



Department of **Planning,  
Lands and Heritage**



Western  
Australian  
Planning  
Commission



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# Planning for Bushfire Guidelines

For the implementation of  
State Planning Policy 3.7 Bushfire

September 2024



The Department of Planning, Lands and Heritage acknowledges the traditional owners and custodians of this land. We pay our respect to Elders past and present, their descendants who are with us today, and those who will follow in their footsteps.

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Development within designated bushfire prone areas that is consistent with planning policy and building controls, including the bushfire protection criteria within the Guidelines, does not guarantee no loss of life, injury and/or property damage during a bushfire event. The bushfire protection criteria are based on the best available knowledge of bushfire and mitigation measures and aim to significantly reduce the threat of bushfire; however, the risk of bushfire impacting on life or property cannot be eliminated.

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# 1 INTRODUCTION

The *Planning for Bushfire Guidelines* should be read in conjunction with *State Planning Policy 3.7: Bushfire (SPP 3.7)*.

## 1.1 PURPOSE OF THESE GUIDELINES

The Guidelines provide support for decision-making authorities, planners, landowners/proponents and referral agencies to implement SPP 3.7. Specifically, they assist with:

- specifying the requirements to address SPP 3.7 at each stage of the planning process
- determining appropriate land use and development form, construction standards and siting within designated bushfire prone areas
- providing an assessment framework to demonstrate compliance with the bushfire protection criteria.

## 1.2 WHEN SPP 3.7 AND THESE GUIDELINES APPLIES

These Guidelines provide direction on satisfying the requirements of SPP 3.7 measures. Specifically, the information provided seeks to inform the planning and development approvals processes, including key concepts, considerations for proposals as well as supporting information and resources.

SPP 3.7 and the Guidelines apply where the land is designated bushfire prone on the *Map of Bush Fire Prone Areas (Map)* and the planning proposal will:

- result in the intensification of development (or land use); or

- result in an increase of visitors, residents or employees; or
- adversely impact or increase the bushfire risk to the subject or surrounding site(s).

The applications that trigger SPP 3.7 are detailed within the SPP, are depicted in Figure 1, and include the following.

**Strategic planning (section 4)** for the following planning instruments within areas designated as Area 2 on the Map:

- regional and sub- regional frameworks
- region schemes and amendments
- sub-regional strategies
- local planning strategies
- local planning schemes and amendments
- district structure plans
- local structure plans where the lot layout and/or internal road network is not known.

**Structure plans and subdivision applications (section 5)** (where the lot layout and/or internal road network is known).

**Development applications** for the construction of habitable buildings for **residential development (section 6)**, **commercial and industrial development (section 7)**; and for the construction and/or use of habitable buildings associated with **vulnerable land uses (section 8)**, including caravan, nature-based parks and camping grounds (whether they include a habitable building or not).

The policy measures of SPP 3.7 and these Guidelines do not apply retrospectively. Existing approvals are not subject to further bushfire planning requirements;

however, this should not preclude landowners/proponents from striving to achieve better outcomes by voluntarily complying with the provisions provided in the Guidelines.







### 1.2.1 Exemptions

Examples of when SPP 3.7 and the Guidelines may not apply, include but are not limited to:

- a subdivision application where there is no increase in the development potential and therefore no intensification of land use or bushfire risk, such as a boundary realignment, that does not restrict the ability to establish or maintain an Asset Protection Zone; and does not restrict vehicular access/egress to any existing or future habitable building
- the proposed lot(s) within a structure plan (where lot layout is known) or subdivision application that are not designated as bushfire prone
- a development application for incidental non-habitable buildings or structures located not less than six metres from the habitable building, including but not limited to private garages, carports, patios, storage sheds, outbuildings, swimming pools, spa pools and fences
- a development application for a change of use, minor renovations, extensions, alterations, improvements or repair of an existing habitable building:
  - where the application does not result in an increase of occupants onsite; and/or
  - where there is no increase in the bushfire risk, such as an extension being further away from the bushfire hazard, or the extension does not restrict vehicular access or the provision of water for the development.



**Figure 1:** Application types

Strategic planning	Area 1 (urban)	Do not require a bushfire assessment
Strategic planning	Area 2	Undertake a bushfire assessment, with a focus on demonstrating compliance with Element 1: location
Structure plan and subdivision		Subdivision, that has or will have a Bushfire Attack Level (BAL) rating above BAL-LOW
Change of use to hosted or unhosted accommodation		SPP does not apply
Single house or ancillary dwelling <u>under</u> 1,100m <sup>2</sup>		SPP does not apply
Single house or ancillary dwelling <u>over</u> 1,100m <sup>2</sup>		Development application required for BAL – 40 and above (construction only)
		If no reticulated water, development application required for above BAL LOW (construction only)
Commercial and industrial habitable buildings and specified buildings		Development application required for BAL – 40 and above (construction only)
		If no reticulated water, development application required for above BAL LOW (construction only)
Vulnerable habitable buildings and vulnerable land uses & Caravan and camping grounds (with or without habitable buildings)		Development application for above BAL – LOW (construction or use, or construction and use)



### 1.3 APPLYING THE GUIDELINES

SPP 3.7 establishes the overarching policy objectives, policy outcomes and policy measures that should be satisfied, where applicable, for strategic planning proposals, subdivision and development applications within bushfire prone areas.

The Guidelines provide information to assist in achieving the policy objectives, policy outcomes and policy measures at each of the different planning stages.

Sections 4 to 8 are specific to a planning stage and provide information on:

- the type of strategic planning proposal, subdivision or development application
- design considerations specific to the planning stage
- environmental considerations specific to the planning stage
- information to be provided to support the strategic planning proposal, subdivision or development application
- bushfire assessment tools – broader landscape, bushfire hazard level (BHL) assessment, Contour and bushfire attack level (BAL) assessment
- table of bushfire protection criteria for Element 1: Location, Element 2: Siting and design, Element 3: Vehicular access and Element 4: Water supply, specific to the application type
- bushfire management plan and bushfire emergency plan (when required).

Appendix A provides the methodology on how to prepare and review the bushfire assessments, using the relevant bushfire assessment tools required at different stages of the planning process.

Additional explanatory text for each of the four Elements and for vulnerable land uses is provided in Appendix B.

#### 1.3.1 Approvals issued prior to SPP 3.7 (2024)

Where a strategic planning proposal, subdivision or development application was approved prior to 2015 and was not assessed against SPP 3.7 (2015) or the Guidelines, the subsequent stage of the planning process, or modification or addition to the development approval, should demonstrate compliance with SPP 3.7 (2024) and these Guidelines, including the new methodology for Element 1: Location (if required).

Where a strategic planning proposal, subdivision or development application was assessed against SPP 3.7 (2015) and the Guidelines, the subsequent stage(s) of the planning process, or modification or addition to the development approval, should demonstrate compliance with SPP 3.7 (2024) and these Guidelines, with the exception of the new methodology for Element 1: Location (if required).

In these instances, and where necessary, the design should be modified to achieve compliance with the bushfire protection criteria.

Where re-design is not possible due to demonstrated site constraints and/or environmental values, an outcomes-based approach can be used, however it should be noted that there is no guarantee an approval will be forthcoming.

Compliance with the outcomes and/or acceptable solutions will need to be demonstrated to the satisfaction of the decision-maker.

### 1.4 GUIDING PRINCIPLES

The following principles provide the contextual framework for the implementation of SPP 3.7. The principles are to guide the proponent during preparation of a planning proposal and bushfire management plan, and for the decision-maker to consider when making decisions on bushfire matters and in relation to planning and development.



### 1. Outcomes-based decision-making

Planning and development decision-making should focus on achieving the outcomes of SPP 3.7.

### 2. Early consideration

Bushfire threat is identified and addressed as early as possible in the planning process and at all subsequent stages. Bushfire considerations should not be deferred if they are likely to pose issues that will become more difficult to resolve at subsequent planning stages.

### 3. Site-responsive solutions

The bushfire protection measures identified as acceptable solutions are a minimum only and cannot address every situation. Bushfire risk management measures should be tailored to site-specific attributes and to address the potential impacts of activities undertaken on the site.

### 4. Risk management

The systematic application of management policies, procedures and practices to the tasks of identifying, analysing, evaluating, treating and monitoring risk.

### 5. Evidence-based decision-making

Planning decisions are supported by reliable, current and accurate evidence to objectively assess bushfire matters. Where preliminary investigations suggest an enhanced level of risk to the community is evident, more detailed investigations may be required

### 6. Collaboration

The preparation of bushfire management plans should draw on all relevant disciplines through an integrated and collaborative approach to ensure all stakeholder interests and objectives are understood and considered. Early engagement with State and local government, assessing authorities, regulators, service providers, industry bodies and the community (where appropriate) is encouraged.

### 7. Precautionary principle

Based on the application of the precautionary principle, a strategic planning proposal, subdivision or development application should not be supported where:

- it does not satisfy the bushfire protection criteria through compliance with the acceptable solutions and/or an outcomes-based approach;
- there is inadequate known or available information; and
- an understanding of the consequences of a bushfire has not been made available by the proponent to the decision-maker.

### 8. Intergenerational equity

Planning and development decisions should consider climate change and the needs of future generations.



## 2 ASSESSING THE BUSHFIRE CONTEXT

### 2.1 BUSHFIRE ASSESSMENT TOOLS

SPP 3.7 defines 'bushfire risk' as "the chance of a bushfire igniting, spreading and causing damage to people, property and infrastructure".

In this context, 'bushfire management' is "the application of the bushfire protection criteria contained in these Guidelines".

Before a strategic planning proposal, subdivision or development application can be considered, it is necessary to understand the extent of the bushfire risk and its potential to affect people, property and infrastructure.

An assessment of bushfire risk is a key component of deciding whether a strategic planning proposal, subdivision or development application should be approved in an area with potential bushfire threat.

Planning for, and assessing bushfire risk, is most effective when properly addressed at the earliest stage in the planning process.

**'Bushfire risk' is defined as "the chance of a bushfire igniting, spreading and causing damage to people, property and infrastructure".**

#### 2.1.1 Bushfire attack levels (BALs) and indicative BALs

Australian Standard 3959 Construction in bushfire prone areas (AS 3959) provides a process for undertaking bushfire risk assessments to determine a bushfire attack level (BAL). An assessment done in accordance with AS 3959 should not rely on any proposed vegetation modification (such as clearing) within the BAL assessment to achieve the stated BAL.

An 'indicative BAL' is generally considered to be an indicative assessment of the BAL ratings that might be achievable on, or across, a particular site if:

- a development or subdivision was laid out in a certain way; and/or
- certain site works were undertaken on the site to achieve stated setbacks between a building and bushfire prone vegetation (classified vegetation).

Indicative BALs are often done in support of a planning proposal as a requirement of SPP 3.7 and these Guidelines, to identify land suitable for development. Indicative BALs are often included as part of a BAL Contour Map or bushfire management plan (BMP).

#### 2.1.2 Broader landscape assessment

The broader landscape is the area external to the strategic planning proposal, subdivision or development application, extending for a distance of approximately two kilometres, beyond the subject site. The assessment of the broader landscape includes the bushfire hazards (vegetation extent), the broader road network, proximity

to urban areas and suitable destinations for evacuation, and provides a means of considering the suitability of the location for intensification of land use and development.

Strategic planning proposals, subdivision and development applications within an area designated as Area 1 (Urban) on the Map will not require an assessment of the broader landscape or need to demonstrate compliance with Element 1: Location, as these areas are built-up and the risk of a landscape scale bushfire resulting in loss of life, property and infrastructure is lower.

All strategic planning proposals, structure plans and subdivisions located within an area designated as Area 2 on the Map, require an assessment of the broader landscape to demonstrate compliance with Element 1: Location.

#### 2.1.3 Bushfire Hazard Level (BHL) assessment

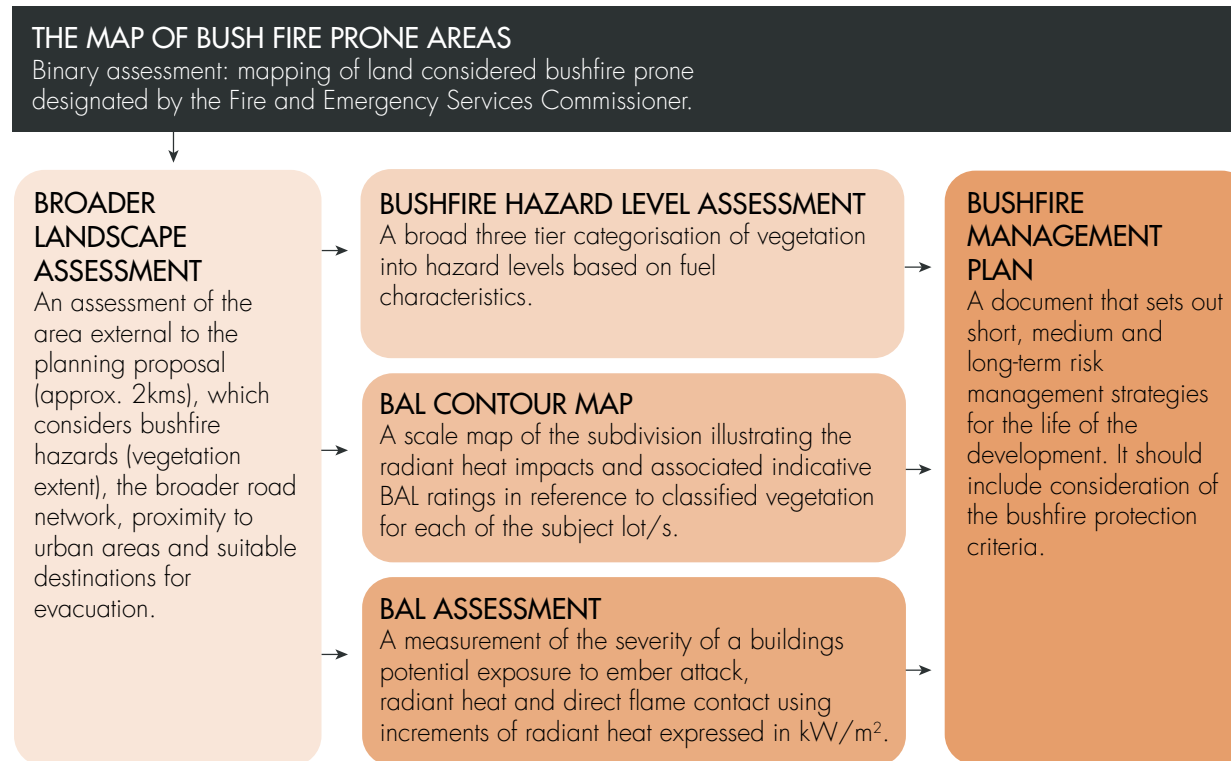
A BHL assessment provides a 'broad-brush' means of determining the potential intensity of a bushfire for a particular area. The BHL assessment assists in informing the suitability of land for future subdivision and development.

The BHL assessment is an assessment tool used when the lot layout and/or detail of a development is not yet known. The assessment categorises land within a designated bushfire prone area as having a low, moderate or extreme BHL, and dependent on the level of detail available, will be based on the current or pre-development state of the vegetation, or the post development state of the vegetation.

Refer to Appendix A.2 for further information.



**Figure 2:** Assessing bushfire risk in the planning context



**Figure 2** sets out the interrelationships between, and requirements for, various assessment tools used to assess bushfire risk in the planning context.

Refer to Appendix A.1 and B.1 for further information.

### 2.1.4 Bushfire Attack Level (BAL) contour assessment

A BAL Contour Map is an assessment tool typically used at the subdivision stage of the planning process but is also appropriate for strategic planning proposals where the lot layout and/or internal road network of a proposal is already determined or where a development application proposes more than one building.

The BAL Contour is a scale map of the subject lot(s) illustrating the radiant heat impacts and associated indicative BAL ratings determined for the vegetation remaining within 150 metres of the assessment area after subdivision or development works are complete.

Refer to Appendix A.3 for further information.

### 2.1.5 Bushfire Attack Level (BAL) assessment

A BAL assessment is the means of measuring the severity of a buildings' potential exposure to ember attack, radiant heat and direct flame contact using increments of radiant heat expressed in kilowatts per meter square (kW/m²) (**Table 1** and **Figure 3**).

They form the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire.

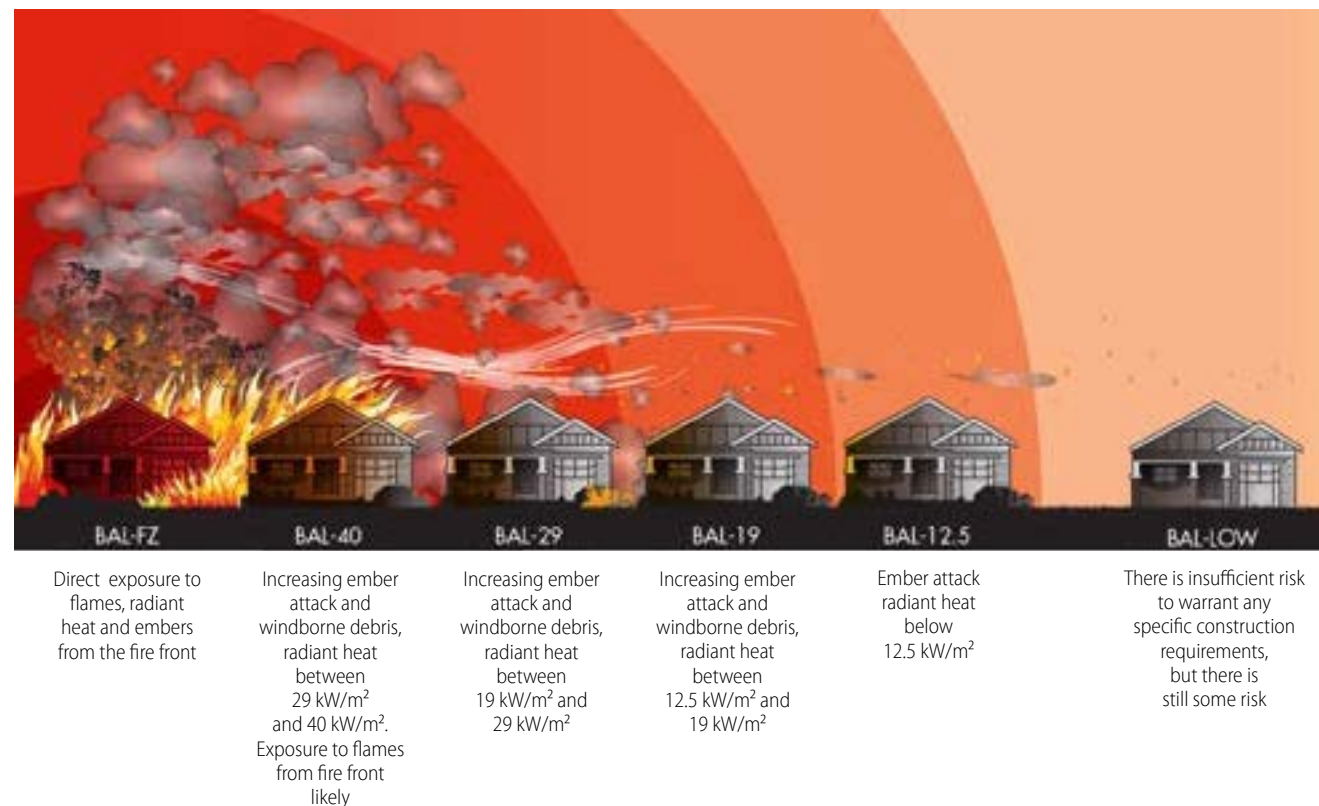
A BAL assessment is used at the development application and the building permit stage, when the location of the building is known.

Refer to Appendix A.4 for further information.

**Table 1:** Bushfire Attack Level (BAL) and corresponding descriptions of the predicted levels of exposure and heat flux exposure thresholds

BAL	PREDICTED BUSHFIRE ATTACK AND LEVELS OF EXPOSURE Source: AS 3959-2018, Table 3.1
BAL-LOW	There is insufficient risk to warrant specific construction requirements, but there is still some risk.
BAL-12.5	There is a risk of ember attack. The construction elements are expected to be exposed to a heat flux not greater than 12.5kW/m <sup>2</sup> .
BAL-19	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux. The construction elements are expected to be exposed to a heat flux not greater than 19kW/m <sup>2</sup> .
BAL-29	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux. The construction elements are expected to be exposed to a heat flux not greater than 29kW/m <sup>2</sup> .
BAL-40	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux with the increased likelihood of direct contact with flames. The construction elements are expected to be exposed to a heat flux not greater than 40kW/m <sup>2</sup> .
BAL-Flame Zone (FZ)	Direct exposure to flames from fire front in addition to heat flux and ember attack. The construction elements are expected to be exposed to a heat flux greater than 40kW/m <sup>2</sup> .

**Figure 3:** BAL construction levels in context



**AS 3959 – Construction of buildings in bushfire-prone areas is developed and maintained by Standards Australia. Information on how to obtain a copy of the standard is available on the Standards Australia website at: <https://www.standards.org.au/access-standards/buy-standards>**

## 2.2 BUSHFIRE MANAGEMENT PLANS

A BMP includes the bushfire assessment, identification of environmental, biodiversity or conservation values, identification of the bushfire hazard issues arising from the relevant assessment and a demonstration that compliance with the bushfire protection criteria, can be achieved.

Further information can be found online at [wa.gov.au](http://wa.gov.au) [DPLH].

### 2.2.1 Addressing the bushfire protection criteria

The bushfire protection criteria are an outcomes-based system of assessing bushfire risk management, divided across four Elements – location, siting and design, vehicular access and water supply.

Each Element is achieved by demonstrating compliance with one of the following:

- Acceptable solution(s)
- Outcomes-based approach
- A combination of (a) and (b).

#### a) Acceptable solutions

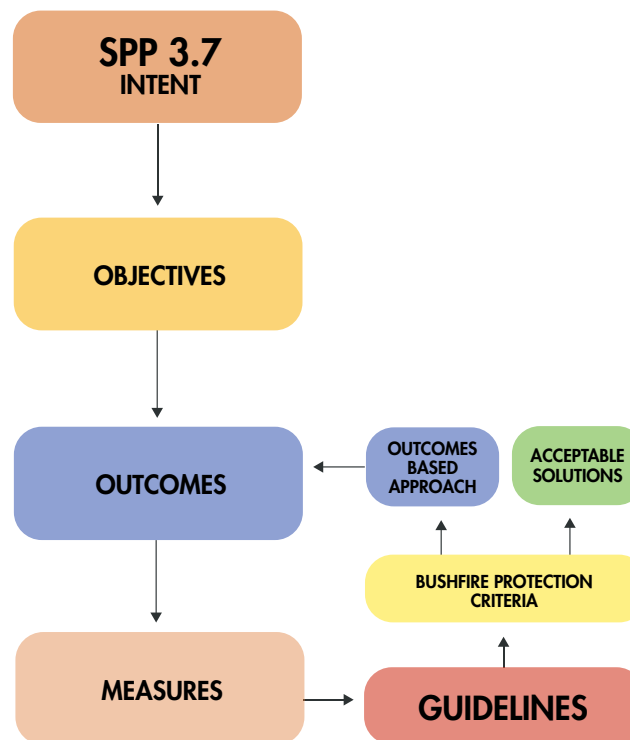
The acceptable solutions provide a deemed-to-comply pathway for assessment and approval. Compliance with the relevant acceptable solutions achieves the policy outcomes and satisfy the requirements of SPP 3.7 (Figure 4).

The acceptable solutions should be achieved in the first instance as there is a level of confidence around the use and effectiveness of these criteria.

#### b) Outcomes-based approach

An outcomes-based approach can be used where compliance with the acceptable solutions cannot be achieved due to demonstrated site constraints or environmental values (including waterways and/or foreshores, where road(s) are already gazetted or existing native vegetation cannot be cleared), and where the bushfire planning practitioner is of the expert opinion that the SPP 3.7 outcomes can still be demonstrated.

Figure 4: Outcomes-based decision making



In accordance with SPP 3.7, clause 7.5, where an outcomes-based approach or a combination outcomes-based and acceptable solutions approach is being used, the BMP should:

- address the acceptable solutions to the greatest extent possible
- identify the non-compliance with the acceptable solutions and why these cannot be achieved
- detail how the design considers bushfire risk and where additional or alternative bushfire risk management measures have been included to reduce the risk
- detail if there are any community net-benefits, such as improvements to the public road network
- include written evidence such as publications or State Administrative Tribunal decisions to support the strategic planning proposal, subdivision or development applications (where available)
- outline how the policy outcomes have been achieved
- outline why approval is warranted by the decision-maker in this instance.

Additional or alternative bushfire risk management measures may include, but are not limited to:

- improvements to the local and broader road network to facilitate improved access, to and within the site or locality
- provision of additional emergency access ways or fire service access routes



- provision of additional strategic or private water tanks
- a reduction in the number of lots or maximum occupancy
- an increased/additional area of public open space managed in perpetuity, in a 'low-threat' state, to provide increased hazard separation to any classified vegetation
- provision of additional forms of hazard separation
- construction of buildings to a higher bushfire construction standard than required under AS 3959.

Refer to Appendix B.1: Location, **Table 8:** Examples of additional mitigation measures.

Details on how the additional bushfire risk management measures will be implemented, are to be included in the BMP.

Further information and examples on the appropriateness of an outcomes-based approach is provided in Appendix B - Explanatory Notes.

## 3 SUPPORTING FRAMEWORK

### 3.1 MAP OF BUSH FIRE PRONE AREAS

SPP 3.7 and the Guidelines apply to land that has been designated as being bushfire prone by the Fire and Emergency Services Commissioner under section 18P of the *Fire and Emergency Services Act 1998*. This designation is made in the form of an order published in the Government Gazette that refers to the *Map of Bush Fire Prone Areas (Map)*, which can be accessed via the [Department of Fire and Emergency Services' website](#). Designation of an area as bushfire prone reflects the potential for bushfire to affect that site.

The Map is maintained by the Office of Bushfire Risk Management (OBRM), which forms part of the Rural Fire Division of the Department of Fire and Emergency Services. OBRM is responsible for preparing, maintaining and administering the Map and *Mapping Standard for Bush Fire Prone Areas* on behalf of the Fire and Emergency Services Commissioner.

The Map includes two bushfire prone designations, being Area 1 (Urban) and Area 2.

Area 1 (Urban) comprises the built-up urbanised areas of Perth, Peel and Bunbury, where the risk posed by bushfire to people, property and infrastructure is lower. Area 2 covers the rest of Western Australia that is designated as bushfire prone.

A transitional period will apply to newly designated areas through any update of the Map. This delayed implementation will allow for consideration of any changes to the Map. Once the transitional period has expired, sites located in areas designated as being bushfire prone will need to apply SPP 3.7 and the Guidelines.

Any inaccuracies identified on the Map must be referred to OBRM by local governments for consideration in their Map review as per the review procedures outlined in the *Mapping Standard for Bush Fire Prone Areas*.

Figure 5: Extract from Map of Bush Fire Prone Areas



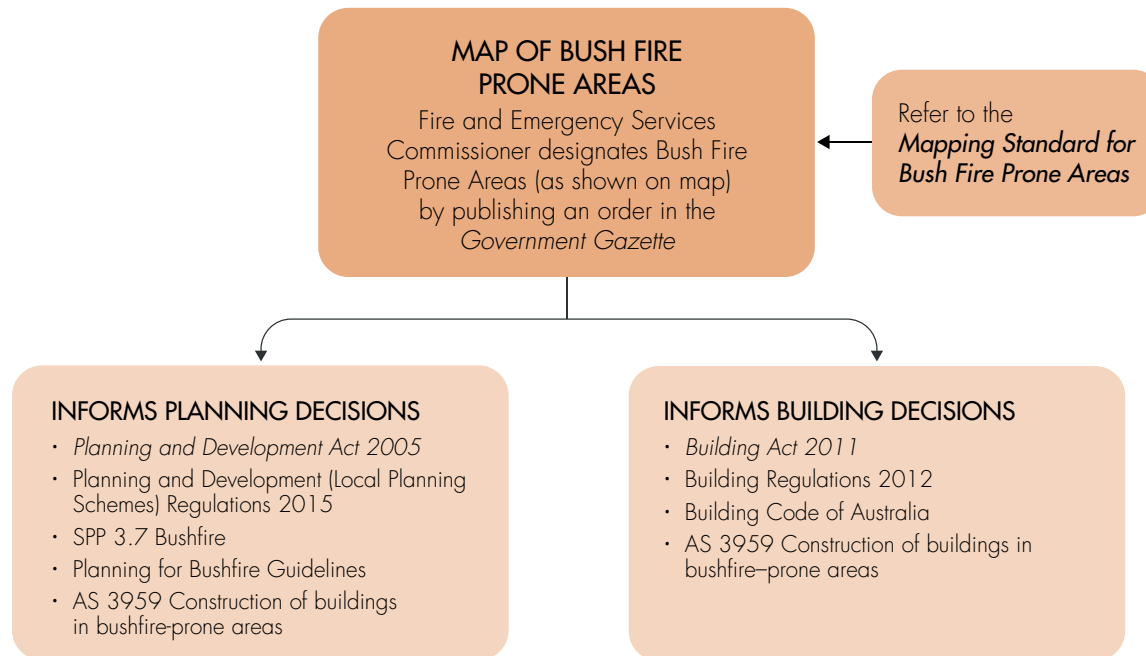
Bushfire prone vegetation is determined according to the criteria outlined in the *Mapping Standard for Bush Fire Prone Areas* and is identified on the *Map of Bush Fire Prone Areas* prepared by the Office of Bushfire Risk Management. Further information on how the map is prepared and updated can be found in the *Mapping Standard for Bush Fire Prone Areas*.

The *Map of Bush Fire Prone Areas* is hosted on the Shared Location Information Platform (SLIP) and can be accessed via the Department of Fire and Emergency Services' website at [www.dfes.wa.gov.au/bushfireproneareas](http://www.dfes.wa.gov.au/bushfireproneareas)

While the Map should not form part of a local planning scheme, local governments can download the spatial dataset from SLIP to inform planning decisions.



**Figure 6:** The Western Australian statutory and policy framework flowchart



### 3.2 PLANNING REQUIREMENTS IN BUSHFIRE PRONE AREAS

The Map is a trigger to determine whether bushfire protection planning and building requirements apply.

Individual local planning schemes may also contain special control areas that designate areas as bushfire prone which may have more detailed hazard mapping and additional planning requirements.

SPP 3.7 and the Guidelines are to be used to guide the preparation and assessment of a bushfire management plan to support strategic planning proposals, subdivisions and development applications.

### 3.3 LOCAL PLANNING SCHEME (LPS) REGULATIONS 2015 – DEEMED PROVISIONS FOR LOCAL PLANNING SCHEMES

For development applications, specific deemed provisions are included under Schedule 2 Part 10A of Local Planning Schemes (LPS) Regulations 2015. These deemed provisions relating to bushfire risk management apply to all local planning schemes made under Part 5 of the *Planning and Development Act 2005*.

This is to ensure that even in circumstances where the need for development approval would otherwise be exempt under Schedule 2 Part 7 of LPS Regulations 2015, a development approval would be triggered for certain development within bushfire prone areas.

Exemptions under Schedule 2 Part 7 of LPS Regulations 2015 include development that is compliant with State Planning Policy 7.3 Residential Design Codes.



The provisions contained in Schedule 2 Part 10A of the LPS Regulations prevail over any existing local planning scheme provisions relating to bushfire, including any inconsistent provisions.

In accordance with Schedule 2 clause 78B (2) of LPS Regulations 2015, these requirements are in addition to any provisions relating to development in a bushfire prone area that apply through the local planning scheme provisions for a special control area.

Schedule 2 Part 10A of the LPS Regulations does not apply to land where there is no existing local planning scheme or where a local planning scheme has ceased to have legal effect.

Schedule 2 Part 10A of the LPS Regulations can be supplemented but not varied or exempted. Any new supplemental provisions require a special control area to be implemented under the scheme amendment process set out in the *Planning and Development Act 2005*.

**Figure 7** outlines the types of development applications considered through Schedule 2 Part 10A of LPS Regulations 2015. The trigger for a development approval is consistent with the requirements of the SPP and Guidelines. Refer to Section 1.2 of these Guidelines.

**Habitable building means a permanent or temporary structure on land that:**

- a. is fully or partially enclosed
- b. has at least one wall of solid material and a roof of solid material
- c. is used for a purpose that involves the use of the interior of the structure by people for living, working, studying or being entertained.

**Specified building means a structure of a kind specified in LPS Regulations 2015 as a kind of structure to which Part 10A applies in addition to its application to habitable buildings.**

### 3.4 LOCAL OR REGIONAL VARIATIONS TO THE GUIDELINES

Local governments may seek to add to or modify the acceptable solutions contained within the Guidelines, to recognise special local or regional circumstances that reinforce the SPP 3.7 objectives and outcomes. This could include acceptable solutions that address topography, vegetation or climate.

Regional or local variations should form part of a local planning strategy and/or local planning scheme via a scheme amendment or special control area. They will be assessed on a case-by-case basis and should be supported by justification that clearly:

- explains the reasons why the modification or addition is required; and
- demonstrates to the satisfaction of the Western Australian Planning Commission (WAPC) that the modifications comply with the corresponding SPP 3.7 objectives and outcomes.

### 3.5 LOCAL PLANNING POLICIES THAT ADDRESS BUSHFIRE

Local planning policies are prepared by local governments to help inform and guide the preparation, assessment and discretionary decision-making of planning applications at the local government level.

Local planning policies may be useful to supplement or elaborate on issues associated with this policy. The scope and effect of local planning policies is outlined in the LPS Regulations 2015.

Local governments are encouraged to refer their draft local planning policies that address bushfire issues to the WAPC and the Department of Fire and Emergency Services (DFES) for comment prior to being adopted and implemented.

It should be noted that in accordance with Schedule 2 Part 2, Clause 4(1)(b) of the deemed provisions, where a proposed local planning policy is inconsistent with a State Planning Policy, the WAPC must be notified.

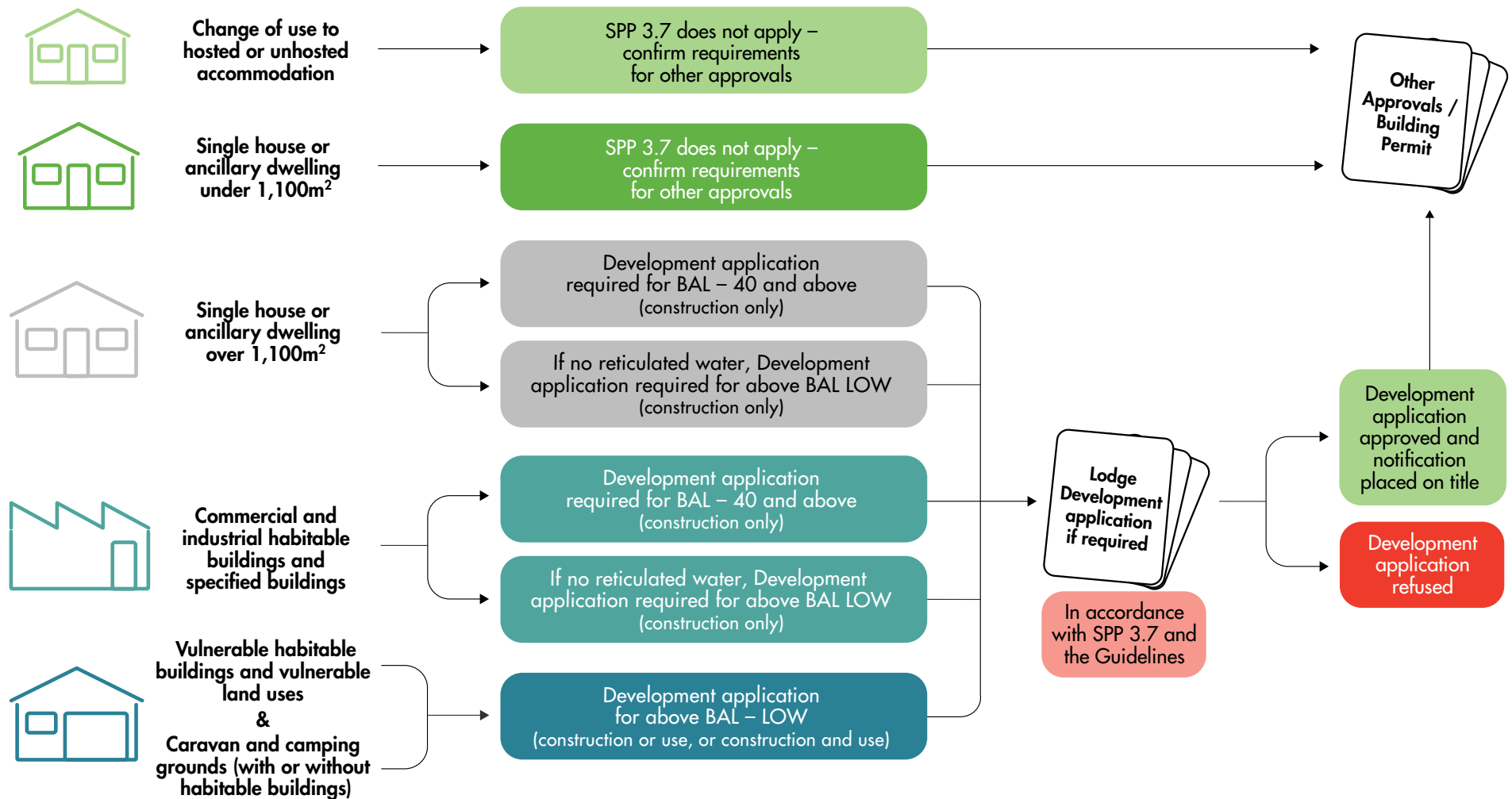
For subdivision applications, while the local planning policy may guide the local government's advice to the WAPC, the WAPC is under no obligation to have regard for a local planning policy.

### 3.6 SUPPORTING FACT SHEETS AND TECHNICAL NOTES

The WAPC may prepare fact sheets where supplementary information and advice is required on how to apply the Guidelines. These fact sheets can be found online at [wa.gov.au](http://wa.gov.au) [DPLH].



**Figure 7:** Development Application process in designated bushfire prone areas





DFES and the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS - Building and Energy Division) may prepare technical notes and industry bulletins on elements of bushfire management and construction standards that are complementary to the information contained in these Guidelines. Any technical notes will be owned and managed by the respective agencies and will not form part of the Guidelines or assessment requirements of SPP 3.7.

Where there is a discrepancy between the Guidelines and other agency technical notes or bulletins, these Guidelines will prevail. Where there is a discrepancy between the Guidelines and Australian Standard 3959 Construction of buildings in bushfire prone areas (AS 3959), AS 3959 prevails.

### 3.7 BUILDING PERMIT PROCESS

Under the *Building Act 2011* and the Building Regulations 2012, building work in Western Australia requires a building permit before construction can commence (unless an exemption applies). This process typically occurs after the development approval (if required) and is a separate process to the development approval process.

The building legislation adopts the Building Code of Australia (BCA) as the primary applicable building standard for all new buildings and incidental structures in Western Australia. The BCA also applies to new building work to existing buildings. The BCA sets out the minimum technical requirements for the design and construction of buildings and includes specific bushfire construction requirements for certain types of buildings located in designated bushfire prone areas.

The BCA bushfire construction requirements apply to a Class 1, 2 or 3 building, or a Class 10a building or deck associated with a Class 1, 2 or 3 building, located in a designated bushfire prone area.

Concessions from the requirement to comply with the BCA bushfire construction requirements may apply to some types of renovations, alterations, extensions, improvements or repairs of an existing building.

The 2019 edition of the BCA does not require Class 4, 5, 6, 7, 8 or 9 buildings to comply with bushfire construction requirements. However, it is expected that certain types of Class 9 buildings (such as health care buildings, early childhood centres, primary or secondary schools and residential care buildings) will need to address bushfire construction requirements when compliance with the 2022 edition of the BCA becomes mandatory in Western Australia.

Specific queries regarding the bushfire construction requirements that apply to a particular building should be directed to the registered building surveyor who will be certifying the compliance of that building against the applicable building standards. General information on the building permit process, including whether a building permit is required for a specific building, may be obtained from the building department at the local government authority.

### 3.8 ADDRESSING CLIMATE CHANGE

SPP 3.7 encourages proposals to adapt to the bushfire-related impacts of climate change. Recent catastrophic bushfire conditions have highlighted the increasing importance of planning for bushfire-resilient communities and mitigating the impact of bushfires is a key consideration moving forward.

The [Western Australian Climate Policy](#) acknowledges that climate change is a pressing global issue and that the intensity, frequency and duration of fire weather events are projected to increase throughout Australia. It is anticipated that changes to our climate, including rainfall, temperature, and extreme weather events, will result in more extreme or catastrophic bushfire events in Western Australia. As this will significantly affect the predictability and length of the bushfire season, some locations that seem manageable under current conditions could experience higher risk(s) over time.

The SPP and Guidelines incorporate policy measures that aim to consider complex climate change impacts, primarily through the broader landscape assessment methodology. This new bushfire protection measure seeks to embed an understanding of the likelihood of the broader landscape supporting a landscape-scale bushfire, into decision-making, particularly at the strategic levels of land use planning. This assessment aims to ensure the resilience of communities to climate change impacts by directing population growth towards safer locations.

This approach aligns with the [WA Climate Adaptation Strategy](#) (July 2023), incorporating climate adaptation into the State Planning Framework and by implementing a new approach to identify future bushfire hotspots.

### 3.9 BIODIVERSITY AND ENVIRONMENT

Bushfire prone areas are often rich in biodiversity, hold ecological value to flora and fauna communities and provide natural amenity to surrounding development.

SPP 3.7 and the Guidelines advocate for the protection of native vegetation to be prioritised, by avoiding areas that would require clearing or modification of native vegetation, specifically for the purpose of bushfire mitigation.



Bushfire mitigation and management should not be a stand-alone reason for the clearing or modification of native vegetation.

Where the clearing or modification of native vegetation cannot be avoided, the bushfire management plan (BMP) should demonstrate how this will be minimised. The extent of clearing and/or modification of native vegetation, specifically for the purpose of bushfire mitigation, will be an important consideration for the decision-maker when determining the suitability of the development.

BMPs should consider the applicable State planning policies and publications, in addition to:

- requirements of relevant environmental legislation, such as Part V of the *Environmental Protection Act 1986*, *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, the *Biodiversity Conservation Act 2016*, the *Environment Protection and Biodiversity Conservation Act 1999*, *Conservation and Land Management Act 1984* and the Western Australian Native Vegetation Policy 2022
- any local government biodiversity strategies or similar
- whether the site, or a portion of the site, has environmental, biodiversity or conservation values or is being, or proposed to be, reserved for a conservation, recreation or environmental protection purpose (such as an ecological linkage, local natural area, waterway or foreshore area or wetland buffer)
- any visual amenity issues, including any landscape plans that have been prepared over the site
- the broader landscape, including the location of any sites within or adjacent to the site that may be revegetated.

Specific requirements for the consideration of environmental, biodiversity or conservation values at each planning stage are outlined in Sections 4 to 8 of the Guidelines.





## 4 STRATEGIC PLANNING

Areas that are designated as Area 1 (Urban) on the [Map of Bush Fire Prone Areas](#) do not require a bushfire assessment at this stage of the planning process.

Areas that are identified for intensification and/or result in an increase in bushfire risk that are designated as Area 2 on the [Map of Bush Fire Prone Areas](#) should undertake the following bushfire assessment, with a focus on demonstrating compliance with Element 1: Location through an assessment of the broader landscape.

A scheme amendment to facilitate a vulnerable land use should refer to the requirements and bushfire protection criteria in Section 8 – Vulnerable land uses.

### 4.1 DESIGN CONSIDERATIONS

#### 4.1.1 Location

Strategic planning enables consideration of issues, including existing and future settlement patterns and land supply. Strategic planning also provides the best stage of the planning process to ensure future land use and development are not located in areas where the bushfire risk is extreme and/or where the bushfire risk cannot be satisfactorily managed or mitigated through use of the bushfire protection criteria.

Consolidation and expansion of existing settlements that satisfy the bushfire protection criteria within these Guidelines can enable robust bushfire resilient communities. Existing settlements often provide access to services, including water, electricity, telecommunications, emergency services, medical services and an existing road

network, which can provide options for evacuation. Larger settlements may also provide a suitable destination where residents can take shelter during and after a bushfire event.

Development that is isolated from existing bushfire resilient settlements, including but not limited to isolated rural, rural living and smaller coastal communities with limited access, present many challenges. When located in bushfire prone areas, the challenges are exacerbated. Challenges include:

- limited access to suitable destinations for evacuation purposes
- long and/or complex road patterns making access and evacuation more difficult
- limited access to services including emergency services, police and health services
- poor access to reliable communication.

Consideration of the broader landscape at this level of the planning process will ensure that development is avoided in locations that present an unacceptable bushfire risk.

#### 4.1.2 Clearing of native vegetation

Clearing or modification of native vegetation for the purpose of land use or development is assessed under [State Planning Policy 2: Environment](#) (SPP 2), [State Planning Policy 2.8: Bushland](#) policy for the Perth Metropolitan Region (SPP 2.8) and relevant environmental legislation. A key objective of these policies is to avoid development that may result in unacceptable environmental damage.

SPP 3.7 and the Guidelines advocate for the protection of native vegetation to be prioritised, by avoiding areas that would require significant clearing or modification of native vegetation specifically for the purpose of bushfire mitigation.

The bushfire management plan (BMP) should demonstrate how the removal of native vegetation for the purposes of bushfire mitigation, has been or will be, avoided. Where the removal of native vegetation cannot be avoided, the BMP should demonstrate how this will be minimised. It may be necessary to prepare indicative concept plans to enable this assessment. This will be an important consideration for the decision-maker when determining the suitability of the location, especially at the strategic planning stage.

#### 4.1.3 Hazard separation

On-site bushfire hazards such as large areas of native vegetation, can result in a bushfire entering and running through the site, especially when there are adjoining areas of classified vegetation on the interface or beyond the subject site.

At the strategic planning stage, where sufficient detail is available, hazard separation should be identified to demonstrate that separation can be achieved between the subject site or proposed lots and the adjoining classified vegetation, and/or to provide separation between classified vegetation and proposed lots within the subject site. Hazard separation could include:

- public perimeter roads
- public roads, fire service access routes or emergency access ways



- public open space including recreational areas where vegetation is already and will continue to be, managed as low threat in accordance with Clause 2.2.3.2 of AS 3959
- water bodies, including lakes, ponds or dams and managed water retention areas (excluding the vegetated buffer areas)
- hard surfaces such as driveways, tennis courts or sports areas and footpaths.

Design and environmental considerations for subsequent stages of the planning process are provided in the relevant sections of the Guidelines.

## 4.2 OTHER USES FOR A BUSHFIRE ASSESSMENT AT THE STRATEGIC PLANNING STAGE

Where land use intensification is not proposed in a bushfire prone area and/or does not result in an increase in bushfire risk, there is no requirement to address SPP 3.7. However, consideration could be given to using a strategic bushfire assessment to:

- reconsider the bushfire risks on land that was zoned for intensification without assessment or consideration of SPP 3.7 and/or Element 1: Location, but is yet to be developed
- assess and identify improvements to increase the bushfire resilience of existing developments or communities, within bushfire prone areas – these could include access arrangements, better vegetation management on public and private lands and/or development of a community bushfire emergency plan

- develop a tourism strategy to guide the location and development of various tourism land uses within bushfire prone areas
- identify suitable buildings or open space areas that could be used to provide shelter in the event of a bushfire as a last resort option when evacuation is no longer available – this could form part of improvements for existing communities, particularly for communities with limited access and egress, such as those in coastal areas.

## 4.3 SYNERGIES WITH EXISTING LOCAL GOVERNMENT BUSHFIRE DOCUMENTATION

There may be opportunities to align the strategic BMP with existing State or local government bushfire preparation/policy documentation. Although not connected, Bushfire Risk Management Plans (BRMP) provide local governments with an integrated bushfire risk management framework for their local area and contain a written plan, a communications strategy, an asset risk register and a treatment schedule. Any strategic risk assessments undertaken to inform the BRMP may be useful in understanding the bushfire issues affecting the local government area.

## 4.4 INFORMATION TO ACCOMPANY A STRATEGIC PLANNING DOCUMENT

A strategic BMP should be prepared prior to the strategic planning document, to inform and support the recommendations of the planning document and should include the following information for those areas identified for intensification:

- a. An assessment of the broader landscape.
- b. The identification of any environmental, biodiversity or conservation values on the subject site(s).

Where relevant, details on how the clearing of native vegetation specifically for bushfire mitigation to achieve the bushfire protection measures, can be avoided through the use of siting and design measures.

Where the clearing of native vegetation cannot be avoided, details on how the proposal will minimise the clearing are to be provided.

- c. A pre-development BHL assessment that demonstrates a BHL of predominantly moderate or low.

Where the pre-development BHL assessment results in areas with a predominantly extreme BHL, further detail should be provided on the level of native vegetation clearing that will be necessary to reduce the BHL to moderate or low.

- d. The identification of any bushfire hazard issues arising from the assessment.
- e. Assessment against the bushfire protection criteria within BPC 4: Strategic Planning, demonstrating compliance via either the acceptable solutions, or through an outcomes-based approach.

This information should be provided in the form of a BMP.



## RELEVANT SUPPORTING INFORMATION

- Appendix A – Bushfire Assessment Methodologies
  - A.1 Broader landscape assessment
  - A.2 Bushfire Hazard Level
- Appendix B – Explanatory Notes
  - B.1 Location
  - B.2 Siting and design
  - B.3 Vehicular access
  - B.4 Water supply
  - B.5 Vulnerable land uses
- Bushfire management plan templates found online at [wa.gov.au](https://www.wa.gov.au) [DPLH]



## Bushfire Protection Criteria 4: Strategic planning

### ELEMENT 1: LOCATION

#### OUTCOMES

- O1** Avoid broader landscapes that present an unacceptable bushfire risk to people, property and infrastructure

#### ACCEPTABLE SOLUTIONS

**Area 1 (Urban):** Does not require assessment of Element 1: Location.

**Area 2:** Determine the Broader Landscape Type in accordance with Appendix A.1 and proceed with the following acceptable solutions:

##### A1.1 Location

##### A1.1a Broader Landscape Type A

The subject site is located in an area that is a Broader Landscape Type A. This location satisfies the policy outcome for Element 1: Location and no additional consideration is required

##### A1.1b Broader Landscape Type B

The subject site is located in an area that is a Broader Landscape Type B which presents an unacceptable bushfire risk of a landscape-scale bushfire resulting in impacts to people, property and infrastructure. This location does not satisfy the policy outcome for Element 1: Location.

Where the practitioner considers that further analysis could demonstrate to the decision-maker that the risks can be appropriately managed, and/or mitigated, an outcomes-based approach should be prepared in accordance with policy measure 7.5 of SPP 3.7. Further explanatory notes are provided in Appendix B.1 of the Guidelines.

### ELEMENT 2: SITING AND DESIGN

#### OUTCOMES

- O2** Ensure siting and design solutions:
- manage or mitigate the bushfire risk to people, property and infrastructure; and
  - avoid, or where unavoidable, minimises the clearing of native vegetation.

#### ACCEPTABLE SOLUTIONS

**Area 1 (Urban):** Does not require assessment of Element 2: Siting and design.

**Area 2:** Proceed with the following acceptable solutions:

##### A2.1 Siting and design

The areas of the subject site(s) identified for intensification and/or the future development site(s) achieve a pre- or post-development bushfire hazard level of moderate or low

##### A2.2 Clearing of native vegetation

The strategic planning proposal avoids, or where unavoidable, minimises the clearing of native vegetation.



## Bushfire Protection Criteria 4: Strategic planning

### ELEMENT 3: VEHICULAR ACCESS

#### OUTCOMES

- O3** Ensure the design and capacity of vehicular access and egress provide:
- for efficient and effective evacuation to a suitable destination(s) and/or
  - as a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option.

#### ACCEPTABLE SOLUTIONS

**Area 1 (Urban):** Does not require assessment of Element 3: Vehicular access.

**Area 2:** Proceed with the following acceptable solutions:

##### A3.1 Public roads

Public roads, including perimeter roads should meet the technical requirements in Appendix B.3, **Table 10**.

##### A3.2 Access routes

Public road access should be provided in two different directions, to two different suitable destinations; and with an all-weather surface.

##### A3.3a No-through roads

If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the public road access is to be a maximum of 200 metres from the subject site boundary to an intersection where two-way access is provided.

The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints, and the following requirements are met:

- the no-through road travels towards a suitable destination; and
- the balance of the no-through road that is greater than 200 metres from the subject site is wholly within BAL-LOW, or is within a residential built-out area or within Area 1 (**Figure 29**).

##### A3.3b No-through roads requirements

A no-through road is to meet all the following requirements:

- requirements of a public road (Appendix B.3, **Table 10**, Column 2); and
- turn-around area/head (**Figure 30**).





## Bushfire Protection Criteria 4: Strategic planning

### ELEMENT 4: WATER SUPPLY

#### OUTCOMES

**O4** Ensure that sufficient water is available and accessible for emergency services, to enable people, property and infrastructure to be defended from bushfire.

#### ACCEPTABLE SOLUTIONS

**Area 1 (Urban):** Does not require assessment of Element 4: Water supply.

**Area 2:** Proceed with the following acceptable solutions:

##### A4.1 Water supply

Evidence that a sufficient and accessible reticulated or non-reticulated water supply for bushfire firefighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements in Appendix B4: Water Supply dedicated for bushfire firefighting

## 5 STRUCTURE PLANS AND SUBDIVISION APPLICATIONS

### (WHERE THE LOT LAYOUT AND/OR INTERNAL ROAD NETWORK IS KNOWN)

Structure plans (where the lot layout and internal road network are known) and subdivision applications that are designated as Area 1 (Urban) or Area 2, on the *Map of Bush Fire Prone Areas* (Map) should address the requirements of this section of the Guidelines.

Areas of the structure plan or subdivision application that are not designated as bushfire prone are not required to address SPP 3.7 and the Guidelines (**Figure 8**).

#### 5.1 DESIGN CONSIDERATIONS

**Note:** In addition to these Guidelines, where applicable, a structure plan or subdivision may need to incorporate design principles contained within other WAPC policies, such as *Liveable Neighbourhoods* and the *Design WA* policy suite.

##### 5.1.1 Hazard separation

The siting and design of a structure plan or subdivision should respond to the bushfire risk presented by the interface with vegetation, classified under AS 3959. Hazard separation should be included between proposed lots and

classified vegetation, on adjoining land, and/or to provide separation between classified vegetation remaining within the subject site and proposed lots (**Figure 9**).

Hazard separation may include but is not limited to:

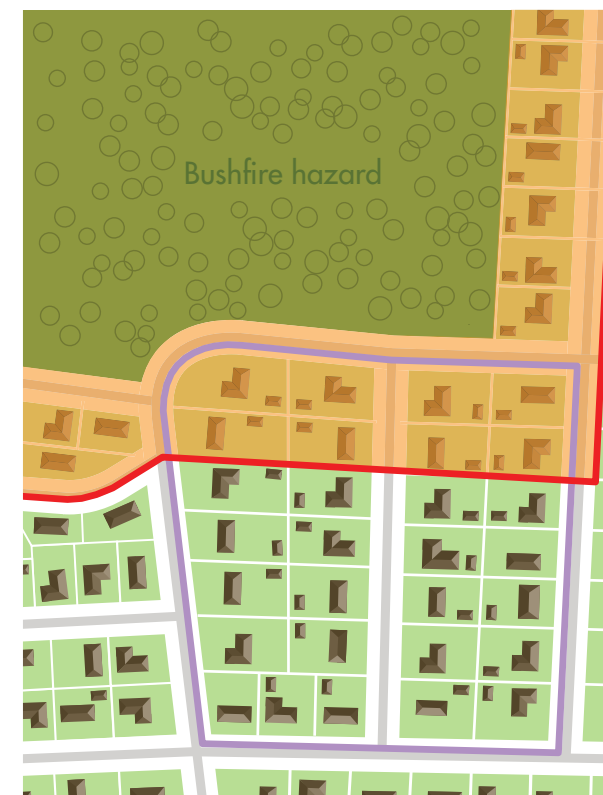
- public perimeter roads
- public roads, fire service access routes or emergency access ways
- public open space, including recreational areas, where vegetation is already, and will continue to be, excluded as low threat vegetation in accordance with Clause 2.2.3.2 of AS 3959
- water bodies, including lakes, ponds or dams and managed water retention areas (excluding environmental buffer/foreshore areas)
- hard surfaces such as driveways, tennis courts or sports areas and footpaths.

##### 5.1.2 Classification of vegetation

New areas of public open space, revegetation and any existing or proposed vegetation corridors, both within the subject site and connecting to vegetation in the surrounding landscape, should be designed to balance ecological linkage requirements with breaks in fuel continuity that prevent a bushfire from entering and moving through the subject site.

Proposed areas of public land, including public open space and urban water management areas within the subject site, should not be excluded as low threat vegetation in accordance with Clause 2.2.3.2 of AS 3959, unless there is written agreement with the land manager/owner for

**Figure 8:** Structure plan or subdivision where the SPP applies to the proposed lots designated as bushfire prone on the Map



#### Legend

- extent of bushfire prone area designation
- where State Planning Policy 3.7 and associated Guidelines apply
- subdivision area

the management of the vegetation as low threat, in perpetuity. This information should be included within the bushfire management plan (BMP).

Examples of low threat open space include maintained lawns, golf courses, maintained public recreation reserves and parklands. The manager/owner of the land adjoining the subject site are under no obligation to maintain vegetation in a low threat state and, where no agreement is reached, bushfire practitioners should ensure the vegetation classification reflects the future mature state of vegetation present.

Where a landscape management plan or water management report proposes to re-vegetate a site to manage stormwater, the BAL assessment should consider the future mature state of the vegetation. It is important to link the BMP with landscape and urban water management plans.

### 5.1.3 Existing habitable buildings

Where any habitable building(s) exists on a lot that is subject to a subdivision application, there is no requirement to upgrade or modify the construction standard of the existing habitable building(s).

However, the BMP should demonstrate that each lot can achieve a development site within an area subject to 29 kW/m<sup>2</sup> or lower, irrespective of whether the existing habitable building is within this area.

Where an Asset Protection Zone (APZ) is necessary to achieve 29 kW/m<sup>2</sup> or lower, the APZ should comply with the acceptable solution for Element 2 Siting and design A 2.2 Asset Protection Zones, as outlined in [Section 6 – Development – Residential](#).

**Figure 9:** Subdivision and development design



This will ensure that if the existing habitable building(s) is demolished, a new habitable building(s) can achieve a 29 kW/m<sup>2</sup> (BAL-29) or lower. The lot containing the existing habitable building(s) should also comply with the acceptable solutions for Element 3: Vehicular access and Element 4: Water supply, as outlined in [Section 6 – Development – Residential](#).

### 5.1.4 Environmental considerations

Topography has a direct correlation to rate of spread of a bushfire and should be considered when designing a structure plan or subdivision, identifying development sites or when introducing vegetation or regenerating existing vegetation.

Ridge tops, crests, narrow gullies and steep slopes (**Figure 10**) are particularly dangerous in a bushfire, as fire can accelerate in these areas and convection patterns with high wind speed can cause unpredictable movements of fire spread over a landscape.

It is recommended that development be located on flat areas or slopes less than 10 degrees (especially where classified vegetation is located downslope to a building) and away from ridge tops, crests or narrow gullies.

Circumstances where these locations may be suitable for development to occur include where the land is already cleared, and a radiant heat impact of 29 kW/m<sup>2</sup> or lower can be achieved for the whole development site without the use of an APZ. To ensure soil stability within an APZ, vegetation removal on slopes exceeding 18 degrees is discouraged.

New development and associated APZ should be located in existing cleared areas wherever possible to minimise exposure to the bushfire hazard and avoid the need for further vegetation removal or modification. The BMP should demonstrate that the proposed APZ will not result in the unnecessary removal of native vegetation or conflict with landscape or environmental objectives and complies with environmental approvals/ exemptions (where necessary). Where native vegetation is present, the APZ should be of a width that will achieve a radiant heat impact of not less than 29kW/m<sup>2</sup> (BAL-29) to avoid unnecessary removal of vegetation.

Where loss of native vegetation causes conflict with landscape or environmental objectives, it may be necessary to reduce lot yield, cluster the development or modify the development location.

Figure 10: Topography considerations for building locations



Where revegetation of coastal or waterway foreshores, wetlands or wetland buffers is required for protection or management, it may be necessary to modify the development location or reduce lot yield to provide adequate hazard separation from the future boundary of the proposed revegetation. The BAL Contour Map should classify the revegetation based on its future mature state.

## 5.2 BUSHFIRE SUBDIVISION CONDITIONS

The WAPC has a [Model Subdivision Conditions Schedule](#), which is a set of model conditions and advice notes that are applied to subdivision approvals consistently across the state. The Schedule includes recommended subdivision conditions that may be imposed when the application is located within a bushfire prone area and with a BAL rating of BAL-12.5 or above.

The WAPC will determine the appropriate subdivision conditions on advice from relevant referral agencies. The bushfire planning practitioner does not need to include reference to conditions within the BMP.

## 5.3 COMPLIANCE CERTIFICATE FOR SUBDIVISION

Where a BAL Contour Map includes BAL ratings that are based on future site works, such as clearing and modification of vegetation, the subdivision approval may be conditioned to require the preparation of a compliance certificate. The bushfire planning practitioner should liaise with the local government to determine the level of detail necessary.



After the site works have been completed, the certificate may be issued to certify that the BAL ratings shown on the BAL Contour Map, remain accurate and compliant. This will allow decision-makers to have confidence that the BALs indicated in the BAL Contour Map are accurate and able to be used to support a future development or building permit application.

It is strongly recommended that the compliance certificate be undertaken by the bushfire planning practitioner who prepared the original BAL Contour Map, or alternatively, any other accredited Level 2 or Level 3 bushfire planning practitioner. The relevant local government may be able to undertake this compliance check as part of the clearance of subdivision conditions.

For larger lots, such as a rural property, where the location of a development site may not be known, the use of a compliance certificate may not be appropriate. In this instance it is likely that a new BAL assessment will be required to support a building permit.

## 5.4 STAGED SUBDIVISION

Where a subdivision proposes development in stages, the BMP should demonstrate that each stage can comply with the bushfire protection criteria. Where this detail is not available, compliance with the bushfire protection criteria should be demonstrated for each stage, with lodgment of the request to clear the subdivision condition(s), relevant to bushfire.

Where public road access is required in two different directions to two different suitable destinations, it should be demonstrated that each stage can achieve the necessary two access routes.

It may be necessary to construct the public road in the first stage to achieve compliance.

Classified vegetation within a subsequent stage of a subdivision may require removal or modification to ensure that proposed lots within the current stage of the subdivision achieve a development site with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29).

The responsibility for the ongoing management at each stage of subdivision should be clearly defined within the implementation section of the BMP.

Where the decision-maker has confidence the adjoining subdivision will go ahead, the BMP should demonstrate that once the hazard on the adjoining property has been removed, the lot(s) will be able to achieve a development site with a BAL rating of BAL-29 or below. A condition should be included on the subdivision approval stating that *Each lot shall include a development site of BAL-29 or below, to the satisfaction of the WAPC*. This condition precludes the creation of the affected lot(s) until the hazard has been removed.

Alternatively, the affected proposed lot(s) can be created as a single balance lot until the adjoining classified vegetation is removed or modified and the proposed lot(s) can achieve a development site with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29) (**Figure 11**).

This may require the lodgment of a subsequent subdivision application as a single balance lot until the adjoining classified vegetation is removed or modified and the proposed lot(s) can achieve a development site with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29). This may require the lodgment of a subsequent subdivision application, with a revised BMP.

## 5.5 INFORMATION TO ACCOMPANY A STRUCTURE PLAN OR SUBDIVISION APPLICATION

If the BAL Contour Map indicates that any of the proposed lots will have a BAL rating above BAL-LOW, the following should accompany the structure plan or subdivision application:

- An assessment of the broader landscape.
- The identification of any environmental, biodiversity or conservation values on the subject site(s).

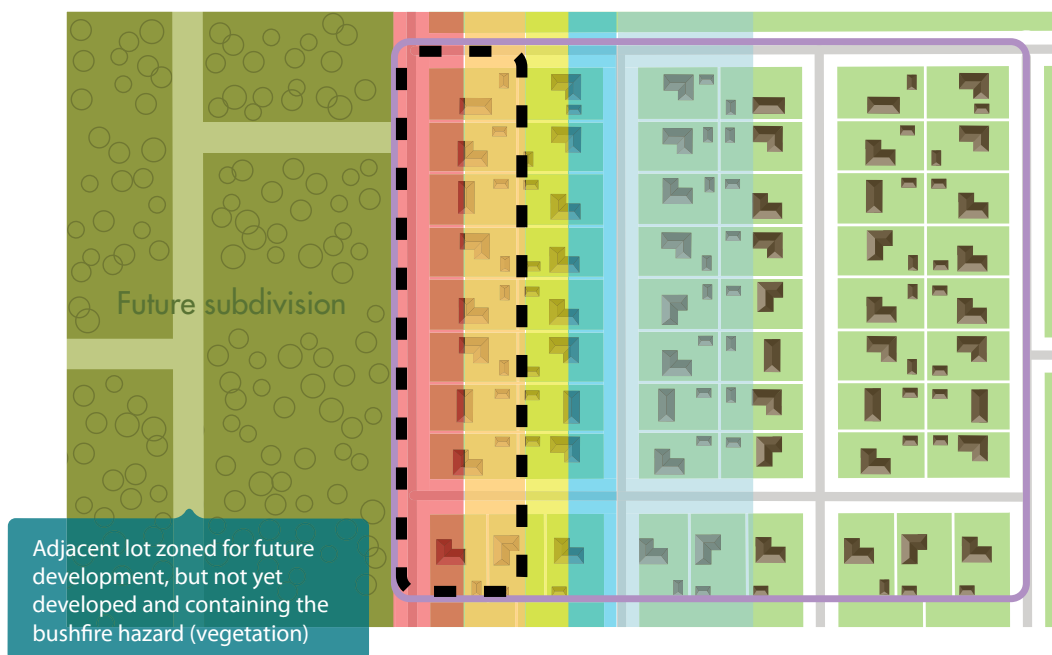
Where relevant, details on how the clearing of native vegetation specifically for bushfire mitigation to achieve the bushfire protection measures, can be avoided through the use of siting and design measures.

Where the clearing of native vegetation cannot be avoided, details on how the proposal will minimise the clearing are to be provided.

- A BAL Contour Map.
- The identification of any bushfire hazard issues arising from the assessment.
- Assessment against the bushfire protection criteria within BPC 5: Structure Plan and Subdivision, demonstrating compliance via either the acceptable solutions, or through an outcomes-based approach.

This information should be provided in the form of a BMP.

**Figure 11:** Example of creating a balance lot in BAL-40/FZ that can be further subdivided when the adjacent land is developed and the bushfire hazard is removed



### Legend

	BAL 12.5		subdivision area
	BAL 19		balance lot
	BAL 29		
	BAL 40		
	BAL Flame Zone or FZ		

### RELEVANT SUPPORTING INFORMATION

- > **Appendix A – Bushfire Assessment Methodologies**
  - A.1 Broader landscape assessment
  - A.2 Bushfire Hazard Level
  - A.3 BAL Contour Map
- > **Appendix B – Explanatory Notes**
  - B.1 Location
  - B.2 Siting and design
  - B.3 Vehicular access
  - B.4 Water supply
- > Bushfire management plan templates found online at [wa.gov.au](https://www.wa.gov.au) [DPLH]





## Bushfire Protection Criteria 5: Structure plans and subdivision applications

### ELEMENT 1: LOCATION

#### OUTCOMES

- O1** Avoid broader landscapes that present an unacceptable bushfire risk to life, property and infrastructure

#### ACCEPTABLE SOLUTIONS

**Area 1:** Not applicable.

**Area 2:** Determine the Broader Landscape Type in accordance with Appendix A.1. Then proceed under A1.1a or A1.1b.

##### A1.1a Broader Landscape Type A

The subject site is located in an area that is a Broader Landscape Type A. This location satisfies the policy outcome for Element 1: Location and no additional consideration is required.

##### A1.1b Broader Landscape Type B

The subject site is located in an area that is a Broader Landscape Type B which presents an unacceptable bushfire risk of a landscape-scale bushfire resulting in impacts to people, property and infrastructure. This location does not satisfy the acceptable solution for Element 1: Location.

Where the practitioner considers that further analysis could demonstrate to the decision-maker that the risks can be appropriately managed, and/or mitigated, an outcomes-based approach should be prepared, in accordance with policy measure 7.5 of SPP 3.7. Further explanatory notes are provided in Appendix B.1 of the Guidelines.

### ELEMENT 2: SITING AND DESIGN

#### OUTCOMES

- O2** Ensure siting and design solutions:
- manage or mitigate the bushfire risk to people, property and infrastructure; and
  - avoid, or where unavoidable, minimises the clearing of native vegetation.

#### ACCEPTABLE SOLUTIONS

##### A2.1 Siting and design

Ensure that each proposed and existing lot(s) contains a sufficient development site(s) that can achieve a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29).

##### A2.2 Asset Protection Zone (APZ)

Where a development site cannot be wholly located within an area with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29) in its pre-development state, an indicative APZ is to be provided and meet the following requirements:

- **Width** – the APZ is to be measured from the development site, and of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m<sup>2</sup> (BAL-29) in all circumstances.



## Bushfire Protection Criteria 5: Structure plans and subdivision applications

### ELEMENT 2: SITING AND DESIGN

- **Location** – the APZ is to be contained solely within the boundaries of the lot, except in instances where:
  - the vegetation on the adjoining lot(s) is, and will continue to be, low threat as per Clause 2.2.3.2 of AS 3959 or the requirements of Appendix B.2, **Table 9** – APZ technical requirements, or an alternative standard in a local planning scheme, on an ongoing basis in perpetuity as agreed upon via a substantiated management agreement between the applicable landowners and the local government; or
  - the adjoining land is, and will remain in perpetuity, non-vegetated such as a sealed or unsealed road, or a water body.
- **Management** – the APZ is managed in accordance with the requirements of Appendix B.2, **Table 9** – APZ technical requirements, or an alternative standard in a gazetted local planning scheme.

#### A2.3 Clearing of native vegetation

The structure plan or subdivision avoids, or where unavoidable, minimises the clearing of native vegetation.

### ELEMENT 3: VEHICULAR ACCESS

#### OUTCOMES

- O3** Ensure the design and capacity of vehicular access and egress provide:
- for efficient and effective evacuation to a suitable destination(s) and/or
  - as a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option.

#### ACCEPTABLE SOLUTIONS

##### A3.1 Public roads

Public roads are to meet the technical requirements in Appendix B.3, **Table 10**.

##### A3.2 Access routes

**Area 1 (Urban):** Public road access is to be provided to at least one suitable destination.

**Area 2:** Public road access should be provided in two different directions to two different suitable destinations, with an all-weather surface.

##### A3.3a No-through roads

**Area 1:** No limitation on no-through road lengths.

**Area 2:** If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the public road access is to be a maximum of 200 metres from the proposed lot(s) boundary to an intersection where two-way access is provided.



## Bushfire Protection Criteria 5: Structure plans and subdivision applications

### ELEMENT 3: VEHICULAR ACCESS

The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints and the following requirements are met:

- the no-through road travels towards a suitable destination; and
- the balance of the no-through road that is greater than 200 metres from the subject site is wholly within BAL-LOW, or is within a residential built-out area, or is within Area 1 (**Figure 29**).

#### A3.3b No-through road requirements

A no-through road is to meet all the following requirements:

- requirements of a public road (Appendix B.3, **Table 10**, Column 2); and
- turn-around area/head (**Figure 30**).

#### A3.4 Emergency access way

*Where it is demonstrated that A3.2 and A3.3 cannot be achieved due to site constraints or where an alternative design option does not exist, an emergency access way can be considered as an acceptable solution.*

An emergency access way is to meet the following requirements:

- the requirements of Appendix B.3, **Table 10**, Column 3;
- provides a through connection to a public road;
- is no more than 500 metres in length;
- connects to a public road network (note: an emergency access way onto the State Road Network requires access approval from Main Roads WA);
- the proponent obtaining consent from the local government, that it will accept care, control and management for the access way; and
- is signposted and, if gated, gates must open for the whole carriageway width and remain unlocked.

#### A3.5a Perimeter roads

A perimeter road is a public road and is to be provided for greenfield or infill development where 10 or more lots are proposed (including as part of a staged subdivision) with the aim of:

- separating areas of permanent classified vegetation under AS 3959 which adjoin the subject site, from the proposed lot(s); and
- removing the need for battle-axe lots that back onto areas of classified vegetation.



## Bushfire Protection Criteria 5: Structure plans and subdivision applications

### ELEMENT 3: VEHICULAR ACCESS

A perimeter road is to meet the requirements contained in Appendix B.3, **Table 10**, Column 1. A perimeter road may not be required where:

- the adjoining classified vegetation is Class G Grassland;
- lots are zoned for rural living or equivalent;
- it is demonstrated that it cannot be provided due to site constraints; or
- all lots have frontage to an existing public road.

#### **A3.5b Fire service access route**

*Where proposed lots adjoin classified vegetation under AS 3959 (excluding Class G Grassland), and a perimeter road is not required in accordance with A3.5a, a fire service access route is to be provided to provide firefighter access, where access is not available to the classified vegetation.*

A fire service access route is to meet the following requirements:

- requirements of Appendix B.3, **Table 10**, Column 4;
- be through-routes with no dead-ends;
- must be signposted;
- no further than 500 metres from a public road;
- the proponent obtaining consent from the local government that it will accept care, control and management; and
- if gated, gates must open the whole carriageway width and can be locked by the local government and/or the emergency services, if keys are provided for each gate.

#### **A3.6 Battle-axe access legs**

*Where it is demonstrated that a battle-axe access leg cannot be avoided due to site or design constraints, it can be considered as an acceptable solution.*

There are no battle-axe technical requirements where the point of the battle-axe access leg joins the effective area of the battle-axe lot, is less than 50 metres from a public road in a reticulated water area.

In circumstances where the above acceptable solution is not met, or the battle-axe lot is in a non-reticulated water area, the battle-axe leg is to meet the following requirements:

- requirements in Appendix B.3, **Table 10**, Column 5;
- passing bays every 200 metres with a minimum length of 20 metres and a minimum additional carriageway width of two metres (i.e. the combined carriageway width of the passing bay and constructed private driveway to be a minimum six metres); and
- turn-around area/head (**Figure 30**).



## Bushfire Protection Criteria 5: Structure plans and subdivision applications

### ELEMENT 4: WATER SUPPLY

#### OUTCOMES

- P4** Ensure that sufficient water is available and accessible for emergency services, to enable people, property and infrastructure to be defended from bushfire.

#### ACCEPTABLE SOLUTIONS

##### A4.1 Water supply for structure plans

Evidence that a reticulated or sufficient and sustainable non-reticulated water supply for bushfire firefighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements in Appendix B.4: Water Supply dedicated for bushfire firefighting.

Where the provision of a strategic water tank(s) is required, a suitable area should be identified as a Crown reserve on the structure plan, to the satisfaction of the WAPC on advice from the local government.

##### A4.2 Water supply for subdivision applications

Where a reticulated water supply is existing or proposed, a hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority.

Where these specifications cannot be met, then the following applies:

- the provision of a water tank(s) in accordance with the requirements of Appendix B.4, **Table 11** – Water supply dedicated for bushfire firefighting; and

Where the provision of a strategic water tank(s) is applicable, then the following requirements apply:

- land to be ceded free of cost to the Crown for the placement of the tank(s);
- the proposed reserve where the tank is to be located is identified on the plan of subdivision;
- tank capacity, construction and fittings, provided in accordance with the requirements of Appendix B.4; and
- a strategic water tank is to be located no more than a 10-minute drive from the furthest development site (at legal road speeds).

##### A4.3 Water supply for existing habitable building(s)

Where subdivision includes an existing habitable building(s) that is to be retained, a hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority.

Where these specifications cannot be met, a water tank(s) should be provided in accordance with the requirements of Appendix B.4, **Table 5** – Water supply dedicated for bushfire firefighting.



## 6 DEVELOPMENT – RESIDENTIAL

A development application for the construction of, or additions to, a habitable building, including a single house, ancillary dwelling, grouped dwelling, multiple dwelling or mixed-use development, where the habitable building has a pre-development radiant heat impact exceeding  $29\text{ kW/m}^2$  (BAL-40 or BAL-FZ) and designated as Area 1 (Urban) or Area 2 on the *Map of Bush Fire Prone Areas*, should address the requirements within this section.

An application for additions to a habitable building to which SPP 3.7 and these Guidelines apply, is required to address the bushfire protection criteria for the entire site. It should be noted that there are no requirements under SPP 3.7 or the Guidelines to retrofit existing buildings to the appropriate bushfire construction standard, or any requirement for these existing buildings to be located within an area with a radiant heat impact not exceeding  $29\text{ kW/m}^2$  (BAL-29).

### 6.1 DESIGN CONSIDERATIONS

The siting of development should respond to the bushfire risk presented by the interface with classified vegetation from land adjoining the subject site and any remaining or proposed classified vegetation within the subject site. Asset Protection Zones (APZs) are commonly used to mitigate the bushfire threat within a lot. Strategic management of vegetation and plant flammability within the APZ should be considered in accordance with Appendix B.2: Siting and Design.

Where possible, development should be in existing cleared area(s) to reduce the need for modification or removal of vegetation.

Topography has a direct correlation to rate of spread of a bushfire and should be considered when identifying development sites or when introducing vegetation or regenerating existing vegetation. Ridge tops, crests, narrow gullies and steep slopes (**Figure 10**) often provide amenity and scenic views over a landscape, but are particularly dangerous in a bushfire, as fire can accelerate in these areas.

Although topography and existing cleared areas often compete with other planning considerations, where there is opportunity, the development site should be selected to reduce the bushfire threat.

Where possible, private driveways should provide a line of sight to the public road to aid access by emergency services.

A helpful guide that may assist with siting, design and construction of new development is the [Bushfire Resilient Building Guidance for Queensland Homes](#) developed by the Queensland Government in collaboration with the CSIRO.

#### 6.1.1 Building envelopes

Where building envelopes are a requirement of a local planning scheme and an APZ is necessary to achieve a radiant heat impact not exceeding  $29\text{ kW/m}^2$  (BAL-29) for a habitable building, the APZ should be accommodated within the building envelope, where practicable.

It is not necessary for the entire building envelope to achieve  $29\text{ kW/m}^2$  (BAL-29) as this could potentially lead to unnecessary clearing or modification of vegetation.

#### 6.1.2 Siting in BAL-40 or BAL-FZ

Habitable buildings that have a radiant heat impact exceeding  $29\text{ kW/m}^2$  (BAL-40 or BAL-FZ), are likely to have direct exposure to flame contact, as well as be subject to ember attack. The separation distance between a structure and classified vegetation is a good indicator of the likelihood of damage by fire, with a trend towards greater total loss as the separation distance between vegetation and building decreases.

There are occasions where a lot(s) has been created prior to implementation of SPP 3.7 and the Guidelines in December 2015 and due to site characteristics and/or environmental values, a habitable building is unable to be located with a radiant heat impact not exceeding  $29\text{ kW/m}^2$  (BAL-29).

In these circumstances, SPP 3.7 and the Guidelines recognise the expectation to be able to build a habitable building on a lot that is zoned for this purpose.

The acceptable solutions should be applied with some flexibility to provide a pathway for the consideration of siting within areas that have a radiant heat impact exceeding  $29\text{ kW/m}^2$  (BAL-40 or BAL-FZ).

### 6.2 BUILDING PERMIT PROCESS AND BUSHFIRE CONSTRUCTION REQUIREMENTS

A building permit is generally required before construction of a building can commence. As part of the building permit process, a registered building surveyor will need to access the building for compliance with the Building Code of Australia (BCA).





Residential development is generally classified under the BCA as a Class 1, 2 or 3 building. A building with any of these classifications need to demonstrate compliance with the BCA bushfire construction requirements if located in a designated bushfire prone area. The registered building surveyor will likely require a BAL Compliance Certificate or a BAL report to assist in determining the level of bushfire resistant construction needed for the building.

For information on Class 9 Buildings refer to **Section 7 Development – Commercial and Industrial**.

For more information on building permit process, visit the Department of Energy, Mines, Industry, Regulation and Safety [website](#).

### 6.3 CLASS 10A BUILDINGS OR DECKS

The BCA includes bushfire construction requirements for a range of residential buildings located in designated bushfire prone areas, including those classified by the BCA as a Class 1, 2 or 3 building.

The BCA bushfire requirements also apply to a Class 10a building or deck associated with a Class 1, 2 or 3 building located in a designated bushfire prone area.

The BCA classifies a Class 10a building as a non-habitable building including a private garage, carport, shed or the like.

However, there is no requirement for a Class 10a building or deck located not less than six metres from the Class 1, 2 or 3 building to be assessed or comply with SPP 3.7 or these Guidelines.

### 6.4 INFORMATION TO ACCOMPANY THE DEVELOPMENT APPLICATION

A BAL assessment or BAL Contour Map should be prepared. Development applications that propose multiple habitable buildings, should submit a BAL Contour Map, instead of a BAL assessment.

Where a BAL Contour Map was prepared as part of the subdivision and/or structure plan, a compliance certificate should be provided to confirm that, following completion of the subdivision works, the indicative BAL remains accurate. The BAL Contour Map and compliance certificate can be used for the purpose of the development application.

If the pre-development BAL assessment indicates that the proposed habitable building(s) will have a potential radiant heat impact exceeding 29kW/m<sup>2</sup> then a bushfire management plan should accompany the development application and include the following information:

- a. The identification of any environmental, biodiversity or conservation values on the subject site(s).

Where relevant, details on how the clearing of native vegetation specifically for bushfire mitigation to achieve the bushfire protection measures, can be avoided through the use of siting and design measures.

Where the clearing of native vegetation cannot be avoided, details on how the proposal will minimise the clearing are to be provided.

- b. BAL Contour Map or BAL assessment.
- c. The identification of any bushfire hazard issues arising from the assessment.

- d. Assessment against the bushfire protection criteria within BCP 6: Development - Residential, demonstrating compliance via either the acceptable solutions, or through an outcomes-based approach.

#### 6.4.1 BAL assessment (basic)

A BAL assessment (basic) can be prepared for the development application where the habitable building is within a designated bushfire prone area but there is no vegetation classified under AS 3959 within 100 metres of the development (or within 50 metres for Class G: Grassland).

Refer to A.4 BAL Assessment (BASIC) for further information.

### RELEVANT SUPPORTING INFORMATION

- > **Appendix A – Bushfire Assessment Methodologies**
  - A.3 BAL Contour Map**
  - A.4 BAL Assessment**
  - A.5 BAL Assessment (BASIC)**
- > **Appendix B – Explanatory Notes**
  - B.2 Siting and design**
  - B.3 Vehicular access**
  - B.4 Water supply**
- > **Bushfire management plan templates found online at [wa.gov.au](http://wa.gov.au) [DPLH]**



## Bushfire Protection Criteria 6: Development – Residential

### ELEMENT 1: LOCATION

#### OUTCOMES

Not applicable

#### ACCEPTABLE SOLUTIONS

**Area 1:** Not applicable.

**Area 2:** Not applicable.

### ELEMENT 2: SITING AND DESIGN

#### OUTCOMES

**O2** Ensure siting and design solutions:

- manage or mitigate the bushfire risk to people, property and infrastructure; and
- avoid, or where unavoidable, minimises the clearing of native vegetation.

#### ACCEPTABLE SOLUTIONS

##### A2.1a Siting and design

Every residential habitable building achieves a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29).

##### A2.1b Siting in an area with a radiant heat impact exceeding 29 kW/m<sup>2</sup> (BAL-40 or BAL-FZ).

The siting of a residential habitable building, with a radiant heat impact exceeding 29 kW/m<sup>2</sup> (BAL-40 or BAL-FZ). Should only be considered where:

- the lot was created prior to December 2015; and
- there are demonstrated site characteristics and/or biodiversity or conservation values that prevent the achievement of a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29); and
- it is demonstrated that the reduction of the building footprint or a redesign to manage or mitigate the risk, is not practical or appropriate.

If the provision of an APZ in accordance with acceptable solution A2.2 cannot be achieved, then the vegetation immediately surrounding the building is to be managed as defensible space in accordance with Appendix B.2, **Table 9** – APZ technical requirements.

##### A2.2 Asset Protection Zone (APZ)

Where a residential habitable building cannot be wholly within an area with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29) in its pre-development state, an APZ is to be provided and meet the following requirements:

- **Width:** the APZ is to be measured from any external wall or supporting post or column of the building, and of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m<sup>2</sup> (BAL-29) in all circumstances.



## Bushfire Protection Criteria 6: Development – Residential

### ELEMENT 2: SITING AND DESIGN

- **Location:** the APZ is to be contained solely within the boundaries of the lot, except in instances where:
  - the vegetation on the adjoining lot(s) is, and will continue to be, low threat as per Clause 2.2.3.2 of AS 3959 or the requirements of Appendix B.2, **Table 9** - APZ technical requirements, or an alternative standard in a local planning scheme, on an ongoing basis in perpetuity; or
  - the adjoining land is and will remain in perpetuity, non-vegetated.
- **Management:** the APZ is managed in accordance with the requirements of Appendix B.2, **Table 9** – APZ technical requirements, or an alternative standard in a gazetted local planning scheme.

#### A2.3 Clearing of native vegetation

The development avoids, or where unavoidable, minimises the clearing of native vegetation

### ELEMENT 3: VEHICULAR ACCESS

#### OUTCOMES

- O3** Ensure the design and capacity of vehicular access and egress provide:
- for efficient and effective evacuation to a suitable destination(s) and/or
  - as a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option.

#### ACCEPTABLE SOLUTIONS

##### A3.1 Private driveways

There are no private driveway technical requirements (prescribed by these Guidelines) where the private driveway is within a lot serviced by reticulated water and is no greater than 70 metres in length between the most distant external part of the habitable building and the public road.

In circumstances where the above conditions are not met, the private driveway is to meet all of the following requirements:

- requirements of Appendix B.3 **Table 10**, column 5; and
- passing bays every 200 metres with a minimum length of 20 metres and a minimum additional carriageway width of 2 metres (i.e. the combined carriageway width of the passing bay and constructed private driveway is to be a minimum 6 metres); and
- turn-around area (**Figure 30**) and within 30 metres of the residential habitable building (**Figure 38**).



## Bushfire Protection Criteria 6: **Development – Residential**

### ELEMENT 4: WATER SUPPLY

#### OUTCOMES

**O4** Ensure that sufficient water is available to enable people, property and infrastructure to be defended from bushfire.

#### ACCEPTABLE SOLUTIONS

##### **A4.1 Water supply for residential habitable buildings**

Where a reticulated water supply is existing or proposed, a hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority.

Where these specifications cannot be met, a water tank(s) should be provided in accordance with the requirements of Appendix B.4, **Table 11** – Water supply dedicated for bushfire firefighting.



## 7 DEVELOPMENT – COMMERCIAL AND INDUSTRIAL

A development application for the construction of, or addition to, a habitable building for commercial or industrial uses in an area subject to a pre-development radiant heat impact exceeding  $29 \text{ kW/m}^2$  (BAL-40 or BAL-FZ) and designated as Area 1 (Urban) or Area 2 on the *Map of Bush Fire Prone Areas*, should address the requirements within this section.

An application for additions to a habitable building to which SPP 3.7 and these Guidelines apply, is required to address the bushfire protection criteria for the entire site. It should be noted that there are no requirements under SPP 3.7 or the Guidelines to retrofit existing buildings to the appropriate bushfire construction standard, or any requirement for these existing buildings to be located within an area with a radiant heat impact not exceeding  $29 \text{ kW/m}^2$  (BAL-29).

### 7.1 DESIGN CONSIDERATIONS

The siting, layout and design should respond to the bushfire risk presented by the interface with classified vegetation adjoining the subject site and any remaining or proposed classified vegetation within the subject site. Asset Protection Zones (APZs) are commonly used to mitigate the bushfire threat within a lot. Strategic management of vegetation and plant flammability within the APZ should be considered in accordance with Appendix B.2: Siting and Design.

Where possible, development should be in existing cleared area(s) to avoid the need for modification or removal of native vegetation.

Incidental 'open-air' land-uses associated with a habitable building are not required to be in an area with a radiant heat impact of  $29 \text{ kW/m}^2$  (BAL-29) or below.

These uses include, but are not limited to, carparking areas, playgrounds, tennis courts, car yards and golf courses.

#### 7.1.1 Storage of hazardous, flammable and/or combustible materials

Some commercial or industrial development may involve the storage of hazardous, flammable, and/or combustible materials, including chemical or toxic processes, that are not at a quantity that trigger the requirement for a licence under the *Dangerous Goods Safety Act 2004* or the *Environmental Protection Act 1986*, but could still potentially pose a risk to the community or emergency services due to the increased potential to ignite, intensify and prolong a bushfire. Hazardous, flammable, and/or combustible materials may include flammable liquids, flammable solids, gases, corrosives and oxidizing substances.

Where a proposed development involves the storage of hazardous, flammable, and/or combustible materials, which do not trigger a licence under the *Dangerous Goods Safety Act 2004* or the *Environmental Protection Act 1986*, the bushfire management plan should identify all of the following:

- the type and quantity of the flammable hazards proposed to be stored on-site, in context of the bushfire risk and scale of the development
- on the site plan a suitable structure from which the hazardous, flammable and/or combustible materials are shielded from radiant heat from the bushfire hazard

- implementation measures for the on-site storage and/or management of any hazardous, flammable and/or combustible materials.

#### 7.1.2 Siting within BAL-40 or BAL-FZ

Habitable buildings that have a radiant heat impact exceeding  $29 \text{ kW/m}^2$  (BAL-40 or BAL-FZ), are likely to have direct exposure to flame contact and be subject to ember attack. The separation distance between a structure and classified vegetation is a good indicator of the likelihood of damage by fire, with a trend towards greater total loss as the separation distance decreases.

There are occasions where a lot(s) has been created prior to implementation of SPP 3.7 and the Guidelines in December 2015 and due to site characteristics and/or environmental values, a habitable building is unable to be located within an area that has a radiant heat impact not exceeding  $29 \text{ kW/m}^2$  (BAL-29). SPP 3.7 and the Guidelines recognise the expectation to be able to build a habitable building on a lot that is zoned for this purpose and as such provides a pathway for the consideration of siting within an area with a radiant heat impact exceeding  $29 \text{ kW/m}^2$  (BAL-40 or BAL-FZ) in exceptional circumstances.

If a habitable building is proposed in areas that will have a post development radiant heat impact exceeding  $29 \text{ kW/m}^2$  (BAL-40 or BAL-FZ), consideration should be given to addressing the acceptable solutions to the greatest extent possible to improve the bushfire resilience of the habitable building.

Additional measures to improve the bushfire resilience of the habitable building may include incorporating bushfire construction solutions commensurate with those detailed within the BCA and AS 3959 (where appropriate). While the BCA does not include bushfire construction



requirements for most commercial and industrial buildings that do not involve overnight accommodation, it may be possible to improve the bushfire design and construction of the building and address the outcomes of SPP 3.7 and Guidelines.

A bushfire emergency plan should be prepared to detail how employees and visitors are to respond in the event of a bushfire emergency.

## 7.2 INFORMATION TO ACCOMPANY THE DEVELOPMENT APPLICATION

A BAL assessment, or BAL Contour Map, should be prepared for the proposed development and accompany the application. Applications that propose multiple habitable buildings should submit a BAL Contour Map, instead of a BAL assessment.

Where a BAL Contour Map was prepared as part of the subdivision and/or structure plan, a compliance certificate should be provided to confirm that, following completion of subdivision works, the indicative BAL remains accurate. This can then be submitted with the development application.

A bushfire management plan should accompany the application and include the following information at a scale that is appropriate for the development:

- a. The identification of any environmental, biodiversity or conservation values on the subject site(s).

Where relevant, details on how the clearing of native vegetation specifically for bushfire mitigation to achieve the bushfire protection measures, can be avoided through the use of siting and design measures.

Where the clearing of native vegetation cannot be avoided, details on how the proposal will minimise the clearing are to be provided.

- b. A BAL Contour Map or BAL assessment.
- c. The identification of any bushfire hazard issues arising from the assessment.
- d. Assessment against the bushfire protection criteria, within BPC 7: Development – Commercial and industrial demonstrating compliance via either the acceptable solutions, or through an outcomes-based approach.

### 7.2.1 BAL assessment (basic)

A BAL assessment (basic) can be prepared for a development application where the development site is within a designated bushfire prone area, but there is no vegetation classified under AS 3959 within 100 metres of the development site (or within 50 metres for Class G Grassland).

## RELEVANT SUPPORTING INFORMATION

- > **Appendix A – Bushfire Assessment Methodologies**
  - A.3 BAL Contour Map**
  - A.4 BAL Assessment**
  - A.5 BAL Assessment (BASIC)**
- > **Appendix B – Explanatory Notes**
  - B.2 Siting and design**
  - B.3 Vehicular access**
  - B.4 Water supply**
- > **Bushfire management plan templates found online at [wa.gov.au](https://www.wa.gov.au) [DPLH]**
- > **Bushfire emergency plan template found online at [wa.gov.au](https://www.wa.gov.au) [DPLH]**





## Bushfire Protection Criteria 7: Development - Commercial and industrial

### ELEMENT 1: LOCATION

#### OUTCOMES

Not applicable

#### ACCEPTABLE SOLUTIONS

**Area 1:** Not applicable.

**Area 2:** Not applicable.

### ELEMENT 2: SITING AND DESIGN

#### OUTCOMES

**O2** Ensure siting and design solutions:

- manage or mitigate the bushfire risk to people, property and infrastructure; and
- avoid, or where unavoidable, minimises the clearing of native vegetation.

#### ACCEPTABLE SOLUTIONS

##### A2.1a Siting and design

Every habitable building achieves radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29).

##### A2.1b Siting in an area with a radiant heat impact exceeding 29 kW/m<sup>2</sup> (BAL-40 or BAL-FZ)

The siting of a commercial or industrial habitable building, with a radiant heat impact exceeding 29 kW/m<sup>2</sup> (BAL-40 or BAL-FZ) should only be considered where:

- the lot was created prior to December 2015; and
- there are demonstrated site characteristics and/or biodiversity or conservation values that prevent the achievement of a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29); and
- it is demonstrated that the reduction of the building footprint or a redesign to manage or mitigate the risk, is not practical or appropriate.

If the provision of an APZ in accordance with acceptable solution A2.2 cannot be achieved, then the vegetation immediately surrounding the building is to be managed as defendable space in accordance with Appendix B.2, **Table 9** – APZ technical requirements.

##### A2.2 Asset Protection Zone (APZ)

Where a habitable building cannot be wholly within an area with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29) in its pre-development state, an APZ is to be provided and meet the following requirements:

- **Width:** the APZ is to be measured from any external wall or supporting post or column of the building, and of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m<sup>2</sup> (BAL-29) to any part of the building, in all circumstances.



## Bushfire Protection Criteria 7: Development - Commercial and industrial

### ELEMENT 2: SITING AND DESIGN

- **Location:** the APZ is to be contained solely within the boundaries of the lot, except in instances where:
  - the vegetation on the adjoining lot(s) is, and will continue to be, low threat as per Clause 2.2.3.2 of AS 3959 or the requirements of Appendix B.2, **Table 9** – APZ technical requirements, or an alternative standard in a gazetted local planning scheme, on an ongoing basis in perpetuity; or
  - the adjoining land is and will remain in perpetuity, non-vegetated.
- **Management:** the APZ is managed in accordance with the requirements of Appendix B.2, **Table 9** – APZ technical requirements, or an alternative standard in a gazetted local planning scheme.

#### A2.3 Clearing of native vegetation

The development avoids, or where unavoidable, minimises the clearing of native vegetation.

#### A2.4 Storage of hazardous, flammable and/or combustible materials

Where a proposed land use will include the storage of hazardous, flammable and/or combustible materials as part of its ongoing day to day operations, the materials are to be stored in an area that:

- is subject to a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29);
- is non-combustible and shields the materials to reduce their exposure to radiant heat from the bushfire to levels significantly lower than 29 kW/m<sup>2</sup> and prevents the entry of debris and embers; and
- limits to the degree necessary and practical, the escape of sources of ignition from the stored materials into bushfire prone vegetation.



## Bushfire Protection Criteria 7: Development - Commercial and industrial

### ELEMENT 3: VEHICULAR ACCESS

#### OUTCOMES

- O3** Ensure the design and capacity of vehicular access and egress provide:
- for efficient and effective evacuation to a suitable destination(s) and/or
  - as a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option.

#### ACCEPTABLE SOLUTIONS

##### A3.1 Private driveway

There are no private driveway technical requirements (prescribed by these Guidelines) where the private driveway is within a lot serviced by reticulated water and is no greater than 70 metres in length between the most distant external part of the habitable building and the public road.

In circumstances where the above conditions are not met, the private driveway is to meet all of the following requirements:

- requirements in Appendix B.3 **Table 10**, Column 5; and
- passing bays every 200 metres with a minimum length of 20 metres and a minimum additional carriageway width of 2 metres (i.e. the combined carriageway width of the passing bay and constructed private driveway to be a minimum 6 metres); and
- turn-around area (**Figure 30**) and within 30 metres of the habitable building (**Figure 38**).

### ELEMENT 4: WATER SUPPLY

#### OUTCOMES

- O4** Ensure that sufficient water is available to enable people, property and infrastructure to be defended from bushfire.

#### ACCEPTABLE SOLUTIONS

##### A4.1 Water supply

Where a reticulated water supply is existing or proposed, a hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority.

Where these specifications cannot be met, a water tank(s) should be provided in accordance with the requirements of Appendix A.4, **Table 11** – Water supply dedicated for bushfire firefighting.



## 8 DEVELOPMENT – VULNERABLE LAND USES

This section applies to development applications in areas designated as Area 1 (Urban) or Area 2 on the *Map of Bush Fire Prone Areas* for the construction and/or use of, or additions to:

- a habitable building for:
  - a vulnerable commercial or industrial land use
  - a vulnerable Class 9 building identified within the 2022 edition of the Building Code of Australia (BCA),
  - a vulnerable tourism land use
- a caravan park, nature-based park and/or camping ground, with or without a habitable building(s).

**There are no requirements within SPP 3.7 or these Guidelines for the use of a single house or ancillary dwelling, including for hosted or unhosted short-term rental accommodation.**

A development application for additions to a vulnerable land use, should address the bushfire protection criteria for the entire site. It should be noted that there are no requirements under SPP 3.7 or the Guidelines to retrofit existing buildings to the appropriate bushfire construction standard, or any requirement for these existing buildings to be located within an area with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29).

### 8.1 DESIGN CONSIDERATIONS

#### 8.1.1 Strategic consideration of vulnerable land uses

SPP 3.7 and the Guidelines cannot identify and prescribe acceptable solutions for all vulnerable land uses due to the range of land uses that fall within this category, the range of bushfire risk, or the emergency services capacity, within a local area.

For vulnerable land uses, particularly tourism land uses, local governments are encouraged to identify within their local planning strategy and local planning scheme, appropriate locations, and/or identify those areas of extreme bushfire risk and/or areas with limited vehicular access, where vulnerable land uses should be avoided.

#### 8.1.2 Bushfire risk management measures

Developing vulnerable land uses within remote and/or heavily vegetated areas comes with an inherent bushfire risk, which can be reduced but never fully eliminated. Such risks must be understood in order to anticipate and manage them and foster a culture of resilience at all levels.

Each vulnerable land use will present different evacuation challenges and different risk profiles, dependent on locational characteristics, number of patrons and management arrangements, including the presence of a resident or manager on site.

It is important to consider these differences and provide suitable bushfire risk management measures that respond to the unique nature of the land use and location. The acceptable solutions provided should be treated as a minimum requirement and if deemed necessary by the bushfire planning practitioner, or decision-maker, additional bushfire risk management measures should be included.

#### 8.1.3 Bushfire construction standards

The BCA does not include bushfire construction requirements for most commercial and industrial buildings that do not involve overnight accommodation. Although preferable, the siting of these structures and buildings within an area with a post development radiant heat impact of 29 kW/m<sup>2</sup> (BAL-29) or below does not guarantee the building or structure will survive a bushfire. Sheltering in these structures or buildings during a bushfire is unlikely to provide adequate protection.

For these buildings or structures, additional measures to improve the bushfire resilience could include incorporating bushfire construction solutions commensurate with those detailed within the BCA and AS 3959 (where appropriate).

#### 8.1.4 Siting within BAL-40 or BAL-FZ

The siting of vulnerable land uses that have a post development radiant heat impact exceeding 29 kW/m<sup>2</sup> (BAL-40 or BAL-FZ) present additional challenges. Consideration will need to be given to the ability of the occupants to evacuate in the event of a bushfire. Where the occupants are vulnerable, including elderly, young, sick or immobile, evacuation may not be possible and staying on-site may be the best option.

**Development that involves vulnerable people should not be supported in areas that have a radiant heat impact exceeding 29 kW/m<sup>2</sup> (BAL-40 or BAL-FZ).**



It is recognized that some nature-based tourism and commercial land uses, such as wineries or restaurants, are often reliant on the visual amenity provided by vegetation and/or the site may contain biodiversity or conservation values.

Where there are no bushfire construction standards under the BCA and where the aim is to retain the biodiversity, conservation or visual amenity values, careful design solutions could be proposed for the siting of habitable buildings or structures within areas that have a radiant heat impact exceeding 29 kW/m<sup>2</sup> (BAL-40 or BAL-FZ).

The bushfire management plan (BMP) should acknowledge that it is understood that in the event of a bushfire, these habitable buildings or structures may be destroyed or damaged and are considered a tolerable loss. Importantly the BMP should demonstrate there are suitable options for evacuation and for on-site shelter (where appropriate) in the event of a bushfire.

#### 8.1.5 Vehicular access and traffic management

The site is to be designed to ensure that vehicular access and traffic management allow for vehicles to quickly evacuate the site in the event of a bushfire.

The private driveway or internal vehicular access from the public road network to the development site(s) should be designed to provide for unobstructed access and egress. The access is to provide sufficient turn around areas and over taking points.

Directional signage and advice on what to do and where go in the event of a bushfire, will assist those who are unfamiliar with the area.

### 8.2 CONDITIONS OF DEVELOPMENT APPROVAL WHERE ON-SITE SHELTER IS PROPOSED

While closure and early evacuation are recommended in the first instance, the following conditions should be imposed on a development approval where on-site shelter in a building is proposed:

- a. The on-site shelter must be designed and constructed in accordance with the Building Code of Australia and the ABCB Design and Construction of Community Bushfire Refuges Handbook (2014). The design must be undertaken by a suitably qualified fire engineer with fire risk assessment expertise, accredited with Engineers Australia.
- b. Prior to occupation of the development, a final inspection of the on-site shelter must be undertaken by a suitably qualified fire engineer with fire risk assessment expertise, accredited with Engineers Australia. The fire engineer should provide certification, to the satisfaction of the local government, that the works have been completed in accordance with the requirements of the BCA and the ABCB Design and Construction of Community Bushfire Refuges Handbook (2014).
- c. Prior to occupation of the development, an on-site shelter maintenance plan must be prepared by a suitably qualified fire engineer with fire risk assessment expertise, accredited with Engineers Australia, and must include:
  - i. details of maintenance requirements; and
  - ii. details of annual testing requirements for operational compliance.

Note: where an on-site shelter in an open space is proposed only condition c.ii would be required.

### 8.3 INFORMATION TO ACCOMPANY THE DEVELOPMENT APPLICATION

A BAL assessment, or BAL Contour Map, should be prepared for the proposed development and accompany the development application. Applications that propose multiple habitable buildings should submit a BAL Contour Map, instead of a BAL assessment, to better demonstrate the radiant heat impact for each habitable building and other structures of interest.

If the BAL assessment or BAL Contour Map indicates that the proposed development will have a pre-development BAL rating above BAL-LOW, a BMP should accompany the application and include the following information at a scale that is appropriate for the development:

- a. The identification of any environmental, biodiversity or conservation values on the subject site(s).

Where relevant, details on how the clearing of native vegetation specifically for bushfire mitigation to achieve the bushfire protection measures, can be avoided through the use of siting and design measures.

Where the clearing of native vegetation cannot be avoided, details on how the proposal will minimise the clearing are to be provided.

- b. A BAL Contour Map or BAL assessment.
- c. The identification of any bushfire hazard issues arising from the assessment.



- d. Assessment against the bushfire protection criteria, within BPC 8: Development – Vulnerable Class 9 buildings or BPC 8: Development - Vulnerable tourism land uses and day uses, demonstrating compliance with either the acceptable solutions, or through an outcomes-based approach.

### 8.3.1 Bushfire emergency plan

SPP 3.7 requires the preparation of a bushfire emergency plan for all vulnerable land uses. The bushfire emergency plan is to be prepared and submitted with the bushfire management plan.

#### RELEVANT SUPPORTING INFORMATION

- > **Appendix A – Bushfire Assessment Methodologies**
  - A.3 BAL Contour Map
  - A.4 BAL Assessment
- > **Appendix B – Explanatory Notes**
  - B.2 Siting and design
  - B.3 Vehicular access
  - B.4 Water supply
  - B.5 Vulnerable land uses
- > **Bushfire management plan templates found online at [wa.gov.au](http://wa.gov.au) [DPLH]**
- > **Bushfire emergency plan template found online at [wa.gov.au](http://wa.gov.au) [DPLH]**





## Bushfire Protection Criteria 8: Development – Vulnerable Class 9 buildings

### ELEMENT 1: LOCATION

#### OUTCOMES

- O1** Avoid broader landscapes that present an unacceptable risk to life, property and infrastructure.

#### ACCEPTABLE SOLUTIONS

**Area 1 (Urban):** Not applicable

**Area 2:** Not applicable

Note: this assessment should be done at the strategic planning stage(s).

### ELEMENT 2: SITING AND DESIGN

#### OUTCOMES

- O2** Ensure siting and design solutions:

- manage or mitigate the bushfire risk to people, property and infrastructure; and
- avoid, or where unavoidable, minimises the clearing of native vegetation.

#### ACCEPTABLE SOLUTIONS

##### A2.1 Siting and design

Every habitable building achieves a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29).

##### A2.2 Asset Protection Zone (APZ)

Where a habitable building cannot be wholly within an area with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29) in its pre-development state, an APZ is to be provided and meet the following requirements:

- **Width:** the APZ is to be measured from the development site, and of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m<sup>2</sup> (BAL-29) in all circumstances.
- **Location:** the APZ is to be contained solely within the boundaries of the lot, except in instances where:
  - the vegetation on the adjoining lot(s) is, and will continue to be, low threat as per Clause 2.2.3.2 of AS 3959 or the requirements of Appendix B.2, **Table 9** – APZ technical requirements, or an alternative standard in a local planning scheme, on an ongoing basis in perpetuity; or
  - the adjoining land is and will remain in perpetuity, non-vegetated.
- **Management:** the APZ is managed in accordance with the requirements of Appendix B.2, **Table 9** – APZ technical requirements, or an alternative standard in a gazetted local planning.

##### A2.3 Clearing of native vegetation

The development avoids, or where unavoidable, minimises the clearing of native vegetation.

##### A2.4 Landscape management plan

A landscape management plan is to be prepared to identify on-going on-site vegetation management.



## Bushfire Protection Criteria 8: Development – Vulnerable Class 9 buildings

### ELEMENT 2: SITING AND DESIGN

#### A2.5 On-site shelter (safer building) – schools

An on-site shelter (safer building) is to be provided in accordance with the *Principal's guide to bushfire: Prepare your school for the bushfire season* ([Department of Education: October 2022](#)).

#### A2.6 Storage of hazardous, flammable and/or combustible materials

Where a proposed land use will include the storage of hazardous, flammable and/or combustible materials as part of its ongoing day to day operations, the materials are to be stored in an area that:

- is subject to a calculated or indicated radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29);
- is non-combustible and shields the materials to reduce their exposure to radiant heat from the bushfire to levels significantly lower than 29 kW/m<sup>2</sup> and prevents the entry of debris and embers; and
- limits to the degree necessary and practical, the escape of sources of ignition from the stored materials into bushfire prone vegetation.

### ELEMENT 3: VEHICULAR ACCESS

#### OUTCOMES

- O3** Ensure the design and capacity of vehicular access and egress provide:
- for efficient and effective evacuation to a suitable destination(s) and/or
  - as a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option.

#### ACCEPTABLE SOLUTIONS

##### A3.1 Public roads

Public roads are to meet the requirements in Appendix B.3, **Table 10**.

##### A3.2 Access routes

**Area 1 (Urban):** Public road access is to be provided to at least one suitable destination.

**Area 2:** Public road access should be provided in two different directions to at least two different suitable destinations, with an all-weather surface.

##### A3.3a No-through roads

**Area 1 (Urban):** No limitation on no-through road lengths.

**Area 2:** If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the public road access is to be a maximum of 200 m from the proposed lot(s) boundary to an intersection where two-way access is provided.



## Bushfire Protection Criteria 8: Development – Vulnerable Class 9 buildings

### ELEMENT 3: VEHICULAR ACCESS

The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints, and the following requirements are met:

- the no-through road travels towards a suitable destination; and
- the balance of the no-through road, that is greater than 200 metres from the subject site, is wholly within BAL-LOW, or is within a residential built-out area, or is within Area 1 (**Figure 29**).

#### A3.3b No-through road requirements

A no-through road is to meet all the following requirements:

- requirements of a public road (Appendix B.3, **Table 10**, Column 2); and
- turn-around area/head (**Figure 30**).

#### A3.4 Emergency access ways

*Where it is demonstrated that A3.2 and A3.3a cannot be achieved due to site constraints, an emergency access way can be considered as an acceptable solution.*

An emergency access way is to meet all the following requirements:

- requirements in Appendix B.3, **Table 10**, Column 3;
- provides a through connection to a public road;
- be no more than 500 metres in length;
- the proponent obtaining consent from the local government that it will accept care, control and management; and
- must be signposted and if gated, gates must open for the whole carriageway width remain unlocked.

#### A3.5 Fire service access route

*Where proposed lots adjoin classified vegetation under AS 3959 (excluding Class G Grassland), a fire service access route is to be provided to provide firefighter access, where access is not available to the classified vegetation.*

A fire service access route is to meet all the following requirements:

- requirements of Appendix B.3, **Table 10**, Column 4;
- be through-routes with no dead-ends;
- must be signposted;
- no further than 500 metres from a public road;
- the proponent obtaining consent from the local government that it will accept care, control and management; and
- if gated, gates must open the whole carriageway width and can be locked by the local government and/or the emergency services, if keys are provided for each gate.



## Bushfire Protection Criteria 8: **Development – Vulnerable Class 9 buildings**

### ELEMENT 3: VEHICULAR ACCESS

#### **A3.6 Internal vehicular access and private driveways**

Internal vehicular access and private driveways longer than 70 metres should meet all the following requirements:

- requirements in Appendix A.3, **Table 10**, Column 5;
- passing bays every 200 metres with a minimum length of 20 m and a minimum additional carriageway width of 2 m (i.e. the combined carriageway width of the passing bay and constructed private driveway to be a minimum 6 m); and
- turn-around areas (**Figure 30**).

#### **A3.7 Signage**

Signage to be provided within the subject site, advising of where each access route travels to and the distance and general information signs on what to do in the event of a bushfire.

### ELEMENT 4: WATER SUPPLY

#### **OUTCOMES**

**O4** Ensure that sufficient water is available to enable people, property and infrastructure to be defended from bushfire.

#### **ACCEPTABLE SOLUTIONS**

##### **A4.1 Water supply**

Where a reticulated water supply is existing or proposed, a hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority.



## Bushfire Protection Criteria 8: Development – Vulnerable tourism land uses and day uses

### ELEMENT 1: LOCATION

#### OUTCOMES

- O1** Avoid broader landscapes that present an unacceptable risk to life, property and infrastructure.

#### ACCEPTABLE SOLUTIONS

**Area 1 (Urban):** Not applicable

**Area 2:** Not applicable

Note: this assessment should be done at the strategic planning stage(s).

### ELEMENT 2: SITING AND DESIGN

#### OUTCOMES

- O2** Ensure siting and design solutions:

- manage or mitigate the bushfire risk to people, property and infrastructure; and
- avoid, or where unavoidable, minimises the clearing of native vegetation.

#### ACCEPTABLE SOLUTIONS

##### A2.1a Siting and design

Every habitable building achieve a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29).

##### A2.1b Asset Protection Zone (APZ)

Where a habitable building cannot be wholly within an area with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29) in its pre-development state, an APZ is to be provided and meet the following requirements:

- **Width:** the APZ is to be measured from the development site, and of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m<sup>2</sup> (BAL-29) in all circumstances.
- **Location:** the APZ is to be contained solely within the boundaries of the lot, except in instances where:
  - the vegetation on the adjoining lot(s) is, and will continue to be, low threat as per Clause 2.2.3.2 of AS 3959 or the requirements of Appendix B.2, **Table 9** – APZ technical requirements, or an alternative standard in a local planning scheme, on an ongoing basis in perpetuity; or
  - the adjoining land is and will remain in perpetuity, non-vegetated.
- **Management:** the APZ is managed in accordance with the requirements of Appendix B.2, **Table 9** – APZ technical requirements, or an alternative standard in a gazetted local planning.

##### A2.2a Siting within 40 kW/m<sup>2</sup> (BAL-40) and/or more than 40 kW/m<sup>2</sup> (BAL-FZ)

The siting of a habitable building or structure, with a radiant heat impact exceeding 29 kW/m<sup>2</sup> (BAL-40 or BAL-FZ) should only be considered where:

- there are no bushfire construction standards required under the BCA; and



## Bushfire Protection Criteria 8: Development – Vulnerable tourism land uses and day uses

### ELEMENT 2: SITING AND DESIGN

- there are demonstrated site characteristics and/or environmental values that prevent the achievement of a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29); and
- it is acknowledged within the bushfire management plan that it is understood that in the event of a bushfire it is possible the building or structure will be damaged or destroyed.

#### **A 2.2b Asset Protection Zone (APZ)**

Where the provision of an APZ in accordance with acceptable solution A2.1b cannot be achieved, then the vegetation immediately surrounding the habitable building is to be managed as defendable space in accordance with Appendix B.2, **Table 9** – APZ technical requirements.

#### **A2.3 Clearing of native vegetation**

The development avoids, or where unavoidable, minimises the clearing of native vegetation.

#### **A2.4 Landscape management plan**

A landscape management plan is to be prepared to identify on-going on-site vegetation management.

#### **A2.5 On-site shelter (if required)**

Where an on-site shelter is proposed, to comply with A3.5 On-site shelter, it is to meet all the following requirements:

- where a building is to function as an on-site shelter, there is to be sufficient separation distance from the predominant bushfire prone vegetation to avoid exposure to a radiant heat flux exceeding 10 kW/m<sup>2</sup> (with an assumed flame temperature of 1200 K); or
- where an open space area is to function as an on-site shelter, there is to be sufficient separation distance from the bushfire prone vegetation to avoid exposure to a radiant heat flux exceeding 2 kW/m<sup>2</sup> (with an assumed flame temperature of 1200 K); and
- buildings identified as suitable for on-site shelter, to be designed in accordance with *Building Code of Australia and the ABCB Design and Construction of Community Bushfire Refuges Handbook* and located within an area of 10 kW/m<sup>2</sup>; and
- pedestrian paths to any on-site shelter should be provided and be clearly signposted.



## Bushfire Protection Criteria 8: Development – Vulnerable tourism land uses and day uses

### ELEMENT 3: VEHICULAR ACCESS

#### OUTCOMES

- O3** Ensure the design and capacity of vehicular access and egress provide:
- for efficient and effective evacuation to a suitable destination(s) and/or
  - as a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option.

#### ACCEPTABLE SOLUTIONS

##### A3.1 Public roads

Public roads are to meet the requirements in Appendix B.3, **Table 10**.

##### A3.2a Access routes

**Area 1 (Urban):** Public road access is to be provided to at least one suitable destination.

**Area 2:** Public road access should be provided in two different directions to at least two different suitable destinations, with an all-weather surface.

##### A3.2b For a day use with no overnight accommodation

Public road access in two different directions to two different suitable destinations to be provided, except in the following circumstances:

- where the tourism land use is within a residential built out area; or
- where a bushfire emergency plan provides for closure during days forecasted to be an extreme or catastrophic fire danger rating and a total fire ban; and for the early evacuation of patrons and staff; or
- where a bushfire emergency plan provides for non-operation during the bushfire season; and
- where it is demonstrated that secondary access (including an emergency access way) cannot be achieved

##### A3.3a No-through roads

**Area 1 (Urban):** No limitation on no-through road lengths.

**Area 2:** If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the public road access is to be a maximum of 200 metres from the proposed lot(s) boundary to an intersection where two-way access is provided.

The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints, and the following requirements are met:

- the no-through road travels towards a suitable destination; and
- the balance of the no-through road, that is greater than 200 metres from the subject site, is wholly within BAL-LOW, or is within a residential built-out area, or is within Area 1 (**Figure 29**).

##### A3.3b No-through road requirements

A no-through road is to meet all the following requirements:

- requirements of a public road (Appendix B.3, **Table 10**, Column 2); and
- turn-around area/head (**Figure 30**).





## Bushfire Protection Criteria 8: Development – Vulnerable tourism land uses and day uses

### ELEMENT 3: VEHICULAR ACCESS

#### A3.4 Emergency access ways

Where it is demonstrated that A3.2 and A3.3 cannot be achieved, an emergency access way can be considered as an acceptable solution. An emergency access way is to meet all of the following requirements:

- requirements in Appendix B.3, **Table 10**, Column 3;
- provide a through connection to a public road;
- be no more than 500 metres in length;
- the proponent obtaining consent from the local government that it will accept care, control and management; and
- must be signposted and if gated, gates must remain unlocked.

#### A3.5 On-site shelter

Where A3.2, A3.3a and A3.4 (if required), cannot be achieved, and the proposed development has a capacity of up to a maximum of 100 guests and employees at any one time, an on-site shelter is to be provided in accordance with A2.5.

*Where A3.2, A3.3a and A3.4 (if required), cannot be achieved and more than 100 guests and employees are proposed, and/or the bushfire planning practitioner considers an on-site shelter not necessary, an outcomes-based approach can be prepared.*

#### A3.6 Fire service access route

*Where proposed lots adjoin classified vegetation under AS 3959 (excluding Class G Grassland), a fire service access route is to be provided to provide firefighter access, where access is not available to the classified vegetation.*

A fire service access route is to meet all the following requirements:

- requirements of Appendix B.3, **Table 10**, Column 4;
- be through-routes with no dead-ends;
- must be signposted;
- no further than 500 metres from a public road;
- the proponent obtaining consent from the local government that it will accept care, control and management; and
- if gated, gates must open the whole carriageway width and can be locked by the local government and/or the emergency services, if keys are provided for each gate.



## Bushfire Protection Criteria 8: Development – Vulnerable tourism land uses and day uses

### ELEMENT 3: VEHICULAR ACCESS

#### A3.7 Internal vehicular access and private driveways

Internal vehicular access and private driveways longer than 70 metres should meet all the following requirements:

- requirements in Appendix B.3, **Table 10**, Column 5;
- passing bays every 200 m with a minimum length of 20 metres and a minimum additional carriageway width of 2 metres (that is, the combined carriageway width of the passing bay and constructed private driveway to be a minimum 6 metres); and
- turn-around areas as shown in **(Figure 30)**.

#### A3.8 Signage

Signage to be provided within the subject site, advising of where each access route travels to and the distance and general information signs on what to do in the event of a bushfire.

### ELEMENT 4: WATER SUPPLY

#### OUTCOMES

**O4** Ensure that sufficient water is available to enable people, property and infrastructure to be defended from bushfire.

#### ACCEPTABLE SOLUTIONS

##### A4.1 Water supply

Where a reticulated water supply is existing or proposed, a hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority.

Where these specifications cannot be met, a water tank(s) should be provided in accordance with the requirements of Appendix B.4, **Table 11** – Water supply dedicated for bushfire firefighting.



## 9 ROLES AND RESPONSIBILITIES

The management of bushfire related risk is the shared responsibility of landowners/proponents, government, industry and the community. This section summarises the key authorities and stakeholders, and their respective responsibilities in implementing SPP 3.7 and the Guidelines.

### 9.1 LANDOWNERS/PROPONENTS

Landowner/proponent responsibilities in addressing SPP 3.7 and the Guidelines include:

- awareness of the bushfire threat to their life and property and understanding that the bushfire risk in most circumstances cannot be entirely avoided or removed
- preparing and implementing contingency and emergency evacuation measures in case a bushfire occurs onsite or nearby
- responding to and complying with fire protection or hazard management notices issued by the local government
- seeking the services of an accredited Level 1 BAL assessor or accredited bushfire planning practitioner to:
  - prepare a BHL, BAL Contour Map and/or BAL assessment to support their planning application, in accordance with SPP 3.7 and the Guidelines

- where applicable, prepare a bushfire management plan, to demonstrate compliance with the bushfire protection criteria outlined in the relevant sections of the Guidelines
- where applicable, prepare a bushfire emergency plan for vulnerable land uses
- seeking the services of a planning or environmental consultant to address environmental considerations within the bushfire management plan, including:
  - identifying vegetation that is habitat for threatened fauna, and providing a fauna assessment to support the application
  - identifying vegetation that requires clearing or modification and, where necessary, providing a flora and fauna assessment to support the application
  - consulting with local government about locally significant native vegetation
  - providing an appropriate buffer for strategic planning proposals, subdivision or development applications abutting waterways and wetlands
- consulting early with relevant State and local government agencies, in circumstances where elements of their proposal may not conform to the acceptable solutions in the bushfire protection criteria
- ensuring the ongoing implementation of any bushfire management plan, including the ongoing management of any Asset Protection Zone, maintenance of a water source for firefighting (if applicable) and ensuring internal access provisions are provided (including trimming tree branches overhanging a driveway).

### 9.2 LOCAL GOVERNMENTS

Local government's responsibilities in addressing SPP 3.7 and the Guidelines may include:

- ensuring strategic planning proposals, structure plans and development applications located in designated bushfire prone areas address SPP 3.7 and the Guidelines, as required
- administering development controls in accordance with the local planning scheme, with due regard to SPP 3.7 and other policies and publications outlined in these Guidelines
- preparing a water distribution plan that identifies existing strategic water tanks for the use in the event of a bushfire and to assist with the identification of new strategic water tanks necessary to support new development. This could be considered through the Local Emergency Management Committee
- seeking the advice of DPLH and DFES on bushfire local planning policies and supplementary provisions to the deemed provisions relating to bushfire risk management contained in the LPS Regulations 2015
- ensuring related documents, such as local biodiversity strategies, revegetation and/or environmental management plans have been considered in the bushfire management plan and ensuring revegetation is considered in the bushfire assessment and does not increase the bushfire risk
- seeking comments and advice from DFES in relation to:
  - all strategic planning proposals within bushfire prone areas
  - all vulnerable land uses



- applications that propose an outcomes-based approach
- seeking advice from the appropriate agency if the bushfire management plan proposes modification or impacts on an area of environmental, biodiversity or conservation value
- providing advice where the clearing of locally significant vegetation is proposed
- advising DFES of recommended amendments to the *Map of Bush Fire Prone Areas* in accordance with the *Mapping Standard for Bush Fire Prone Areas* where:
  - there is no apparent bushfire prone vegetation (for example, where a BAL Contour Map or BAL assessment indicates a section of land as BAL-LOW)
  - clearing has been undertaken in accordance with a subdivision or development application
  - there are inconsistencies between the *Map of Bush Fire Prone Areas* and local government mapping
  - an area is proposed to be developed in a way that introduces a bushfire hazard (for example, it incorporates the revegetation of cleared land, wetland buffers or waterway foreshores)
- ensuring a final compliance check against the implementation table within the bushfire management plan has been undertaken by the BAL assessor, bushfire planning practitioner and/or local government, upon completion of subdivisional works
- ensuring landowners/occupiers comply with the ongoing management actions within the bushfire management plan implementation table, as reasonably practicable

- applying the precautionary principle to all strategic planning proposals, subdivision and development applications in bushfire prone areas
- ensuring buildings are constructed in accordance with the determined BAL rating and associated bushfire construction requirements where required.

### 9.3 WESTERN AUSTRALIAN PLANNING COMMISSION / DEPARTMENT OF PLANNING, LANDS AND HERITAGE

The WAPC/DPLH is responsible for:

- assessing and determining strategic planning documents and proposals, subdivision and development applications in accordance with SPP 3.7 and the Guidelines
- applying the precautionary principle to all strategic planning proposals, subdivision and development applications in bushfire prone areas
- monitoring the implementation and effectiveness of SPP 3.7 and the Guidelines.
- reviewing SPP 3.7 and the Guidelines, as necessary
- ensuring consistent consideration and determination of those applications that are inconsistent with the advice of DFES and/or do not satisfy the acceptable solutions of the bushfire protection criteria, and/or propose an outcomes-based approach
- assessing proposed local government supplementary provisions to the deemed provisions relating to bushfire risk management contained in the LPS Regulations 2015, in consultation with DFES, if required

- assessing local government requests for local variations to the bushfire protection criteria
- seeking comments and advice from DFES in relation to:
  - bushfire local planning policies
  - where a local government seeks to make local variations to the bushfire protection criteria
  - bushfire management plan that propose an outcomes-based approach to the bushfire protection criteria
  - where a Method 2 assessment has been undertaken in accordance with AS 3959 and requires validation where considered necessary and/or where refusal is contemplated
  - strategic planning proposals, including regional and local planning schemes, scheme amendments and structure plans, where SPP 3.7 and the Guidelines apply and where a bushfire management plan has been prepared
  - applications for vulnerable, including tourism, land uses
- referring bushfire management plans that are close to waterways, waterway foreshores, wetlands, or wetland buffers or impact on native flora, fauna or vegetation, including habitat of conservation significant fauna to the appropriate agency for comment
- advising DFES of recommended amendments to the *Map of Bush Fire Prone Areas* in accordance with the *Mapping Standard for Bush Fire Prone Areas* where an area is proposed to be developed in a way that introduces a bushfire hazard (for example, it incorporates the revegetation of cleared areas, wetlands, wetland buffers or waterway foreshores).



## 9.4 DEPARTMENT OF FIRE AND EMERGENCY SERVICES

The Fire and Emergency Services (FES) Commissioner is responsible for designating bushfire prone areas to trigger planning and building requirements under the *Fire and Emergency Services Act 1998* (as amended). The FES Commissioner is the Hazard Management Agency for fire and the State Hazard Plan Fire allocates fire management responsibilities to many agencies, including DFES, local government and DBCA.

### 9.4.1 Advice in accordance with SPP 3.7

DFES provides technical fire-related advice to inform and guide decision-making on strategic planning, subdivision and development applications. DFES is responsible for providing referral advice that includes their assessment against SPP 3.7 and the Guidelines to the decision-maker within statutory timeframes, where:

- strategic planning is required to address SPP 3.7 and the Guidelines and where a bushfire management plan (including a broader landscape assessment) has been prepared
- an outcomes-based approach has been submitted to demonstrate compliance with the bushfire protection criteria and the decision maker requires the advice of DFES
- the BAL rating has been calculated by a method other than Method 1 as prescribed by AS 3959, and the decision maker requires validation of the approach
- a local government proposes a local planning scheme amendment containing supplementary provisions in addition to the deemed provisions relating to bushfire risk management contained in the LPS Regulations 2015

- a bushfire local planning policy, or variation to the acceptable solutions or the Asset Protection Zone standards is proposed
- there is a conflict of opinion between the decision-maker and/or the landowner/proponent concerning a bushfire management plan or bushfire assessment.

If a subdivision or development application meets all the acceptable solutions and does not otherwise trigger a referral as listed above, seeking advice from DFES on SPP 3.7 or other matters is at the discretion of the decision-maker.

### 9.4.2 Other advice

In their role as Hazard Management Agency for Fire, DFES provides advice on other matters:

- technical advice on bushfire behaviour and emergency management to decision-makers
- expert technical evidence, including representation of DFES, in matters being heard by the State Administrative Tribunal on bushfire matters, and the consequences to planning decisions
- expert technical evidence, including representation of DFES, for Development Assessment Panels on bushfire matters and the consequences to planning decisions
- expert technical advice on other occasions where bushfire technical advice is required to support planning decision-making
- comments at planning stages on future buildings' compliance with the FES Commissioner's Operational Requirement Guidelines, in particular where future obligations for compliance would require amendments to the plans.

### 9.4.3 Office of Bushfire Risk Management

The Office of Bushfire Risk Management (OBRM) is a branch within the Rural Fire Division of DFES. The FES Commissioner is the employing authority. The FES Commissioner and OBRM are responsible for:

- setting standards addressing strategic bushfire risk management, including the development of the *Map of Bush Fire Prone Areas* and the *Mapping Standard for Bush Fire Prone Areas*
- reviewing the *Map of Bush Fire Prone Areas* and associated standards
- facilitating the coordination of key authorities on the management, auditing and reporting of bushfire-related risk matters.

## 9.5 DEPARTMENT OF ENERGY, MINES, INDUSTRY REGULATION AND SAFETY (BUILDING AND ENERGY DIVISION)

The Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) is responsible for:

- administering the *Building Act 2011* and Building Regulations 2012 that set out the building approval process for Western Australia, including the requirement to obtain a building permit to carry out building work
- administering and applying the Building Code of Australia in Western Australia
- responding to general enquiries about the application of the Building Code of Australia
- registering builders and building surveyors



- auditing building work and registered practitioners (such as builders and building surveyors)
- providing a dispute resolution process for complaints about registered practitioners.

## 9.6 DEPARTMENT OF CLIMATE CHANGE, ENERGY, THE ENVIRONMENT AND WATER (AUSTRALIAN GOVERNMENT)

The Australian Government's Department of Climate Change, Energy, the Environment and Water protect Australia's natural environment and heritage sites, respond to climate change and manage water and energy resources.

The Department administers the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999). A strategic planning proposal, subdivision and development application requires referral to the Department for assessment if it has, or is likely to have, a significant impact on matters of national environmental significance, such as nationally and internationally important flora, fauna, ecological communities and heritage places.

## 9.7 DEPARTMENT OF WATER AND ENVIRONMENTAL REGULATION

The Department of Water and Environmental Regulation (DWER) is responsible for:

- assessing vegetation clearing proposals associated with land development

- providing referral advice on the management of water resources in accordance with Better Urban Water Management (WAPC 2008) and water resource management legislation, policies and guidelines
- determining whether to assess region or local planning schemes, scheme amendments, subdivision or development applications in order to protect the environment.

## 9.8 DEPARTMENT OF BIODIVERSITY, CONSERVATION AND ATTRACTIONS

The Department of Biodiversity, Conservation and Attractions (DBCA) is responsible for implementation of the *Biodiversity Conservation Act 2016*, Biodiversity Conservation Regulations 2018, *Conservation and Land Management Act 1984*, and *Swan and Canning Rivers Management Act 2006*.

DBCA provides referral advice on applications abutting reserves and land under its management, including State land that is managed by agreement with the DPLH, WAPC and/or local government.

DBCA also provides advice on applications that require clearing or modification that impacts native flora, fauna or vegetation or habitat of conservation significant fauna.

DBCA considers biodiversity, flora and fauna, wetlands and ecological communities as well as nature conservation covenants on freehold land and fire management issues within adjoining reserves. General conservation enquiries should be directed to DBCA.

## 9.9 STATE ADMINISTRATIVE TRIBUNAL

The State Administrative Tribunal (SAT) reviews decisions made by government where it is empowered to do so by State legislation. *The Planning and Development Act 2005* and local planning schemes give power to the SAT to review decisions made pursuant to the *Planning and Development Act 2005*, local and regional planning schemes and the *Metropolitan Redevelopment Authority Act 2011*.

## 9.10 BAL ASSESSORS AND BUSHFIRE PLANNING PRACTITIONERS

The State Government currently manages the Western Australian Bushfire Accreditation Framework, providing an accreditation system for Bushfire Attack Level Assessors and bushfire planning practitioners.

SPP 3.7 and the Guidelines strongly recommends that accredited Level 1 BAL assessors and accredited Level 2 and Level 3 bushfire planning practitioners undertake assessments in designated bushfire prone areas, where they are required.

The necessary skills and required knowledge are outlined within the [Guidelines for Accrediting Bodies](#).



# ACRONYMS

WAPC	Western Australian Planning Commission
DPLH	Department of Planning, Lands and Heritage
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DFES	Department of Fire and Emergency Services
BCA	Building Code Australia
BMP	Bushfire management plan
BEP	Bushfire emergency plan
NCC	National Construction Code
BAL	Bushfire Attack Level
BLA	Broader Landscape Assessment
BLT	Broader Landscape Type
BHL	Bushfire Hazard Level
DWER	Department of Water and Environmental Regulation
DBCA	Department of Biodiversity, Conservation and Attractions
OBRM	Office of Bushfire Risk Management
FES	Fire and Emergency Services
kW/m <sup>2</sup>	Kilowatts per metre square





## DEFINITIONS

**All-weather surface:** compacted gravel surface (or similar pervious material) to the standard prescribed in the Austroads Guide to Pavement Technology as a minimum. An all-weather surface does not need to be sealed.

**Aspect:** the four cardinal (north, south, east and west) or intercardinal (northeast, southeast, northwest and southwest) directions a site is exposed to.

**Asset protection zone:** a low-fuel area maintained in accordance with **Table 9** of these Guidelines around a building to increase the likelihood that it will survive a bushfire. The size is dependent on adjacent vegetation and slope.

**BAL (indicative):** an indicative BAL is a potential rating that could be achieved within a site, based on future measures such as clearing, development or thinning of vegetation occurring.

**Broader landscape:** the landscape characteristics, including vegetation type and distribution, slope and vehicular access within at least two kilometres from the subject site that provides an indication of the risk and intensity of a potential bushfire.

**Building Code:** means the Building Code of Australia, which is Volumes One and Two of the National Construction Code published by, or on behalf of, the Australian Building Codes Board. Unless the contrary intention appears, a reference in these regulations to the Building Code is a reference to the Building Code as amended from time to time.

**Building envelope:** the area of land within which all buildings and effluent disposal facilities on a lot must be contained, as defined in the Planning and Development (Local Planning Schemes) Regulations 2015.

**Bushfire hazard:** a fuel complex, defined by amount, type condition, arrangement, and location, that determines the degree of hazard (as defined in the Australian Disaster Resilience Glossary).

**Bushfire Planning Practitioner:** an individual who has attained Level Two or Level Three accreditation under the *Western Australian Bushfire Accreditation Framework* and has the skills and knowledge to conduct bushfire risk assessment and management activities as identified within the [Guidelines for Accrediting Bodies](#).

**Carriageway:** a portion of a road that is improved, designed or ordinarily used for vehicular traffic.

**Clearing:** the removal or modification of native vegetation, as defined in the *Environmental Protection Act 1986* section 51A.

**Defendable space:** an area of land around a building within which firefighting operations can be undertaken to defend the structure. In defendable spaces, vegetation (and other fuels) should be managed to reduce the effects of flame contact and radiant heat associated with a bushfire.

**Hazard separation:** separation of a development or subject site from vegetation classified under AS 3959 to assist in preventing the spread of bushfire to buildings. Hazard separation is usually in addition to an Asset Protection Zone, and includes hard surfaces, including

roads and footpaths, waterways and public open space that has vegetation managed as low threat, in accordance with AS 3959: *Construction of buildings in bushfire-prone areas*.

**Horizontal clearance:** the carriageway width (including the road pavement and trafficable shoulder) and traversable verge that provides for the movement and parking of vehicles and area required by emergency services to operate. Infrastructure and vegetation within the traversable verge should be frangible, however, non-frangible items can occur providing they do not restrict vehicular movement in the event of an emergency.

**Level 1 BAL assessor:** an individual who holds Level 1 BAL assessor accreditation under the *Western Australian Bushfire Accreditation Framework*.

**Locally significant vegetation:** vegetation identified by the local government in a local planning strategy or local biodiversity strategy.

**No-through road:** a cul-de-sac or dead-end road.

**Planning proposal:** a collective term for describing all planning instruments, and includes strategic planning documents, subdivision applications, and development applications.

**Plant flammability:** the characteristics and properties of plant species that have a direct correlation with flammability, such as moisture content.

**Residential built-out area:** a locality serviced with reticulated water and is within or contiguous with an urban area or town (or similar), which incorporates a suitable destination.



**Site constraints:** a physical component affecting a site that restricts the ability of the site to address the bushfire protection measures listed in the Guidelines. It may include a physical feature within or adjacent to a site that constrains the ability to re-design the planning proposal as the feature itself cannot be re-located and/or could relate the shape of the subject lot.

**Strategic planning:** any strategic-level planning document or proposal including regional and sub-regional frameworks, region schemes and amendments, sub-regional strategies, structure plans, local planning strategies and local planning scheme reviews, scheme amendments, but does not include structure plans where the lot layout and/or the internal road layout is known.

**Tolerable:** the willingness to live with a risk to secure benefits and achieve objectives, on the understanding that it is being properly controlled. 'Tolerability' does not mean 'acceptability'. Tolerating a risk does not mean that it is regarded as negligible, or something we may ignore, but rather as something that needs to be kept under review and reduced further.

**Trafficable:** can be travelled upon by vehicles at the posted speed limit.

**Two-way access:** vehicular access from a site in two different directions to at least two different suitable destinations.

**Type 3.4 firefighting appliance:** a 4x4 tanker with a 3000 litre water tank capacity used for firefighting.

**Weight capacity:** applies to the trafficable surface construction, including all bridges or culverts on the site and access routes.



# APPENDIX A – BUSHFIRE ASSESSMENT METHODOLOGIES

## A.1: BROADER LANDSCAPE ASSESSMENT

### A.1.1 WHAT IS A BROADER LANDSCAPE ASSESSMENT

The Broader Landscape Assessment (BLA) examines the area external to the planning proposal, extending for a distance of approximately two kilometres. The assessment includes an understanding of the bushfire hazards (vegetation extent), the broader road network, proximity to townsites, urban areas and suitable destinations. It provides a means of quantifying the characteristics and the potential for a landscape scale bushfire in the broader landscape, when considering the suitability of a location for the intensification of land use or development.

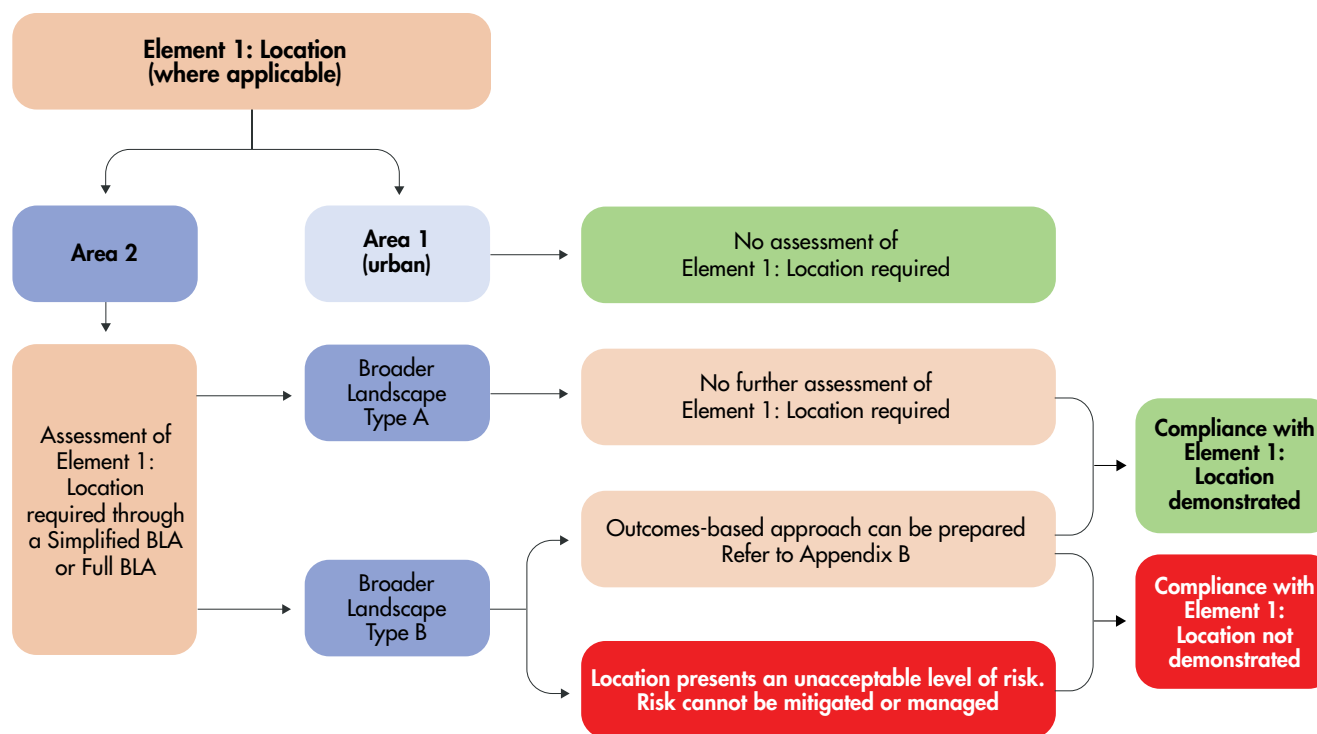
### A.1.2 WHEN IS A BROADER LANDSCAPE ASSESSMENT REQUIRED

Planning proposals within an area designated as Area 1 (Urban) on the *Map of Bush Fire Prone Areas* will not require an assessment of the broader landscape or need to demonstrate compliance with Element 1: Location.

Where strategic planning proposals, structure plans and subdivisions are designated as Area 2 on the *Map of Bush Fire Prone Areas*, an assessment of the broader landscape is required to demonstrate compliance with Element 1: Location. (**Figure 12**)

Where a planning proposal has not previously been assessed against SPP 3.7 (2015), any major modification, resubmission or subsequent stage(s) of the planning

Figure 12: Assessment process for Element 1





process, should demonstrate compliance with Element 1: Location within SPP 3.7 and Guidelines (2024). This does not include development applications.

### A.1.2.1 How to consider previous BLAs

Where a BLA has been undertaken for a subject site(s) at a prior planning stage, the assessment may still be relevant and should be used to inform compliance with Element 1: Location, at subsequent planning stage(s).

However, the decision-maker has the ability to request a new BLA if they believe that the existing assessment is inadequate. This may include, but not be limited to, instances where there has been a significant period of time since the original assessment was completed/approved, the planning proposal is significantly different, and/or the broader landscape conditions have changed.

## A.1.3 WHO CAN CONDUCT A BROADER LANDSCAPE ASSESSMENT

It is strongly recommended that a BLA and the accompanying bushfire management plan (BMP) be prepared by an accredited Level 2 or Level 3 bushfire planning practitioner. Where the BLA determines that the broader landscape is a type B, and where the bushfire planning practitioner believes the bushfire risk can be mitigated or managed to an acceptable level, then an outcomes-based approach can be prepared. It is strongly recommended that this be undertaken by an accredited Level 3 bushfire planning practitioner.

## A.1.4 BROADER LANDSCAPE ASSESSMENT METHODOLOGY

A BLA should be prepared in accordance with this Appendix. Where an outcomes-based approach is being developed, additional guidance is provided in Appendix B.1: Location.

### A.1.4.1 Simplified BLA

In recognition that some locations present a lower risk of a landscape scale bushfire, a simplified process has been developed to fast track the BLA assessment. Where the answers to the following questions is yes, a Simplified BLA can be undertaken to demonstrate compliance with Element 1: Location.

The level of detail provided within the assessment should be commensurate with the scale of development and should include at a minimum, a scaled aerial map that should extend for a distance of approximately two kilometres beyond the subject site, with annotations allowing verification of the information relevant to each of the questions below:

1. Is the subject site within a kilometre of a townsite, urban area or suitable destination?
2. Is the road pattern from the planning proposal to the closest townsite, urban area or suitable destination, simple and/or direct (limited intersections)?
3. Is the majority of vegetation cleared, managed or Class G Grassland, within the broader landscape assessment area (e.g. clearing for residential zoned urban lots)?
4. Is the planning proposal exposed to two or less aspects with external bushfire hazards (excluding Class G Grassland)?

If the response is 'no' to **any** of these questions, then a full BLA must be undertaken in accordance with the methodology outlined in the following pages.

### A.1.4.2 Full BLA

#### Step One: Determine the BLA area

The BLA assessment area should extend for a distance of approximately two kilometres beyond the subject site (**Figure 13**).

Where multiple development sites are proposed, the bushfire planning practitioner may decide that the assessment area is better represented by grouping the development sites into one area (**Figure 14**).

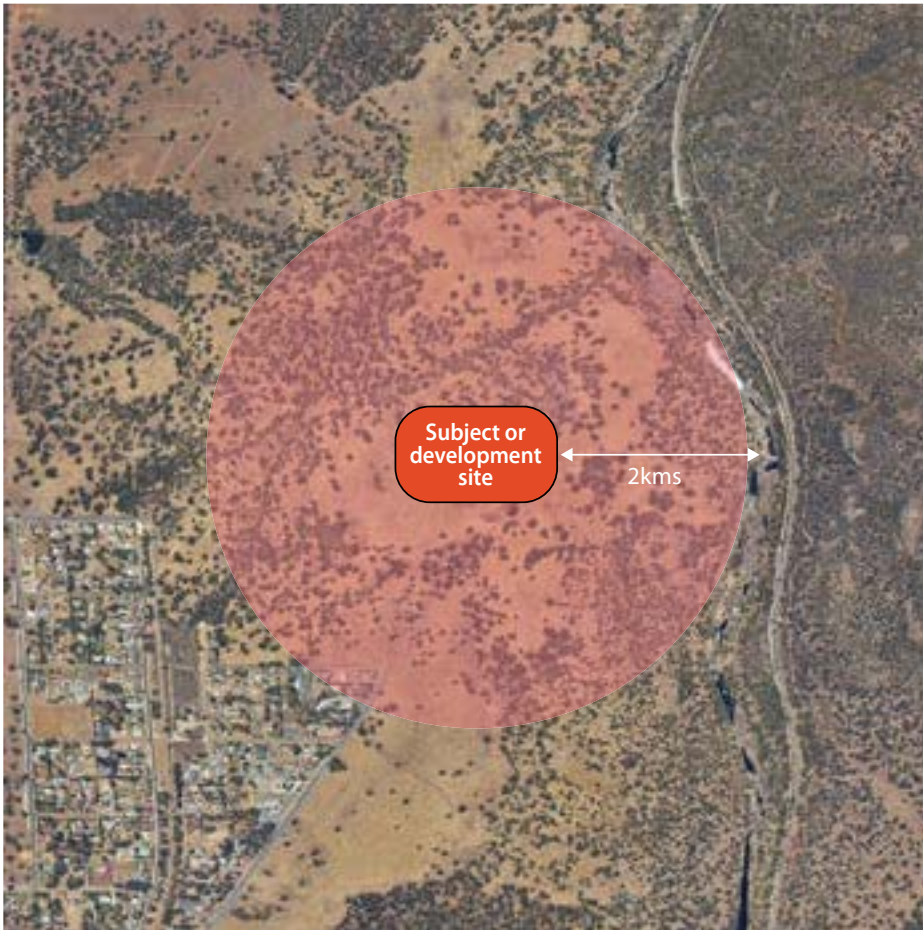
While the bushfire planning practitioner may recommend a larger BLA area, ultimately it is for the decision-maker to determine. This may be due to one or more of the following criteria:

- the extent of contiguous vegetation
- proximity to a suitable destination
- the point of two-way access
- the vulnerability of the future occupants or visitors.

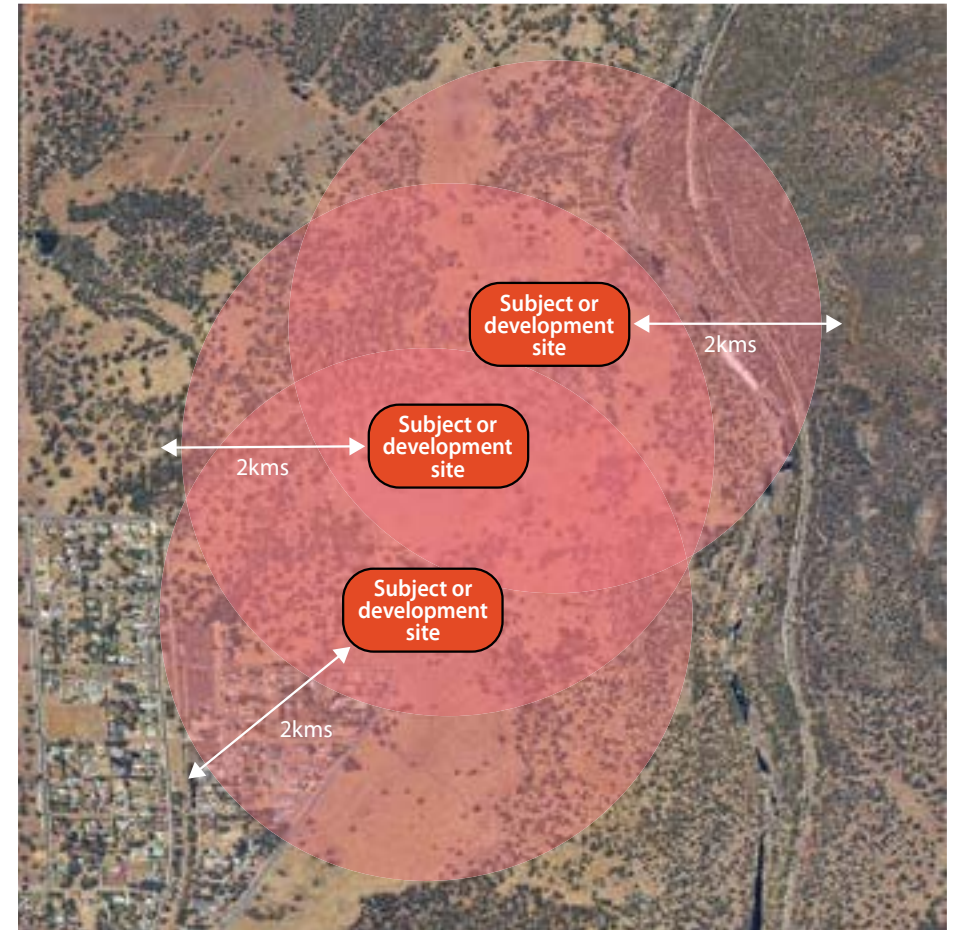
This information can be agreed through a pre-lodgement meeting involving the decision-maker, the Department of Fire and Emergency Services (DFES) – if requested by the decision-maker – and the bushfire planning practitioner, prior to undertaking the BLA.



**Figure 13:** How to determine the broader landscape assessment area



**Figure 14:** Broader landscape assessment for multiple development sites



## Step Two: Assess and map the broader landscape

Relevant information for the BLA should be shown and annotated on a scaled aerial map. The map should be supported by explanatory text commensurate with the scale and complexity of the proposal and/or the broader landscape.

### A. Assess and map vegetation

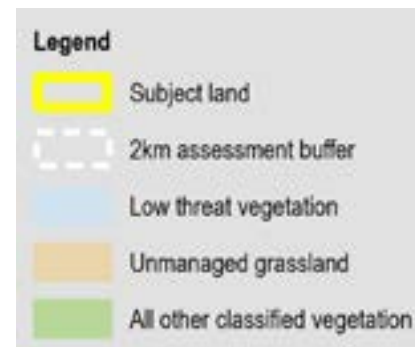
Using up-to-date aerial imagery, undertake a desktop vegetation assessment by delineating plots on the aerial image that distinguish between:

- areas of low threat vegetation and non-vegetated areas (refer to exclusions under AS 3959)
- areas of unmanaged grassland (Class G Grassland)
- areas of all other types of classified vegetation (as one category)
- consideration should be given to any revegetation or areas of environmental, biodiversity or conservational value.

Where the planning proposal adjoins undeveloped land with an approved structure plan or subdivision (which has previously been assessed under SPP 3.7) and proposes a post-development BAL rating of BAL-LOW, this can be treated as a future non-vegetated area.

Where the BLA area includes or directly abuts a coastline or water body, then such areas should be considered as non-vegetated.

**Figure 15:** Example of Vegetation type and whether it is continuous or fragmented



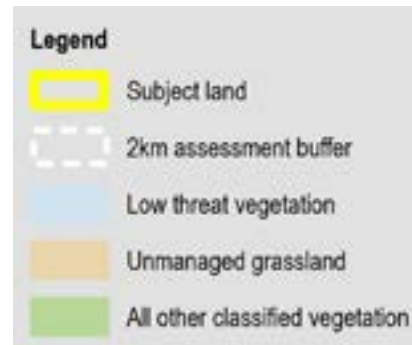


## B. Assess and map aspects

The assessment of aspects is used to quantify the bushfire hazards that exist within the BLA area that are likely to present landscape scale destruction, including the potential to adversely impact life, property and infrastructure.

Transpose four quadrants within the BLA area that are aligned to the intercardinal directions (Northeast, Southeast, Northwest and Southwest). These quadrants should be used in the assessment of the four aspects that are external to the planning proposal. The extent of classified vegetation should be considered in relation to the identified aspects.

Figure 16: Example of Aspect assessment



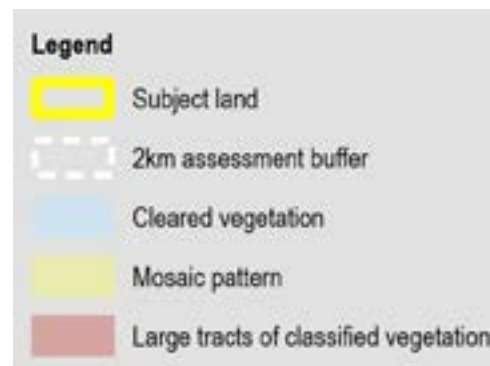
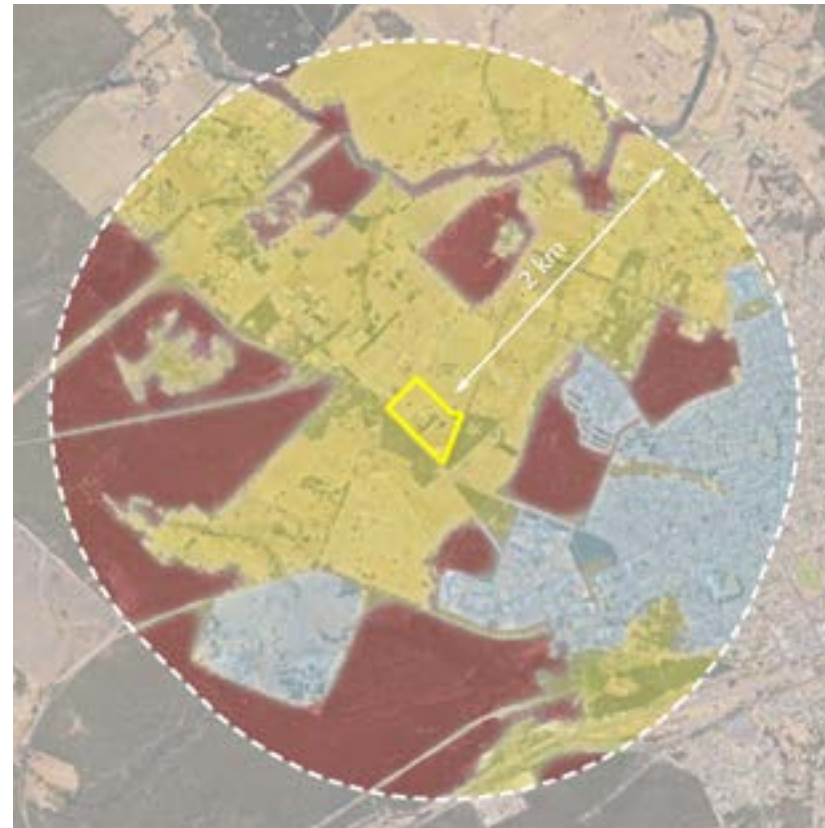
## C. Assess and map the predominant vegetation pattern

Using the vegetation assessment undertaken in step Two A, distinguish and choose the predominant vegetation pattern from the following types:

- cleared vegetation (e.g. residential or urban zoned and developed land)
- a mosaic pattern of vegetation (including Class G Grassland, and vegetation within rural living precincts)
- large tracts of classified vegetation (e.g. contiguous vegetation within reserves or national parks).

When summarising the extent of classified vegetation, aspects and predominant vegetation pattern, consideration should be given to the ability of a bushfire to form long fire runs and/or the potential to cause a landscape scale bushfire.

**Figure 17:** Example of predominant vegetation pattern



## D. Assess and map road pattern and suitable destination(s)

- Identify and map the existing and proposed (if known) vehicular access route(s) and suitable destination(s)
- Identify road hierarchy (**Table 2**)
- Assess the reliability and standard of vehicular access routes (sealed or unsealed, topography etc.)
- Differentiate spatially between direct road access, including straight roads with extended view lines (grid or modified grid pattern) or complex road patterns (curved or cul-de-sac pattern)
- Annotate any impediments to use of the access routes, including the presence and characteristics of vegetation along access routes.
- Provide a summary of access routes (see annotation in **Figure 18**) to a suitable destination.

**Table 2:** Examples of defined road hierarchies  
(navigate to links through column heading titles)

LOCAL PLANNING SCHEME REGULATIONS	LIVEABLE NEIGHBOURHOODS	MAIN ROADS WA
Primary Distributor Road	Primary distributor Road	Primary Distributor
District Distributor Road	Integrator arterial A	Regional Distributor
	Integrator arterial B	District Distributor A
Local Distributor Road	Neighbourhood connector A	District Distributor B
	Neighbourhood connector	Local Distributor
Local Road	Access street A	Access Road
	Access street	
	Access street B	
	Access street C	
	Access street D	
	Access place	

**Figure 18:** Example of Access Routes





## Step Three: Establish the broader landscape type

Use the points-based system in **Table 3** to determine the broader landscape type.

The first column lists each criterion to be considered.

The next three columns include descriptors that relate to the criterion and provide corresponding assigned points listed in the header row (5 points, 2 points and 1 point).

The final column is for noting the point(s) assigned for each criterion. The points column should be tallied, and the sum of points listed in the total points cell. The total points are then used to derive the broader landscape type as indicated at the bottom of the table. The bushfire planning practitioner is responsible for identifying and justifying the points allocated through the BLA. However, due to the potential for subjectivity, the final determination ultimately rests with the decision-maker.

Determination of a broader landscape type should be supported by explanatory text commensurate with the scale and complexity of the planning proposal and/or the broader landscape type.

**Table 3:** Points-based system for determining a broader landscape type

CRITERIA	5 POINTS	2 POINTS	1 POINT	POINTS
Proximity of the planning proposal to a suitable destination is:	>10km	1-10km	<1 km	
The road pattern from the planning proposal to a suitable destination is:	Complex and indirect (cul-de-sacs, and/or multiple intersections)	Mixed road patterns	Simple and/or direct (limited intersections)	
The predominant vegetation pattern is:	large tracts of vegetation (contiguous vegetation)	A mosaic pattern of vegetation (e.g. vegetation within rural living precincts)	Cleared vegetation (e.g. clearing for residential zoned urban lots)	
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is from:	Three or four aspects	Two aspects	From nil or one aspect only	
TOTAL POINTS				
Total points	Broader landscape type			
0 - 11 points	Broader landscape type A (BLT A)			
12 - 20 points	Broader landscape type B (BLT B)			
BROADER LANDSCAPE TYPE DETERMINED				



## A.1.4.3 Broader Landscape Type A aerial examples

Examples of sites from Type A are provided, by a simplified points table for each image.

This table utilises colour coding corresponding to **Table 3**, which outlines a points-based system for classifying broader landscape types.

CRITERIA	POINTS
Proximity of the planning proposal to a suitable destination is:	1
The road pattern from the planning proposal to a suitable destination is:	1
The predominant vegetation pattern is:	1
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is from:	1
TOTAL POINTS	
0-11 points (BLT A)	4
12-20 points (BLT B)	
BROADER LANDSCAPE TYPE DETERMINED	TYPE A



*The aerial examples shown are indicative only and are not intended to be used as justification for planning proposals or for planning assessment purposes.*

CRITERIA	POINTS
Proximity of the planning proposal to a suitable destination is:	1
The road pattern from the planning proposal to a suitable destination is:	1
The predominant vegetation pattern is:	1
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is from:	1
TOTAL POINTS	
0-11 points (BLT A)	4
12-20 points (BLT B)	
BROADER LANDSCAPE TYPE DETERMINED	TYPE A



*The aerial examples shown are indicative only and are not intended to be used as justification for planning proposals or for planning assessment purposes.*



CRITERIA	POINTS
Proximity of the planning proposal to a suitable destination is:	1
The road pattern from the planning proposal to a suitable destination is:	1
The predominant vegetation pattern is:	1
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is from:	1
TOTAL POINTS	
0-11 points (BLT A) 12-20 points (BLT B)	4
<b>BROADER LANDSCAPE TYPE DETERMINED</b>	<b>TYPE A</b>



*The aerial examples shown are indicative only and are not intended to be used as justification for planning proposals or for planning assessment purposes.*



## A.1.4.4 Broader Landscape Type B aerial examples

Examples of sites from Type B are provided, by a simplified points table for each image.

This table utilises colour coding corresponding to **Table 3**, which outlines a points-based system for classifying broader landscape types.

CRITERIA	POINTS
Proximity of the planning proposal to a suitable destination is:	5
The road pattern from the planning proposal to a suitable destination is:	5
The predominant vegetation pattern is:	5
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is from:	5
TOTAL POINTS	
0-11 points (BLT A)	20
12-20 points (BLT B)	
BROADER LANDSCAPE TYPE DETERMINED	TYPE B



*The aerial examples shown are indicative only and are not intended to be used as justification for planning proposals or for planning assessment purposes.*

CRITERIA	POINTS
Proximity of the planning proposal to a suitable destination is:	5
The road pattern from the planning proposal to a suitable destination is:	5
The predominant vegetation pattern is:	5
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is from:	5
TOTAL POINTS	
0-11 points (BLT A)	20
12-20 points (BLT B)	
BROADER LANDSCAPE TYPE DETERMINED	TYPE B



*The aerial examples shown are indicative only and are not intended to be used as justification for planning proposals or for planning assessment purposes.*

CRITERIA	POINTS
Proximity of the planning proposal to a suitable destination is:	5
The road pattern from the planning proposal to a suitable destination is:	5
The predominant vegetation pattern is:	2
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is from:	1
TOTAL POINTS	
0-11 points (BLT A)	13
12-20 points (BLT B)	
<b>BROADER LANDSCAPE TYPE DETERMINED</b>	<b>TYPE B</b>



*The aerial examples shown are indicative only and are not intended to be used as justification for planning proposals or for planning assessment purposes.*



## A.2: BUSHFIRE HAZARD LEVEL ASSESSMENT

### A.2.1 WHAT IS A BUSHFIRE HAZARD LEVEL ASSESSMENT

A Bushfire Hazard Level (BHL) assessment provides a 'broad brush' means of assessing the potential intensity of a bushfire for an area. It assists in identifying the extent of native vegetation clearing required to achieve a BHL of moderate or low.

### A.2.2 WHEN IS A BUSHFIRE HAZARD LEVEL ASSESSMENT REQUIRED

A BHL assessment should be undertaken at the strategic planning stage, when details of the lot layout and/or internal road network are not yet known.

The BHL assessment can be used in conjunction with the broader landscape assessment to demonstrate the ability of a bushfire to impact the site and run through the site.

The BHL assessment is also a useful tool to identify on-site native vegetation and how siting and design options can be utilised to avoid the need for the clearing of native vegetation.

### A.2.3 WHO CAN PREPARE A BUSHFIRE HAZARD LEVEL ASSESSMENT?

It is strongly recommended that BHL assessment is prepared by an accredited Level 2 or Level 3 bushfire planning practitioner.

### A.2.4 BUSHFIRE HAZARD LEVEL ASSESSMENT METHODOLOGY

The assessment methodology categorises the BHL as low, moderate or extreme based on the vegetation and slope within 150 metres of the subject site.

Traditionally, a BHL assessment was based on the current or pre-development state of the vegetation. However, where the subject site has a predominant pre-development BHL of extreme, a post-development BHL could be prepared if there is sufficient level of detail.

Following consultation with the environmental or planning consultant, the post-development BHL could be used to demonstrate that vegetation clearing or modification to reduce the hazard level to moderate or low will not result in unacceptable loss of environmental, biodiversity and conservation values.

Alternatively, where concept plans are available for the subject site, a BAL Contour Map could be prepared, based on the post-development state of the vegetation, once subdivision or development works are complete. This could be used to detail how the siting and design

**Table 4:** Bushfires Hazard Level (BHL) and vegetation classification (as per AS 3959)

HAZARD LEVEL	CLASSIFICATION/CHARACTERISTICS
<b>Extreme</b>	<ul style="list-style-type: none"> <li>Class A: Forest</li> <li>Class B: Woodland</li> <li>Class D: Scrub</li> <li>Any classified vegetation with a greater than 10-degree slope</li> </ul>
<b>Moderate</b>	<ul style="list-style-type: none"> <li>Class C: Shrubland</li> <li>Class E: Mallee/Mulga</li> <li>Class G: Grassland, including sown pasture and crops</li> <li>Vegetation that has a low hazard level, but is within 100 metres of vegetation classified as a moderate or extreme hazard, is to adopt a moderate hazard level</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>Low threat vegetation, which may include mangroves and other saline wetlands, areas of 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.</li> <li>Managed grassland in a minimal fuel condition, meaning there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example, short-cropped grass to a nominal height of 100 millimetres.</li> <li>Non-vegetated areas, waterways, exposed beaches, roads, footpaths, buildings or rock outcrops.</li> </ul>



of the development could avoid the clearing of native vegetation, or where unavoidable, has or will be designed to minimise clearing.

A BHL assessment should be prepared in accordance with this Appendix with consideration for the predominant classified vegetation for a site (**Table 4**).

## Step One: Determine the area to be assessed

- The BHL assessment area is the subject site and all land within 150 metres of the external boundary of the subject site.
- Use an appropriate aerial image (where available) to define the area that is the subject of the BHL assessment. The aerial image should be as current as possible and scaled to clearly show the vegetation density and structure.

## Step Two: Identify pre-development vegetation type(s) and slope

### How to create a vegetation classification map

- Classify all vegetation within the BHL assessment area, preferably through a site inspection and in accordance with **Table 4** and **Figure 19** to identify the predominant vegetation type(s)
- Provide photographic evidence in addition to aerial imagery and/or vegetation mapping data to verify low or moderate BHL areas. Where evidence of the vegetation height is required (such as shrub and scrub), a height stick or other appropriate indicator of height, should be included in the images.
- Further evidence may be required if the decision-maker is not satisfied with the aerial or photographic evidence provided.

- All slopes within the BHL assessment area need to be defined with land contour information.

### Information to include in a pre-development vegetation classification map

- An aerial image of the BHL assessment area should form the base map and be overlaid with the following information:
  - areas of classified vegetation and excluded vegetation (if any) in the form of plots
  - land contours for slope calculation as a minimum
  - photo points to indicate where photos of vegetation have been taken
  - any other features of the BHL assessment area that are relevant bushfire considerations, such as native vegetation that may be listed and protected under environmental legislation.
- The pre-development vegetation classification map should be presented separately to other figures or maps to ensure the information is legible.

## Step Three: Map the BHL results

An aerial image of the BHL assessment area appropriately scaled at a maximum 1:25,000 should form the base map and be overlaid with the following information:

- boundaries of the subject site and surrounding 150 metre area
- the strategic planning proposal concept design as an overlay
- assigned hazard levels for vegetation in the BHL assessment area based on the vegetation classification and slope from the vegetation classification map.

## Step Four: Map the post-development BHL results

This step can be used where the pre-development BHL is predominantly extreme and there is sufficient detail to demonstrate a reduction of the BHL to moderate or low.

Step two and three should be repeated using post-development vegetation classifications.

## A.2.5 BUSHFIRE HAZARD LEVEL ASSESSMENT MAP SPECIFICATIONS

The colours for each hazard level in the BHL assessment map should be in accordance with **Table 5** and as depicted in **Figure 20**.

The BHL colours should be displayed at a transparency level of 25 per cent and no more than 35 per cent, as the colour boundary differentiation is compromised. This provides for clear distinction between the hazard levels and for the vegetation on the underlying aerial image to be 'visible'.

**Table 5:** Bushfires Hazard Level (BHL) and vegetation classification (as per AS 3959)

HAZARD LEVEL	COLOUR	RGB CODE	HEX CODE	COLOUR PATCH
<b>Extreme</b>	Red	R-238, G-50, B-36	EE3224	
<b>Moderate</b>	Yellow	R-255, G-238, B-0	FFEE00	
<b>Low</b>	Light Blue	R-206, G-237, B-255	CEEDFF	

Figure 19: Sample vegetation classification map (Bushfire Hazard Level assessment)

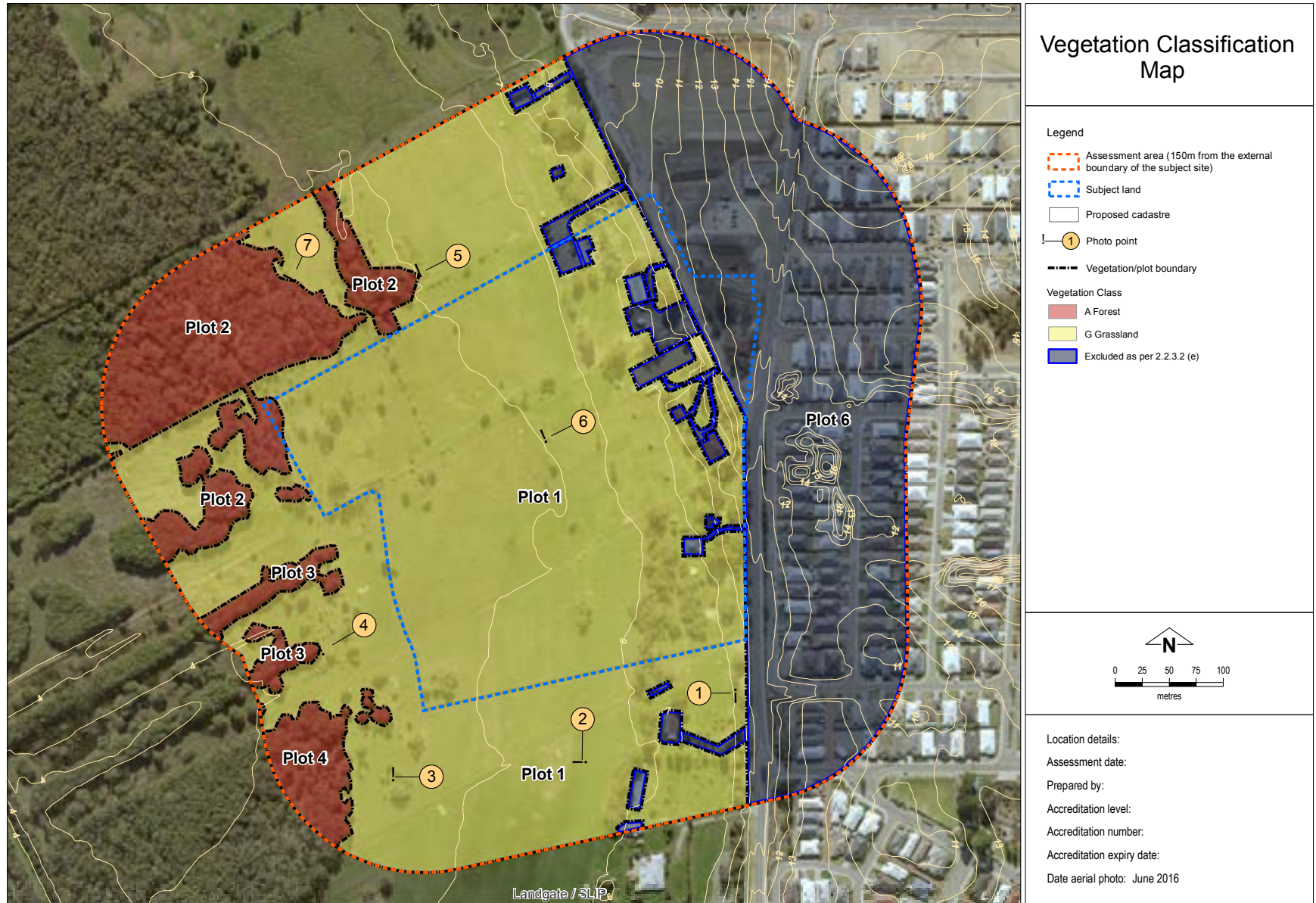
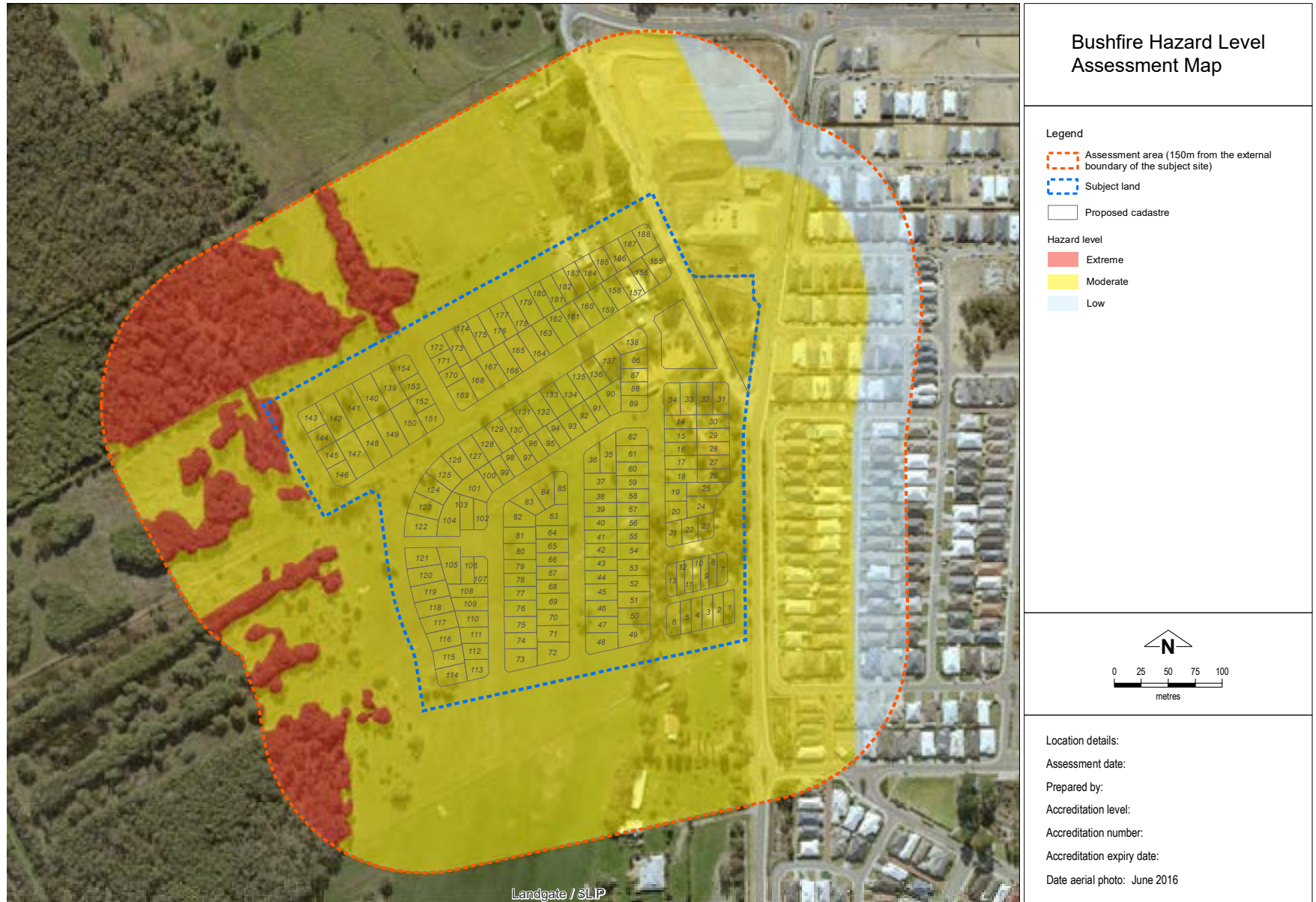




Figure 20: Sample Bushfire Hazard Level (BHL) assessment map







## A.3: BUSHFIRE ATTACK LEVEL CONTOUR MAP

### A.3.1 WHAT IS A BUSHFIRE ATTACK LEVEL CONTOUR MAP

A bushfire attack level (BAL) Contour Map is a scale map of the subject site and surrounds. It uses the principles of AS 3959 to illustrate the radiant heat impacts and associated indicative BAL ratings, in reference to any classified vegetation remaining within 150 metres of the subject site..

It assumes that the site is in a 'post-development state' such as when earthworks, clearing and/or landscaping have been completed. The BAL ratings are shown as descending contours of radiant heat, which reflect the separation distance increasing away from the classified vegetation towards the site.

A BAL Contour Map should be accompanied by a vegetation classification map that shows the location of predominant vegetation types that will remain post-development.

### A.3.2 WHEN IS A BUSHFIRE ATTACK LEVEL CONTOUR MAP REQUIRED

A BAL Contour Map should be used at the subdivision stage but is also appropriate for strategic planning proposals where the lot layout and/or internal road network is known. It is also a useful assessment tool for development applications that include multiple development sites and/or habitable buildings.

Where a subdivision is proposed to be developed in stages, a new BAL Contour Map should be prepared for each stage.

### A.3.3 WHO CAN PREPARE A BUSHFIRE ATTACK LEVEL CONTOUR MAP

It is strongly recommended that a BAL Contour Map is prepared by an accredited Level 2 or Level 3 bushfire planning practitioner.

### A.3.4 BUSHFIRE ATTACK LEVEL CONTOUR MAP AND COMPLIANCE CERTIFICATE

A BAL Contour Map can include determined or indicative BAL ratings. An indicative BAL is based on further actions being completed to achieve that BAL rating, such as modification or removal of vegetation, or new development occurring. A determined BAL is when the BAL rating is in accordance with AS 3959, without the requirement for further site works or other actions to be completed.

Where a BAL Contour Map includes BAL ratings that are based on future site works, such as clearing and modification of vegetation, the subdivision approval may be conditioned to require the preparation of a compliance certificate.

After the site works have been completed, a compliance certificate may be issued to certify that the BAL ratings shown on the BAL Contour Map remain accurate and compliant. This will allow decision-makers to have confidence that the BALs indicated in the BAL Contour Map are accurate and can be used to support a future development or building permit application.

It is strongly recommended that the compliance certificate be undertaken by the bushfire planning practitioner who prepared the original BAL Contour Map or, alternatively, any other accredited Level 2 or Level 3 bushfire planning practitioner.

The relevant local government may be able to undertake this compliance check as part of the clearance of subdivision conditions.

For larger lots, such as a rural property, where the location of a development site may not be known, the use of a compliance certificate may not be appropriate. In this instance, it is likely that a new BAL assessment will be required to support the development or building permit application.

### A.3.5 BUSHFIRE ATTACK LEVEL CONTOUR MAP METHODOLOGY

A BAL Contour Map should be prepared in accordance with this Appendix.

#### Step One: Identify vegetation type(s) and slope.

#### How to create a vegetation classification map

- Include the subject site and all land within at least 150 metres of the external boundary of the site in the vegetation assessment area, to assist in determining the predominant vegetation types and provide context of the bushfire risk adjoining the site.<sup>1</sup>

<sup>1</sup> In certain instances (such as a large rural lot, which is grassland), a BAL Contour Map does not need to be applied to an entire lot; rather, the BAL Contour Map needs to demonstrate that a suitable sized development will be able to be accommodated within an area with a radiant heat impact not exceeding 29 kW/m<sup>2</sup> (BAL-29) within each lot (or proposed lot). The BAL Contour Map should clearly articulate the methodology used.



- Use an appropriate aerial photo (where available) to define the assessment area that is to be the subject of the vegetation classification map. The aerial photo should be as current as possible and at a scale that clearly shows the vegetation density and structure.
- Classify all vegetation within the vegetation assessment area through a site inspection and provide photographic evidence for all relevant locations on the BAL Contour Map area. The vegetation should be classified in accordance with **Table 2.3** and **Figures 2.4 (A) to 2.4 (H)** of AS 3959 and the **Visual guide for bushfire risk assessment in Western Australia** (Department of Planning: 2016).
- Analyse land contour information and define the slope for each assessment transect.
- Record the inputs for classified vegetation (in the form of plots) and effective slope in a table format. The inputs should include the actual or proposed post development separation distance from the classified vegetation.

## Information to include in a vegetation classification map

- A vegetation classification map should be at a scale where individual lot(s) and the location of the existing and proposed development can be clearly identified.
- An aerial image of the vegetation assessment area should form the base map and be overlaid with the following information:
  - areas of classified vegetation and excluded vegetation (if any) in the form of plots
  - land contours for slope calculation / slope transects displayed

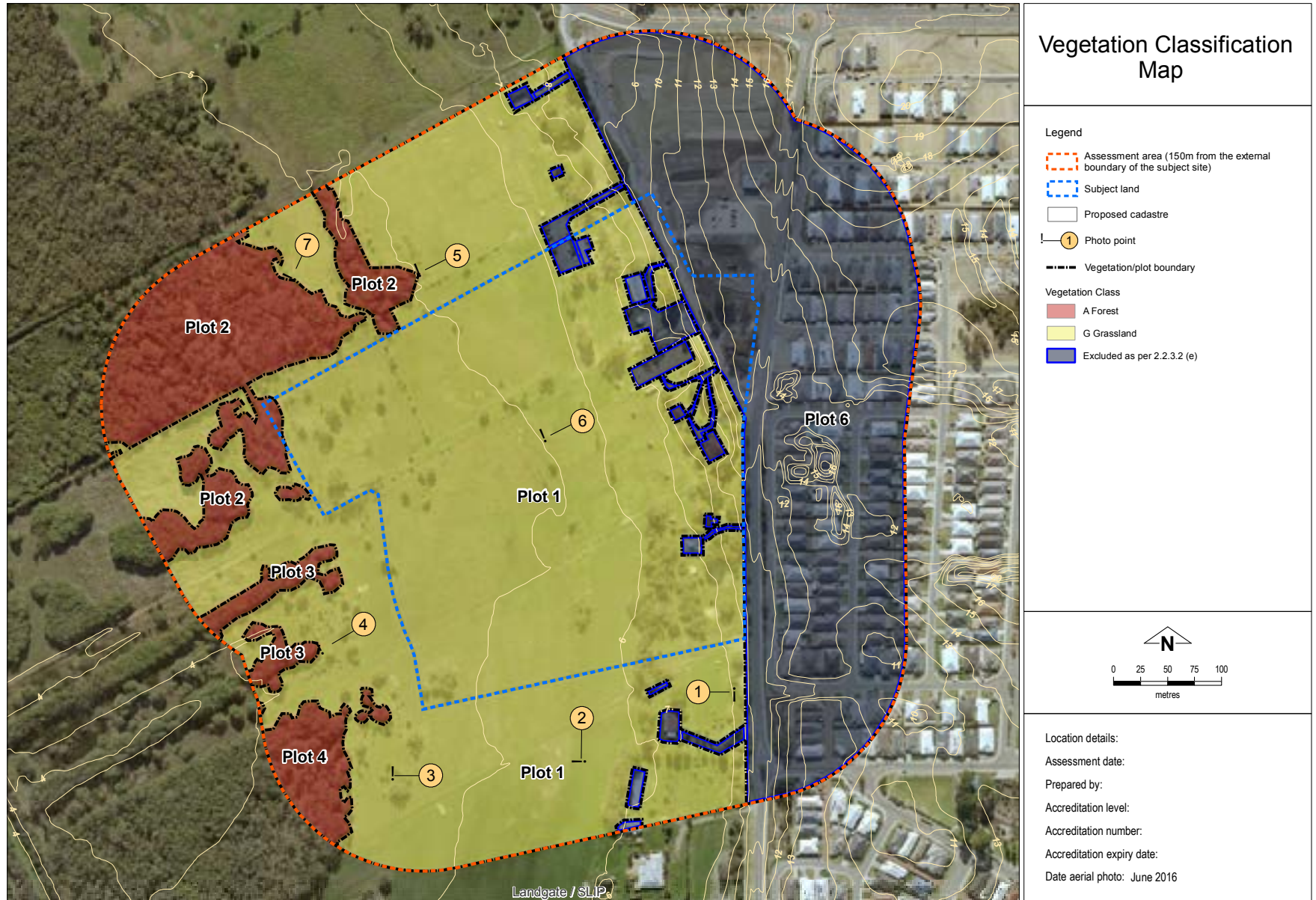
- areas where vegetation is proposed to be cleared or revegetated (if applicable)
- photo points to indicate where images of vegetation have been taken
- any other features of the subject site that are relevant bushfire or environmental considerations.

The vegetation classification map should be presented separately from the BAL Contour Map to ensure the information is legible.

**Table 6:** Vegetation classification map colour codes for classifying vegetation

VEGETATION CLASSIFICATION	COLOUR	RGB CODE	HEX CODE	TRANSPARENCY	COLOUR PATCH (OVER A WHITE BASE)
<b>Classified vegetation</b>					
A Forest	Red	R-199,G-48,B-43	#c7302b	50%	
B Woodland	Green	R-47,G-155,B-2	#2f9b02	50%	
C Shrubland	Pink	R-229,G-44,B-223	#e52cdf	50%	
D Scrub	Light orange	R-248,G-152,B-0	#f89800	50%	
E Mallee/Mulga	Light green	R-129,G-253,B-4	#91fd04	50%	
G Grassland	Light yellow	R-241,G-241,B-99	#f1f163	50%	
<b>Excluded vegetation</b>					
Clause 2.2.3.2 (a), (b), (c) and (d)	White	R-245,G-245,B-220	#f5f5dc	50%	
Clause 2.2.3.2 (e) non-vegetated areas	Dark blue	R-10,G-22,B-52 (inner) R-2,G-6,B-248 (border)	#0a1634 (inner) #0206f8 (border)	50% (inner) 0% (border)	
Clause 2.2.3.2 (f) low threat vegetation	Powder blue	R-175,G-232,B-230	#AFE8E6	50%	

Figure 21: Sample vegetation classification map





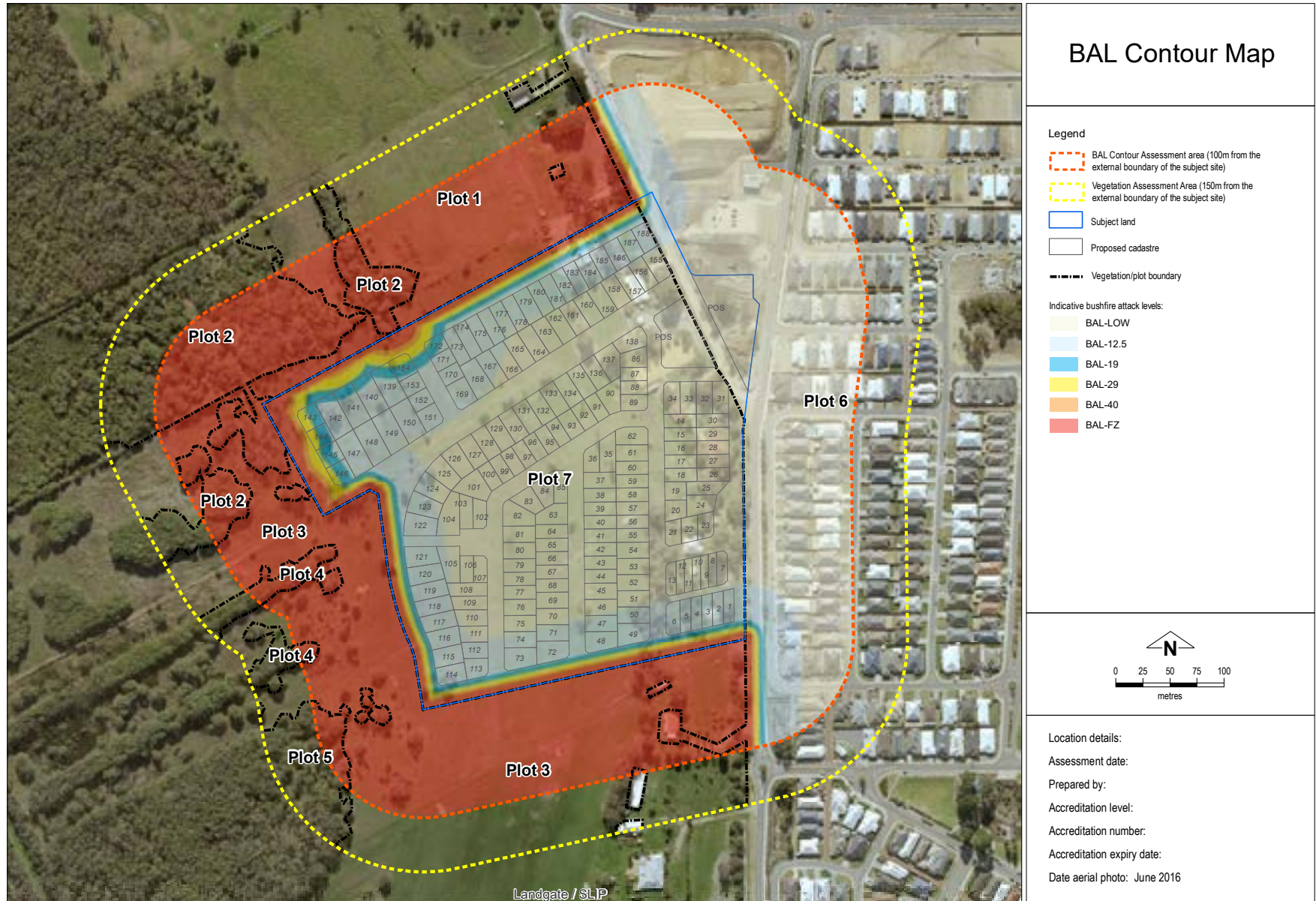
## Step Two: Map the BAL contours.

### How to create a BAL Contour Map

- Use an appropriate aerial photo (where available) to include the subject site and all land within at least 150 metres from the site and indicate this as the vegetation assessment area. The aerial photo should be as current as possible and at a scale that clearly shows the vegetation density and structure.
- Define the assessment area that is to be the subject of the BAL Contour Map by indicating the area within 100 metres of the external boundary of the subject lot/s or 100 metres from the building footprint for existing and proposed development.
- Using the principles of AS 3959 (for example, slope of the land under the classified vegetation), indicate the BAL rating at each assessment transect.
- The assessment transects should be done at a frequency and location dictated by site conditions to represent possible bushfire scenarios. This is typically where the slope and/or vegetation changes. Assessment transects should be allocated across the assessment area, even where such areas have the potential to be within a BAL-LOW contour.
- The BAL Report and bushfire management plan (BMP) should show slope using the Western Australian Government's two-metre contour data (or five or 10 metre data if unavailable). The slopes identified from these contour data sets are to be confirmed during the field work, where practical.
- BAL contours should be produced across all relevant BAL ratings, including areas of BAL-LOW, and coloured in accordance with **Table 10**.
- Where multiple BAL ratings may apply to a single location, the higher BAL rating should be applied.
- The BAL Contour Map should be based on the future state of the site (such as when subdivision works have been undertaken), including any vegetation that will remain or will be introduced when the works are complete.
- The inputs used to determine the BAL contours (such as the lot number, vegetation classification, effective slope, actual separation distance, indicative BAL rating-output) should be included in the BMP in a table format with a row matched to each assessment transect along the contour.



**Figure 22:** Sample Bushfire Attack Level (BAL) Contour Map











## A3.6 BUSHFIRE ATTACK LEVEL CONTOUR MAP SPECIFICATIONS

The colour code for each BAL contour is shown in **Table 7**.

The coloured BAL contours should be displayed at a transparency level of 25 per cent and no more than 35 per cent. This provides for clearer distinction between the different BAL contours, and for the vegetation on the underlying aerial image to be 'visible'.

**Table 7:** BAL Contour Map – colour codes for contours

BAL RATING	COLOUR	RGB CODE	HEX CODE	TRANSPARENCY	COLOUR PATCH
BAL-FZ	Red	R-238, G-50, B-36	EE3224	25-35%	
BAL-40	Orange	R-248, G-152, B-40	F89828	25-35%	
BAL-29	Yellow	R-255, G-238, B-0	FFEE00	25-35%	
BAL-19	Blue	R-0, G-174, B-239	00AEEF	25-35%	
BAL-12.5	Light blue	R-206, G-237, B-255	CEEDFF	25-35%	
BAL-LOW	Beige	R-245, G-245, B-220	F5F5DC	25-35%	



## A.4: BUSHFIRE ATTACK LEVEL ASSESSMENT

### A.4.1 WHAT IS A BUSHFIRE ATTACK LEVEL ASSESSMENT

A bushfire attack level (BAL) assessment outlines the calculations, assumptions and supporting information for a BAL determined in accordance with Method 1 or Method 2 of AS 3959. The BAL is a measure of the severity of a building or development site's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kW/m<sup>2</sup>.

The BAL is based on the highest BAL applicable to the building or development.

### A.4.2 WHEN A BUSHFIRE ATTACK LEVEL ASSESSMENT SHOULD BE USED

A BAL assessment, prepared in accordance with AS 3959, is required at the building application stage for (some) habitable buildings located in a designated bushfire prone area.

A BAL assessment prepared in accordance with AS 3959, is also used to determine whether a development application and supporting bushfire management plan (BMP) is required in accordance with the *Planning and Development (Local Planning Schemes) Regulations 2015*, SPP 3.7 and these Guidelines.

Where the BAL assessment results in a potential radiant heat impact above 29 kW/m<sup>2</sup> (BAL-40 or BAL-Flame Zone), an asset protection zone (APZ) will be required to reduce the radiant heat impact to 29kW/m<sup>2</sup> or below.

In these instances, it is necessary to demonstrate to the decision-maker that the radiant heat impact can be reduced 29kW/m<sup>2</sup> or below, through the use of an APZ. This is where a post-development or indicative BAL assessment is used to support a development application and a BMP.

### A.4.3 WHO CAN PREPARE A BUSHFIRE ATTACK LEVEL ASSESSMENT

It is strongly recommended that a pre-development BAL, using a Method 1 assessment, is prepared by accredited Level 1 BAL assessors or accredited Level 2 or 3 bushfire planning practitioners.

Where an 'indicative' BAL assessment is necessary to support the preparation of a BMP, it is strongly recommended the assessment and the BMP be prepared by an accredited Level 2 or 3 bushfire planning practitioner.

Where a BAL assessment uses a Method 2 methodology in accordance with AS 3959, it is strongly recommended this be undertaken by an accredited Level 3 bushfire planning practitioner.

### A.4.4 BUSHFIRE ATTACK LEVEL ASSESSMENT REQUIREMENTS

A BAL assessment should be prepared in accordance with AS 3959. A BAL assessment should at a minimum include the following information.

#### A.4.4.1 Site and assessor details

Information that clearly identifies the location of the building or development (such as a street address, or where a street address is not available, a reserve number or other identifier), the person who undertook the assessment, including contact details and accreditation number (if applicable) and the date the assessment was undertaken.

#### A.4.4.2 Site map

A site map that clearly identifies all vegetation classified in accordance with AS 3959 that is within a minimum 100 metre radius of the development site. This map should also show the location of the development, the distances between the classified vegetation and that development, any roads or driveways, north point and information about where and in which direction photos of the site have been taken.

### A.4.5 PHOTOGRAPHS

Photographs that clearly represent all areas of vegetation classified in accordance with AS 3959 and for any areas that may be subject to an exclusion clause under AS 3959. Each photo should be accompanied by a written justification outlining the reasons for the classification or exclusion. Each photo should be clearly labelled and referenced on the site map.

[The Visual guide for bushfire risk assessment in Western Australia](#) (Department of Planning: 2016) provides further guidance for classifying vegetation in a Western Australian context. It is important to note that the





Visual guide does not replace the requirements of AS 3959 and that AS 3959 takes precedence in any inconsistency between AS 3959 and the Visual guide.

#### A.4.5.1 Potential bushfire impacts

A table or similar format should set out each area of classified vegetation and record the distances and other related details (such as slope under the vegetation) that have been used in the calculation of the BAL.

BAL assessments undertaken in accordance with Method 2 of AS 3959 should clearly set out all the inputs and assumptions used to determine the BAL.

#### A.4.5.2 Additional guidance

Any additional guidance such as the 'indicative' BALs that may be achieved on-site should certain works be undertaken – including clearing or site works, elevations that may be considered shielded in accordance with AS 3959 or APZ requirements – should be kept separate from the calculations and information used to determine the current BAL.

Such information should be clearly identified as guidance or additional information and contained within a separate table or appendix to the BAL assessment.



## A.5: BUSHFIRE ATTACK LEVEL ASSESSMENT (BASIC)

A bushfire attack level (BAL) assessment (basic) may be used in place of a BAL assessment where a building or proposed building, as part of a development application, is located more than 100 metres from bushfire prone vegetation.

### A.5.1 WHAT IS A BUSHFIRE ATTACK LEVEL ASSESSMENT (BASIC)

A BAL assessment (basic) is a simplified process for determining the BAL for a building, or proposed building, that has a low likelihood of bushfire exposure because it is located more than 100 metres from bushfire prone vegetation.

A BAL assessment (basic) report (below) determines the BAL rating in accordance with the Simplified Procedure (Method 1) of AS 3959.

As a landowner/proponent, developer or builder lodging a development application and proposing to develop on a site in a designated bushfire prone area, a BAL assessment (basic) report may be used if:

- the site and the surrounding area have been cleared since the latest release of the *Map of Bush Fire Prone Areas* was published, resulting in there being more than 100 metres between any bushfire prone vegetation and the location of the building, or proposed building; or
- the site is designated bushfire prone, but the subject land is large enough to locate the building, or proposed building, in an area that it is more than 100 metres from any bushfire prone vegetation.

A BAL assessment (basic) can only be undertaken at the development application stage.

### A.5.2 BUSHFIRE ATTACK LEVEL ASSESSMENT (BASIC) PROCESS

The BAL assessment (basic) process contains two steps that satisfy the requirement for determining a BAL using the Simplified Procedure (Method 1) set out in clause 2.2 of AS 3959.

Complete the BAL assessment (basic) report using the following steps.

#### Step One: Determine if the distance between the building, or proposed building, and the bushfire prone vegetation is more than 100 metres

Step 1 is a determination of the horizontal distance(s) between the building, or proposed building, and any bushfire prone vegetation in the vicinity. These measurements are required to ensure that the distance between the building, or proposed building, and any bushfire prone vegetation is more than 100 metres.

Bushfire prone vegetation includes most types of vegetation, including trees, shrubs and unmanaged grasses (including sown pastures and crops). However, bushfire prone vegetation does not include:

- low threat vegetation (i.e. maintained/mowed lawns, golf courses, some public recreation reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks); and
- non-vegetated areas (i.e. waterways, roads, footpaths, buildings or rock outcrops).

The measurement is the horizontal distance (i.e. measured in plan) that is taken (**Figure 23**):

- from where the external walls of the building are, or proposed building will be, to the base of the bushfire prone vegetation (not the canopy); or
- for a part of the building that has no wall (e.g. carport, verandah, deck, landing, ramp) from the supporting posts/columns to the base of the bushfire prone vegetation.

A measurement is required between the building, or proposed building, and all areas of bushfire prone vegetation in the vicinity of the site. This means that for some sites with multiple areas of bushfire prone vegetation nearby, multiple distances will need to be measured and recorded for the consideration of the decision-maker or building surveyor. When there are multiple areas of bushfire prone vegetation within the vicinity of the site, the shortest measurement recorded will be the one nominated on the BAL assessment (basic) report.

For example, if the measurement to the first area of bushfire prone vegetation is 115 metres and the measurement to the second area of bushfire prone vegetation is 120 metres, then 115 metres will be the measurement nominated on the BAL assessment (basic) report.

Online mapping tools (such as Google Maps) can be used to assist in determining what the horizontal distance is between the bushfire prone vegetation and the building, or proposed building.

Supporting information (such as site plans, photos, aerial photography and other design documents and specifications) must also accompany the BAL assessment (basic) report as evidence that the building, or proposed building, is more than 100 metres from any bushfire prone vegetation.

If the distance is 100 metres or less between any bushfire prone vegetation and the building, or proposed building, then should not undertake a BAL assessment (basic).

If this applies, cease this process and engage an appropriately qualified and experienced person (such as an accredited Level 1 BAL Assessor or Level 2 or Level 3 bushfire planning practitioner) to undertake a BAL assessment.

**Step 1: Measure the distance(s) between the building, or proposed building, and all areas of bushfire prone vegetation.**

**Insert the lowest distance (in metres) in the corresponding box on the BAL assessment (basic) report.**

## Step Two: Determine the bushfire attack level (BAL)

Clause 2.2.3.2 of AS 3959 provides that the bushfire attack level is classified BAL-LOW where the distance between the building, or proposed building, and any bushfire prone vegetation is more than 100 metres when measured in the horizontal plane.

If the distance stated in Step 1 is more than 100 metres, then the BAL in accordance with AS 3959 is BAL-LOW.

Under AS 3959, a BAL-LOW classification generally means that there are no additional bushfire resistant construction requirements that apply to the building, or proposed building. However, it should be noted that the 2022 edition of the Building Code of Australia will introduce bushfire construction requirements for certain types of Class 9 buildings located in a designated bushfire prone area, even where the site is BAL-LOW.

Complete the BAL assessment (basic) report using the information found at each step of this process.

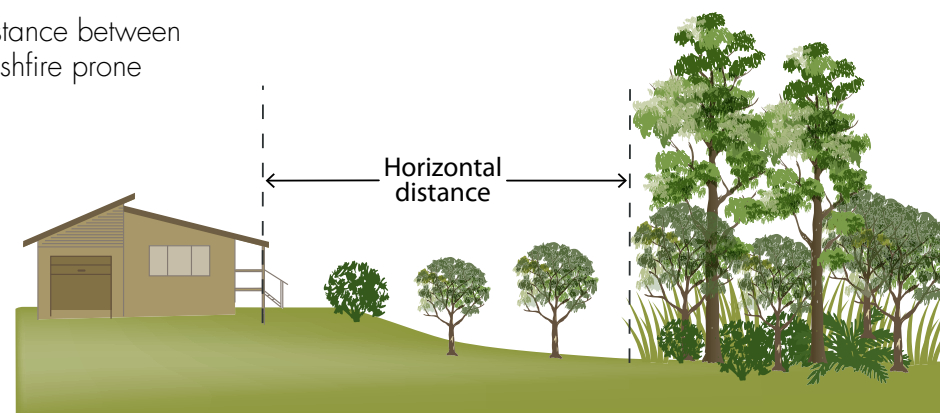
**Step 2: If the distance nominated at Step 1 is more than 100 metres, insert LOW in the corresponding box on the BAL assessment (basic) report**

Submit the BAL assessment (basic) report as part of the application for development approval and/ or to demonstrate compliance with the *Building Code of Australia* requirements under the building approval system.

Where the decision-maker and/or registered building surveyor is satisfied the building, or proposed building, is more than 100 metres from bushfire prone vegetation, they may accept the BAL assessment (basic) report.

However, if the decision-maker and/or registered building surveyor is not satisfied with the accuracy of the BAL assessment (basic), then an appropriately qualified and experienced person may need to be engaged to undertake a BAL assessment. It is strongly recommended an accredited Level 1 BAL Assessor or Level 2 or Level 3 bushfire planning practitioner is used.

**Figure 23:** Measurement of distance between a house and the bushfire prone vegetation





## A BAL REPORT FOR A PROPOSED BUILDING ON A SITE THAT IS NOT WITHIN 100 METRES OF BUSHFIRE PRONE VEGETATION

### 1 Bushfire prone vegetation

Determine if there is bushfire prone vegetation within 100 metres of the proposed building. Insert NIL where there is no bushfire prone vegetation within 100 metres of the proposed building.

### 2. Distance between the proposed building and bushfire prone vegetation

Determine the horizontal distance between the proposed building and the nearest bushfire prone vegetation in the area surrounding the proposed building. Insert YES where the horizontal distance is greater than 100 metres on flat land and 110 metres on sloping land.

### 3. Slope of the land under bushfire prone vegetation

Determine the horizontal distance between the proposed building and the nearest bushfire prone vegetation. Insert N/A where the horizontal distance is greater than 100 metres on flat land and 110 metres on sloping land.

### 4: Bushfire Attack Level (BAL)

Determine the BAL for the proposed building or development. Insert the BAL.

If the BAL is BAL-LOW, then this report may be used to support a relevant application for the proposed building or development. If the BAL is **not** BAL-LOW, this report should not be used.

Attach any supporting information (i.e. site plans, photos, aerial photography and other design documents and specifications) as evidence that your site is not within 100 metres of bushfire prone vegetation.

I certify that the inputs into this BAL assessment (basic) report are a true and accurate representation of the conditions of the proposed building and site on the date of this assessment for the site located at:

And being the whole of the land described in Certificate of Title:

The BAL rating is:

Date of assessment:

Signed:

Postal address:

Phone:

Email:



# APPENDIX B – EXPLANATORY NOTES

## B.1: LOCATION

**State Planning Policy outcome for Element 1:  
Location – Avoid broader landscapes that present  
an unacceptable bushfire risk to people, property  
and infrastructure.**

### B.1.1 BROADER LANDSCAPE ASSESSMENT

Western Australia has experienced significant bushfire incidents. Climate change is increasing the risk, frequency and severity of bushfires due to:

- a higher fuel load with more dry vegetation being available to burn
- a drier fuel load in the landscape
- an increase in extreme fire weather occurrences through a combination of low rainfall and humidity, and high temperatures and wind speeds
- an increase in instances of lightning strikes as extreme weather events become more frequent.

In response to the increasing risk, frequency and severity of bushfires, Element 1: Location, now includes an assessment of the broader landscape, with the aim of identifying those locations that present an unacceptable bushfire risk to people, property and infrastructure.

Appendix A.1: Broader landscape assessment is a methodology to understand the likely size and intensity of a bushfire and to determine the broader landscape type surrounding the planning proposal. The vegetation categories used in this methodology simplify those in AS 3959 and have been developed to provide a broad scale understanding of the vegetation pattern. The basis for identifying these vegetation categories is to consider if a landscape scale bushfire is likely to occur.

The assessment should contain a level of detail appropriate to the nature and scale of the proposal in relation to its contextual setting. The assessment is primarily concerned with classified vegetation (excluding Class G Grassland) that could support a landscape scale bushfire.

It is recognised that Class G Grassland presents a bushfire risk, as it can burn quickly, however there is generally little or no ember attack and can therefore generally be mitigated through the use of an Asset Protection Zone (APZ) and/or hazard separation, such as a perimeter road.

Landscape scale bushfires occur where there are large areas of contiguous vegetation. While difficult to concisely define due to the wide range of factors that influence bushfire, typical characteristics of a landscape scale bushfire include high intensity fire, high rates of spread, large active flaming zones and frequent spot fires. These characteristics combine to create a significant bushfire event that moves through the landscape as an 'area of fire', often with multiple active fire fronts rather than a single defined fire edge. They often impact many hectares and are difficult to control and defend against.

As a general guide, a contiguous extent of vegetation of one kilometre or more and 100 metres or more in width, has the potential to result in a landscape scale bushfire.

### B.1.2 UNDERTAKING AN OUTCOMES- BASED APPROACH FOR ELEMENT 1 – LOCATION

#### B.1.2.1 Methodology

An outcomes-based approach is detailed in policy measure 7.5 of SPP 3.7 and Section 2 of the Guidelines. The methodology used for an outcomes-based approach will be up to the bushfire practitioner, however, it is recommended that discussions are held with the decision-maker and the Department of Fire and Emergency Services (DFES), prior to preparation of the bushfire management plan (BMP).

The chosen methodology needs to be clear and transparent, as well as being replicable, robust and, where possible, supported by evidence. It has become evident that risk assessments in accordance with methodologies including ISO 3100 and the National Emergency Risk Assessment Guidelines (NERAG) are complex, difficult for decision-makers to interpret and may not be suitable for land use planning decision making.

Where a practitioner intends to prepare a risk assessment to accompany a BMP, discussions should be held with the decision-maker and DFES prior to undertaking the assessment, to ensure there is agreement on the proposed scope and methodology.

#### B.1.2.2 Bushfire scenario planning

Bushfire scenario planning is a useful way to examine the potential impact a bushfire will have around or within the planning proposal.

An output of bushfire scenario planning is the formulation of map(s), which provide a useful spatial representation for decision-makers. These maps should spatially identify:





- environmental, conservation and biodiversity values
- major vulnerable land uses (such as aged care or schools)
- major open space areas (low threat vegetation)
- proposed access routes, including features that restrict access options
- approved structure plan or subdivision areas
- proposed development investigation areas
- bushfire scenarios through differing extents of vegetation considering the dimensions and characteristics of a bushfire flame, its initiation, spread and development, which arise from assumed weather conditions, topography and fuel
- the direction a landscape-scale fire run(s) could impact the planning proposal
- aspects and sections of the planning proposal to exposed interfaces with bushfire hazards
- impact of radiant heat, ember and surface fire attack
- whether a bushfire has the ability to run into and through the subject site
- the interaction between the internal and external broader landscape bushfire hazards.

In addition to the information above, the assessment should include:

- consideration or acceptance of ember load modelling and/or smoke hazard
- provision of additional mitigation measures where applicable
- a vulnerability assessment of and/or discussion on how the planning proposal and mitigation measures reduce the bushfire risk to 'As low as reasonably practicable' (ALARP).

It is noted that the impact of particular bushfire hazards will be different, including the long-range impact of ember attack and smoke hazard. Where possible, the practitioner may consider ember load modelling to show the extent of the potential affected area on or around the site from different bushfire scenarios. Where ember attack or ember load and/or smoke modelling is not undertaken to inform hazard identification, a general acceptance of the presence and/or relevance of these two mechanisms can be adopted.

### B.1.2.3 Vulnerability assessment

A vulnerability assessment may prove to be useful in some situations, including where the planning proposal involves large numbers of people. The vulnerability assessment to consider how the identified bushfire hazards are likely to impact on people and the proposed development or assets (buildings and infrastructure), including consideration of the function assets can have in protecting human life. It assigns the degree to which people and assets are susceptible to the adverse effects of a bushfire.

A vulnerability assessment should consider the details of the proposed occupants or users of the future site, future building construction standards, and access and egress available to and within the site. An ALARP approach should be taken to achieve the best outcome. This approach aims to reduce the bushfire risk(s) as low as reasonably possible, given practicalities in application of the approach and site constraints.

### B.1.2.4 Additional mitigation measures

Additional mitigation measures should be identified in circumstances where the bushfire protection criteria do not appropriately respond to the identified bushfire threats, and particularly when developing an outcomes-based approach for those sites identified as Broader Landscape Type B.

It is up to the practitioner to justify why each bushfire mitigation measure is considered effective to appropriately mitigate or manage the threat to the development and can be implemented, in perpetuity. Application of a greater number of mitigation measures may not equate to a lower level of vulnerability in all instances.

Examples of additional mitigation measures are identified in **Table 8**. This list is not exhaustive, and measures listed may not apply to all planning stages. It is up to the practitioner to include what is appropriate for the site and to justify each measure's inclusion, as well as to provide other measures they deem suitable, which may not be listed below.

Mitigation measures should be assessed in terms of their:

- potential benefits
- effectiveness in reducing losses or maximising opportunities
- impact on other objectives, including the introduction of new threats or issues
- practicality
- reversibility/adaptability
- effectiveness over time
- implementation certainty and timing
- ongoing management and compliance reporting
- acceptance by community, stakeholders and decision-makers
- compliance with other written laws, including the Building Code of Australia
- legal and approval requirements.



**Table 8:** Examples of additional mitigation measures

OPTION CATEGORY	MITIGATION MEASURE	HOW IT WILL HELP	EXAMPLE OF MITIGATION ANALYSIS	POTENTIAL ASSETS
<b>Avoid</b>	Within the site, locating assets in areas of lowest risk to the bushfire hazard.	Assets will not be vulnerable to risk arising from bushfire hazard.	Persons and assets are not directly exposed to bushfire hazard or risk.	All or specific assets.
<b>Built form, design and layout</b>	The facility's buildings incorporate bushfire-resilient design features (beyond construction requirements).	Design features of buildings can effectively mitigate aspects of bushfire attack. Resilient design principles are incorporated into the architectural design of assets.	Simple built forms, including roof forms, are adopted that avoid re-entrant corners and complex roof forms that may entrap embers.	Whole development or selected buildings.
	Buildings are sufficiently separated from each other to limit the potential for building-to-building ignition.	Site layout considers the potential for building-to-building ignition and separates buildings, or groups of buildings, to limit risk. A detailed assessment to support this will be required.	The site layout is rationalised to limit building-to-building ignition, employing built form separation.	Whole development or selected or groups of buildings.
	Restricting or limiting the siting of dwellings in the landscape context.	Dwellings may have a lower exposure to bushfire risk.	Restricting dwelling construction on ridges even where a BAL-29 rating may be achieved.	Whole development or selected buildings.
<b>Building construction</b>	Construction to AS 3959 (or NASH Bushfire Standard) at a higher standard than required by the radiant heat flux profile (see additional construction measures).	Voluntary heightening of BAL construction standards other than those prescribed by the assessment methodologies of AS 3959 or the NASH Bushfire Standard to facilitate a higher level of potential protection.	Financial investment in construction to higher construction standard may increase the ability for the asset to withstand bushfire attack.	Selected buildings.
<b>Access and egress (evacuation)</b>	The capacity of the on-site and surrounding road network can support evacuation processes, either in leaving early or in an emergency, in conveying people to a safe location (note: traffic analysis may be required to demonstrate this risk mitigation measure).	The development does not create bottleneck situations where vehicles may be trapped on the road network during an event, or subject to an existing bottleneck on the broader road network on which the development seeks to rely.	A traffic analysis demonstrates vehicles will not be standing on the road network at the time of fire front arrival.	Whole development.
	Where accessed by an unsealed road, the road enables two-way traffic flow and is not obstructed by low bridges, gates or involve sharp turns or steep drop-offs.	Unsealed roads are designed and constructed to provide safe passage during an evacuation.	The road network is capable of safely carrying evacuating traffic in an emergency with reduced risk of road accidents occurring.	Whole development.



OPTION CATEGORY	MITIGATION MEASURE	HOW IT WILL HELP	EXAMPLE OF MITIGATION ANALYSIS	POTENTIAL ASSETS
	The facility includes its own on-site vehicles that can be used to assist evacuation (i.e. tour vehicles, minibuses, troop carriers, etc.) for occupants with poor mobility or unable to follow instructions.	Access to exclusive vehicle fleet may assist efficient evacuation of guests and staff without relying on buses or other vehicles for groups of guests who do not have access to private vehicles. This may apply to tour groups and other groups of guests.	Adequate provision of vehicles to meet the capacity of the development.	Whole development.
<b>Water supply and firefighting infrastructure</b>	For facilities connected to reticulated water supplies, additional static water supplies are provided on-site as redundancy.	Electricity can fail during bushfire emergencies, which limits operation of water pumping stations and other infrastructure. On-site static water supply sources for explicit use of firefighting ensures water availability.  Petrol or diesel-fuelled pumps are required. Alternatively, solar or other renewable energy sources could be contemplated to ensure pumping ability.	Water supply redundancy is achieved via the provisions of water tanks for the exclusive purpose of firefighting should mains supply fail.	Whole development or selected buildings.
	Where electric pumping equipment is used, an onsite back-up power source is provided, with reserves to provide power for at least four hours	Provide additional power supply when main power source fails, which is generally common in a bushfire event.	Loss of power supply from main source and back-up power is used to pump water supply from the water source.	Whole development.
	Suitable fire suppression sprinklers and associated infrastructure attached to buildings internally and/or externally	Provision of suitable suppression sprinklers and associated water supply to wet buildings ahead of bushfire.  Mitigate house-to-house flame contact.		Whole development or selected buildings.
	Firefighting infrastructure such as (but not limited to) hydrants (flows and pressures that meet local requirements), pumps and high-pressure hoses that can reach all external facades of the buildings, and appropriate fire brigade fittings to static supplies.	Firefighting infrastructure supports the development and its buildings and occupants to be defended, where safe to do so.	Firefighting equipment is available for asset defence, only under certain conditions.	Whole development or selected buildings.



OPTION CATEGORY	MITIGATION MEASURE	HOW IT WILL HELP	EXAMPLE OF MITIGATION ANALYSIS	POTENTIAL ASSETS
<b>Protection measures</b>	Power is provided underground.	Overhead powerlines are a known ignition source. Electricity servicing the development is provided underground.	Opportunity for ignition from overhead powerlines is avoided.	Whole development or selected buildings.
	Landscaping is based on bushfire resilient principles and plant flammability.	Site-based landscape can contribute to fire propagation immediately adjacent to buildings and evacuation routes. Careful plant flammability considerations seek to limit vertical and horizontal propagation of fire within the site and does not contribute to a worsening level of risk.	Potential propagation within the site is reduced through careful plant flammability considerations in landscaping. A landscape concept plan that informs this is required. An ongoing management plan is required.	Whole development.
	Land management practices are identified within the site to manage fuel loads and balance ecological values.	Fuel and hazard management such as prescribed burning and mechanical treatments are employed on the site to manage on-site fuel loads where clearing is not proposed.	On-site fuels are managed appropriately to limit fuel build-up and provide fuel managed/reduced zones around the development.	Whole development.
	Fencing and retaining walls are constructed of stone, masonry, concrete or other non-combustible material.	Fire-resistant retaining walls will ensure ground stabilisation during and post-fire. It also ensures retaining features do not inadvertently contribute to fire propagation internal to the site.	Fencing and retaining walls are unable to carry fire into or across the site, applying radiant heat or propagation effects internal to the site.	Whole development.

## B.2: SITING AND DESIGN

### State Planning Policy outcome for Element 2: Siting and design

#### Ensure siting and design solutions:

- manage or mitigate the bushfire risk to people, property and infrastructure; and
- avoid, or where unavoidable, minimise clearing of native vegetation.

### B.2.1 IDENTIFYING AN ASSET PROTECTION ZONE

An Asset Protection Zone (APZ) is a low fuel area, maintained around a building to increase the likelihood a building will survive a bushfire, by reducing the potential for direct flame contact, radiant heat exposure and ember attack. The APZ allows emergency services access and provides an area for firefighters and home-owners to defend their property.

The width of an APZ should ensure the radiant heat impact does not exceed  $29 \text{ kW/m}^2$  for a habitable building, or  $10 \text{ kW/m}^2$  where a building is identified for use as an on-site shelter. Where a building or development site achieves a radiant heat impact of  $29 \text{ kW/m}^2$  or lower in its pre-development state (prior to any vegetation clearing or modification), an APZ is generally not required.

However, providing for the ongoing management of an APZ in perpetuity, as low threat vegetation, within the implementation section of the BMP and/or condition of development approval, will ensure the BAL rating of the building does not increase over time.

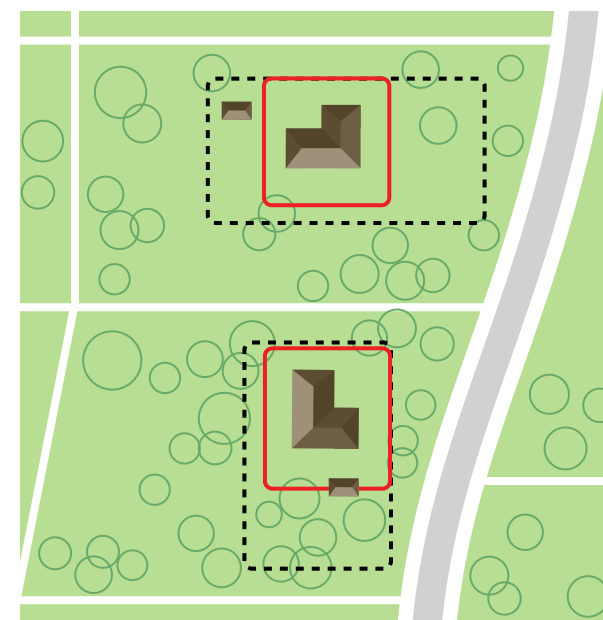
Clearing or modification of native vegetation to reduce the radiant heat impact below  $29 \text{ kW/m}^2$  is generally not supported.

At the subdivision stage where a lot contains a building envelope, and the development site(s) is yet to be determined, the BMP should demonstrate the lot(s) can achieve an indicative development site(s) with a radiant heat impact not exceeding  $29 \text{ kW/m}^2$ , within the building envelope (Figure 24).

It may not be necessary for an entire building envelope to achieve  $29 \text{ kW/m}^2$  or lower, where this results in unnecessary clearing or modification of native vegetation.

An APZ should be contained within the boundaries of the lot on which the building is situated, except in instances where it is demonstrated the vegetation on the adjoining land is, and will continue to be, low threat as per cl. 2.2.3.2 of AS 3959, or the vegetation on the adjoining lot is, and will remain in perpetuity, non-vegetated. However, it should be noted there is no requirement for a neighbouring landowner or land manager (public or private) to be party to a legal agreement to undertake ongoing management of vegetation as low threat, in perpetuity.

Figure 24: Example of an APZ accommodated with a building envelope





Exclusion of vegetation on adjoining land, which is covered by a local government firebreak notice, issued under section 33 of the *Bushfires Act 1954*, may occur in limited circumstances at the development application stage. Where it is evident the adjoining landowner is managing the vegetation in accordance with the firebreak notice, a copy of the firebreak notice and photographic evidence of the managed vegetation should be included in a BMP. It will also be necessary to seek written confirmation from the local government, to confirm support for the exclusion.

## B.2.2 DESIGNING AN ASSET PROTECTION ZONE

An APZ should not be seen as an area entirely cleared of vegetation, but as a strategically designed space that considers how existing and future mature vegetation, and combustible and non-combustible features interact with and affect the building's resilience to bushfire.

An APZ should provide the greatest level of vegetation management within at least three metres of a habitable building, to ensure adequate unobstructed defensible space for emergency services to operate. This area should contain minimal vegetation and be free of combustible materials and obstructions. Within the remainder of the APZ, planting of vegetation can increase as you move farther away from the building.

The placement of plants within an APZ is a key design technique. Separation of garden beds with areas of low fuel or non-combustible material will break up fuel continuity and reduce the likelihood of vegetation within an APZ supporting a bushfire. It is important to consider the plant density and final structure and form of plants in their mature state.

Strategic landscaping measures can be applied, such as replacing weeds with low flammability vegetation to create horizontal and vertical separations between the retained vegetation.

Mulches used within the APZ should be non-combustible. The use of stone, gravel, shells, rock and crushed mineral earth is encouraged. Very fine or light mulch (such as shredded pine bark, pine needles, or poplar woodchips) less than five millimeters in diameter should be avoided. It is recommended that wood mulch is used in garden beds or areas where the moisture level is higher by regular irrigation, and these areas are separated with non-combustible elements, such as pathways and open spaces.

Incorporation of landscaping features, such as masonry feature walls, can provide habitable buildings with barriers to wind, radiant heat and embers. These features can include noise walls or wind breaks. Use of Appendix F of AS 3959 for bushfire resistant timber selection or the use of non-combustible fencing materials such as iron, brick, limestone, metal post and wire is encouraged within an APZ.

## B.2.3 MANAGEMENT OF AN ASSET PROTECTION ZONE

Ongoing maintenance of an APZ is usually enforced through a condition of a development approval, which should refer to **Table 9** APZ technical requirements within this Appendix.

In addition to regular maintenance of an APZ, further bushfire protection can be provided by:

- ensuring gutters are free from vegetation
- installing gutter guards or plugs

- regular cleaning of underfloor spaces, or enclosing them to prevent gaps
- trimming and removing dead plants or leaf litter
- pruning climbing vegetation (such as vines) on a trellis, to ensure it does not connect to a building, particularly near windows and doors
- removing vegetation in close proximity to a water tank to ensure it is not touching the sides of a tank
- following the requirements of the relevant local government firebreak notice, which may include additional provisions such as locating wood piles more than 10 metres from a building.

Preparation of a property prior to the bushfire season and/or in anticipation of a bushfire is beneficial even if your plan is to evacuate. Embers can travel up to several kilometres from a bushfire and fall into small spaces and crevices or land against the external walls of a building. Best practice recommends objects within the APZ are moved away from the building prior to any bushfire event. Objects may include, but are not limited to:

- door mats
- outdoor furniture
- potted plants
- shade sails or umbrellas
- plastic garbage bins
- firewood stacks
- flammable sculptures
- playground equipment and children's toys.



**Table 9:** Asset Protection Zone (APZ) technical requirements

OBJECT	REQUIREMENT
Fences within the APZ	Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (combustible, dead vegetation matter less than 6 mm in thickness)	<ul style="list-style-type: none"> <li>Should be managed and removed on a regular basis to be maintained as low threat vegetation</li> <li>Should be maintained at less than two tonnes per hectare (on average)</li> <li>Mulches should be non-combustible such as stone, gravel, shells, rock or crushed mineral earth or wood mulch more than five millimetres in thickness.</li> </ul>
Trees* (more than 6 m in height)	<ul style="list-style-type: none"> <li>Trunks at maturity should be a minimum distance of six metres from all elevations of the building</li> <li>Branches at maturity should not touch or overhang a building or powerline</li> <li>Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation.</li> <li>Canopy cover within the APZ should be less than 15 per cent of the total APZ area</li> <li>Tree canopies at maturity should be at least 5 m apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided the total canopy cover within the APZ does not exceed 15 per cent and is not connected to the tree canopy outside the APZ.</li> </ul> <p>Tree canopy cover – ranging from 15 to 70 per cent at maturity</p>  <p>15%                      30%                      70%</p>



OBJECT	REQUIREMENT
Shrub* and scrub* (0.5 m to 6 m in height). Shrub and scrub more than 6 m in height are to be treated as trees.	<ul style="list-style-type: none"> <li>Should not be located under trees or within three metres of buildings</li> <li>Should not be planted in clumps more than five square metres in area</li> <li>Clumps should be separated from each other and any exposed window or door by at least 10 metres.</li> </ul>
Ground cover* (less than 0.5 m in height. Ground cover more than 0.5 m in height is to be treated as shrub)	<ul style="list-style-type: none"> <li>Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above</li> <li>Can be located within two metres of a structure but three metres from windows or doors if more than 100 mm in height.</li> </ul>
Grass	<ul style="list-style-type: none"> <li>Grass should be maintained at a height of 100 mm or less, at all times</li> <li>Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.</li> </ul>
Defendable space	Within three metres of each wall or supporting post of a habitable building; the area is kept free from vegetation but can include ground cover, grass and non-combustible mulches as prescribed above.
Liquid petroleum gas cylinders	<ul style="list-style-type: none"> <li>Should be located on the side of a building farthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building</li> <li>The pressure relief valve should point away from the house</li> <li>No flammable material within six metres from the front of the valve</li> <li>Must sit on a firm, level and non-combustible base and be secured to a solid structure.</li> </ul>

Notes:

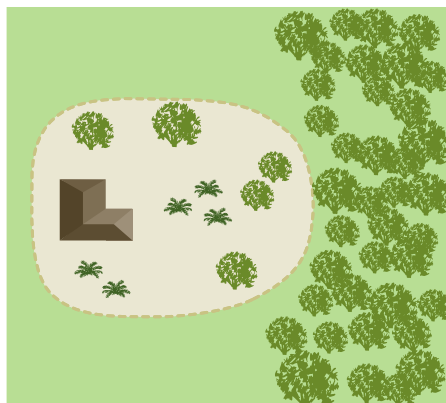
\* Plant flammability, landscaping design and maintenance should be considered – refer to following explanatory notes

**Fine fuel load is the combustible, dead or dry vegetation matter on the ground, near ground, or elevated. Fine fuel includes grass, leaves, bark and twigs less than six millimetres in diameter that ignite readily and are burnt rapidly when dry.**

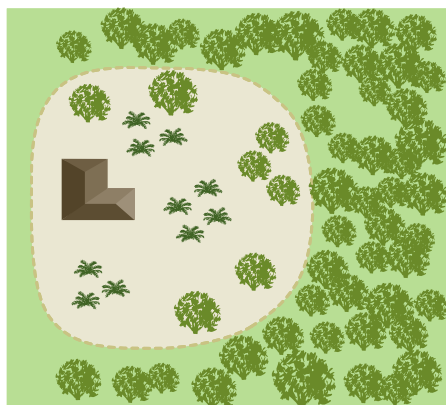
**Fine fuel should be maintained at less than 2t/ha. 100gm/m<sup>2</sup> equates to 1t/ha. To estimate a fuel load (in t/ha), collect the dry fine fuel from a representative one square meter and weigh (in grams using kitchen scales) and multiply the weight by 0.01.**

**Figure 25:** Design of an Asset Protection Zone

Hazard on  
one side



Hazard on  
three sides



Legend

- APZ
- trees
- shrubs

Regardless of whether an Asset Protection Zone exists in accordance with the acceptable solutions and is appropriately maintained, it should be noted that fire fighters are not obliged to protect an asset if they think the separation distance between the dwelling and vegetation is unsafe.

## B.2.4 PLANT FLAMMABILITY

There are certain plant characteristics that are known to influence flammability, such as moisture or oil content and the presence and type of bark. Plants with lower flammability properties may still burn during a bushfire event but may be more resistant to burning and some may regenerate faster post-bushfire.

There are many terms for plant flammability, which should not be confused, including:

- **Fire resistant** – plant species that survive being burnt and will regrow after a bushfire and, therefore, may be highly flammable and inappropriate for a garden in areas of high bushfire risk.
- **Fire retardant** – plants that can absorb more of the heat of the approaching bushfire without burning, compared to more flammable plants.
- **Fire wise** – plants that have been identified and selected based on their low flammability properties and linked to maintenance advice and planting location within a garden.

Although not a requirement of the Guidelines, local governments may develop their own list of fire wise or fire-retardant plant species that suit the environmental characteristics of an area. When developing a recommended plant species list, local governments should consult with ecologists, land care officers or environmental authorities to ensure the plants do not present a risk to threatened ecological communities, threatened or endangered species or their habitat.

When selecting plants, private landholders and developers should aim for plants within the APZ that have the following characteristics:

- grow in a predicted structure, shape and height
- are open and loose branching with leaves that are thinly spread
- have a coarse texture and low surface-area-to-volume ratio
- will not drop large amounts of leaves or limbs that require regular maintenance
- have wide, flat and thick or succulent leaves
- trees that have bark attached tightly to their trunk or have smooth bark
- have low amounts of oils, waxes and resins (which will often have a strong scent when crushed)
- do not produce or hold large amounts of fine dead material in their crowns
- will not become a weed in the area.

## B.3: VEHICULAR ACCESS

### State Planning Policy outcome for Element 3: Vehicular access

Ensure the design and capacity of vehicular access and egress provide:

- for efficient and effective evacuation to a suitable destination(s) and/or
- as a contingency measure for vulnerable tourism land uses, an on-siteshelter, where demonstrated appropriate, as a last resort option.

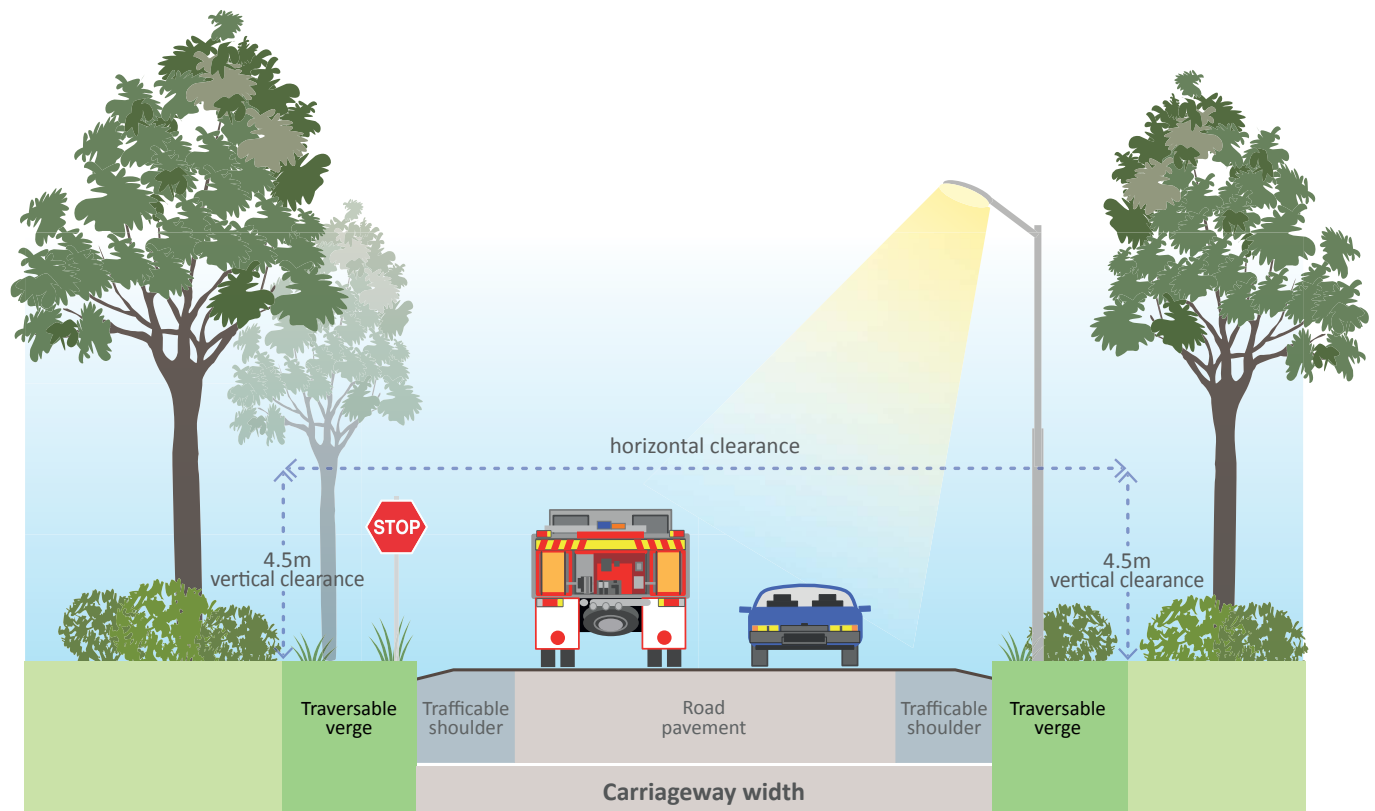
### B.3.1 PUBLIC ROADS

The Guidelines do not prescribe values for the carriageway width or the horizontal clearance for public roads (except for perimeter roads). Public roads should be in accordance with the class of road as specified in the Public Works Engineering Australasia (IPWEA) subdivision guidelines, Liveable Neighbourhoods, Austroads Standards, any applicable or relevant Main Roads standards, supplements, policies and any applicable or relevant local government standards or policies.

However, it is important that public roads (and other forms of access) in bushfire prone areas, allow for emergency services vehicles to stop and operate on the side of the public road, specifically where the public road traverses large areas of classified vegetation.

It is, therefore, recommended that public roads achieve a minimum six metres horizontal clearance. Perimeter roads require additional width.

Figure 26: Area encompassing horizontal clearance and vertical clearance



**Horizontal clearance:** The carriageway width (including the road pavement and trafficable shoulder) and traversable verge that provides for the movement and parking of vehicles and area required by emergency services to operate. Infrastructure and vegetation within the traversable verge should be frangible, however, non-frangible items can occur providing they do not restrict vehicular movement in the event of an emergency.



**Table 10:** Vehicular access technical requirements

	1		2		3		4		5	
TECHNICAL REQUIREMENTS	PERIMETER ROADS		PUBLIC ROADS		EMERGENCY ACCESS WAY <sup>3</sup>		FIRE SERVICE ACCESS ROUTE <sup>3</sup>		BATTLE-AXE & PRIVATE DRIVEWAYS <sup>1</sup>	
MAP OF BUSH FIRE PRONE AREAS DESIGNATION	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1
Minimum horizontal clearance (metres)	12	8	See note 5		10	6	10	6	6	
Minimum vertical clearance (metres)	4.5									
Minimum weight capacity (tonnes)	15									
Maximum grade unsealed road <sup>2</sup>	See note 5		See note 5		1:10 (10% or 6°)					
1:7 (14.3% or 8°)										
1:10 (10% or 6°)										
8.5										
Maximum grade sealed road <sup>2,4</sup>										
Maximum average grade sealed road										
Minimum inner radius of road curves (metres)										

**Notes:**

<sup>1</sup> Driveways and battle-axe legs to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision where not required to comply with the widths in this Appendix or the Guidelines.

<sup>2</sup> Dips must have no more than a 1 in 8 (12.5% - 7.1 degrees) entry and exit angle.

<sup>3</sup> To have crossfalls between 3 per cent and 6 per cent.

<sup>4</sup> For sealed roads only the maximum grade of no more than 1 in 5 (20 per cent) (11.3 degrees) for no more than 50 metres is permissible, except for short constrictions to 3.5 metres for no more than 30 metres in length where an obstruction cannot be reasonably avoided or removed.

<sup>5</sup> As outlined in the Institute of [Public Works Engineering Australasia \(IPWEA\) subdivision guidelines](#), [Liveable Neighbourhoods](#), [Austroads Standards](#) Main Roads standard, supplement, policy or guideline and/or any applicable or relevant local government standard or policy.



Where local or state government roads are proposed to be widened or modified by the proponent, as part of the structure planning process or at the subdivision stage, approval is required from the relevant government authority.

## B.3.2 ACCESS TO A SUITABLE DESTINATION(S)

Public vehicular access in at least two different directions to at least two different suitable destinations should always be the goal within bushfire prone areas. The more options available for evacuation and for emergency services to respond to the bushfire, the better the bushfire resilience of a development and/or a community.

A suitable destination is likely to be an urban area, townsite or similar. This also includes any evacuation centre, dedicated by the local government, for use during a bushfire event.

Where a planning proposal, such as a structure plan or subdivision, proposes a large number of lots, or where the structure plan or subdivision adjoins an urban area or townsite, this could potentially result in land that is more than 100 metres from classified vegetation (BAL-LOW). In this instance, an argument could be made that the suitable destination is within the subject site or within the adjoining urban area or townsite. For example, where coastal communities are limited to one public road servicing the community, there may be an existing managed area large enough to provide an area suitable for people to locate to before, during and after a bushfire event.

There is no prescribed distance to a suitable destination as it is assumed that in the event of a bushfire, a person would travel any necessary distance to evacuate.

A suitable destination should not be confused with an on-site shelter provided for tourism land uses. On-site shelters are a last resort option, purpose built and designed, and are supported in limited circumstances to facilitate tourism within remote and/or heavily vegetated areas.

On-site shelters are not supported for residential land-uses.

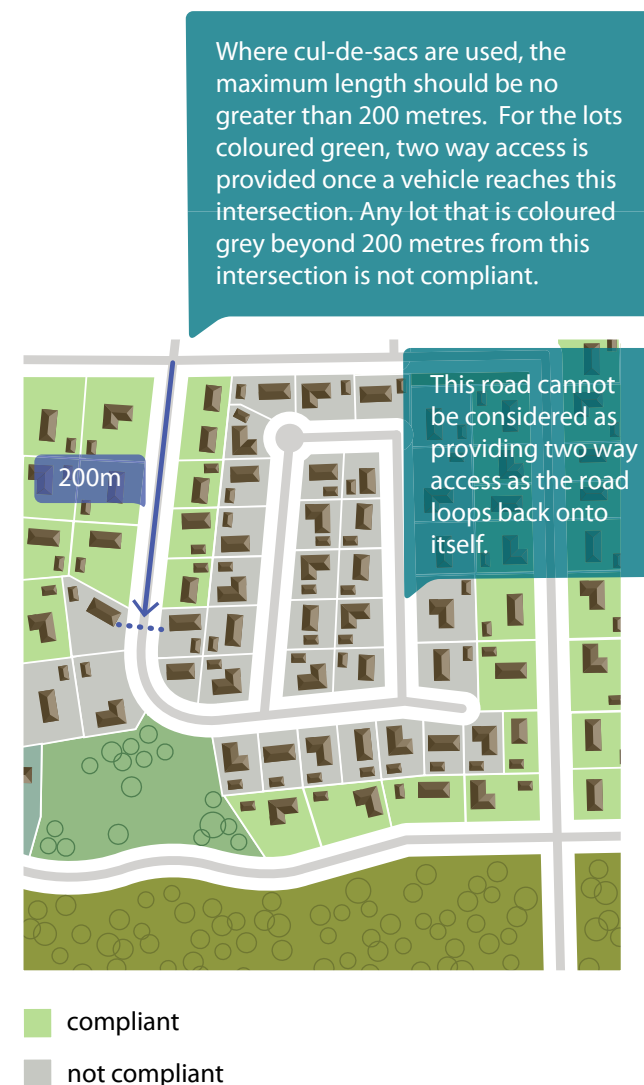
**Suitable destination:** An area that is not designated as bushfire prone on the *Map of Bush Fire Prone Areas* or is greater than 100 metres from classified vegetation or 50 metres from Class G Grassland, as per AS 3959, and can provide protection during and after a bushfire event.

A suitable destination is located within an urban area, townsite or similar. This also includes any evacuation centre, dedicated by the local government, for use during a bushfire event.

## B.3.3 NO-THROUGH ROADS

No-through roads reduce the legibility of a road network and options available for access and egress in the event of a bushfire emergency. The inclusion of new no-through roads within subdivision or structure plan designs, in the first instance, should be avoided in bushfire prone areas.

**Figure 27:** Example of compliant and non-compliant two-way access



However, where it is demonstrated, to the satisfaction of the decision-maker that a no-through road cannot be avoided due to site or design characteristics, the inclusion of a new no-through road is to be treated as an acceptable solution, if it satisfies the prescribed maximum road length. Where this is not demonstrated, a decision-maker is able to request a redesign to remove the no-through road.

The acceptable solution for no-through roads in areas designated as Area 2 on the *Map of Bush Fire Prone Areas* includes a maximum of 200 metres from the lot(s) boundary to an intersection where two-way access is provided (**Figure 28**). There is no prescribed maximum length for no-through roads in areas designated as Area 1 (Urban) on the *Map of Bush Fire Prone Areas*.

### B3.3.1 Outcomes-based approach – no-through roads

It becomes more challenging to comply with the acceptable solutions where the proposal includes existing no-through roads that exceed 200 metres. The 200 metres is a nationally accepted standard and support for development on existing no-through roads longer than the prescribed 200 metres, particularly within vegetation classified as Forest, should be considered carefully. They should be the exception to the rule where it is demonstrated through an outcomes-based approach that the hazards and the road network within the broader landscape are such that, in the event of a bushfire, evacuation to a suitable destination is possible.

An outcomes-based approach should demonstrate the increase in length, and/or the proposed additional lots, on an existing non-compliant no-through road and should consider:

- the broader landscape
- size and scale of the development
- whether the no-through road travels away from the source of the bushfire hazard
- evacuation in the event of a bushfire scenario
- the vegetation within and adjoining the road reserve

- legibility of the broader road network
- whether the no-through road is straight and provides a line of sight
- any improvements to the bushfire resilience of the area, including improvements to the existing road network
- the precedent within the broader area that would be set by supporting development on a non-compliant no-through road.

**Figure 28:** Demonstration of a lot achieving two-way access within 200 metres

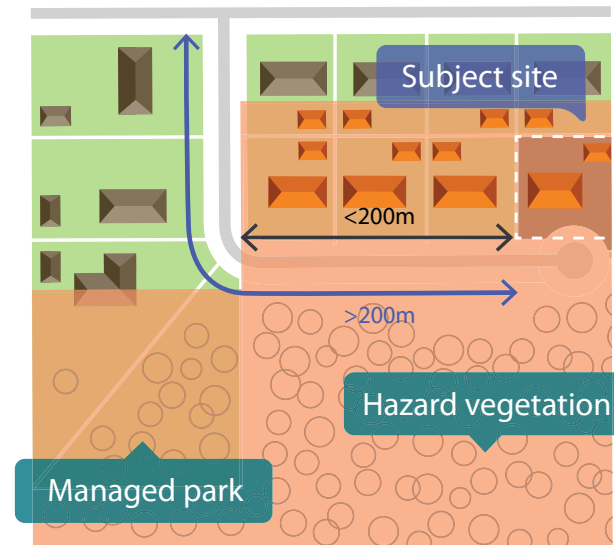


## B.3.4 EMERGENCY ACCESS WAY

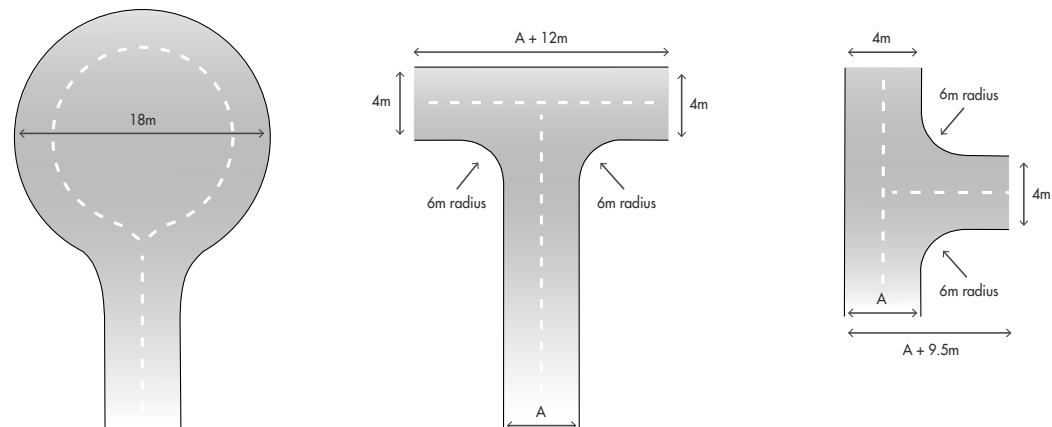
An emergency access way is not a preferred alternative to public road access. It should be considered acceptable only where it has been demonstrated that public road access cannot be achieved due to site characteristics or environmental values; and that it will provide for the safety and performance needs of emergency services and the community.

The principal function of the emergency access way is to provide a contingency (second) public evacuation route and simultaneously provide access for emergency services in the event of a bushfire. Where an emergency access way traverses classified vegetation, it performs the secondary function of providing access for emergency services to the hazard (vegetation).

**Figure 29:** Example of a site on a no-through road greater than 200 metres but within 200 metres of BAL-LOW



**Figure 30:** Design requirements for a turn-around area



Where the emergency access way is located within an area designated as Area 2 on the *Map of Bush Fire Prone Areas*, a horizontal clearance of 10 metres should be provided. The 10 metres is to provide access for emergency services to any classified vegetation, including grassland, adjoining the easement (**Figure 31**).

A six metre horizontal clearance should be provided within an area designated as Area 1 (Urban) on the *Map of Bush Fire Prone Areas*.

Emergency access ways should connect to a public road. An emergency access way should not exceed 500 metres in length as there are often issues of legibility and safety. Emergency access ways are generally not part of the formal road network and many are not identified on various online or other mapping platforms, which may limit emergency services and/or the community finding their way through the network in an emergency.

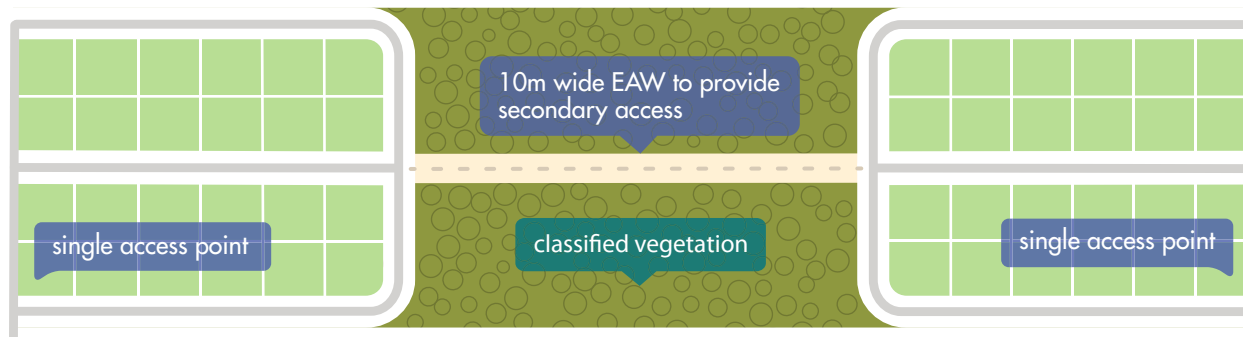
### B.3.4.1 Outcomes-based approach emergency access way (width and/or length)

An outcomes-based approach may be used to demonstrate to the satisfaction of the decision-maker that a reduction in the width and/or an extension of the length of the emergency access way provides for the efficient and effective evacuation to a suitable destination(s).

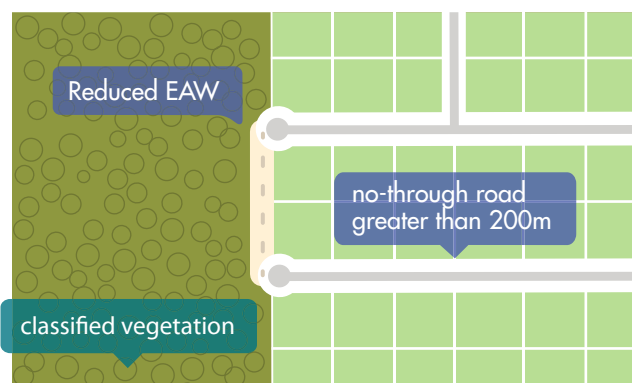
**Figure 32** and **Figure 33** are examples where the width of an emergency access way could potentially be.

**Figure 32** depicts classified vegetation on one side of the easement and **Figure 33** depicts an easement with lots on either side. An outcomes-based approach could be used to demonstrate that the reduced width satisfies the policy outcome and policy measure 7.5 of SPP 3.7.

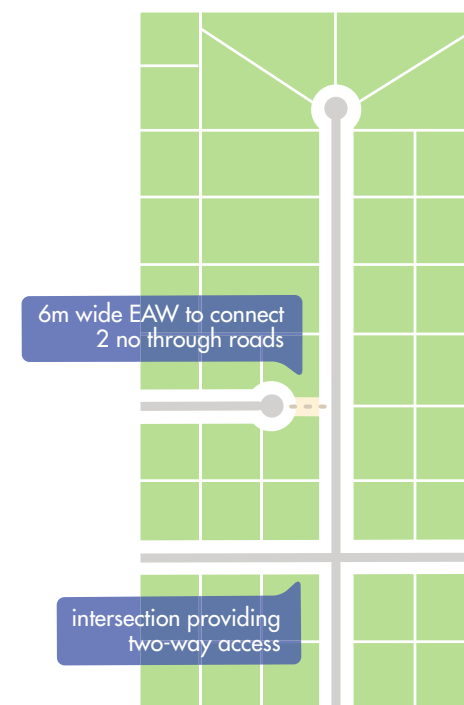
**Figure 31:** Example of a 10 metre wide emergency access way



**Figure 32:** Example of a reduced emergency access way



**Figure 33:** Example of a 6 metre wide emergency access way



## B.3.4.2 Permanent public emergency access way

A public emergency access way can be provided as either a public easement in gross or a right-of-way.

In both approaches, the care, control and management of the emergency access way should be the responsibility of the local government as the grantee of the easement or management body of the right-of-way (ceded to the Crown).

If the emergency access way is provided as an easement, it should be provided as a public easement in gross under sections 195 and 196 of the *Land Administration Act 1997* in favour of the local government and/or public authority, to ensure accessibility by fire emergency services and the public at all times. If the emergency access way traverses an adjoining private lot(s), support will be necessary from the adjoining lot owner(s).

To be provided as a right-of-way, the emergency access way should be vested as such in the Crown under section 152 of the *Planning and Development Act 2005*. Such land should be ceded free of cost and without any payment or compensation by the Crown.

The proponent should obtain written consent from the local government that it will accept care, control and management of the easement or right-of-way.

This should be provided to the decision-maker prior to granting planning approval. Consultation with the Department of Planning, Lands and Heritage (Land Use Management division) should also be undertaken if the land is to be ceded to the Crown.

If gates are used to control traffic flow during non-emergency periods, these will be managed by the local government and should not be locked. They should be double gates wide enough to access the whole carriageway width and accommodate type 3.4 fire appliances with the design and construction to be approved by the relevant local government.

## B.3.4.3 Right-of-carriageway emergency access way

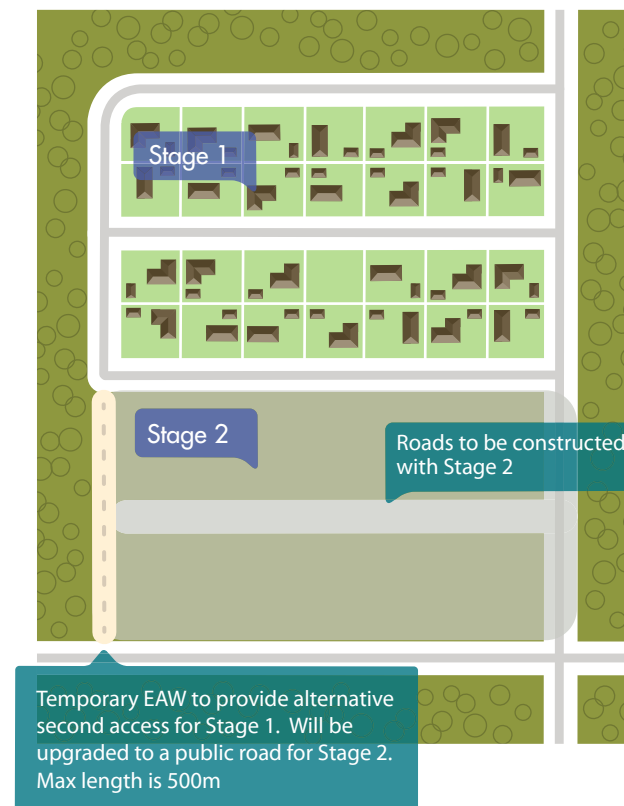
There may be instances where a proposed development is limited to secondary access through the adjoining lot(s). A right-of-carriageway easement can be provided under section 195 of the *Land Administration Act 1997*, which restricts the use of the emergency access way to the lot owner(s) and emergency services and is not available to the public.

Written support is required from the adjoining lot owner(s). Approval for the use of these types of right-of-carriageway is on a case-by-case basis and at the discretion of the decision-maker. The easement is to be granted to the local government and its management should be agreed to by all parties and included within the deed. If gated, the easement area can be locked to restrict day-to-day vehicular access.

## B.3.4.4 Temporary emergency access way

A temporary emergency access way may be proposed to facilitate the staging arrangements of a subdivision. The provision of two public roads may not be possible or feasible in the first stage of the subdivision and an emergency access way can be provided as an interim access route, until the second public road is constructed in the subsequent stage of the subdivision (**Figure 34**).

**Figure 34:** Example of where an emergency access way may be provided





## B.3.4.5 Restricted public emergency access way

Emergency access ways should not be gated, or where they are gated should not be locked. However, there may be instances where the local government or Main Roads Western Australia will request that the gate be locked and public vehicular access restricted, except during an emergency. This is usually due to concern regarding the additional vehicular movements onto an existing local or state road. If the emergency access way is locked to restrict access, a common key system should be used. Keys should be available to emergency services and designated fire officers within the local government area and/or surrounding district.

In this scenario, the emergency access way can be provided as an easement under section 195 of the *Land Administration Act 1997*, as public access in the event of a bushfire emergency, or vested in the Crown as a reserve under section 152 of the *Planning and Development Act 2005*. Where vested, such land is to be ceded free of cost without any payment or compensation by the Crown.

The proponent should obtain written consent from the local government accepting care, control and management of the proposed easement or reserve and agree to the terms of the Management Order Conditions (if applicable); this should be provided to the decision-maker prior to granting development approval.

The reserve should be for a public purpose specified in the condition related to the subdivision, for example, for emergency access only or for emergency access and recreation. A reserve for emergency access and recreation optimises the land-use by providing vehicular access in the event of a bushfire emergency and daily access by the public (on foot) as a recreation link. Appropriate signage can ensure the public is aware of the purpose of the reserve.

## B.3.5 PERIMETER ROADS

Hazard separation should be provided in the form of a perimeter road where a strategic planning proposal or subdivision application includes the creation of 10 or more lots adjacent to each other, which adjoin classified vegetation under AS 3959 with the exception of Class G Grassland, as part of a greenfield development or large urban infill site.

The creation of 10 or more lots includes cumulative subdivision applications where the subdivision application may be part of a staged subdivision.

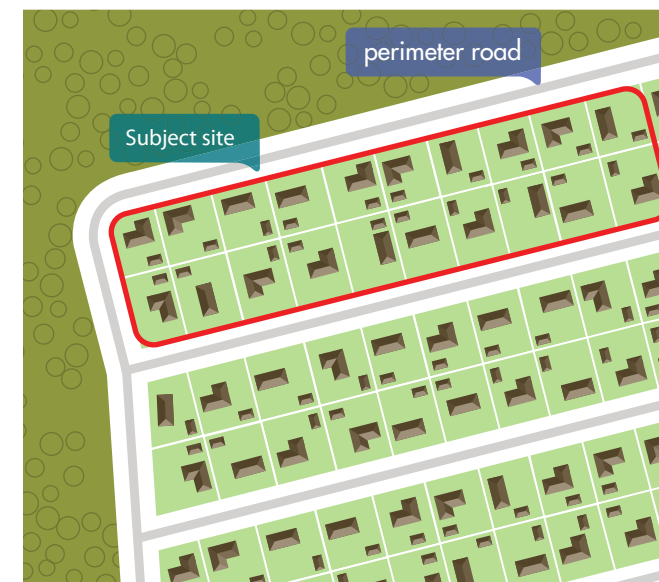
As the road is likely to function as a key neighbourhood distributor or similar, it is important to provide additional width to allow emergency services vehicles to stop and operate on the side of the perimeter road, whilst simultaneously providing for community evacuation. This is reflected in **Table 10**, Column 1 requirements.

When designing a strategic planning proposal and/or subdivision, there are many benefits in creating a large setback between classified vegetation and proposed lots with a perimeter road and orientating habitable buildings to front rather than back onto areas of vegetation.

They include:

- passive surveillance
- defensible space for firefighting and emergency management purposes
- reducing the radiant heat that may impact a habitable building in a bushfire event
- reducing the need for battle-axe lots
- unconstrained public access/egress for the community in the event of a bushfire.

**Figure 35:** Example of a perimeter road



In developments where no perimeter road exists, property defence in a bushfire event is difficult and can be impossible. Where proposed lots have frontage to an existing public road and abut the hazard at the rear or side, it may be an undesirable planning outcome to create lots that front the existing public road and back onto a perimeter road. In this instance, consideration should be given to a fire service access route.



## B.3.6 FIRE SERVICE ACCESS ROUTE

Where a planning proposal adjoins classified vegetation (excluding Class G Grassland) and where a perimeter road is not appropriate and/or not required, there may be a need to provide access for emergency services vehicles to classified vegetation for firefighting and fire management purposes.

This route is not intended to provide residents and the public with emergency egress and, therefore, is not a suitable second access or substitute for a public road.

Where the fire service access route is within an area designated as Area 2 on the *Map of Bush Fire Prone Areas*, a minimum horizontal clearance of 10 metres should be provided to allow access for emergency services to any classified vegetation adjoining the fire service access route. A minimum six metres horizontal clearance should be provided where the area is designated as Area 1 on the *Map of Bush Fire Prone Areas*.

A fire service access route can be provided as either an easement in gross over private or Crown land or ceded to the Crown as a reserve. In both approaches, the management of the fire service access route is by the local government as the grantee of the easement or management body of the reserve. Determining which approach to take depends on the intended tenure of the fire service access route, which is explained below. The proponent should obtain written consent from the local government that it will accept care, control and management of the easement or reserve and agree to the terms of the Management Order Conditions (if applicable). This should be provided to the decision-maker prior to granting approval. The approach taken is at the discretion of the decision-maker and/or the local government. Consultation with Land Use Management Division of the

Department of Planning, Lands and Heritage should also be considered if the land is to be ceded to the Crown or if the local government is uncertain of which approach to take.

Where gates are used, they should be double gates wide enough when open to allow vehicles to access the whole carriageway width and accommodate type 3.4 fire appliances. The design and construction are to be approved by the relevant local government.

Gates on fire service access routes may be locked to restrict access provided a common key system is used. Keys are to be available to emergency services and designated fire officers within the local government area and/or surrounding district. Gates should be installed where fences intersect or cross over with fire service access routes. If an easement in gross is proposed, such arrangements for gates should be included in the deed of easement and be agreed to by the local government.

### B.3.6.1 Fire service access route to remain in private ownership of multiple landowners

Where a fire service access route will traverse multiple private lots intended to remain in multiple private ownership, it should be provided as an easement in gross under section 195 of the *Land Administration Act 1997*, to ensure accessibility for fire emergency services and not for use by the public. The easement is to be granted to the local government and/or public authority for firefighting and emergency management purposes.

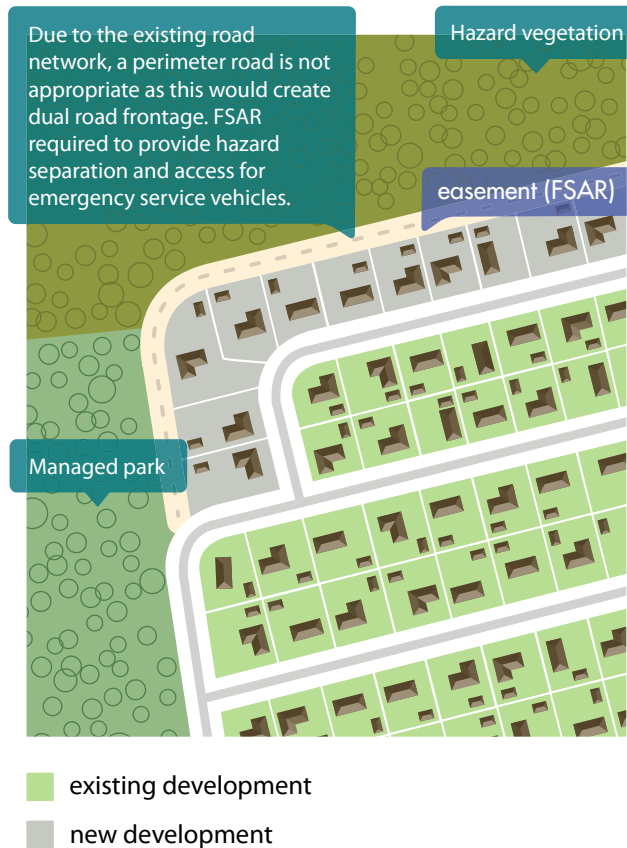
### B.3.6.2 Fire service access route to be created under State ownership

Where a fire service access route is proposed to traverse multiple private lots but the decision-maker and/or local government prefer for it in a single parcel for management

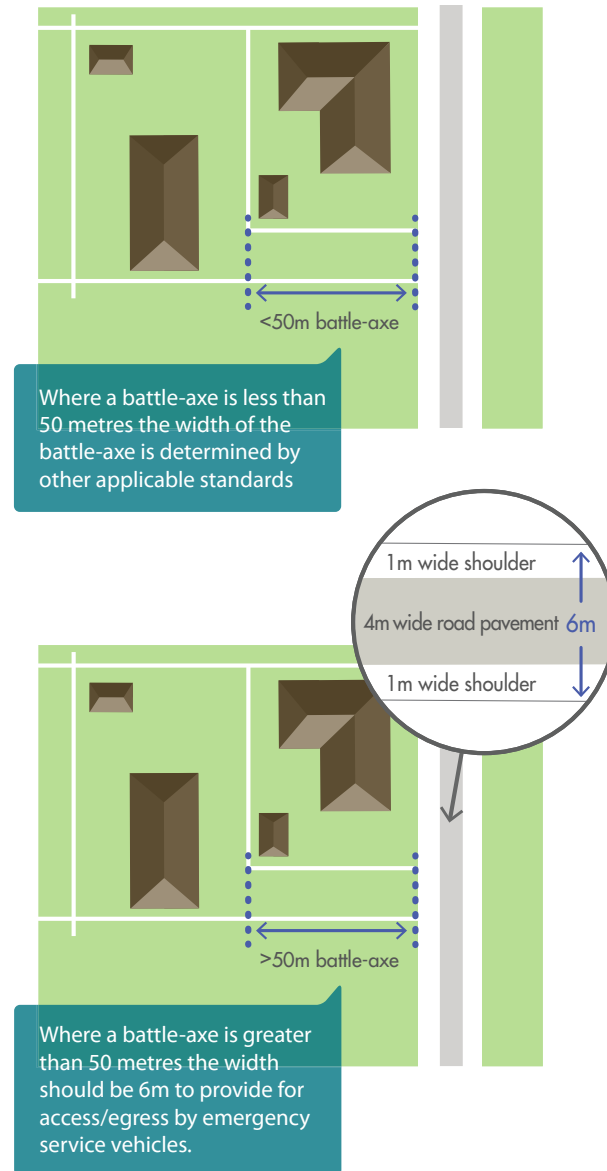
purposes, the route can be vested in the Crown under section 152 of the *Planning and Development Act 2005* as a reserve. Such land is to be ceded free of cost without any payment or compensation by the Crown. The reserve should be for a public purpose specified in the condition related to the subdivision, for example, for vehicular access for emergency services and the local government only, or for vehicular access for emergency services and the local government and recreation. A reserve for emergency services access and recreation optimises the land-use by providing vehicular access for emergency services and daily access by the public (on foot) as a recreation link.

Appropriate signage will ensure the public is aware of the purpose of the reserve. The approach taken is at the discretion of the decision-maker and/or local government.

**Figure 36:** Example of a fire service access route (FSAR)



**Figure 37:** Battle-axe design requirements



## 3.7 BATTLE-AXE ACCESS LEG

In bushfire prone areas, lots with battle-axe access legs should be avoided because they:

- do not enable the habitable building to be located close to a public road where it is visible to emergency services
- result in longer than necessary access routes for evacuation and the response by emergency services
- may be blocked by falling trees or debris
- may not provide certainty for emergency services regarding the width, length and ability to turn around emergency services vehicles
- In some instances, battle-axe access legs may be appropriate to overcome specific site or design constraints created by the existing road network or lot layout
- The BMP should provide justification for proposed battle-axe access leg(s) and the decision-maker should determine whether the justification is valid
- Where the use of battle-axe access legs is considered appropriate, the measurement should be from the edge of the public road to where the access leg joins the effective area of the battle-axe lot. Effective lot area means that part of the battle-axe lot that is capable of development and excludes the access leg and associated truncations for vehicle maneuverability
- The battle-axe lot should allow safe access and egress for type 3.4 fire appliances to attend the future development site.

## B.3.8 PRIVATE DRIVEWAYS

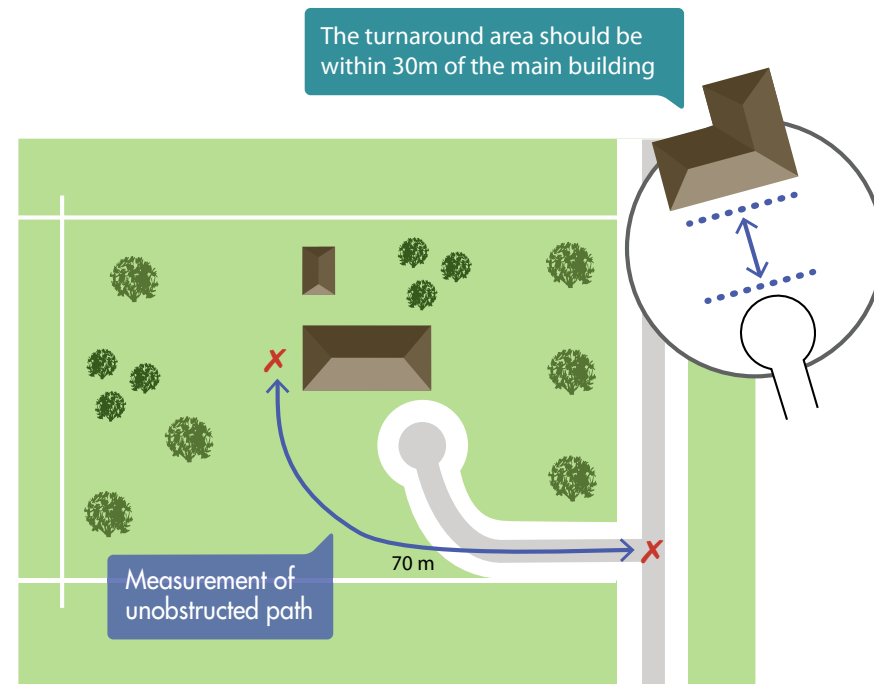
Emergency services vehicles typically operate from the street frontage in areas serviced by reticulated water and where the distance from the public road to the farthest part of the habitable building is no greater than 70 metres.

In the event the habitable building cannot be reached by hose reel from the public road, emergency services vehicles will need to gain access via the driveway to the property. Emergency services vehicles will also need to gain access to the property where access to water is provided by onsite water tanks. In these situations, the driveway and battle-axe access leg (if applicable) will need to be wide enough for access by an emergency services vehicle and a vehicle to evacuate.

It is acceptable for a private driveway to have a carriageway width of four metres with a traversable verge of one metre on either side of the carriageway.

Turn-around areas (**Figure 38**) should be available for conventional two-wheel drive vehicles and type 3.4 fire appliances and should be located within 30 metres of habitable buildings. Circular and loop driveway design may also be considered.

**Figure 38:** Design requirements for a private driveway where required





## B.4: WATER SUPPLY

### State Planning Policy outcome for Element 4: Water Supply

Ensure that sufficient water is available and accessible for emergency services use, to enable people, property and infrastructure to be defended from bushfire.

### B.4.1 CONSTRUCTION AND DESIGN

An above-ground tank and associated stand should be constructed of non-combustible material.

Below-ground tanks should have a 200 millimetres diameter access hole to allow tankers or emergency services vehicles to refill direct from the tank, with the outlet location clearly marked on the surface.

Above and below ground tanks may need to comply with AS/NZS 3500.1:2018.

An inspection opening may double as the access hole provided that the inspection opening meets the requirements of AS/NZS 3500.1:2018.

Where an outlet for an emergency services vehicle is provided, then an unobstructed, hardened ground surface is to be supplied within four metres of any water supply.

### B.4.1.1 Pipes and fittings

All above-ground, exposed water supply pipes and fittings should be metal. Fittings should be located away from the source of bushfire hazard and be in accordance with the applicable section below, unless otherwise specified by the local government.

### B.4.1.2 Fittings for above-ground water tanks:

- Commercial land uses: 125 millimetres Storz fitting; or
- Strategic water tanks: 50 millimetres or 100 millimetres (where applicable and adapters are available) male camlock coupling with full flow valve; or
- Standalone water tanks: 50 millimetres male camlock coupling with full flow valve; or
- Combined water tanks: 50 millimetres male camlock coupling with full flow valve or a domestic fitting, being a standard household tap that enables an occupant to access the water supply with domestic hoses.

### B.4.1.3 Remote outlets

In certain circumstances, it may be beneficial to have the outlet located away from the water supply. In instances in which a remote outlet is to be used, the applicant should consult the local government and DFES on their proposal.

### B.4.2 USE OF WATER SUPPLY

Water supply for firefighting in the event of a bushfire can be provided on a lot for use by emergency services or for use by the landowner, if their [Bushfire Survival Plan](#) is to stay and defend their property.

The combination of drinking water and water for firefighting purposes is not recommended, as stagnant water may alter the quality of the drinking water and the emergency services, by law, may not be able to take water from the water supply to suppress a bushfire.

Combining drinking water and water for firefighting purposes is contrary to provisions within clause 4.2.3 of AS/NZS 3500.1:2021.

### B.4.3 INDEPENDENT WATER AND POWER SUPPLY

Bushfires can directly impact a water service provider's equipment or pipes. As such, a reticulated water supply may not be reliable due to a reduction in water pressure or loss of supply. Where development is in an area designated as Area 2 on the *Map of Bush Fire Prone Areas* and/or where the local government area has known issues with water supply or pressure, it is recommended that the landowner consider providing a water tank in accordance with **Table 11**, Water supply dedicated for bushfire firefighting purposes.

In non-reticulated water supply areas, it is recommended that any pumping equipment be powered by means other than the electricity network. The pumping equipment could be a diesel or petrol-powered pump, or an electric pump if there is an onsite generator or backup power supply independent of the electricity network grid.

It is recommended that combustion pumps should be a minimum five hp or three kW diesel or petrol-powered pump and should be shielded against bushfire attack.





Where an electric pump is used, a backup power supply independent of the electricity network grid should be provided. A 3.7 kW/12k W/h sized battery (14.8 kW/h reserved solely for bushfire will power a 3.7 kW system for four hours) with blackout protection or a generator should be provided.

**Table 11:** Water supply dedicated for bushfire firefighting purposes

SECTIONS FROM THE PLANNING FOR BUSHFIRE GUIDELINES					
SECTION 5 <sup>2</sup> STRUCTURE PLANS AND SUBDIVISION APPLICATIONS		SECTION 6 <sup>2</sup> DEVELOPMENT – RESIDENTIAL	SECTION 7 <sup>2</sup> DEVELOPMENT – COMMERCIAL & INDUSTRIAL	SECTION 8 <sup>2</sup> – DEVELOPMENT – VULNERABLE LAND USES	
One additional lot	10,000 litre water tank per lot	10,000 litre water tank per habitable building	For each habitable building - 10,000 litre per 1,500 m <sup>2</sup> of floor space up to 50,000 litre. Provided in a water tank	Camping ground	At the discretion of the local government
Three to 24 lots	10,000 litre water tank per lot <sup>1</sup> <b>or</b> 50,000 litre strategic water tank				
25 lots or more	50,000 litre per 25 lots or part thereof, provided as a strategic water tank(s) <b>and/or</b> 10,000 litre water tank per lot			Other vulnerable land uses	For each habitable building - 10,000 litre per 500 m <sup>2</sup> of floor space up to 50,000 litre. Provided in a water tank

**Notes:**

<sup>1</sup> Evidence that the identified water supply amounts in either column denoted is to be provided at the relevant planning stage.

<sup>2</sup> where more than one habitable building is proposed, strategic water tanks are to be provided in accordance with Section 5 requirements and at the discretion of the Local Government.

## B.4.4 STRATEGIC WATER SUPPLIES

Many local governments have a well-developed network of strategic water tanks for firefighting within their local government area. Given this, it is at the discretion of the local government to determine if the water supply within a locality is sufficient to cater for an increasing population when a subdivision is proposed. Local governments are encouraged to work with local emergency services to ensure the water supply needs for firefighting are understood.

Where a structure plan or subdivision proposes to create more than three but fewer than 24 lots, it is at the discretion of the local government whether it requires a strategic water tank or for each lot to be provided with a 10,000-litre tank.

A strategic water tank should preferably be located no more than 10 minutes from the farthest development site (20 minute turnaround time at a maximum). The turnaround time is the time it takes an emergency services vehicle to travel at legal road speeds from a lot to the water supply and back to the lot. Where a strategic water tank has been provided at the subdivision stage, the local government should consider whether the tank has the capacity to serve applications for development approval.

A landowner should enquire with their local government to determine whether a private water tank on their lot will be required.

When there is fragmented ownership of a structure plan area, or when staging of a subdivision is to occur and the local government has determined that a strategic water tank is required, then the first stage should include arrangements for the installation of a strategic water tank and the identification of land to be ceded. This should occur free of cost, without any payment or compensation by the Crown, as a Crown reserve for 'strategic water

supply for firefighting purposes' (if applicable). Where local planning scheme provisions provide for developer contributions for public infrastructure and the local government is supportive, then a cash-in-lieu arrangement may be established for the provision of a strategic water tank.

## B.4.5 LOCATION OF WATER TANKS AND HYDRANTS

Surrounding vegetation should be considered when locating a water tank. Avoid locations where the tank will be situated underneath existing vegetation or where vegetation will grow against or overhang the tank, (Figure 39). Where a tank is on the bushfire hazard side of a building, sufficient shielding for the protection of firefighters should be provided. In addition to the tank location, the fitting should be positioned and/or shielded from the bushfire hazard to allow access by emergency services.

In areas serviced by reticulated water, where the distance from the public road to the farthest part of the habitable building is greater than 70 metres, emergency services vehicles will need to gain access within the property and be provided with a water supply for firefighting purposes. This is because access to reticulated water (fire hydrants) is not possible further than 70 metres, due to the length of the hose reel.

## B.4.6 OUTCOMES BASED APPROACH

A dam, river or other source may be considered a firefighting water source for emergency services if it complies with [DFES guidelines for acceptable sources of water](#), and it can be demonstrated that the water level will be maintained above the top of the highest fire brigade suction point.

Approval for the use of these types of water supplies is on a case-by-case basis and at the discretion of the decision-maker, in consultation with emergency services and local government.

**Figure 39:** A good and bad example of landscaping around a water tank





## B.5: VULNERABLE LAND USES

### B.5.1 TYPES OF VULNERABLE LAND USES

#### B.5.1.1 Class 9 buildings

Under the National Construction Code (NCC) Class 9 buildings include, but are not limited to, health-care buildings, early childhood centres, primary or secondary schools and residential care buildings. These are all vulnerable land uses.

The 2022 edition of the Building Code of Australia (BCA) will introduce bushfire construction requirements for these Class 9 buildings, located in a designated bushfire prone area.

It is expected that these buildings will need to address bushfire construction requirements when compliance with the 2022 edition of the BCA becomes mandatory in Western Australia. Further information, including amendments to these Guidelines, will be provided when that occurs.

Note: The building approval system has transitional arrangements in effect for the BCA. See [DEMIRS – Building and Energy website](#) for further information on BCA transitional arrangements.

Bushfire practitioners and proponents will need to decide whether to apply the 2019 or the 2022 provisions until the 2022 provisions are mandated in Western Australia.

Vulnerable Class 9 buildings house some of the most vulnerable persons and any departure from the acceptable solutions should recognise and address the specific characteristics of the employees, visitors and residents.

#### B.5.1.2 Day uses

Day uses involve no overnight stay and include beverage production facilities (breweries, small bars, taverns, wineries), exhibition centres, reception centres, restaurants/café. In determining whether the use is vulnerable consideration is to be given to the location and to the number of employees and visitors on-site at any one time. If the decision-maker considers that the preparation of a bushfire emergency plan is warranted, then the use should be considered vulnerable.

Many day uses can rely on closure in response to a pre-determined fire danger rating and/or on the issue of a total fire ban on any given day. Most of these uses would have a manager and/or employee on-site, who is able to activate the emergency procedures. In most cases, visitors to the site would have travelled in their own or shared vehicle or tourist bus and would be able to evacuate the premises in the manner they arrived.

#### B.5.1.3 Outdoor events

Outdoor events often cater for large numbers of people in isolated locations and can include music festivals and sporting events. The [Department of Health's Guidelines for Concerts, Events and Organised Gatherings 2022](#) provides information to make events safer, identify basic standards necessary to satisfy decision makers and provides a consistent statewide approach to concerts, events and organised gatherings. Events that involve overnight camping, multiple days, or attract large numbers of people in bushfire prone areas require careful consideration.

Further information about outdoor events can be found in the [Events Guidelines 2022 \(health.wa.gov.au\)](#).

#### B.5.1.4 Camping grounds (remote) or nature-based camping

Camping grounds may be low-cost and/or small-scale, often with the aim of having minimal or no impact on the environment. They may be isolated from town sites and emergency services. They are often located on Crown reserves, and may be managed by the Department of Biodiversity, Conservation and Attractions.

Other camping grounds could be located on pastoral stations or on private property. They may provide limited facilities, such as a manager's house, toilets, washing up facilities or campers' kitchen, but often there will be no facilities, with campers expected to be fully self-sufficient.

It is the responsibility of the owner/operator to inform visitors of the risk and the options available in the event of a bushfire. It is also the responsibility of those visiting these areas to understand the bushfire risk and know what to do in the event of a bushfire.

Vehicular access may be limited to a four-wheel drive. Drinking water and water for firefighting may not be available.

### B.5.2 CONTINGENCY BUSHFIRE RISK MANAGEMENT MEASURES

Contingency measures should be used to improve the resilience of the proposed development. Discussed below are options for the closure of vulnerable land use in response to a pre-determined fire danger rating and/or the issue of a total fire ban on any given day; and the identification of off-site and on-site shelter.



## B.5.2.1 Closure of a vulnerable land use

Closure may not be realistic for overnight facilities, however, could apply in circumstances, such as day uses where there is a caretaker or employee available on-site and able to activate the approved bushfire emergency plan.

Closure requires adoption of a trigger point. The Department of Fire and Emergency Services (DFES) generally recommends leaving an area when the fire danger rating is 'extreme' or 'catastrophic', or alternatively when the fire behaviour index is 75 or above or through an alternative control as deemed appropriate by decision-maker.

A facility may also choose to close during the bushfire season.

The closure of a vulnerable land use should be identified within the bushfire emergency plan and enforced through a condition of the development approval.

In some situations, such as remote land uses, it may be safer to require all employees and guests to remain on-site for the day as opposed to undertaking day visits, where communication may be more difficult.

## B.5.2.2 Off-site shelter (evacuation)

In the event the land use was not closed prior to the bushfire, then early evacuation may be necessary. Early evacuation in response to DFES alerts during a bushfire event should be reinforced through a bushfire emergency plan.

The bushfire emergency plan should identify an off-site shelter(s) and/or a suitable destination for evacuation that will provide somewhere to evacuate to, that considers factors such as location, transportation arrangements to

the location, its size and capacity. Consultation should occur with the local government and local emergency management committee when identifying an off-site shelter for evacuation.

## B.5.2.3 On-site shelter

It should be emphasised that on-site shelter is not a standalone contingency and in most instances early evacuation of visitors and employees should be the first consideration and will form the basis of a successful bushfire emergency plan.

Where on-site shelter is contemplated, the shelter should be provided with sufficient space for the maximum number of employees and visitors that could be on-site at any given time and should be within easy walking distance from the development, with a designated and sign-posted footpath. The [ABCB Design and Construction of Community Bushfire Refuges Handbook \(2014\)](#) recommends 0.75 m<sup>2</sup> per person, however it is recommended that a minimum of 1.0 m<sup>2</sup> per person be considered.

Maintenance of the building and annual testing prior to the bushfire season, should be a condition of the development approval. This should be undertaken by the proponent and overseen by the local government. It should be noted that there is no obligation for a local government to assume this responsibility and in absence of an agreement, the development may not be deemed suitable.

## On-site shelter in a nominated building

A building nominated to be used as an on-site shelter, should be designed to withstand bushfire attack in the form of wind, smoke, embers, radiant heat and flame

contact. The building needs to have a sufficient separation distance from the predominant bushfire prone vegetation, including a safety factor that correlates to the level of risk for the site and the vulnerability of the inhabitants. Ultimately the building should:

- be reasonably sealed from external environmental hazards
- multiple exit doors for ease of entry and exit during an emergency
- include toilets and drinking water and has a first aid kit.

The highest level of protection will be achieved when the on-site shelter is designed and constructed by a suitably qualified fire engineer in accordance with the BCA and the [ABCB Design and Construction of Community Bushfire Refuges Handbook \(2014\)](#).

The ongoing maintenance of the building and the surrounding separation distances from the bushfire prone vegetation will be the responsibility of the owner/operator. A 'maintenance plan' should detail the maintenance and annual testing requirements.

## On-site shelter in a nominated building for Schools

In accordance with the Principal's guide to bushfire: *Prepare your school for the bushfire season* ([Department of Education: October 2022](#)), a 'safer building location' should be identified in the event a sudden bushfire event threatens a school and it is not safe to evacuate staff, students and visitors to an off-site location.



## On-site shelter in a nominated open space area

Where a development provides no built structures that could be utilised for on-site shelter, such as a camping ground, an open space area may be acceptable for on-site shelter, as a last resort.

Where an open space area is being proposed, the site and surrounding site vegetation modification and management should seek to achieve a radiant heat flux of two kW/m<sup>2</sup> or less (with an assumed flame temperature of 1200 K). Whilst a radiant heat flux of two kW/m<sup>2</sup> or less is an acceptable level of heat exposure, it does not address the respiratory impacts from smoke or the potential for ember attack. Any ability to provide some shelter, such as a roofed area or shielding, would be beneficial.

Some remote coastal camping sites, where it can be demonstrated that the potential for ember attack from the coastal vegetation, is not significant, may be able to utilise the beach as an open space area to shelter.

The ongoing maintenance of the separation distances from the bushfire prone vegetation will be the responsibility of the owner/operator.

It should be noted that this is an option of last resort and closure of the venue ahead of a bushfire event, and/or evacuation off-site where safe to do so, is recommended.

## B.5.3 OUTCOMES-BASED APPROACH

The Guidelines recognise the uniqueness of each vulnerable land use, particularly tourism land uses, and that the Guidelines are unable to provide acceptable solutions for each scenario. An outcomes-based approach is an assessment tool that will enable a bushfire practitioner to identify the risks and to propose mitigation and

management measures to reduce the risk. It is suggested that early discussions are held with the decision-maker and DFES (where necessary).

It is also recognised that some land uses are reliant on the remoteness and/or being in a heavily vegetated area. Unlike residential land uses, vulnerable land uses can place more reliance on a detailed bushfire emergency plan, and a heightened awareness and vigilance by the owner/operator to activate emergency procedures. These are details that should be addressed by the bushfire practitioner and can form part of an outcomes-based approach.

Land managed by agencies including the Department of Biodiversity, Conservation and Attractions, where there are proactive bushfire management arrangements in place, could also provide a decision-maker the confidence to support an outcomes-based approach for tourism land uses.

### B5.3.1 Outcomes-based approach – on-site shelter proposing more than 100 persons

Where a vulnerable land use (other than a school) cannot achieve compliance with the acceptable solutions for vehicular access to two suitable destinations, a shelter on-site for up to 100 employees and visitors can be proposed as an acceptable solution.

Where more than 100 employees are proposed or where the bushfire practitioner does not consider the bushfire risk to warrant the provision of a shelter, an outcomes-based approach can be prepared.

In addition to clause 7.5 of the SPP, it is suggested that consideration be given to:

- the vegetation within the broader landscape
- remoteness from emergency services
- proximity to suitable destination(s)
- road network to suitable destination(s)
- the maximum number of employees and visitors on-site at any one time, their vulnerability including age and ability
- whether the proposed development will have access to 'wired' or 'wireless' communications including telephone, radio and internet services
- support for the development by the local government and local emergency services.