SC6.4 Bushfire planning scheme policy

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1 Introduction

1.1 Relationship to planning scheme

1. This planning scheme policy provides:
2. information the Council may request for a development application;
3. guidance or advice about satisfying an assessment benchmark which identifies this planning scheme policy as providing that guidance or advice;
4. a standard for the assessment benchmark identified in the following table.

|  |  |  |
| --- | --- | --- |
| Column 1 –  Section or table in the code | Column 2 –  Assessment benchmark reference | Column 3 –  Standard in the planning scheme policy |
| Bushfire overlay code | | |
| Table 8.2.5.3.A | PO1 note | Section 6 |
| Table 8.2.5.3.A | AO1 | Section 6 |
| Table 8.2.5.3.A | PO2 note | Section 5 |
| Table 8.2.5.3.A | PO4 note | Section 5 |
| Table 8.2.5.3.A | PO8 note | Section 5 |
| Table 8.2.5.3.A | PO9 note | Section 5 |
| Table 8.2.5.3.A | AO10 | Section 5 |
| Table 8.2.5.3.A | AO10 note | Section 5 and Section 6 |
| Table 8.2.5.3.A | AO11 | Section 5 and Section 7 |
| Table 8.2.5.3.A | AO12 | Section 5 and Section 7 |
| Table 8.2.5.3.A | PO14 note | Section 6 |
| Table 8.2.5.3.A | AO14 | Section 4 and Section 5 |
| Table 8.2.5.3.A | PO15 note | Section 6 |
| Table 8.2.5.3.A | AO15 | Section 6 |
| Table 8.2.5.3.A | PO17 note | Section 4 and Section 5 |
| Table 8.2.5.3.A | PO18 note | Section 4 and Section 5 |
| Table 8.2.5.3.A | PO19 note | Section 4 and Section 5 |
| Table 8.2.5.3.A | PO21 and AO21 note | Section 6 |

1.2 Purpose

This planning scheme policy provides information required for a development application and guidance and advice for satisfying an assessment benchmark for the preparation of a site-specific or precinct-wide bushfire hazard assessment and bushfire management plans.

Note—The Bushfire overlay area consists of the mapped high and medium bushfire hazard areas, the buffers to the high and medium bushfire hazard areas and the potential impact area and the very high, high and medium potential bushfire intensity areas and potential impact buffer area. This area is a ‘natural hazard area’ for the purpose of the State Planning Policy and is a designated bushfire prone area for the purpose of section 32(a) of the Building Act 1975.

1.3 Terminology

In this planning scheme policy unless the context or subject matter otherwise indicates or requires, a term has the following meaning:

Hazardous vegetation: an area of vegetation which is a potential source of bushfire hazard:

1. identified as part of a site-specific bushfire hazard assessment (e.g. in a bushfire management plan) in accordance with this planning scheme policy and SPP state interest guideline–Natural hazards, risk and resilience; or

(b) classified vegetation and excluding 'low threat vegetation' as determined under AS 3959-2009 Construction of buildings in bushfire-prone areas by a person qualified to assess development under that standard identified in a site assessment.

2 Bushfire hazard mapping

1. The Bushfire overlay map identifies the High bushfire hazard area sub-category, Medium bushfire hazard area sub-category, High bushfire hazard area buffer sub-category, Medium bushfire hazard area buffer sub-category, Potential impact sub-category, Very high potential bushfire intensity sub-category, High potential bushfire intensity sub-category, Medium potential bushfire intensity sub-category and Potential impact buffer sub-category.
2. Queensland Fire and Rescue Service mapping has been used for Moreton Island and Cedar Creek south precinct (Ferny Grove—Upper Kedron neighbourhood plan/NPP-001), excluding Potential impact sub-category.
3. Areas of vegetation less than 5 hectares have not been included in the mapping.
4. Due to the scale at which the mapping has been prepared, site-specific investigation of bushfire hazard will be necessary to determine the exact nature of the hazard on the site.
5. Land located within 100m of the Very high potential bushfire, High potential bushfire or Medium potential bushfire intensity sub-categories has not been included in the mapping but is a designated bushfire prone area and assessed against the Bushfire overlay code.

3 Undertaking a bushfire hazard assessment

Step 1: Assessment of vegetation communities

The type of vegetation community can determine the rate at which dry fuel accumulates and its susceptibility to bushfire. Some vegetation communities protect fuel from drying out in all but extreme bushfire seasons and can then be susceptible to very destructive bushfires.

Alternatively, vegetation communities may expose fuels to drying and therefore be frequently available for burning. Frequent bushfires can result in the development of bushfire-tolerant grassy woodlands or grasslands and less destructive bushfire behaviour.

Table 1 lists hazard scores for a range of vegetation community types for the purpose of assessing bushfire hazard.

Table 1—Hazard scores and associated fire behaviours for vegetation communities

|  |  |  |  |
| --- | --- | --- | --- |
| Veg code | Description | Botanical descriptions | Hazard score |
| G22 | Flooded gum/tallowwood/brush box tall open forest | Eucalyptus grandis, frequently with E. microcorys, Lophostemon confertus | 10 |
| H12 | Blackbutt/brown bloodwood/tallowwood open forest on the Helidon Hills | E. pilularis, with Corymbia trachyphloia, E. microcorys | 10 |
| C2 | Paperbark swamp, usually in pure stands | Melaleuca quinquenervia | 8 |
| C3 | Paperbark swamp, with swamp mahogany | Melaleuca quinquenervia and  E. robusta | 8 |
| C4 | Paperbark swamp, with blue gum and swamp box | Melaleuca quinquenervia,  E. tereticornis and Lophostemon suaveolens | 8 |
| C6a | Swamp banksia/pricklyleaf paperbark heathlands, sometimes with patches of sedgeland | a. Banksia robur | 8 |
| C6b | Swamp banksia/pricklyleaf paperbark heathlands, sometimes with patches of sedgeland | b. Melaleuca nodosa | 8 |
| D2 | White mahogany/pink bloodwood open-forest on coastal lowlands | E. acmenoides and Corymbia intermedia | 8 |
| D8 | Scribbly gum/pink bloodwood/smooth-barked apple woodland on coastal lowlands | E. racemosa, C. intermedia, Angophora leiocarpa | 8 |
| D8a | Scribbly gum/pink bloodwood/smooth-barked apple woodland on coastal lowlands | a. E. racemosa, C. intermedia, Angophora leiocarpa with grassy ground layer | 8 |
| D8b | Scribbly gum/pink bloodwood/smooth-barked apple woodland on coastal lowlands | b. E. racemosa, C. intermedia, Angophora leiocarpa with heathy ground layer | 8 |
| D9 | Broad-leaved white mahogany/bloodwood/smooth-barked apple woodland on coastal lowlands | E. umbra, C. trachyphloia and/or  C. intermedia, Angophora leiocarpa | 8 |
| H14 | Queensland white stringybark/pink bloodwood/grey ironbark open forest | E. tindaliae, C. intermedia,  E. siderophloia | 8 |
| H20 | Spotted gum/white mahogany/brown bloodwood woodland on the Helidon Hills | C. citriodora, E. acmenoides,  C. trachyphloia | 8 |
| H21 | Grey gum/broad-leaved white mahogany/grey ironbark woodland | E. major, E. carnea, E. siderophloia | 8 |
| H24 | White mahogany/brown bloodwood/smooth-barked apple woodland on coastal foothills | E. acmenoides and C. trachyphloia, with Angophora leiocarpa | 8 |
| H25 | White mahogany/brown bloodwood/smudgee woodland on the Helidon Hills | E. acmenoides, C. trachyphloia with Angophora woodsiana | 8 |
| H34 | Scribbly gum/pink bloodwood woodland on sandstone hillslopes | E. racemosa and C. intermedia | 8 |
| H39a | Nerang—Beenleigh alliance | a. E. carnea, E. tindaliae | 8 |
| H39b | Nerang—Beenleigh alliance | b. E. acmenoides | 8 |
| H39c | Nerang—Beenleigh alliance | c. E. microcorys, E. propinqua, Lophostemon confertus | 8 |
| H39e | Nerang—Beenleigh alliance | e. C. citriodora, E. carnea,  E. tindaliae, E. propinqua, C. henryi, E. crebra | 8 |
| H39h | Nerang—Beenleigh alliance | h. E. planchoniana, often with  E. baileyana | 8 |
| H39j | Nerang—Beenleigh alliance | j. E. seeana, sometimes with  E. racemosa | 8 |
| I10 | White mahogany/brown bloodwood/narrow-leaved ironbark woodland at Bania State Forest | E. acmenoides, C. trachyphloia with E. crebra | 8 |
| J6 | Scribbly gum/red bloodwood/Queensland white stringybark woodland on rhyolite ranges | E. racemosa, C. gummifera and  E. tindaliae | 8 |
| J12 | White mahogany/brown bloodwood/smooth-barked apple woodland at moderate altitude away from the coast | E. acmenoides, C. trachyphloia with Angophora leiocarpa | 8 |
| J13 | White mahogany/spotted gum/brown bloodwood woodland on granite ranges | E. acmenoides, C. citriodora,  C. trachyphloia | 8 |
| J22 | Broad-leaved white mahogany/brush box low open-woodland | E. carnea and Lophostemon confertus | 8 |
| G26 | Blue gum/yellow box/grey gum open forest | E. tereticornis and E. melliodora with E. biturbinata or E. longirostrata | 6 |
| G32 | Narrow-leaved ironbark/silver-leaved ironbark/yellow box woodland, without white box | E. crebra, E. melanophloia with  E. melliodora | 6 |
| G39 | Blue gum/pink bloodwood woodland on red kraznozem soil | E. tereticornis, C. intermedia | 6 |
| H16 | Smooth-barked apple/spotted gum woodland | Angophora leiocarpa with  C. citriodora | 6 |
| H19 | Spotted gum/narrow-leaved ironbark woodland | C. citriodora and E. crebra | 6 |
| H22 | Pink bloodwood/swamp box woodland | C. intermedia often with Lophostemon suaveolens | 6 |
| H27 | Narrow-leaved ironbark/smooth-barked apple woodland on sandy hills | E. crebra and Angophora leiocarpa | 6 |
| H29 | Broad-leaved ironbark woodland | E. fibrosa subsp. fibrosa | 6 |
| H36 | Narrow-leaved red gum/pink bloodwood woodland | E. seeana and C. intermedia | 6 |
| H39d | Nerang—Beenleigh alliance | d. C. gummifera | 6 |
| H39i | Nerang—Beenleigh alliance | i. E. moluccana, sometimes with  C. citriodora, E. crebra,  E. tereticornis, C. intermedia,  C. tessellaris | 6 |
| H39k | Nerang—Beenleigh alliance | k. E. fibrosa, C. citriodora, C. henryi with Angophora leiocarpa | 6 |
| I13 | Narrow-leaved ironbark/silver-leaved ironbark woodland | E. crebra with E. melanophloia | 6 |
| I12 | Small-fruited grey gum/grey ironbark open-forest | E. propinqua and E. siderophloia | 6 |
| I13 | Narrow-leaved ironbark/blue gum woodland on lower hillslopes | E. crebra and E. tereticornis | 6 |
| G22/17 | G22 (see G22) / Notophyll vine forest or notophyll feather palm vine forest (‘gully rainforest’) of mango bark, yellow carabeen, soft corkwood, rose marara, crabapple, booyong, domatia tree, with emergents of figs, brush box, eucalypts, hoop and bunya pine, often with an understorey of piccabeen palms | G22 (see G22) / NVF or NFPVF of Canarium australasicum, Sloanea woollsii, Caldcluvia paniculosa, Pseudoweinmannia lachnocarpa, Schizomeria ovata, Argyrodendron spp., Endiandra discolor with Ficus spp., Lophostemon confertus, Eucalyptus spp., Araucaria cunninghamii and A. bidwillii, and Archontophoenix cunninghamiana | 4 |
| E1/E11 | E1 (see E1) / E11 (see E11) | E1 (see E1) / E11 (see E11) | 4 |
| E7 | Gum-topped box communities | E. moluccana | 4 |
| E7a | Gum-topped box communities |  | 4 |
| E9 | Blue gum flats, often with grey ironbark, in near-coastal areas | E. tereticornis and E. siderophloia | 4 |
| E10 | Blue gum flats, without grey ironbark, away from the coast | E. tereticornis | 4 |
| E10c | Blue gum flats, without grey ironbark, away from the coast |  | 4 |
| E11 | River oak/blue gum on creeks and rivers | Casuarina cunninghamiana and/or E. tereticornis | 4 |
| C8 | Twigrush/spikerush sedgelands |  | 2 |
| C8d | Twigrush/spikerush sedgelands |  | 2 |
| C10 | Natural freshwater bodies |  | 2 |
| A2 | Swamp she-oak woodland adjoining mangroves/saltmarshes | Casuarina glauca | 1 |
| C10 | Swamp she-oak open-forest in swamps | Casuarina glauca, often with Melaleuca quinquenervia, E. tereticornis | 1 |
| E1 | Complex notophyll and araucarian notophyll vine forests of white booyong, giant water gum, silky oak, with black bean/weeping lilly pilly locally dominant. Emergent figs and hoop pine. | A/CNVF of Argyrodendron trifoliolatum, Syzygium francisii, Grevillea robusta with Castanospermum australe, Waterhousea floribunda ± Ficus spp., Araucaria cunninghamii | 1 |
| G1/G10 | Complex notophyll vine forest (‘warm subtropical rainforest’) of booyong, rose marara / G10 (see G10) | CNVF of Argyrodendron trifoliolatum, Pseudoweinmannia lachnocarpa / G10 (see G10) | 1 |
| G10 | Araucarian notophyll and notophyll/microphyll vine forests of booyong, rose marara and/or giant ironwood and/or hauer. Emergents of hoop and bunya pine | ANVF and AN/MVF of Argyrodendron trifoliolatum, Pseudoweinmannia lachnocarpa and/or Choricarpia subargentea and/or Dissiliaria baloghioides with Araucaria cunninghamii and A. bidwillii | 1 |
| A1 | Mangrove communities | Avicennia marina, Aegiceras corniculatum, Bruguiera gymnorhiza, Rhizophora stylosa, Excoecaria agallocha or Ceriops tagal | 0 |
| A3 | Saltmarsh and fringing communities |  | 0 |

Step 2: Assessment of slope

Studies have shown that fires burn more quickly and with greater intensity up slopes, generally doubling every 10 degrees of slope. Also, the steeper the slope, the more difficult it is to construct ring roads, firebreaks and provide access for emergency crews. Trees situated downhill from structures will have their crowns close to the structures. This presents bushfire hazards particularly for exposed structures such as timber decks. Table 2 presents the hazard scores for different categories of slope.

Table 2—Hazard scores for slope

|  |  |
| --- | --- |
| Slope | Hazard score |
| Gorges and mountains (>30%) | 5 |
| Steep hills (>20% to 30%) | 4 |
| Rolling hills (>10% to 20%) | 3 |
| Undulating (>5% to 10%) | 2 |
| Plain (0% to 5%) | 1 |

Note—For site-specific assessment of bushfire hazard, if the site is downhill from the hazard, the slope effect may be taken as zero as the fire intensity will be less. However, burning heavy fuels may roll downhill and trees may fall down, so recommended setbacks from the hazard still need to be observed.

Step 3: Assessment of aspect

Aspect affects bushfire hazard due to the effects that exposure to direct sunlight has on different vegetation communities, including the drying rates of fuels. Aspect also correlates closely with exposure to low humidity winds that increase bushfire intensity. In extremely broken country where there is a range of aspects, the predominant aspect should be used.

As aspect has only a minor influence on flatter land, aspect is not considered to be significant on land with a slope less than 5%. Table 3 lists the hazard score for different aspects and Figure a illustrates the compass degree ranges for each aspect category.

Table 3—Hazard score for aspect

|  |  |
| --- | --- |
| Aspect | Hazard score |
| North to north-west | 3.5 |
| North-west to west | 3 |
| West to south | 2 |
| North to east | 1 |
| East to south and all land under 5% slope | 0 |

Step 4: Combining scores to identify the severity of bushfire hazard

The scores for the individual factors determined for vegetation communities, slope and aspect are added to give a total for each sub-unit as follows:

Total hazard score = vegetation community hazard score + slope hazard score + aspect hazard score.

The total hazard score determines the severity of bushfire hazard for each sub-unit as set out in Table 4.

Table 4—Hazard score ranges to identify the severity of bushfire hazard

|  |  |
| --- | --- |
| Total hazard score | Severity of bushfire hazard |
| 13 or greater | High |
| 6 to 12.5 | Medium |
| 1 to 5.5 | Low |

Note—Buildings in high severity bushfire hazard areas should be constructed in accordance with the Level 1 requirements of AS 3959—1999 Construction of buildings in bushfire-prone areas.

Step 5: Field verification

Preliminary bushfire hazard maps should be prepared based on the results of Step 4 above by aggregating all sub-units with similar levels of bushfire hazard severity into 'high' and 'medium' severity classifications. Field verification or ‘ground truthing’ of these preliminary results should then be undertaken. A number of sample areas should be evaluated to test the accuracy of the preliminary bushfire hazard findings.

Step 6: Qualitative assessment

Known bushfire behaviour complements the quantitative assessment and should be considered as part of the qualitative review.

Known bushfire behaviour is extremely difficult to use as a quantitative planning tool. This is because the absence of bushfire, even for an extended period of time, does not mean that an area will not burn and may lead to massive fuel accumulation with dangerous bushfire behaviour if it does ignite. Known bushfire behaviour may identify sites where combinations of slope and wind have led to severe bushfire behaviour in the past, and where extra precautions to protect assets might be required. The reliability of known bushfire behaviour may be difficult to assess and Queensland Fire and Rescue Service should be consulted if problems are indicated.

Step 7: Safety buffers

The final step in identifying bushfire hazard areas is to add a safety buffer, as land adjacent to a bushfire hazard area is vulnerable to bushfire attack from these areas.

Any land within 100m of an area identified as having a high bushfire severity classification should be included in the High bushfire hazard area and any land within 50m of an area identified as having a medium bushfire severity classification should be included in the Medium bushfire hazard area. The safety buffers should be integrated into the preparation of maps that identify bushfire hazard areas. Table 5 shows the width of the safety buffers that apply to the various bushfire hazard severity classifications.

Table 5—Total hazard score and severity of bushfire hazard with safety buffers

|  |  |  |
| --- | --- | --- |
| Total hazard score | Severity of bushfire hazard | Extent of safety buffer |
| 13 or greater | High | 100m |
| 6 to 12.5 | Medium | 50m |
| 1 to 5.5 | Low | Not applicable |

4 Preparation of a bushfire management plan

A bushfire management plan is to be prepared by a professional who is suitably qualified and experienced with technical expertise in the field of bushfire hazard identification and mitigation, including protection of biodiversity values, and is to:

1. have knowledge and experience in applying relevant legislation, plans, policies, standards and guidelines relating to bushfire hazard and fire ecology relating to Queensland requirements and South East Queensland conditions; or
2. have knowledge and experience in developing bushfire management plans in accordance with the methodology set out in section 5 of this planning scheme policy; or
3. be accredited practitioner (BPAD Level 2/3) under the Bushfire Planning and Design Accreditation Scheme from the Fire Protection Association of Australia; or
4. have qualifications and experience in the field of ecology, environmental management or similar to assess and protect site-based and strategic biodiversity values, preferably relating to South East Queensland.

4.1 Who should be consulted?

At a minimum the local government, responsible rural and/or urban fire brigade, and managers of adjacent parks or reserves should be consulted. It is also desirable to consult other agencies or individuals, such as previous owners of the site or neighbours, who may have local knowledge of the severity and nature of the bushfire hazard.

5 Requirements for a bushfire management plan

1. A bushfire management plan identifies the strategies a development is to implement for mitigating the impacts of bushfire on life, property and the environment. This includes identifying specific risk factors associated with the development, planning for the separation of at-risk elements and potential hazards, and providing access and treatments to facilitate an effective response to bushfire.
2. A bushfire management plan is to include the following information:
3. A site specific bushfire hazard assessment using the methodology set out in section 3 of this planning scheme policy.
4. An assessment of other site-specific factors that are important in devising suitable bushfire mitigation strategies, such as likely direction of bushfire attack, environmental values that may limit mitigation options, location of evacuation routes and safety zones and identification of the risks on site and from nearby sites.
5. An assessment of the specific risk factors associated with the development including:
6. the intended future population size and characteristics;
7. the likely usage patterns on the site;
8. the estimated traffic generation;
9. the nature of activities to be conducted on the site;
10. the storage or handling of hazardous chemicals in quantities that would be equivalent to or exceed the threshold quantities set out in Table 8.2.5.3.D in the Bushfire overlay code;
11. the use of the site for emergency services or disaster response purposes;
12. particular warning or evacuation requirements;
13. the total extent of clearing, revegetation and landscaping proposed for the site which is to be indicated on a site plan.
14. Mitigation measures identified for the development that address major factors in bushfire attack, including embers and burning debris, radiant heat, direct flame contact and wind. Smoke should also be addressed where it is relevant to mitigation measures for vulnerable uses, such as hospitals, aged-care facilities and facilities in which aged or disabled persons reside, or where resident populations are susceptible to respiratory disorders.
15. A plan for mitigating the bushfire risk identified in the bushfire hazard assessment. The plan is to recommend specific mitigation actions for the development including:
16. appropriate land uses;
17. access, including road layout, accessways, driveways, evacuation routes, including an easement on site and on adjoining lands, access routes for two-wheel drive vehicles and fire-fighting appliances; and evacuation requirements;
18. lot layout and orientation;
19. site layout including identification of proposed locations of buildings or building protection zones;
20. the need and construction standards for fire maintenance trails;
21. access requirements and access routes for two-wheel drive vehicles and fire- fighting appliances;
22. warning and evacuation procedures, plans and routes including capacity of public roads especially perimeter roads and traffic management treatments, and responsibility for their maintenance;
23. fire-fighting requirements including infrastructure and water supply;
24. landscaping, including details of new vegetation or landscape treatments to be used on site, particularly in the building protection zone;
25. operational, design, construction or management measures for responding to particular requirements of some land uses, such as air quality management and design standards of tanks and fittings;
26. any other specific measures such as external sprinkler systems which are only as an adjunct to other passive controls, and alarms;
27. ongoing purchaser or resident education and awareness programs;
28. ongoing maintenance, management and response awareness programs, including tenure and community title arrangements. This should also include identification of specific responsibilities for actions required in the bushfire management plan for owners or occupiers of the development, the developer and Council.

6 Assumptions for assessing bushfire risk

For most types of development, bushfire risk is generally assessed based on the vegetation existing on and in proximity to the site. However, the potential impacts of future bushfire hazard must be assessed for any areas Council assumes are subject to revegetation or regrowth vegetation. The level of bushfire hazard should be assessed as if the vegetation in that area, including any areas designated for revegetation or regrowth vegetation, has reached its mature state. Potential impacts are identified through consideration of the following:

1. a development approval on the subject site;
2. either a development approval or a development application in the decision-making stage, on an adjoining site;
3. an overlay such as the Biodiversity areas and Waterway corridors overlays;
4. a neighbourhood plan;
5. an Infrastructure Agreement;
6. natural area parks and corridor link parks along vegetated waterways;
7. habitat Brisbane, revegetation and offset planting sites;
8. any other public lands that are not intended to be managed in a low threat state.

Where insufficient detail is available to determine fuel loads, pre-clear vegetation communities are to be assumed.

7 Requirements for essential community infrastructure

1. Essential community infrastructure provides services vital to the community and may be in public or private ownership. In some cases, these facilities are integral to the City’s ability to respond to disaster events. This infrastructure must remain functional during and immediately after disaster events.
2. Assessment of essential community infrastructure will need to consider the role and function of the infrastructure, including during a natural hazard event and the potential impacts on the community should the infrastructure be operationally impaired by a natural hazard.
3. Not every part of every facility will be vital to the wellbeing of the community. For instance, training rooms may be less vital than control rooms or equipment storage areas. The bushfire management plan is to justify any prioritisation of functionality for different elements of the development based on their significance during a disaster event. The level of functionality achieved during a disaster should be sufficient to ensure continuity of essential service provision. However, there may not be full functionality for the whole facility. Availability of alternative access routes during a bushfire is to be addressed if access to the facility is required to maintain operations or service to its catchment.
4. Development, including elements of essential community infrastructure which are vital to the functionality of that infrastructure in a bushfire, should be located to avoid high and medium bushfire hazard areas.

8 Principles for siting buildings in high and medium bushfire hazard areas

1. The way a building is sited on land is a basic factor influencing survival. The following factors should be considered for maximising survival:
2. Checking data about previous fires in the local district can help determine the possible direction a bushfire would travel.
3. Most bushfires occur during dry conditions, particularly in times of hot temperatures and low humidity, and are often accompanied by strong winds.
4. Fires accelerate going uphill and decrease in speed travelling downhill.
5. Building out over the hazard will increase the risk (a pole house with timber decks will be much more exposed than one set into the slope).
6. Siting the structures downhill from the hazard reduces the risk (setbacks are still necessary to avoid falling trees and debris rolling downhill).
7. Buildings are not sited in higher risk areas, particularly locations with a combination of slope and certain aspects;
8. Setbacks from hazardous vegetation are to be maximised.
9. On larger lots it may be possible to site buildings in areas subject to lower bushfire hazard. The site assessment will assist in locating buildings having regard to combinations of slope and aspect on the site.

Note—Figure a illustrates the relative bushfire safety of house site locations based on slope and aspect considerations (1 being the safest, 6 being the most hazardous).

1. The order of preference for siting buildings is a low flat site set into southerly or south-east slopes, a site at the bottom of more exposed west and north-west slopes. The most dangerous sites are on or at the top of west or north-west slopes. The head of gullies with westerly aspects are to be avoided because fire winds funnel up such sites. The preferable location of buildings will also depend on the location and area of vegetation.
2. Reducing bushfire hazard may involve managing the structure of vegetation and the fuel load. Requirements for the building protection zone may involve managing the structure of vegetation and therefore, the fuel load. The requirement for building protection zone can assist in the management of hazardous vegetation as it is in an area maintained to minimise fuel loads so that a fire path is not created between the bushfire hazard and the building.

Note—Clearing of some types of vegetation is controlled in Brisbane. Reference should be made to other codes in the planning scheme and to relevant local laws for requirements. The bushfire code provides requirements for separation from vegetation likely to pose a bushfire hazard, specifically vegetation scoring higher than 4 on Table 8.2.5.3.C in the Bushfire overlay code.

9 Separation from sources of bushfire hazard

Topographical features of the site and design elements are used to maximise separation between sources of bushfire hazard and dwellings or buildings, and manage risk. These features include the following:

1. roads, particularly perimeter roads and roads separating building locations on lots from vegetation scoring higher than 4 as described in Table 8.2.5.3.C in the Bushfire overlay code;
2. fire maintenance trails where used;
3. parkland and other areas maintained with reduced fuel loads such as mown grass, sports ovals, golf courses and car parks;
4. water bodies and waterways;
5. landscaped areas;
6. easements and other reserves such as future road reserves and maintained overland flow paths.

10 Design and construction of building protection zones

1. Building protection zones are to be established for the protection of buildings from bushfire:
2. The inner 10m of the building protection zone is to be maintained in a very low fuel state. This area is designed to prevent continuity of fuel, such as shrubs or build-up of leaf litter extending to the building through:
3. paving, lawn or non-combustible mulch such as gravel;
4. tree retention only if there is a vertical and horizontal separation of 2m between plants to ensure the canopy is not continuous.
5. The outer 10m of the building protection zone is to be maintained in a reduced fuel state. This area is designed to reduce bushfire intensity and shield buildings from radiant heat, and prevent flames transferring from ground fuels to the canopy. In the outer zone, trees may be retained or planted in small clumps, retaining vertical and horizontal separation between any other plants to ensure that canopy is not continuous.
6. In all areas of the building protection zone, trees should be a distance 1.5 times the mature canopy height away from buildings, and should not overhang buildings.

11 Roads and fire maintenance trails

11.1 Design of public roads

1. When reconfiguring a lot involving the opening of a new road, a perimeter road is the preferred option to separate bushland from urban areas. The public road system in a bushfire-prone area is to provide alternative access or egress for firefighters and residents during a bushfire emergency if part of the road system is cut by fire. Roads should provide sufficient width to allow fire-fighting vehicle crews to work with fire-fighting equipment about the vehicle.
2. Figure b demonstrates the perimeter road network separating development from potential sources of bushfire hazard. New lots do not back directly onto hazardous vegetation. The perimeter road allows for fire-fighting access. If a perimeter road is not used to isolate a cul-de-sac from the hazardous vegetation, alternative formal access and egress are provided. Using public roads is preferable to using easements.

11.2 Property access

The dwelling house is located as close as possible to the public road to allow residents and emergency service personnel to evacuate safely. Long property access roads linking dwelling houses to public roads are to be minimised.

11.3 Fire maintenance trails

1. Fire maintenance trails are only effective in the context of a strategic advantage and access for hazard-reduction operations. Fire maintenance trails present difficulties and costs associated with maintaining fire maintenance trails on private land. Proposals for fire maintenance trails will need to demonstrate clear benefits over the use of a perimeter road. A perimeter fire trail cannot be imposed on the adjoining lands.
2. Fire maintenance trails are primarily used as access for firefighters. They are also used for fire control lines and maintenance of buffers protecting development. In non-urban areas, they may surround isolated dwellings or groups of dwellings. In suburban subdivisions, they may function as a strategic control line around the hazard side of the development, if they are connected to the public road system at frequent intervals.
3. Fire maintenance trails are to be designed and located in accordance with a bushfire management plan prepared in accordance with this planning scheme policy. The bushfire management plan is to demonstrate that the fire maintenance trails:
4. are located, designed and constructed to buffer development from bushfire hazard and allow access for fire-fighting vehicles to strategic areas of the site for fire fighting;
5. are designed in compliance with Table 8.2.5.3.C in the Bushfire overlay code;
6. adjacent to Council parkland are to be on private land where no public road interface can be achieved;
7. are unfenced and accessible at all times by fire-fighting vehicles;
8. connect through to a road network or network of other fire maintenance trails;
9. respond to site topography and bushfire characteristics of the site and surrounding area;
10. are located, designed and constructed to protect firefighter safety and provide for movement, manoeuvring and access to water supplies for fire fighting.
11. are designed so that dead ends are avoided; however if a dead end exists, a turnaround of sufficient radius for a full lock by a Category 1 fire tanker should be constructed (radius³ 12m) and if there is insufficient space for such a turnaround due to the topography, provision should be made to allow a maximum three-point turn (radius³ 10m);
12. are designed and constructed to avoid adverse environmental impacts, including soil erosion, impacts on natural hydrological flows, or other land degradation;
13. link to existing fire maintenance trails or roads at each end and at maximum intervals of 200m, having regard to site topography, firefighter safety and the need to regularly access water supplies;
14. do not alter natural hydrological flows or expose acid sulfate soils;
15. primary trails are maintained to provide safe four-wheel drive access by fire-fighting vehicles.

12 Landscaping

1. The preparation of a landscaping plan is to be guided by the bushfire management plan requirements and best practice. The design and species selection in the landscape plan:
2. prevent flame impingement on the dwelling;
3. provide space and access for property protection;
4. reduce fire spread;
5. deflect and filter embers;
6. provide shelter from radiant heat;
7. reduce wind speed;
8. meet the spacing requirements in the bushfire protection zone;
9. use site features including topography and driveways to manage hazards;
10. maximise separation distances between structures and sources of bushfire hazard;
11. identify the use of appropriate materials and species in landscaping to manage fuel loads.
12. All vegetative material can burn under the influence of bushfire. Careful attention must be paid to species selection, their location relative to their flammability, avoidance of continuity of vegetation horizontally and vertically, and ongoing maintenance to readily remove flammable fuels such as leaf litter, twigs and debris. Selection of plant species is not to be relied upon as a primary measure to reduce bushfire risk.

13 Useful references

Cuong Tran and SEQ Fire and Biodiversity Consortium (2002) Fire Management Operational Manual Guidelines for planning and conducting fuel reduction and ecological burns on your property.

Queensland Government (2013 December), Draft SPP Guideline, State interest—natural hazards, Guidance on flood, bushfire and landslide, Department of State Development, Infrastructure and Planning.

Ramsay G.C. and Rudolph L. (2003) Landscape and building design for bushfire areas. CSIRO Publishing, Melbourne, Victoria, Australia.

SEQ Fire and Biodiversity Consortium (2002) Individual Property Fire Management Planning Kit Balancing fire safety with conservation of bushland plants and animals.

State of Victoria (2010) Overall Fuel Assessment Guide, 4th Edition July 2010, Fire and Adaptive Management Report 82, Department of Sustainability and Environment.

Victorian Country Fire Authority (2011) Landscaping for bushfire: garden design and plant selection.



