level of risk from bushfire to some existing landowners.

This can be achieved in various ways and the following assessment points are made for the proposed subdivision:

- Development of LDP 2 will greatly reduce the amount of available bushfire prone vegetation that could affect existing residential lots to the south of the development site during a local bushfire event.
- There is potential to improve vehicular access for the surrounding area as part of the proposed development.

## Element 2: Siting and Design of Development

**Intent:** To ensure that the siting and design of development (note: not building/construction design) minimises the level of bushfire impact.

**Compliance:** How the proposed development achieves the intent of Element 2:

By fully meeting all applicable acceptable solutions established by the bushfire protection criteria (Guidelines v1.3 WAPC 2017)

### ASSESSMENT (COMPLIANCE) STATEMENTS

For each applicable acceptable solution, the following statements present the results of the assessment of the proposed development/use against the requirements established by the *Guidelines (WAPC 2017 v1.3)* and apply the interpretation guidance established by the *Position Statement: Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design (WAPC Nov 2019)*.

#### Acceptable Solution: A2.1: Asset Protection Zone

#### THE APZ - DEVELOPMENT SITING AND DESIGN PLANNING REQUIREMENTS

The necessary outcome of bushfire planning for development siting and design, is to ensure that a building can be located within the developable portion of any lot (i.e. outside those parts of the lot that form the required R-Code building setbacks, or any other excluded area), and be subject to potential radiant heat from a bushfire not exceeding 29 kW/m<sup>2</sup> (i.e. a maximum BAL of BAL-29).

This will be achieved when the size of the "low fuel area immediately surrounding a building", the asset protection zone (APZ), is large enough. This requires a certain separation distance to exist between the building and areas of classified vegetation. These are the BAL-29 APZ dimensions and they will vary dependent on site specific parameters.

The APZ should be contained solely within the boundaries of each lot, except in instances where the neighbouring lot(s) or adjacent public land will be managed in a low-fuel state on an ongoing basis, in perpetuity.

Where possible, planning for siting and design should incorporate elements that include non-vegetated areas (e.g. roads/parking/drainage) and/or formally managed areas of vegetation (public open space/recreation areas/services installed in a common section of land), as either part of the required APZ dimensions or to additionally increase separation distances to provide greater protection. These elements create robust and easier managed asset protection zones.

#### THE ASSESSMENT

Future buildings on the lot(s) of the proposed development can be surrounded by an APZ that will ensure the potential radiant heat impact of a bushfire does not exceed 29 kW/m<sup>2</sup> (BAL-29). The required APZ specifications of width, location and management can be achieved.

- Portions of some residential lots within the development site are subject to radiant heat levels corresponding to BAL-40 and BAL-FZ ratings (See Figures 3.2 and 3.3). Building cannot occur within these areas as they fall within the R-Code setback distances applicable to the development site ... or ... building will be restricted on the site by the application of a restrictive covenant (129BA Transfer of Land Act 189) as per the WAPC Model Subdivision Conditions Schedule (April 2020) Code F3.
- Retained vegetation within the multiple use corridors affects the BAL rating of nearby lots. Areas with BAL ratings of BAL-40 and/or BAL-FZ extend into the fronts of these future lots. However, these areas will be contained within the front R-Code set back for the lots.
- BAL ratings of BAL-40 and BAL-FZ extend from the Horizon Power lot into the rear of the neighbouring residential lots by a distance of 10 metres. These adjoining lots have purposefully been designed to have a greater depth to accommodate this and to allow a reasonably sized dwelling to be located in an area on the lots which will be subject to a BAL rating or BAL-29 or less. It is noted that the standard lot depth for an R20 lot in this development is 32 metres and the minimum lot depth for the R15 lots abutting the Horizon Power site is 47 metres. An additional 15 metres in depth providing a greater usable space for construction of a dwelling in an area of BAL-29 or less than is available on the R20 lots. A Restrictive Covenant is to be placed

## Element 2: Siting and Design of Development

on these lots as per the Model Subdivision Conditions Schedule (Code F3) stating that no habitable buildings are to be built within areas identified as BAL-40 or BAL-FZ.

This complies with the Acceptable Solutions (A2.1) of Element 2 of the Bushfire Protection Criteria as stated in the Guidelines for Planning in Bushfire Prone Areas. However, as per the DPLH Position Statement: "Planning in bushfire prone area - Demonstrating Element 1: Location and Element 2: Siting and design" approval for these lots, once the final layout is known, will be at the discretion of the decision maker.

**APZ Width:** The required APZ dimensions to ensure buildings are subject to a maximum BAL of BAL-29 (measured from any external wall or supporting post or column to the edge of the classified vegetation), has been determined in Section 3.2 of this BMP and are:

| BAL-29 APZ Dimensions     |                               |                   |
|---------------------------|-------------------------------|-------------------|
| Applicable to All Lot(s): | Building to Vegetation Area 1 | Minimum 13 metres |
|                           | Building to Vegetation Area 2 | Minimum 13 metres |
|                           | Building to Vegetation Area 3 | Minimum 8 metres  |
|                           | Building to Vegetation Area 5 | Minimum 13 metres |

**APZ Location:** For the Public Purpose lots, asset protection zones of the widths stated above can be contained solely within the boundaries of each lot. Onsite vegetation will be required to be modified/removed, the authority for which may need to be received from the local government.

For residential lots the APZs can be partially established within each lots boundaries. The balance of the APZ's required dimensions will be contributed by an area on adjoining land that is either non-vegetated or assessed as being managed in a low-fuel state and which can most reasonably be expected to be managed this way in perpetuity (e.g. managed abutting lots, managed road reserves, managed public open space).

**APZ Management:** All vegetation that will require modification/removal and future management is onsite and therefore under the control of the landowner.

Retained vegetation that is required to be managed to a low bushfire threat state will be managed in accordance with the technical requirements established by the Schedule 1: 'Standards for Asset Protection Zones (Guidelines)'. The APZ specifications are also detailed in Appendix. The Shire of Broome may have additional requirements established by their Fire Break and Fuel Hazard Reduction Notice.

For this proposed development it is expected that the following conditions will apply in perpetuity.

1. All residential lots and their abutting road verges will be managed to a low bushfire threat state.
2. The proposed primary school and high school lots and their abutting road verges, with the exception of the southern verge where the drainage swale runs alongside, will be managed to a low bushfire threat state.
3. The proposed Horizon Power lot will have a 3 metre wide firebreak installed directly inside the lot boundaries and the abutting road verges will be managed to a low bushfire threat state.
4. For the Environmental Cultural Corridor lot an area extending 6 metres into the lot from the north will be managed to a low bushfire threat state.
5. It is expected that the POS to the north of Fairway Drive will be utilised for sporting and playing fields and will be managed to a low bushfire threat state.
6. Verges around Neighbourhood and Local Parks and alongside Multiple Use Corridors will be managed to a low bushfire state for the widths stated in the Gujarri estate, Broome North Structure Plan 2 Landscape Report (November 2017 – Revision 4) UDLA.

## Element 2: Siting and Design of Development

### THE APZ – REQUIRED DIMENSIONS TO SATISFY FUTURE BUILDING (AND ONGOING MANAGEMENT)

It is important for the landowner to be aware that the APZ dimensions that will be required to be physically established and maintained on each lot surrounding relevant future buildings, may be different to those stated above for the BAL-29 APZ - which is the minimum dimension a planning proposal needs to show can be established to comply with SPP 3.7.

The actual APZ dimensions to be physically established and maintained, will be based on which of the following establishes the larger APZ dimension:

- The dimensions corresponding to the determined BAL of a building (refer to Section 3.2 for explanation of the 'planning' versus 'building' requirements and 'indicative' versus 'determined' BAL); or
- The APZ dimensions established by the local government's Firebreak Notice.

Possible BAL ratings for future building range from BAL-LOW to BAL-29. Tables below show the minimum required APZ dimensions to achieve a particular BAL rating (Note: BAL-29 APZ dimensions shown in Table above).

| BAL-19 APZ Dimensions                                |                               |                   |
|--|-------------------------------|-------------------|
| Applicable to all Lots with Determined BAL of BAL-19 | Building to Vegetation Area 1 | Minimum 19 metres |
|  | Building to Vegetation Area 2 | Minimum 19 metres |
|  | Building to Vegetation Area 3 | Minimum 12 metres |
|  | Building to Vegetation Area 5 | Minimum 19 metres |

| BAL-12.5 APZ Dimensions                              |                               |                   |
|--|-------------------------------|-------------------|
| Applicable to all Lots with Determined BAL of BAL-19 | Building to Vegetation Area 1 | Minimum 27 metres |
|  | Building to Vegetation Area 2 | Minimum 27 metres |
|  | Building to Vegetation Area 3 | Minimum 17 metres |
|  | Building to Vegetation Area 5 | Minimum 27 metres |

| BAL-LOW APZ Dimensions                               |                               |                    |
|--|-------------------------------|--------------------|
| Applicable to all Lots with Determined BAL of BAL-19 | Building to Vegetation Area 1 | Minimum 100 metres |
|  | Building to Vegetation Area 2 | Minimum 100 metres |
|  | Building to Vegetation Area 3 | Minimum 50 metres  |
|  | Building to Vegetation Area 5 | Minimum 100 metres |

**Note that all residential lots are to be maintained to a low bushfire threat state as per the Shire of Broome Fire Break & Fuel Hazard Reduction Notice.**

#### Consideration/Implementation of Proposed Landscape Plans

Any future landscape plans should be designed so that the vegetation within the landscaped areas does not increase the indicative BAL rating, as shown in Figures 3.2 and 3.3, on any neighbouring or nearby lots.



## Element 2: Siting and Design of Development

### **Consideration/Implementation of Staged Development**

Where the proposed development is staged each stage must comply with the requirements of the Guidelines for Planning in Bushfire Prone Areas and this Bushfire Management Plan. This may require the creation of roads or management of land or installation of water supply lines outside that particular stage to achieve compliance.

Vegetation on the balance lot(s) may adversely affect the indicative BAL ratings of lots being developed. This should be assessed prior to the sale of the lots and the required vegetation on the balance lot managed and maintained until developed, or the indicative BAL ratings for the affected lots amended.

### **Future Stage Planning Application – Additional Information Required**

Tourism Land Uses proposed within the development site must demonstrate that they comply with the DPLH Position Statement: Tourism Land Uses in Bushfire Prone Areas.

High Risk or Vulnerable land uses must comply with the requirements of the Guidelines for Planning in Bushfire Prone Areas.

## Element 3: Vehicular Access

**Intent:** To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

**Compliance:** How the proposed development achieves the intent of Element 3:

By fully meeting all applicable acceptable solutions established by the bushfire protection criteria (Guidelines v1.3 WAPC 2017)

### ASSESSMENT (COMPLIANCE) STATEMENTS

For each applicable acceptable solution, the following statements present the results of the assessment of the proposed development/use against the requirements established by the *Guidelines* (WAPC 2017 v1.3).

#### **Acceptable Solution: A3.1: Two Access Routes**

The proposed roads provide safe access and egress in two different directions to two different destinations for all future lots. As sealed public roads, they will be available to all residents and the public at all times and under all weather conditions.

#### **Acceptable Solution: A3.2: Public Road**

The construction technical requirements established by the Guidelines and/or the local government will be complied with.

#### **Acceptable Solution: A3.3: Cul-de-sacs (including a dead-end road)**

Where a cul-de-sac or dead end road is created as part of a staged subdivision the construction technical requirements established by the Guidelines and/or the local government will be complied with. These requirements are set out in Appendix 2.

#### **Acceptable Solution: A3.4: Battle-axe**

Where battle-axe lots are proposed, justification must be provided that there is no alternative to the designed layout. The construction technical requirements established by the Guidelines and/or the local government can and will be complied with. These requirements are set out in Appendix 2.

#### **Acceptable Solution: A3.5: Private Driveways**

Where a habitable building is greater than 50 metres from a public road the construction technical requirements established by the Guidelines and/or the local government will be complied with. These requirements are set out in Appendix 2.

#### **Acceptable Solution: A3.6: Emergency Access Way**

N/A

#### **Acceptable Solution: A3.7: Fire Service Access Routes**

N/A

#### **Acceptable Solution: A3.8: Firebreak Width**

The proposed lots will comply with the requirements of the local government annual firebreak notice issued under s33 of the Bush Fires Act 1954. Firebreaks to be installed prior to subdivision clearance.

## Element 4: Water

**Intent:** To ensure water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.

**Compliance:** How the proposed development achieves the intent of Element 4:

By fully meeting all applicable acceptable solutions established by the bushfire protection criteria (Guidelines v1.3 WAPC 2017)

### ASSESSMENT (COMPLIANCE) STATEMENTS

For each applicable acceptable solution, the following statements present the results of the assessment of the proposed development/use against the requirements established by the *Guidelines* (WAPC 2017 v1.3).

#### Acceptable Solution: A4.1: Reticulated Areas

A reticulated water supply will be available to the subject site and hydrants will be installed in locations as required by the relevant authorities.

The construction technical requirements established by the Guidelines and/or the local government will be complied with.

#### Acceptable Solution: A4.2: Non-Reticulated Areas

N/A

#### Acceptable Solution: A4.3: Non-Reticulated Areas – Individual Lots

N/A

## 6 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE PROTECTION MEASURES

Table 6.1: BMP Implementation responsibilities prior to the issue of titles.

| Developer (Landowner) - Prior to Issue of Titles  |  |                          |
|---|--|--------------------------|
| No.   | Implementation Actions   | Subdivision Clearance    |
| <p>Note: Planning approval may be conditioned with the requirements:</p> <ol style="list-style-type: none"> <li>1. To place certain notifications on the certificates of title and the deposited plan, regarding the existence of this bushfire management plan and the obligations it creates; and</li> <li>2. To provide certification of the implementation of certain bushfire protection measures established by this bushfire management plan.</li> </ol> |  |                          |
| 1   | <p>Condition (as per Code F1 of Model Subdivision Schedule, WAPC April 2020):</p> <p>Information is to be provided to demonstrate that the measures contained in Section 6; Tables 6.1 and 6.2 of this Bushfire Management Plan (version and date referenced in the condition), have been implemented during subdivisional works. This information should include a completed 'Certification by Bushfire Consultant' from the bushfire management plan. (Local Government)</p> <p>Or</p> <p>Information is to be provided to demonstrate that the measures contained in this bushfire management plan that address the following:</p> <ol style="list-style-type: none"> <li>(a)</li> <li>(b)</li> <li>(c)</li> </ol> <p>Have been implemented during subdivisional works. This information should include a notice of 'Certification by Bushfire Consultant'.</p> | <input type="checkbox"/> |
| 2   | <p>Condition (as per Code F2 of Model Subdivision Schedule, WAPC April 2020):</p> <p>A notification, pursuant to Section 165 of the <i>Planning and Development Act 2005</i>, is to be placed on the certificate(s) of title of the proposed lot(s) with a Bushfire Attack Level (BAL) rating of 12.5 or above, advising of the existence of a hazard or other factor.</p> <p>Notice of this notification is to be included on the diagram or plan of survey (deposited plan). The notification is to state as follows:</p> <p><i>"This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and is/may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land."</i> (Western Australian Planning Commission).</p>           | <input type="checkbox"/> |
| 3   | <p>Condition (as per Code F3 of Model Subdivision Schedule, WAPC April 2020):</p> <p>A plan is to be provided to identify areas of the proposed lot(s) that have been assessed as BAL-40 or BAL-FZ.</p> <p>A restrictive covenant to the benefit of the local government pursuant to section 129BA of the <i>Transfer of Land Act 1893</i>, is to be placed on the certificate(s) of title of the proposed lot(s) advising of the existence of a restriction on the use of land within areas that have been assessed a BAL-40 or BAL-FZ.</p> <p>Notice of this restriction is to be included on the diagram or plan of survey (deposited plan). The restrictive covenant is to state as follows:</p>   | <input type="checkbox"/> |

|   |  |                          |
|---|--|--------------------------|
|   | <i>"No habitable buildings are to be built within areas identified as BAL-40 or BAL-FZ". (Local Government).</i> |                          |
| 4 | Construct the public roads and cul-de-sacs to the standards stated in the BMP.                                   | <input type="checkbox"/> |
| 5 | Construct the private driveways and battle axes to the standards stated in the BMP.                              | <input type="checkbox"/> |
| 6 | Install the reticulated water supply (hydrants) to the standards stated in the BMP.                              | <input type="checkbox"/> |

Table 6.2: BMP Implementation responsibilities prior to lot sale, occupancy or building.

| Landowner (Developer) - Prior to Sale of Lot(s) |   |
|---|---|
| No.   | Implementation Actions  |
| 1   | Prior to sale and post planning approval, the entity responsible for having the BMP prepared should ensure that anyone listed as having responsibility under the Plan has endorsed it and is provided with a copy for their information and informed that it contains their responsibilities. This includes the landowners/proponents (including future landowners where the Plan was prepared as part of a subdivision approval), local government and any other authorities or referral agencies ('Guidelines' s4.6.3).   |
| 2   | <p>Prior to sale of the subject lots, each individual lot is to be compliant with the Shire of Broome Fire Break &amp; Fuel Hazard Reduction Notice issued under s33 of the Bushfires Act 1954.</p> <p>This may include specifications for asset protection zones that differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with. Refer to Appendix 1.</p>   |
| 3   | Prior to occupancy, install the private driveways and battle axes to the standards stated in the BMP.   |
| 4   | <p>Prior to any building work, inform the builder of the existence of this Bushfire Management Plan and the responsibilities it contains, regarding the required construction standards. This will be:</p> <ul style="list-style-type: none"> <li>• The standard corresponding to the determined BAL, as per the bushfire provisions of the Building Code of Australia (BCA); and/or</li> <li>• A higher standard because the BMP establishes that the construction standard is to correspond to a higher BAL as an additional bushfire protection measure.</li> </ul>  |
| 5   | <p>Where the proposed development is staged each stage must comply with the requirements of the Guidelines for Planning in Bushfire Prone Areas and this Bushfire Management Plan. This may require the creation of roads or management of land or installation of water supply lines outside that particular stage to achieve compliance.</p> <p>Vegetation on the balance lot(s) may adversely affect the indicative BAL ratings of lots being developed. This should be assessed prior to the sale of the lots and the required vegetation on the balance lot managed and maintained until developed, or the indicative BAL ratings for the affected lots amended.</p> |

Table 6.3: Ongoing management responsibilities for the Landowner/Occupier.

| Landowner/Occupier - Ongoing |  |
|------------------------------|--|
| No.                          | Ongoing Management Actions   |
| 1                            | <p>Maintain the Asset Protection Zone (APZ) surrounding future buildings to the largest dimension as determined by either:</p> <ul style="list-style-type: none"> <li>The dimensions corresponding to the determined BAL of a building (refer to Section 3.2 for explanation of the 'planning' versus 'building' requirements and 'indicative' versus 'determined' BAL); or</li> <li>The dimensions corresponding to the local government's Firebreak Notice.</li> </ul> <p>Maintain the APZ to the above dimensions and to the standards established by the Guidelines (refer to Appendix 1) or as varied by the local government through their Firebreak Notice (refer to the following responsibility).</p> |
| 2                            | <p>Comply with the Shire of Broome Fire Break &amp; Fuel Hazard Reduction Notice issued under s33 of the Bush Fires Act 1954.</p> <p>This may include specifications for asset protection zones that differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with. Refer to Appendix 1.</p>  |
| 3                            | <p>Maintain vehicular access routes within the lot to the required surface condition and clearances as stated in the BMP.</p>  |
| 4                            | <p>Ensure that any builders (of future structures on the lot) are aware of the existence of this Bushfire Management Plan and the responsibilities it contains regarding the application of construction standards corresponding to a determined BAL.</p>  |
| 5                            | <p>Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with:</p> <ol style="list-style-type: none"> <li>the requirements of the WA Building Act 2011 and the bushfire provisions of the Building Code of Australia (BCA); and</li> <li>with any identified additional requirements established by this BMP or the local government.</li> </ol>   |

Table 6.4: Ongoing management responsibilities for the Local Government.

| Local Government - Ongoing |  |
|----------------------------|--|
| No.                        | Ongoing Management Actions   |
| 1                          | <p>Monitor landowner compliance with the Bushfire Management Plan and the annual Fire Break &amp; Fuel Hazard Reduction Notice.</p>  |
| 2                          | <p>Where control of an area of vegetated land is vested in the control of the local government and that area of land has influenced the assessed BAL(s) of the subject site(s) – and the BAL has been correctly assessed and considered all reasonable and likely future expectations for changes in vegetation classification - there is an obligation to consider the impact of any changes to future vegetation management and/or revegetation plans with respect to that area.</p> |

## APPENDIX 1: TECHNICAL REQUIREMENTS FOR ONSITE VEGETATION MANAGEMENT

### A1.1 Requirements Established by the Guidelines – Standards for Asset Protection Zones

(Source: Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 Appendix 4, Element 2, Schedule 1 and Explanatory Note E2.1)

#### DEFINING THE ASSET PROTECTION ZONE (APZ)

**Description:** An APZ is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level (by reducing fuel loads). The width of the required APZ varies with slope and vegetation and varies corresponding to the BAL rating determined for a building (lower BAL = greater dimensioned APZ).

For planning applications, the minimum sized acceptable APZ is that which is of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m<sup>2</sup> (BAL-29). It will be site specific.

For subdivision planning, design elements and excluded/low threat vegetation adjacent to the lot(s) can be utilised to achieve the required vegetation separation distances and therefore reduce the required dimensions of the APZ within the lot(s).

**Defendable Space:** The APZ includes a defendable space which is an area adjoining the asset within which firefighting operations can be undertaken to defend the structure. Vegetation within the defendable space should be kept at an absolute minimum and the area should be free from combustible items and obstructions. The width of the defendable space is dependent on the space, which is available on the property, but as a minimum should be 3 metres.

**Establishment:** The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity.

The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

*[Note: Regardless of whether an Asset Protection Zone exists in accordance with the acceptable solutions and is appropriately maintained, fire fighters are not obliged to protect an asset if they think the separation distance between the dwelling and vegetation that can be involved in a bushfire, is unsafe.]*

#### Schedule 1: Standards for APZ

**Fences:** within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.

**Objects:** within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

**Fine Fuel Load:** combustible dead vegetation matter less than 6 mm in thickness reduced to and maintained at an average of two tonnes per hectare (example below).



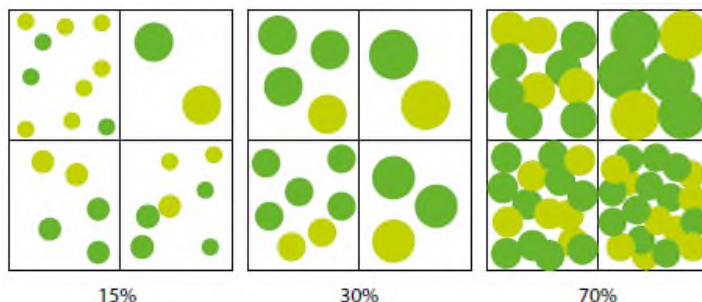
Example: Fine fuel load of 2 t/ha

(Image source: Shire of Augusta Margaret River's Firebreak and Fuel Reduction Hazard Notice)



**Trees (> 5 metres in height):** trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy. Diagram below represents tree canopy cover at maturity.

*Tree canopy cover – ranging from 15 to 70 per cent at maturity*



(Source: Guidelines for Planning in Bushfire Prone Areas 2017, Appendix 4)

**Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m<sup>2</sup> in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.

**Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 mm in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.

**Grass:** should be managed to maintain a height of 100 mm or less.

The following example diagrams illustrate how the required dimensions of the APZ will be determined by the type and location of the vegetation.



## A1.2 Requirements Established by the Local Government – the Firebreak Notice

The local government's current Firebreak Notice is available on their website, at their offices and is distributed as ratepayer's information. It must be complied with.

These requirements are established by the local government's Firebreak Notice created under s33 of the Bushfires Act 1954 and issued annually (potentially with revisions). The Firebreak Notice may include additional components directed at managing fuel loads, accessibility and general property management with respect to limiting potential bushfire impact.

If Asset Protection Zone (APZ) specifications are defined in the Firebreak Notice, these may differ from the Standards established by the Guideline's, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with.

The APZ dimensions to be physically established and maintained, will be based on which of the following establishes the larger APZ dimension:

- The dimensions corresponding to the determined BAL of a building (refer to Section 3.2 explanation of the 'planning' versus 'building' requirements and 'indicative' versus 'determined' BAL(s)); or
- The APZ dimensions established by the local government's Firebreak Notice.

## A1.3 Requirements Recommended by DFES – Property Protection Checklists

Further guidance regarding ongoing/lasting property protection (from potential bushfire impact) is presented in the publication 'DFES – Fire Chat – Your Bushfire Protection Toolkit'. It is available from the Department of Fire and Emergency Services (DFES) website.

## A1.4 Requirements Established by AS 3959:2018 – 'Minimal Fuel Condition'

This information is provided for reference purposes. This knowledge will assist the landowner to comply with Management Requirement No. 3 set out in the Guidance Panel at the start of this Appendix. It identifies what is required for an area of land to be excluded from classification as a potential bushfire threat.

*"Australian Standard - AS 3959:2018 Section 2.2.3.2: Exclusions - Low threat vegetation and non-vegetated areas:*

*The Bushfire Attack Level shall be classified BAL-LOW where the vegetation is one or a combination of the following:*

- a) Vegetation of any type that is more than 100m from the site.*
- b) Single areas of vegetation less than 1ha in area and not within 100m of other areas of vegetation being classified vegetation.*
- c) Multiple area of vegetation less than 0.25ha in area and not within 20m of the site or each other or other areas of vegetation being classified vegetation.*
- d) Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified vegetation.*
- e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.*
- f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a **minimal fuel condition**, (means insufficient fuel available to significantly increase the severity of a bushfire attack – for example, recognisable as short cropped grass to a nominal height of 100mm), mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks (single row of trees)."*

## APPENDIX 2: TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS

Each local government may have their own standard technical requirements for emergency vehicular access, and they may vary from those stated in the Guidelines.

When required, these are stated in Section 5.1 of this bushfire management plan.

### Requirements Established by the Guidelines – The Acceptable Solutions

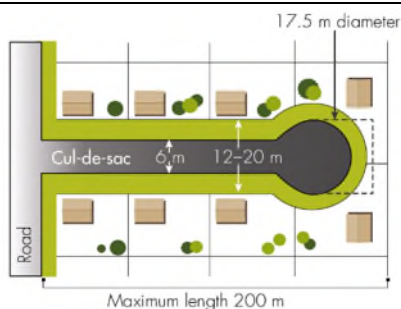
(Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4)

#### VEHICULAR ACCESS TECHNICAL REQUIREMENTS - PART 1

##### Acceptable Solution 3.3: Cul-de-sacs (including a dead-end road)

Their use in bushfire prone areas should be avoided. Where no alternative exists then the following requirements are to be achieved:

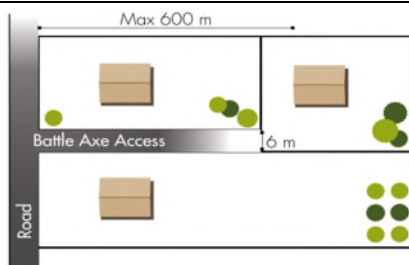
- Maximum length is 200m. If public emergency access is provided between cul-de-sac heads (as a right of way or public access easement in gross), the maximum length can be increased to 600m provided no more than 8 lots are serviced and the emergency access way is less than 600m in length;
- Turnaround area requirements, including a minimum 17.5m diameter head to allow type 3.4 fire appliances to turn around safely;
- The cul-de-sac connects to a public road that allows for travel in two directions; and
- Meet the additional design requirements set out in Part 2 of this appendix.



##### Acceptable Solution 3.4: Battle-axe

Their use in bushfire prone areas should be avoided. Where no alternative exists then the following requirements are to be achieved:

- Maximum length 600m and minimum width 6m; and
- Comply with minimum standards for private driveways.



## VEHICULAR ACCESS TECHNICAL REQUIREMENTS - PART 1

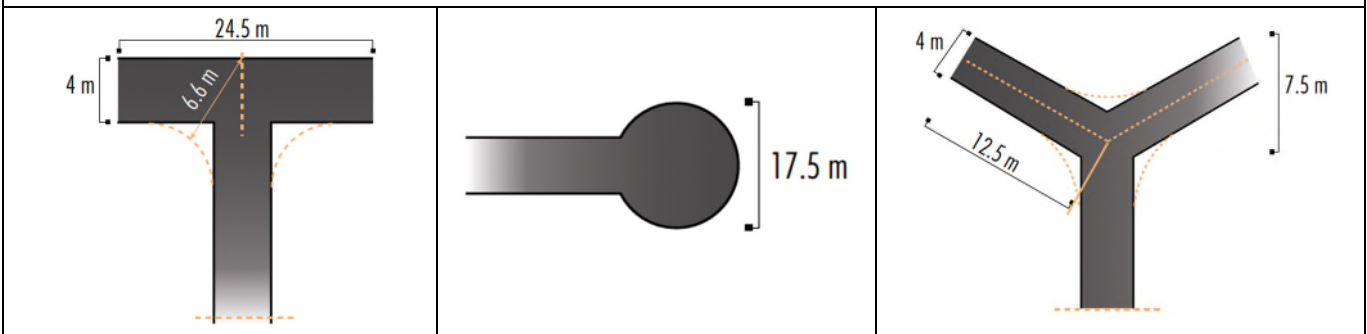
### Acceptable Solution 3.5: Private Driveways

The following requirements are to be achieved:

- The design requirements set out in Part 2 of this appendix; and

Where the house site is more than 50 metres from a public road:

- Passing bays every 200 metres with a minimum length of 20 metres and a minimum width of two metres (ie combined width of the passing bay and constructed private driveway to be a minimum six metres);
- Turn-around areas every 500 metres and within 50 metres of a house, designed to accommodate type 3.4 fire appliances to turn around safely (ie kerb to kerb 17.5 metres);
- Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes; and
- All weather surface (i.e. compacted gravel, limestone or sealed).

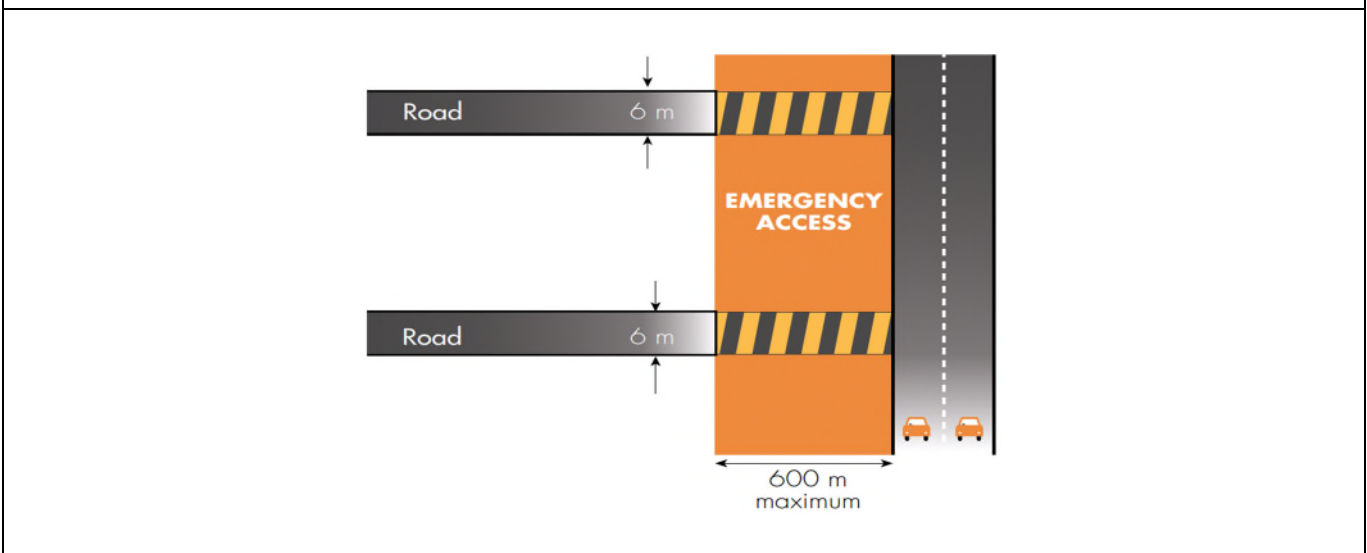


### Acceptable Solution 3.6: Emergency Access Way

An access way that does not provide through access to a public road is to be avoided bushfire prone areas.

Where no alternative exists, an emergency access way is to be provided as an alternative link to a public road during emergencies. The following requirements are to be achieved:

- No further than 600 metres from a public road;
- Must be signposted including where they ajoin public roads;
- Provided as a right of way or public access easement in gross;
- Where gates are used they must not be locked and they must be a minimum width of 3.6 metres with design and construction approved by local government (refer to the example in this appendix); and
- Meet the additional design requirements set out in Part 2 of this appendix.



## VEHICULAR ACCESS TECHNICAL REQUIREMENTS - PART 1

### Acceptable Solution 3.7: Fire Service Access Routes (Perimeter Roads)

Are to be established to provide access within and around the edge of subdivision and related development and to provide direct access to bushfire prone areas for firefighters and link between public road networks for firefighting purposes. Fire service access is used during bushfire suppression activities but can also be used for fire prevention work. The following requirements are to be achieved:

- No further than 600 metres from a public road (driveways may be used as part of the designated fire service access);
- Dead end roads not permitted;
- Allow for two-way traffic (i.e. two 3.4 fire appliances);
- Provide turn-around areas designed to accommodate 3.4 fire appliances and to enable them to turn around safely every 500m (i.e. kerb to kerb 17.5 metres);
- All weather surface (i.e. compacted gravel, limestone or sealed) and have erosion control measures in place;
- Must be adequately sign posted;
- Where gates are used, they must be a minimum width of 3.6 metres with design and construction approved by local government (refer to the example in this appendix) and may be locked (use a common key system);
- Meet the additional design requirements set out in Part 2 of this appendix;
- Provided as right of ways or public access easements in gross; and
- Management and access arrangements to be documented and in place.

### Acceptable Solution 3.8: Firebreak Width

Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three meters or to the level as prescribed in the local firebreak notice issued by the local government.

## VEHICULAR ACCESS TECHNICAL REQUIREMENTS - PART 2

| Technical Component             | Vehicular Access Types |             |                   |                       |                            |
|---------------------------------|------------------------|-------------|-------------------|-----------------------|----------------------------|
|                                 | Public Roads           | Cul-de-sacs | Private Driveways | Emergency Access Ways | Fire Service Access Routes |
| Minimum trafficable surface (m) | 6*                     | 6           | 4                 | 6*                    | 6*                         |
| Horizontal clearance (m)        | 6                      | 6           | 6                 | 6                     | 6                          |
| Vertical clearance (m)          | 4.5                    | 4.5         | 4.5               | 4.5                   | 4.5                        |
| Maximum grade <50 metres        | 1 in 10                | 1 in 10     | 1 in 10           | 1 in 10               | 1 in 10                    |
| Minimum weight capacity (t)     | 15                     | 15          | 15                | 15                    | 15                         |
| Maximum cross-fall              | 1 in 33                | 1 in 33     | 1 in 33           | 1 in 33               | 1 in 33                    |
| Curves minimum inner radius (m) | 8.5                    | 8.5         | 8.5               | 8.5                   | 8.5                        |

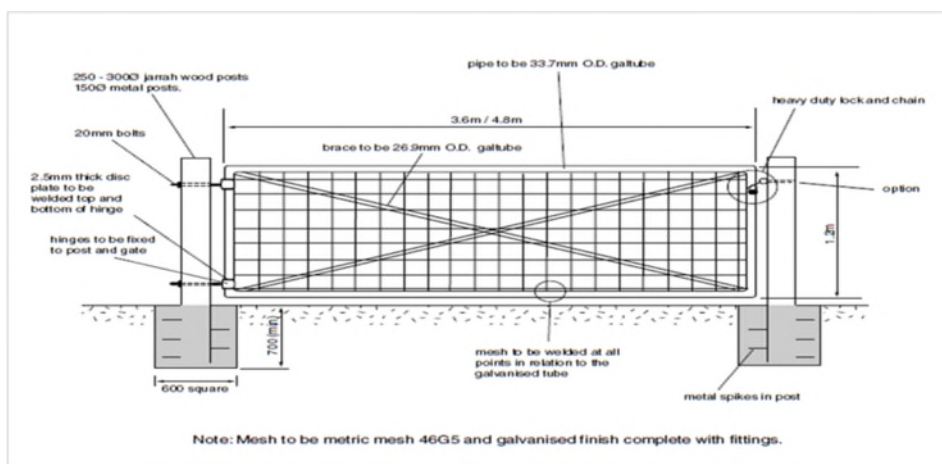
\* A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metres of paving and one metre of constructed road shoulders. In special circumstances, where 8 lots or less are being serviced, a public road with a minimum trafficable surface of four metres for a maximum distance of ninety metres may be provided subject to the approval of both the local government and DFES.

## VEHICULAR ACCESS TECHNICAL REQUIREMENTS – GATES AND SIGNS EXAMPLES

### Gates

*Design and construction to be approved by local government.*

- Minimum width 3.6m
- Emergency access way gates must not be locked.
- Fire service access route gates may be locked but only with a common key that is available to local fire service personnel.
- Bollards will be to the local government specifications



### Signs

*Design and construction to be approved by the local government.*

- Minimum height above ground of 0.9m.
- Lettering height to be 100mm.
- To display the words (as appropriate) "Emergency Access Only" or "Fire Service Access – No Public Access".
- Size 600mm x 400mm.
- Sign colour red, base (white) area is reflective background.
- Rounded corners, radius 20mm.
- White key-line 3mm wide, 3mm from outside edge.
- Suggested mounting hole 6mm diameter.



## APPENDIX 3: TECHNICAL REQUIREMENTS FOR FIREFIGHTING WATER

### Reticulated Areas

[Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4, Element 4]

The Water Corporation's 'No 63 Water Reticulation Standard' is deemed to be the baseline criteria for developments and should be applied unless local water supply authority's conditions apply.

The requirement is to supply a reticulated water supply and fire hydrants, in accordance with the technical requirements of the relevant water supply authority and DFES.

Key specifications in the most recent version/revision of the design standard include:

- **Residential Standard** – hydrants are to be located so that the maximum distance between the hydrants shall be no more than 200 metres.
- **Commercial Standard** – hydrants are to be located with a maximum of 100 metre spacing in Industrial and Commercial areas.
- **Rural Residential Standard** – where minimum site areas per dwelling is 10,000 m<sup>2</sup> (1ha), hydrants are to be located with a maximum 400m spacing. If the area is further subdivided to land parcels less than 1ha, then the residential standard (200m) is to be applied.

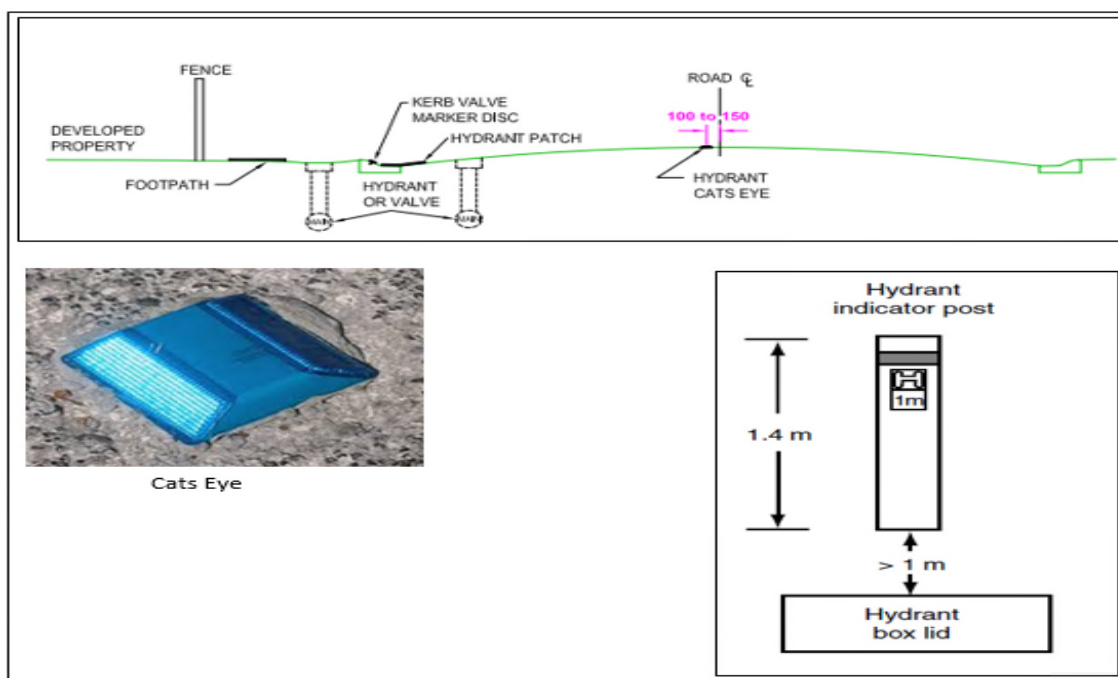


Figure A4.1: Hydrant Location and Identification Specifications