

BMP

BUSHFIRE
MANAGEMENT
PLAN

89 Midgen
Street,
Koorinal

89 Midgen Street, Koorringal QLD 4025

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Version 1 – 23 January 2026
C. Anderson

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1.0 Introduction

Anderson Consulting has been engaged to undertake a site-specific bushfire hazard assessment and prepare a Bushfire Management Plan (BMP) in support of a Material Change of Use (MCU) application for an existing dwelling to be used as short-term accommodation (Holiday House) at 89 Midgen Street, Kooingal QLD 4025 (the site).

The site is identified as being within a bushfire prone area under the Brisbane City Council (BCC) City Plan. Accordingly, the Material Change of Use application for the conversion to a Holiday House from a residential dwelling is subject to the BCC Bushfire Overlay Code. It is noted that the proposed application does not involve any proposed building works.

This BMP has been prepared in accordance with the recommendations outlined in the BCC City Plan Bushfire Planning Scheme Policy SC6.4. An assessment of the proposed Short-term Accommodation (Holiday House) against the performance outcomes of the Bushfire Overlay Code is provided in **Attachment 1 – BCC Bushfire Overlay Code**.

1.1 Suitably qualified person

Chris Anderson has prepared this bushfire management plan. Chris is a suitably qualified and experienced bushfire management consultant.

Chris is a Principal Engineer and Scientist (BEngEnv BSc Lan & Wat Man MEIANZ MIEAust CPEng NER RPEQ) with over 20 years' experience as an environmental consultant specialising in land management. Chris is also an accredited and active rural firefighter with Rural Fire Service Queensland (RFSQ).

2.0 Site description

2.1 Site description

The subject site, formally described as Lot 505 on K94310, is located at 89 Midgen Street, Koorungal QLD 4025 within the Brisbane City Council local government area. As shown on Figure 1, the property has an approximate area of 607 m² and contains an existing dwelling.

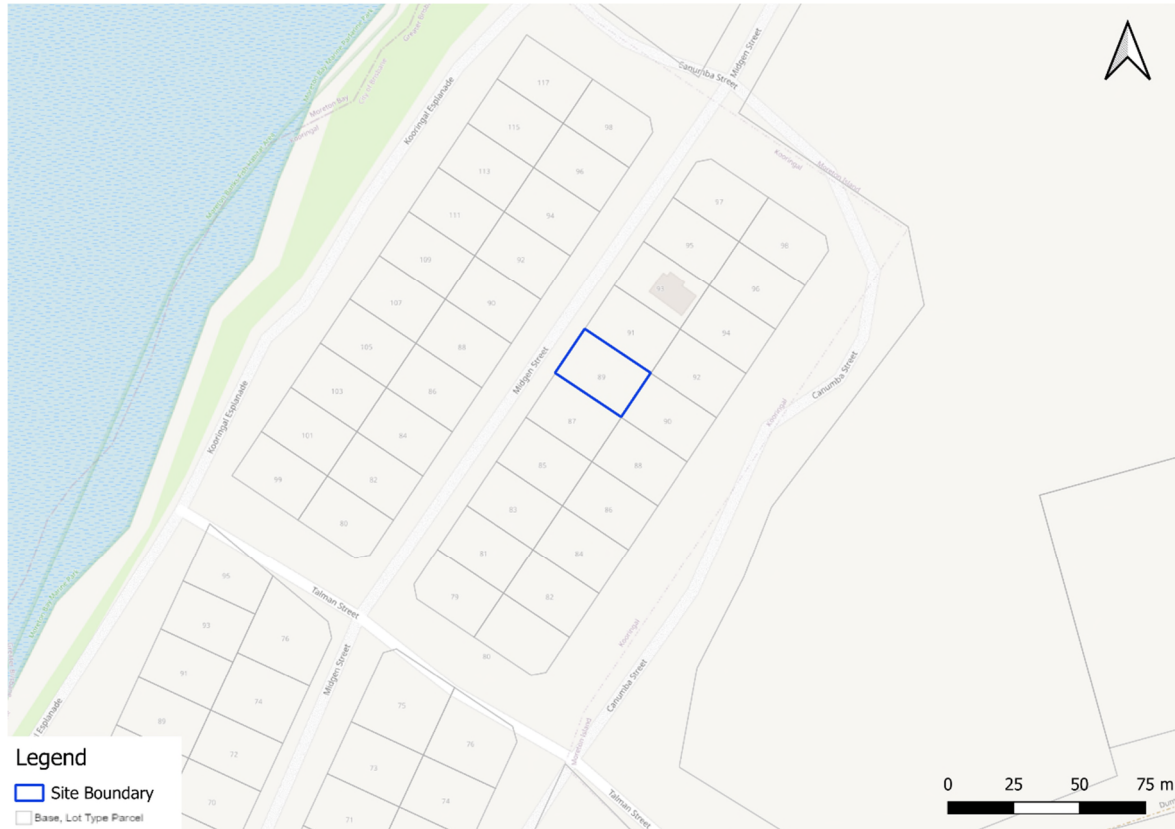


Figure 1 - Site location (Base image source Open Maps)

2.2 Site visit

A physical site inspection was not undertaken as part of this assessment. Instead, the review was informed by a combination of client-provided photographs of vegetation at selected locations within the site, township and surrounding area, together with interpretation of aerial photography and available mapping. This information was used to confirm vegetation types and density, access arrangements, surrounding infrastructure, and landform characteristics on and adjacent to the site.

2.5 Proposed site layout

The proposed development involves a Material Change of Use (MCU) of an existing dwelling to facilitate its use as short-term accommodation (Holiday House). No building works or changes to existing structures are proposed as part of the development.

The site layout is shown on Figure 2 and illustrates the location of existing buildings, water tanks, street access, and surrounding site vegetation.

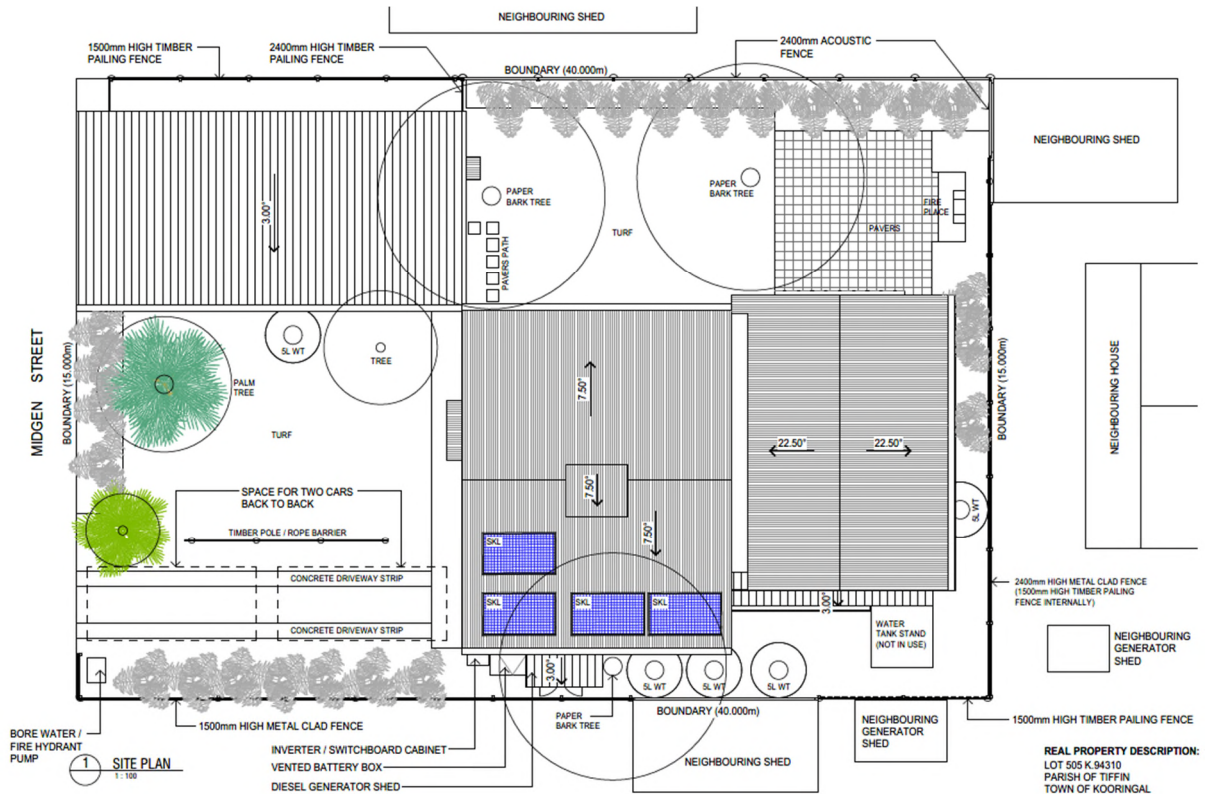


Figure 2 – Site layout (Source: Client)

3.0 Bushfire risk assessment

3.1 Bushfire Hazard Mapping

Mapping of the bushfire hazard for the site and locale are provided under the BCC City Plan and the SPP 2017 Natural Hazard framework.

The BCC Bushfire overlay mapping¹ shows that the site is mapped as a “Medium Hazard” area as shown on Figure 3, with the site indicated by the red rectangle.

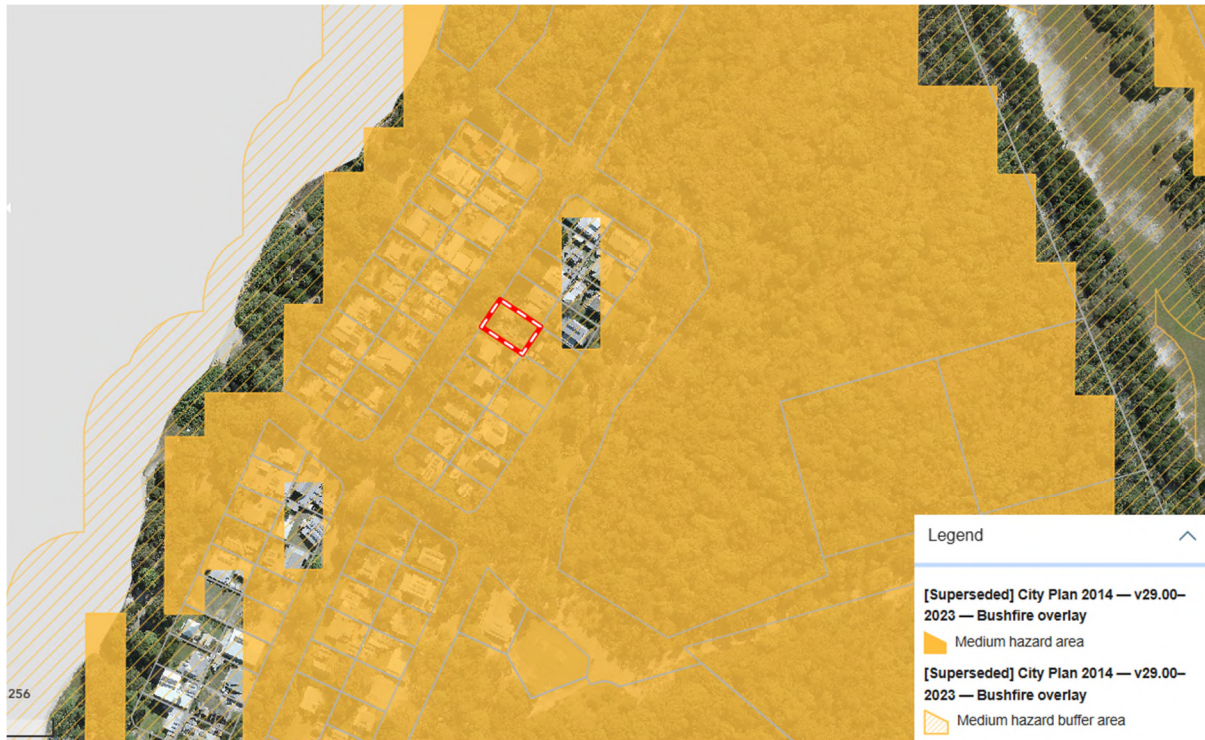


Figure 3 - BCC Bushfire Overlay code mapping.

Queensland’s State Planning Policy Natural Hazard - Bushfire Mapping is based on the state-wide bushfire prone area mapping methodology developed by Leonard et al. (2014). This methodology assesses bushfire hazard by reference to the potential fire-line intensity of a bushfire. Potential fire-line intensity provides a basis for estimating radiant heat exposure (kW/m) adjacent to hazardous vegetation.

Using this approach, land that may be exposed to bushfire effects is classified according to potential bushfire intensity as Medium, High or Very High. Areas that may be affected by embers, flames or radiant heat are included within a potential impact buffer, which is applied as a default distance of 100 m from vegetation mapped as having Medium, High or Very High potential bushfire intensity.

¹ BCC City Plan Online interactive mapping <https://www.brisbane.qld.gov.au/building-and-planning/supporting-documents-and-online-tools/city-plan-online>

Potential fire-line intensity also provides an indication of relative risk in relation to resident evacuation and emergency service access during bushfire events. The classification of potential bushfire intensity is a function of three factors (see Figure 5):

- total available fuel load, which is primarily governed by the type and structure of vegetation present.
- ground slope, which influences the rate of fire spread and fuel consumption.
- the McArthur Forest Fire Danger Index (FFDI), which reflects the influence of weather conditions such as recent rainfall, wind speed, temperature and relative humidity on fire behaviour.

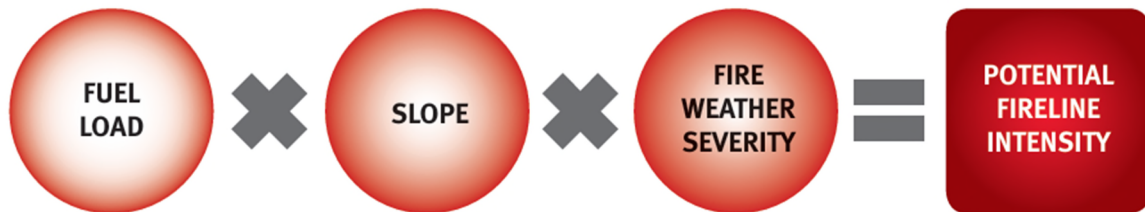


Figure 4 - Method for calculation of potential Fireline intensity².

A review of the SPP Natural Hazard Mapping for bushfire prone area identifies the site as subject to Potential Impact Buffer refer to Figure 5.

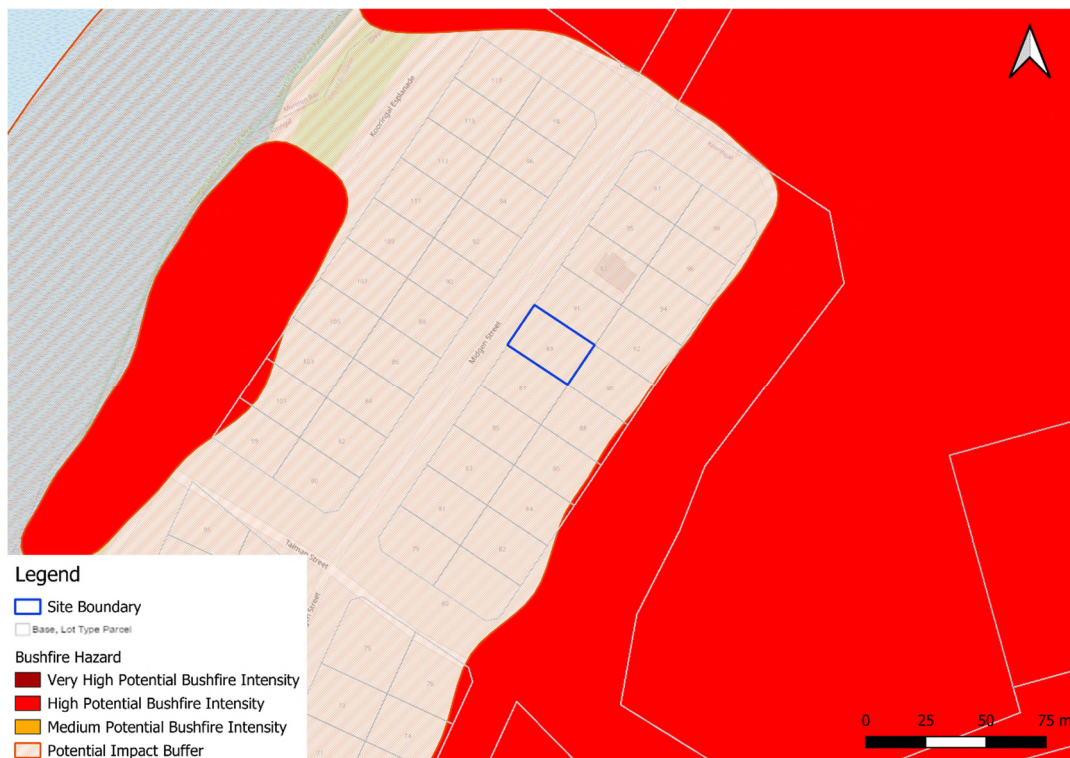


Figure 5 - SPP Bushfire Hazard Mapping

² The State of Queensland (Queensland Fire and Emergency Services) (October 2019), Bushfire Resilient Communities, Technical Reference Guide for State Planning Policy State Interest 'Natural Hazards, Risk and Resilience - Bushfire

3.3 Vegetation Hazard Class and Fuel Load

A review of the site-specific vegetation management report (see attached extract included below as Figure 6) confirms that no mapped or classified vegetation is present within the subject site, or within the broader developed township of which the site forms part.

Vegetation surrounding the township comprises remnant vegetation, identified as Regional Ecosystem 12.2.5.³

Regional Ecosystem 12.2.5 is described as:

Open forest to low closed forest. Species can include Corymbia intermedia, Lophostemon confertus, Banksia integrifolia subsp. integrifolia, B. aemula, Callitris columellaris, Acacia spp., Livistona spp. and Endiandra sieberi. Melaleuca quinquenervia in swales. Understorey generally shrubby and can include vine forest species. Occurs on Quaternary coastal dunes, beach ridges and sandy banks of coastal streams. Contains Palustrine. (BVG1M: 9f).

A review of the BRCM mapping⁴ indicates that the Regional ecosystem Vegetation 12.2.5 surrounding the township has a broad Vegetation Hazard Class (VHC) of 9.1 remnant⁵ (Refer to Figure 7). VHC is described as *Moist to dry eucalypt open forests on coastal lowlands and ranges* with a total potential fuel load (t/ha) of 24.20, consisting of 17.50 t/ha surface fuel, 3.50 t/ha near surface, 2.20 t/ha elevated and 1.0 t/ha bark.

A review of the provided locale photographs, together with interpretation of aerial photography and mapping, confirmed the vegetation type and its classification. To support site-specific fire intensity calculations, three transects were established extending from the subject site to the edge of the high classification vegetation, as identified from aerial imagery and mapped infrastructure. The three transects are shown on Figure 7. Noting that mapped vegetation does not always precisely reflect site-specific vegetation extents and site features such as roadways. The transect endpoints based on observed VHC extents differ slightly from the mapped vegetation boundaries. Notwithstanding this, vegetation surrounding the township is generally consistent in type and structure in all directions from the site.

³ Bushfire Resilient Communities MapViewer

⁴ The remnant designation is based on the site-specific Qld Government Vegetation Management Report for the site.



Figure 6 - Vegetation management report (Queensland Government, 2026)



Figure 7 - Vegetation Categories (VHC) and distance to proposed development. (Source: Qld Government Open Portal)

3.4 Site slope and effective slope

To assess slope characteristics in the vicinity of the site, classified LiDAR data was obtained from ELIVIS6. Figure 8 presents the derived landform elevation. Site slopes were calculated from the LiDAR elevation data and indicate that slopes adjacent to the site range from approximately 1.5° to 3.2°, with an average slope of about 2.4°.

Average slope values along the three established transects have been adopted in the site-specific fire intensity calculations, as described in see Section 3.5.

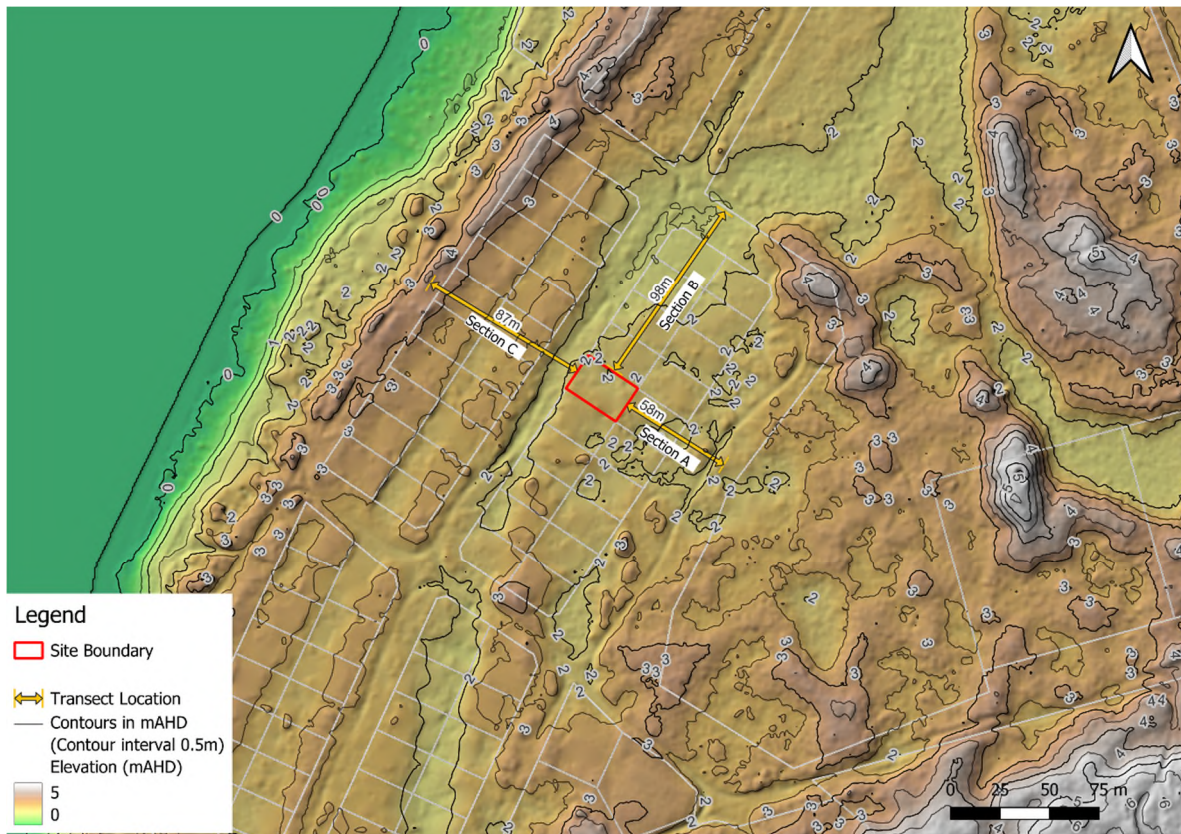


Figure 8 – Landform elevation and slope characteristics.

3.5 Fire Weather Severity

The Queensland Fire Department (QFD) Bushfire Resilient Communities Mapping (BRCM)⁷ interface identified the forest fire danger index (FFDI) for the site, with a 5% annual exceedance probability, as fifty-three (53). However, the BCC Planning Code specifies a value of fifty-four (54). A value of 54 was utilised for estimating potential bushfire intensity in Section 3.7 and conducting the assessment of radiant heat exposure (BAL Rating) in Section 3.8 Bushfire Attack Level assessment.

⁶ ELVIS Elevation Depth and Foundation Data – most recent LiDAR available for the subject area is Brisbane 2009.

⁷ Bushfire Resilient Communities MapViewer

3.6 Potential Bushfire Intensity

Potential Bushfire Fire Intensity (Fireline Intensity) is a function of fire weather severity (FFDI), landform slope and fuel load. The fireline intensity is classified as medium, high, very high intensity⁸ in accordance with Table 1. It is noted that the SPP mapping shown in Figure 5 is based on the criteria in Table 1.

Table 1 - Potential Fire Intensity Hazard⁹

Potential Bushfire Intensity Hazard Rating	Intensity Kilowatts per metre (kW/m)
Non-bushfire hazard (buffer area)	<4,000
Medium Hazard	4,000 to 20,000
High Hazard	20,000 to 40,000
Very High Hazard	> 40,000

A site-specific intensity calculation was made using the SPP Bushfire Asset Protection Zone Width Calculator¹⁰ along three transects (from the proposed Holiday House to the surrounding VHC vegetation). The following assumptions were used in the calculations:

- A Site-Specific Fire Danger Index (FFDI) of 54.
- The location of the Site as shown on Figures 3 to 8.
- A VHC (vegetation hazard class) of 9.1 surrounding the township.
- Site landform (elevation) as shown on 8 with slopes calculated from this landform ranging between 1.85° and 2.51° the three transects.

Table 2 - Calculated Potential Bushfire Fireline Intensity contains the results of the assessment.

Table 2 - Calculated Potential Bushfire Fireline Intensity

Transect	Vegetation Hazard Classification (VHC)	Average Slope (°) based on 1m grid [#]	Fire Spread input (FFDI)	Potential Bushfire Fireline Intensity (kW/m)	Potential Bushfire Fireline Intensity
Section A	9.1	3 (upslope)	54	17,015	Medium
Section B	9.1	2 (downslope)	54	19,532	Medium
Section C	9.1	3 (upslope)	54	17,015	Medium

⁸ The State of Queensland (Queensland Fire and Emergency Services) (October 2019), Bushfire Resilient Communities, Technical Reference Guide for State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire'

⁹ CSIRO (2014) A new mapping methodology for State-wide mapping of bushfire prone areas in Queensland.

¹⁰ Queensland Fire and Emergency (QFES) SPP Bushfire Asset Protection Zone Width Calculator.

- The calculator requires slopes to the nearest degree. Section A had measured slope of 2.49°, Section B had a measured average slope of 1.85° and Section C had a measured average slope of 2.51°.

The Potential Bushfire Fire-line Intensity for areas of bushfire prone vegetation located adjacent to the township in which the site is located have a calculated medium hazard.

3.6 Bushfire Attack Level Assessment

Given the site is located within an established township and is spatially separated from bushfire prone vegetation, a Bushfire Attack Level assessment has been undertaken to quantify and spatially represent the level of bushfire risk to which the site and its occupants may be exposed (i.e. it considers the separation distance to the vegetation). The assessment considers Bushfire Attack Level categories determined in accordance with (AS 3959, 2018). AS3959-2018 describes the Bushfire Attack Levels as:

‘A means of measuring the severity of a building’s potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per metre squared, and the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire.’

The BAL was calculated using the QFES supplied SPP Bushfire Asset Protection Zone Width Calculator, with the assumptions as outlined in Section 3.5. The results of the assessment are included in Table 3 - BAL calculations.

Table 3 - BAL calculations

Direction from proposed secondary dwelling	Vegetation Hazard Classification (VHC)	Slope (degrees)	Fire Spread input (FFDI)	Distance to hazardous vegetation (m)	Radiant Heat Flux (kW/m ²)	Bushfire Attack Level (BAL)
Section A	9.1	3 (upslope)	54	58	6.67	BAL12.5
Section B	9.1	2 (downslope)	54	98	3.06	BAL12.5
Section C	9.1	3 (upslope)	54	87	0.84	BAL 12.5

The calculations indicate that the site has a BAL12.5 rating when considering the separation distances to the bushfire prone vegetation. AS3959-2018 describes the BAL 12.5 as:

BAL 12.5 is primarily concerned with protection from ember attack and radiant heat up to and including 12.5kW/m² where the site is less than 100m from the source of the bushfire.

It is noted that the highest calculated radiant heat flux is associated with vegetation located to the east of the site rather than to the north. While the potential fire-line intensity calculated for Transect 2 to the north is higher, the greater separation distance results in a reduced radiant heat flux at the site.

As can be seen from a review of the BAL ratings¹¹ in Table 4, BAL-12.5 is the lowest Bushfire Attack Level category above BAL-LOW.

Table 4 – Description of BAL rating and heat exposure fluxes (Source AS3959:2018).

Bushfire Attack Level (BAL)	Classified vegetation within 100 m of site and heat flux exposure thresholds	Description of predicted bushfire attack and levels of exposure
BAL-LOW	--	There is insufficient risk to warrant specific construction requirements
BAL-12.5	$\leq 12.5 \text{ kW/m}^2$	Ember attack
BAL-19	$> 12.5 \text{ kW/m}^2$ and $\leq 19 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux
BAL-29	$> 19 \text{ kW/m}^2$ and $\leq 29 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux
BAL-40	$> 29 \text{ kW/m}^2$ and $\leq 40 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux with increased likelihood of direct contact with flames
BAL-FZ	$> 40 \text{ kW/m}^2$	Direct exposure to flames from the fire front in addition to heat flux and ember attack

¹¹ Extracted from Table 3.1 of AS 3959-2018.

4.0 Bushfire risk management solutions and recommendations

4.1 Landscaping

As described in Section 3.6, separation from bushfire prone vegetation reduces radiant heat exposure at the site. Notwithstanding this separation, ongoing management of vegetation surrounding the Holiday House on the subject site is important to further reduce bushfire risk. Existing vegetation is to be maintained in a low-threat condition, with any tree cover appropriately managed through pruning to where possible maintain separation from the dwelling. Fuel loads around the base of trees are to be kept to a minimum.

Landscaping treatments and potential fuel sources within the subject site should be managed to achieve the following outcomes:

- a total available fuel load of less than 5 tonnes per hectare; and
- a fuel structure that is discontinuous.

Any future landscaping works should be undertaken in accordance with the recommendations contained in Section 5 of Bushfire Resilient Building Guidance for Queensland Homes, which provides guidance on appropriate landscaping practices and suitable plant species or plant characteristics.

4.2 Water supply and firefighting infrastructure

The Holiday House is to have a minimum 5,000L of firefighting dedicated water reserve available at all times in the form of a tank. The tank should be constructed of non-combustible material with a 50mm male camlock fitting either directly to the tank or by pipework to allow Rural Fire Brigade Appliances to access the water. The location of the fill point should be clearly marked. The tank storage can comprise part of a larger tank providing the normal outlet is positioned to reserve 5,000L in the bottom for firefighting purposes.

The dwelling should have external taps and hoses that are plumbed into the tank with a suitable pump system to allow for independent use in the case of an emergency. The water lines are to be covered by at least 300mm of soil or be metal when above ground. The tank accessed by the houses external taps should be connected to the groundwater bore to ensure that the bore is able to top-up the tank as required, especially during low rainfall periods.

4.4 Vehicle access for egress and ingress

Access to the site is provided via Midgen Street. The street layout affords adequate clearance and turning capacity for rural fire service vehicles and enables safe and efficient ingress and egress for occupants and emergency appliances. It is noted that the highest radiant heat exposure is likely to be associated with vegetation located to the east of the site

and the township. Egress from the site is to the west, which directs occupants away from the area of highest bushfire risk.

4.5 Emergency and evacuation planning

Landowners, tenants, and guests should familiarise themselves with the bushfire warning system used in Queensland (a summary of which is provided below). Landowners are encouraged to prepare a Bushfire Survival Plan and ensure that relevant information is made available to all guests. Guidance on preparing a Bushfire Survival Plan is available on the Queensland Fire and Emergency Services (QFES) website, and the plan should be reviewed and updated annually.

Given the nature of the site as short-term accommodation, it is recommended that guests be notified when the local fire danger rating reaches **Extreme** and be prepared to leave. Accommodation should be closed when the fire danger rating is **Catastrophic**.

Additionally, landowners should ensure guests are informed when a fire ban is in place, to prevent unauthorised ignition of fires in contravention of the ban.

Know your Fire Danger Ratings

A Fire Danger Rating (FDR) describes the potential level of danger should a bushfire start. They are important because they provide you with information so you can take action to protect yourself, your family, and your home from the potentially dangerous impacts of bushfire.

They do not indicate the chance of a fire occurring, although this is a common misconception. Ratings are calculated using a combination of weather forecasting and information about vegetation that could fuel a fire.



Find your local FDR forecast by visiting the QFES website at www.qfes.qld.gov.au.

Moderate

PLAN AND PREPARE

Plan and prepare.
Most fire can be controlled.

High

BE READY TO ACT

Be ready to act.
Fires can be dangerous.

Extreme

TAKE ACTION NOW

Take action now to protect your life and property.
Fires will spread quickly and be extremely dangerous.

Catastrophic

LEAVE BUSHFIRE RISK AREA

For your survival, leave bushfire risk areas.
If a fire starts and takes hold, lives are likely to be lost.

4.6 Maintenance

Regular maintenance is essential, particularly prior to and throughout the bushfire season. The Holiday House must be regularly inspected to ensure there are no gaps or cracks in wall cladding, roofing, doors, or window frames, and that there is no build-up of vegetative matter against or on the building - particularly in roof gutters.

Ensure that the house external doors are fitted with draught seals and well maintained.

Ensure any LPG cylinders are located to minimise exposure to direct flame and radiant heat and have relief valves pointed away from buildings.

Essential services, including the water supply infrastructure (bore and tanks) and firefighting pumps, should be checked routinely, and water tank levels must be maintained to ensure availability during an emergency.

The landscaping and grass and gardens must be actively managed to ensure the regular removal of ground litter, fine fuels, understorey vegetation, and any large branches encroaching on the Holiday House.

Ensure that vegetation is not interfering with safe access and use of driveways and pathways.

5.0 References

Australian Standard AS 3959-2018 Construction of Buildings in Bushfire Prone Areas (incorporating Amendment Nos 1 and 2)

Queensland Fire Department – Bushfire resilient communities
<https://www.fire.qld.gov.au/compliance-and-planning/bushfire-planning/brc>

Gold Coast City Council (April 2023), Gold Coast Bushfire Resilient Design Guideline

Queensland Government and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) (July 2020) Bushfire Resilient Building Guidance for Queensland Homes.

The State of Queensland (Queensland Fire and Emergency Services) (October 2019), Bushfire Resilient Communities, Technical Reference Guide for State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire'

Disclaimer:

This assessment has been undertaken based on the information available at the time (such as building location, vegetation extents, proposed clearing and management extents and the identified best practice standards). From time -to-time these factors may change which can result in changes to risk profiles. It is also noted that the above methodologies are unable to factor in and predict catastrophic bushfire events. Bushfires are unpredictable, and no guarantee is provided, or should it be assumed that the area will not be affected by bushfire.

Importantly Queensland Fire and Emergency (QFES) provide the following advice to landowners regarding bushfires.

What are your responsibilities as a landowner?

Managing Queensland's bushfire risk is a shared responsibility. However, as a landowner, you are legally responsible for managing bushfire hazards on your property. If a fire starts, you are legally responsible for taking all reasonable steps to report the fire and prevent the fire leaving your property.

What is a bushfire hazard?

A bushfire hazard is the potential fire behaviour characterised by weather, fuel loads and topography. Fuel load is alive or dead vegetation that accumulates in an area, over time. For example, dead leaves and twigs may build up as they fall from trees.

What do you need to do to meet your responsibilities as a landowner?

As a landowner, you must prepare and plan for bushfire hazards by being aware of fire management issues in your area, trimming trees, mowing grass, removing flammable material around your home and clearing vegetation, particularly if your land shares boundaries with bushland.

You must also strike a balance between undertaking these activities and preventing harm to the natural environment and areas of cultural heritage. You can do this through property planning or preparing and implementing a land and water management system.

What can you do to manage bushfire risk on your property?

The Queensland Government's vegetation clearing laws allow landholders to undertake a range of activities to deal with the threat of a bushfire. In fact, there are a range of clearing activities that you can undertake without requiring a permit to light fire or notifying authorities.

What are QFES responsibilities?

If a QFES officer becomes aware of a potential bushfire hazard, such as an excessive fuel load, on a particular property, the officer is authorised under the Fire and Emergency Services Act 1990 to undertake a site inspection to discuss what may be necessary to reduce the risk of bushfire to your property, including:

- improving firebreaks or conducting a hazard reduction burn*
- removing or disposing of any vegetation or flammable material*
- obtaining and maintaining equipment for firefighting purposes*
- ensuring there is an adequate water supply on your property for firefighting purposes, and/or*
- ensuring there is a safe escape from the property.*

QFES Officers are authorised to formally direct you to comply with measures considered necessary to protect the community, or to take necessary measures on your behalf, at your cost.

What if you do not comply?

If an agreement cannot be reached, QFES may elect to undertake enforcement/compliance action. The initial fine for not complying with such a direction is currently 50 penalty units for individuals. However, if an agreement cannot be reached, more serious penalties may apply under the Fire and Emergency Services Act 1990, including imprisonment, depending on the seriousness of the offence.

What are your responsibilities under the Environmental Protection Act 1994?

Under the Environmental Protection Act 1994, emergency incidents, such as those involving the release of hazardous materials from fires, vehicle accidents, and spillage of explosive, flammable, or toxic chemicals, often involve public safety matters and require an immediate response from emergency services. These types of incidents may also threaten or cause serious or material environmental harm.

What are your responsibilities under local government legislation?

Overgrown vegetation and storage of materials in and around a property are regulated under local government legislation. Before clearing your land, you should check what local vegetation protection laws apply in your **area**.

Landowners and tenants should also make themselves aware of the bushfire warning system used in Queensland (a summary of which is produced below). Landowners and tenants should also prepare a bushfire survival plan, information on how to do this is provided on the Queensland Fire and Emergency (QFES) website.



ADVICE

THERE'S NO IMMEDIATE DANGER BUT YOU NEED TO STAY INFORMED IN CASE THE SITUATION CHANGES. ▾



WATCH & ACT

THERE'S A HEIGHTENED LEVEL OF THREAT AND CONDITIONS ARE CHANGING. ACT NOW TO PROTECT YOURSELF AND YOUR FAMILY. ▾



EMERGENCY WARNING

YOU'RE IN DANGER AND NEED TO TAKE LIFE-SAVING ACTION IMMEDIATELY. ▾

Attachment 1 – BCC Bushfire Overlay Code

8.2.5 Bushfire overlay code

8.2.5.1 Application

1. This code applies to assessing development in the Bushfire overlay, if:
 - a. accepted development subject to compliance with identified requirements, where acceptable outcomes of this code are identified requirements in a table of assessment for an overlay (section 5.10); or
 - b. impact assessable development.

Note—This code may also be used in assessing other at-risk impact assessable uses within the Bushfire overlay, including uses which involve significant numbers of persons regularly congregating on the site, or any use that may be difficult to evacuate or vulnerable during or after a bushfire due to the characteristics of the population including age, health, mobility impairment, or requiring supervision or support.

2. Land in the Bushfire overlay is identified on the Bushfire overlay map and is included in the following sub-categories:
 - a. High hazard area sub-category;
 - b. Medium hazard area sub-category;
 - c. High hazard buffer area sub-category;
 - d. Medium hazard buffer area sub-category;
 - e. Potential impact sub-category;
 - f. Very high potential bushfire intensity sub-category;
 - g. High potential bushfire intensity sub-category;
 - h. Medium potential bushfire intensity sub-category;
 - i. Potential impact buffer sub-category.

Note—For the purposes of section 7 of the *Building Regulation 2021*, the land identified within the Bushfire overlay on the Bushfire overlay map are 'designated bushfire prone areas'.

Note—For 8.2.5.1(2)(e) to (i) is applicable only to the Ferny Grove—Upper Kedron neighbourhood plan (Cedar Creek south precinct/NPP-001). Refer to the State Planning Policy: Natural hazards and resilience for definition.

Editor's note—Sub-categories cited in 8.2.5.1(2)(e) to (i) only apply in Cedar Creek south precinct (Ferny Grove—Upper Kedron neighbourhood plan/NPP—001) in accordance with the Minister's conditions dated 28 May 2018.

3. When using this code, reference should be made to section 1.5 and section 5.3.3.

Note—The following purpose, overall outcomes, performance outcomes and acceptable outcomes comprise the assessment benchmarks of this code.

Note—Where this code includes performance outcomes or acceptable outcomes that relate to:

- a bushfire management plan and a site-specific or precinct-wide bushfire hazard assessment, guidance is provided in the Bushfire planning scheme policy;
- a bushfire management plan pertaining to hazardous chemicals, guidance is provided in the Bushfire planning scheme policy and the Industrial hazard and risk assessment planning scheme policy.

Editor's note—For a proposal to be accepted development subject to compliance with identified requirements, it must meet all the identified acceptable outcomes of this code that relate to the applicable sub-category and any other applicable code. Where it does not meet all identified acceptable outcomes, the proposal becomes assessable development and a development application is required. Where a development application is triggered, only the specific acceptable outcomes that the proposal fails to meet needs to be assessed against the corresponding assessable acceptable outcomes or performance outcomes and relevant overall outcomes. Other identified acceptable outcomes that are met are not assessed as part of the development application.

8.2.5.2 Purpose

1. The purpose of the Bushfire overlay code is to:
 - a. Implement the policy direction in the Strategic framework, in particular:
 - i. Theme 2: Brisbane’s outstanding lifestyle, and Element 2.3 — Brisbane’s healthy and safe communities;
 - ii. Theme 4: Brisbane’s highly effective transport and infrastructure networks, and Element 4.3 — Brisbane’s coordinated infrastructure planning and delivery.
 - b. Provide for the assessment of the suitability of development in the Bushfire overlay.
2. The purpose of this code will be achieved through the following overall outcomes.
 - a. Development maintains the safety of people and property by not exposing them to an unacceptable risk from bushfire.
 - b. Development does not increase the exposure of people and property to an unacceptable risk.
 - c. Development involving new premises for vulnerable uses, difficult to evacuate uses and assembly uses is not located in an area of unacceptable risk.
 - d. Development which would increase the number of people living, working on or visiting the site is not exposed to an unacceptable risk from bushfire.
 - e. Development incorporates appropriate siting, design and management measures to avoid areas at risk of bushfire and mitigate risk from bushfire.
 - f. Development for essential community infrastructure and its function during a bushfire event is protected from unacceptable risk.
 - g. Development involving the storage and handling of hazardous chemicals in the Bushfire overlay does not pose an unacceptable risk to public safety or the environment.
 - h. Development provides access and evacuation routes for both private and emergency service vehicles which are appropriate to the nature of the development and the level of bushfire risk.
 - i. Development provides for fire-fighting requirements.
 - j. Development mitigates bushfire risk to people and property using measures that avoid or minimise impacts on biodiversity values, ecological features and ecological processes.
 - k. Development addresses and takes appropriate account of the potential impact of all future bushfire hazard.

8.2.5.3 Performance outcomes and acceptable outcomes

Table 8.2.5.3.A—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Comments
Section A—If for accepted development subject to compliance with identified requirements (acceptable outcomes only) or assessable development		
PO1 Development:	AO1.1 Development is designed and sited in compliance with:	Complies with PO1 A Bushfire Management Plan (BMP) has been

<p>a. minimises the bushfire hazard;</p> <p>b. maximises the protection of life and property from bushfire;</p> <p>c. addresses the bushfire hazard determined by a bushfire hazard assessment;</p> <p>d. where not in compliance with an approved bushfire management plan or development footprint:</p> <ol style="list-style-type: none"> i. achieves a bushfire attack level that is less than or equal to BAL-29; or ii. achieves a bushfire attack level that is less than or equal to BAL-12.5 if for vulnerable uses, difficult to evacuate uses, assembly uses, essential community infrastructure or involving the handling or storage of hazardous chemicals exceeding amount specified in Table 8.2.5.3.D; or iii. if on a site of an existing premises and not a vulnerable use, difficult to evacuate use, assembly use, essential community infrastructure or involving the handling or storage of hazardous chemicals exceeding amounts specified in Table 8.2.5.3.D: <ol style="list-style-type: none"> A. does not extend beyond the bounds of the existing development footprint; B. does not increase the GFA by 10% or 100m², whichever is the greater; C. does not involve a new use on the site; D. is supported by a bushfire risk assessment prepared by a suitably qualified person with technical expertise in the field of bushfire hazard identification and mitigation, which demonstrates that the bushfire risk is acceptable. <p>Note—Bushfire hazard is generally assessed based on the vegetation existing on site, adjacent and nearby to the site at the time of application.</p>	<p>a. an approved bushfire management plan relevant to the full nature of the uses, which identifies the level of bushfire hazard and the location of hazardous vegetation affecting the development; or</p> <p>b. an approved development footprint identifying the development footprint plan and bushfire management footprint plan; or</p> <p>c. a bushfire hazard assessment and bushfire management plan prepared in accordance with the Bushfire planning scheme policy which:</p> <ol style="list-style-type: none"> i. is undertaken by a suitably qualified person with technical expertise in the field of bushfire hazard identification and mitigation; ii. determines the relevant bushfire attack level for that part of the site in which development is proposed; iii. identifies the location of hazardous vegetation that poses a bushfire risk to the development. <p>Note—Where a bushfire hazard assessment determines that the bushfire hazard for the part of the site in which development is proposed is 'low', no further assessment against this code is required. Note—A 'low' bushfire attack level must not be assumed for development in the Potential impact sub-category and in any areas subject to revegetation or regrowth vegetation even where the area is non-vegetated or vegetation is considered low threat in accordance with AS 3959 Construction of buildings in bushfire-prone areas. The Bushfire planning scheme policy provides advice about the sources of information to be consulted to determine areas subject to revegetation or regrowth vegetation and the hazard classification of that vegetation in its mature state. Note—A bushfire management plan is to be prepared having regard to any bushfire hazard assessment undertaken to prepare a neighbourhood plan. Note—Any bushfire management zone, asset protection zone or similarly defined area approved as part of a bushfire management plan used for bushfire management purposes is considered to be a bushfire management footprint plan. A building protection zone can compromise both the development footprint plan and the bushfire</p>	<p>prepared to support the proposed development.</p> <p>The BMP has been prepared in accordance with Planning Scheme Policy SC6.4 and associated by a suitably qualified and experienced bushfire management consultant.</p> <p>The Bushfire Management Plan identifies site-specific bushfire hazards, determines a Bushfire Attack Level of BAL-12.5, and demonstrates that risks to people and property can be effectively managed through maintenance, access, and vegetation management measures.</p>
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<p>However, the level of bushfire hazard posed by any areas subject to revegetation or regrowth vegetation is assessed as if that area had reached its mature state. The Bushfire planning scheme policy provides advice about the sources of information to be consulted to determine areas subject to revegetation or regrowth vegetation and the hazard classification of that vegetation in its mature state. Note—Where a bushfire risk assessment is required it must be carried out in accordance with the State Planning Policy and the National Emergency Risk Assessment Guidelines prepared by the Australian Institute of Disaster Resilience.</p>	<p>management footprint plan.</p> <p>AO1.2 Development where not in compliance with an approved bushfire management plan or development footprint identifying the development footprint plan and bushfire management footprint plan:</p> <ul style="list-style-type: none"> a. achieves a bushfire attack level that is less than or equal to: <ul style="list-style-type: none"> i. BAL-29; or ii. BAL-12.5 if for vulnerable uses, difficult to evacuate uses, assembly uses, essential community infrastructure or involving the handling or storage of hazardous chemicals exceeding the amount specified in Table 8.2.5.3.D. <p>Note—Bushfire attack level (BAL) is the radiant heat flux that will be experienced during a bushfire and is a measure of heat energy impact expressed as kW/m². BAL is measured within the area of the nominated development footprint plan and excludes the area of any bushfire management footprint plan.</p>	
<p>If for development other than reconfiguring a lot</p>		
<p>PO2 Development other than an extension to an existing building is sited, designed and maintained taking account of all relevant factors affecting the bushfire hazard on the site, including site topography, aspect, location and type and structure of vegetation to:</p> <ul style="list-style-type: none"> a. minimise the number of buildings and people working, living or visiting a site exposed to bushfire risk; b. protect life during bushfire; c. increase the survival of buildings and structures during a bushfire; d. minimise bushfire risk from build-up of fuels around buildings and structures. 	<p>AO2.1 Development is:</p> <ul style="list-style-type: none"> a. sited in compliance with an approved development footprint identifying the development footprint plan and bushfire management footprint plan or bushfire management plan relevant to the full nature of the use; or b. if there is no approved development footprint identifying the development footprint plan and bushfire management footprint plan or bushfire management plan, where on a lot greater than 10 hectares, located in the area of lowest risk from bushfire on the site; and c. if there is no approved development footprint 	<p>Complies with PO2.</p> <p>The development involves a material change of use of an existing dwelling with no building extensions proposed. The Bushfire Management Plan confirms the dwelling is located within an established township and that ongoing vegetation management and access arrangements maintain acceptable risk levels.</p>

<p>Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	<p>identifying the development footprint plan and bushfire management footprint plan or bushfire management plan, where on a lot greater than 2,500m²:</p> <ul style="list-style-type: none"> i. located away from ridgelines in compliance with Figure a; ii. located on land with a gradient less than 15%; iii. preferably located on east- to south-facing slopes and avoiding north- to west-facing slopes unless the slope is clear of vegetation and is not located in the High hazard buffer area sub-category or the Medium hazard buffer area sub-category. <p>AO2.2 Development is sited within a building protection zone extending a minimum of 20m from the outermost projection of the main building or any habitable structure or to the maximum extent possible on sites less than 2500m² where a building protection zone would extend into neighbouring properties; and</p> <ul style="list-style-type: none"> a. clusters buildings and structures in the building protection zone; b. designs the inner 10m of the building protection zone to maintain a very low fuel state in the first 10m, and a fuel-reduced state to the extent of the building protection zone, in compliance with Figure b and Figure c. <p>Note—The building protection zone includes the dwelling and all ancillary structures and may extend to a road or a building protection zone in an adjoining site.</p>	
<p>PO3 Development utilises fencing that:</p> <ul style="list-style-type: none"> a. does not contribute to the spread of bushfire; b. in an urban area or in proximity to accommodation 	<p>AO3.1 Development for a fence within 20m of any building used for accommodation comprises non-combustible or fire retardant materials.</p>	<p>NA No fencing is proposed to be constructed as a result of the development application.</p>

<p>uses, contributes to reducing bushfire hazard to a building; c. facilitates the safe movement of fauna.</p>	<p>A03.2 Development for a fence: a. incorporates gaps and spacing to allow the safe movement of fauna; or b. is designed to enable fauna to climb the fence.</p>	
<p>PO4 Development ensures that the location, siting, and design of development and associated driveways and access routes: a. avoid potential for entrapment during a bushfire; b. facilitate safe and efficient emergency services to access and egress the site during a bushfire; c. enables safe evacuation of the site during a bushfire for site occupants. Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome.</p>	<p>A04 Development ensures that: a. the length of driveways or access routes does not exceed 70m between the most distant part of any occupied building and the nearest part of the public road; or b. where the length of the driveway or access route exceeds 70m: i. the driveway or private access route design meets the requirements of emergency vehicles in compliance with Table 8.2.5.3.C; ii. the driveway or access route provides all weather access for two-wheel-drive vehicles; iii. where relying on a private access route or driveway longer than 200m to reach a public road, a safe alternative access and egress route is provided.</p>	<p>Complies The driveway length is less than 70 m and provides compliant access and egress for occupants and emergency vehicles.</p>
<p>PO5 Development has adequate road access to the site for emergency vehicles and safe evacuation in a bushfire.</p>	<p>A05 Development has frontage to a constructed, all-weather public road capable of carrying emergency service vehicles.</p>	<p>Complies The site has direct frontage to Midgen Street, which is a constructed public road capable of supporting emergency service vehicles.</p>
<p>PO6 Development makes adequate provision for fire-fighting requirements, including water supply.</p>	<p>A06 Development ensures that: a. a reliable reticulated water supply and water pressure is available for fire-fighting requirements with water supply and pressure, which is in compliance with the standards specified by the relevant utilities provider; or:</p>	<p>Complies The development will be provided with a minimum dedicated fire-fighting water supply of 5,000 L. The tank will be maintained in a full condition at all times, with make-up water available from the existing bore supply.</p>

	<p>b. where sufficient reticulated water supply is not available for:</p> <ul style="list-style-type: none"> i. residential lots, there is a minimum water supply available and retained for fire-fighting purposes in compliance with Table 8.2.5.3.B, which may be in the form of a separate tank or a reserve section as part of a main water supply tank; or ii. development other than for residential lots involving new premises or an existing premises with a gross floor area greater than 50m², on-site water storage is provided which is appropriate to the use, according to the standards specified by the relevant emergency services agency and is not less than 5,000 litres. <p>Note—Water supply for fire fighting is in addition to water supply for household use. Where a non-reticulated supply of water is required, swimming pools, creeks and dams should not be used as a substitute for a dedicated static supply as these sources of water are not reliable during drought conditions.</p>	
<p>PO7 Development ensures that the water supply provided for fire-fighting is safely located and freely accessible for fire-fighting purposes at all times.</p>	<p>AO7 Development, for which sufficient reticulated water supply is not available, provides:</p> <ul style="list-style-type: none"> a. a water supply outlet located away from any potential fire hazards, such as gas bottles; b. a hardstand area of 11m by 3.5m for fire-fighting vehicles within 2m of the water supply outlet; c. tanks on the bushfire hazard side of the buildings with adequate shielding for the protection of fire fighters; d. pumps which are shielded from bushfire hazard; e. an outlet pipe which is 50mm in diameter and fitted with a 50mm male camlock (standard rural fire brigade fitting); f. that any underground tank for fire-fighting 	<p>Complies</p> <p>The development will be provided with a minimum dedicated fire-fighting water supply of 5,000 L. The tank will be maintained in a full condition at all times, with make-up water available from the existing bore supply.</p> <p>A 50mm male camlock fitting either directly to the tank or by pipework to allow Rural Fire Brigade Appliances to access the water.</p>

	<p>purposes has an access hole of 200mm to allow a tanker to refill direct from the tank;</p> <p>g. that any above-ground water tank is made of concrete or metal and its stand is protected from bushfire hazard;</p> <p>h. that all above-ground water pipes external to the building are metal, including and up to any taps.</p> <p>Note—Plastic tanks are not to be used.</p>	
<p>Additional performance outcomes and acceptable outcomes for all development in the Biodiversity areas overlay if on a site larger than 2,500m²</p>		
<p>PO8 Development through the siting, design, and construction of buildings, access routes and fire maintenance trails, and ongoing site management:</p> <ol style="list-style-type: none"> a. provides effective separation from sources of bushfire risk; b. responds to the bushfire risk in that location; c. maintains the safety and protection of people and property over time; d. maximises the protection of vegetation in areas of high biodiversity value. <p>Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome that ensures:</p> <ul style="list-style-type: none"> • ongoing site management, such as the bushfire risk to buildings, does not increase beyond the standard to which they have been designed and constructed; • appropriate design and maintenance of the site, and access routes and driveways. 	<p>AO8 Development locates building protection zones as shown on Figure b and Figure c, driveways and access routes and any fire maintenance trails:</p> <ol style="list-style-type: none"> a. outside of the Biodiversity areas overlay; or b. within the existing disturbed, degraded or cleared areas, using natural fire breaks to avoid vegetation clearing and to avoid or otherwise minimise fragmentation or incursions into a habitat area, fauna movement corridor or remnant vegetation. 	<p>NA</p>
<p>Section B—If for assessable development other than ROL</p>		
<p>PO9 Development:</p> <ol style="list-style-type: none"> a. provides for safe and efficient evacuation and emergency services access to the site during a 	<p>AO9.1 Development:</p> <ol style="list-style-type: none"> a. does not increase the number of people living, working on or visiting the site by more than 10%; 	<p>Complies</p> <p>The proposed development involves a material change of use of an existing dwelling to a Holiday House and does not result in a significant increase in the number</p>

<p>bushfire;</p> <p>b. does not concentrate large numbers of people or locate significant worker or resident populations in an area of bushfire hazard;</p> <p>c. avoids locating the following uses in an area of bushfire hazard:</p> <ul style="list-style-type: none"> i. vulnerable uses; ii. difficult to evacuate uses; iii. assembly uses. <p>Note—This includes consideration of appropriate alternative shelter for vulnerable uses, management of health and wellbeing requirements during evacuation, safe site operation, and access and egress arrangements in bushfire events.</p> <p>Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome.</p>	<p>or</p> <p>b. increasing the number of people living, working on or visiting the site, or vulnerable uses, difficult to evacuate uses or assembly uses by more than 10%, implements the recommendations of an approved bushfire management plan, which identifies measures that address the identified bushfire risk relevant to the development.</p> <p>AO9.2 Development provides alternative access routes that meet the road design requirements of items 1—7 in Table 8.2.5.3.C, for the following:</p> <ul style="list-style-type: none"> a. an extension to existing premises which increases the number of people living, working on or visiting the site by more than 10%; b. the introduction of vulnerable, difficult to evacuate or assembly uses. 	<p>of people occupying the site.</p> <p>Safe and efficient evacuation and emergency services access are provided via Midgen Street, which directs egress away from the highest bushfire risk area. The Bushfire Management Plan demonstrates that bushfire risk to occupants can be appropriately managed through access arrangements, vegetation management, and ongoing site management measures.</p>
<p>Additional performance outcomes and acceptable outcomes if involving storage or handling on site of hazardous chemicals in quantities that would be equivalent to or exceed the threshold quantities set out in Table 8.2.5.3.D</p>		
<p>PO10 Development does not cause:</p> <ul style="list-style-type: none"> a. unacceptable risk to people, property and the environment due to the impact of bushfire on the storage or handling on site of hazardous chemicals; b. excessive danger or difficulty to emergency services for emergency response or evacuation. 	<p>AO10 Development for storage or handling of hazardous chemicals:</p> <ul style="list-style-type: none"> a. is not located within the bushfire overlay; or b. complies with an approved bushfire management plan prepared in accordance with the Bushfire planning scheme policy which identifies measures that ensure the development: <ul style="list-style-type: none"> i. mitigates the bushfire risk relevant to the development; ii. does not pose an unacceptable risk to people, public health and safety or risk environmental harm; iii. does not present significant difficulties to 	<p>NA</p> <p>The proposed development does not involve the storage or handling of hazardous chemicals in quantities that meet or exceed the threshold quantities specified in Table 8.2.5.3.D.</p>

	<p>emergency services for emergency response or evacuation.</p> <p>Note—Bushfire management plans and site-based risk assessments are prepared in accordance with the Bushfire planning scheme policy. Guidance on the preparation of a hazard and risk analysis is provided in the Industrial hazard and risk assessment planning scheme policy.</p> <p>Note—Any risk mitigation measures, including construction of underground tanks or fire-protected above-ground tanks or package stores, are in compliance with AS 1940-2004 The storage and handling of flammable and combustible liquids.</p>	
<p>Additional performance outcomes and acceptable outcomes for essential community infrastructure</p>		
<p>PO11 Development for essential community infrastructure is located, designed and sited to:</p> <ol style="list-style-type: none"> a. protect the safety of people during a bushfire; b. not create or increase the exposure of people to an unacceptable risk from a bushfire; c. minimise the risk to vulnerable populations from a bushfire; d. mitigate the impacts on the community and environment from the effects of a bushfire on the development. 	<p>AO11 Development for essential community infrastructure:</p> <ol style="list-style-type: none"> a. is ancillary to and not relied on for the provision of the essential service during a bushfire; or b. implements an approved bushfire management plan prepared in accordance with the Bushfire planning scheme policy which identifies measures that: <ol style="list-style-type: none"> i. ensure the development allows for safe and efficient emergency access and site evacuation during a bushfire; ii. do not pose an unacceptable risk to people on a premises during a bushfire; iii. ensure the development is not at risk of failure during a bushfire which results in health or safety risks or adverse environmental impacts; iv. enable people and property to be defended safely and effectively from a bushfire. 	<p>NA</p> <p>The proposed development does not involve essential community infrastructure</p>
<p>PO12 Development for essential community infrastructure is able to function effectively during and immediately after bushfire events.</p>	<p>AO12 Development for essential community infrastructure:</p> <ol style="list-style-type: none"> a. is ancillary to and not relied upon for the provision of the essential service during a bushfire; or b. containing elements vital to the function of the 	<p>NA</p> <p>The proposed development does not involve essential community infrastructure</p>

	<p>essential service during a bushfire is not located in the Bushfire overlay area; or</p> <p>c. implements an approved bushfire management plan prepared in accordance with the Bushfire planning scheme policy which identifies measures that ensure that:</p> <ul style="list-style-type: none"> i. essential community infrastructure is able to function during bushfire events; ii. access necessary to maintain safety or function of the development is not compromised by a bushfire; iii. mitigation measures are not unduly reliant on human activation to respond to a bushfire; iv. the safe storage of valuable records or items of cultural or historical significance, including storage of public records under the <i>Public Records Act 2002</i>, is able to be maintained during a bushfire event. 	
<p>Additional performance outcomes and acceptable outcomes if for landscaping or a park landscape plan is a requirement for development</p>		
<p>PO13 Development provides landscaping that does not create an unacceptable risk to people or property and provides for ongoing management of risk to the development and people from a bushfire.</p>	<p>AO13 Development is in compliance with a landscaping plan which:</p> <ul style="list-style-type: none"> a. is prepared in compliance with an approved bushfire management plan; b. preserves the requirements of any building protection zone; c. does not increase the exposure of a habitable building not located in a building protection zone to a bushfire hazard. <p>Note—The requirements of a building protection zone are shown in Figure b and Figure c.</p>	<p>NA</p> <p>No landscaping works are proposed as part of the development. However, the Bushfire Management Plan includes management measures for existing landscaping to ensure ongoing bushfire risk is appropriately managed.</p>
<p>PO14 Development for a park is designed so that the park:</p>	<p>AO14 Development provides a park landscape plan that</p>	<p>NA</p> <p>No landscaping works are proposed as part of the</p>

<p>a. is practical to maintain and requires minimal resources to be restored to its designed function and condition after a bushfire;</p> <p>b. provides for safe and efficient site evacuation and efficient emergency services access avoiding potential for entrapment during a bushfire;</p> <p>c. does not place unacceptable bushfire risk on an adjoining or nearby site, people and assets;</p> <p>d. provides efficient access for fire fighting;</p> <p>e. provides ongoing protection from bushfire for major park assets and buildings.</p> <p>Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome.</p>	<p>complies with a bushfire management plan prepared in accordance with the Bushfire planning scheme policy.</p>	<p>development. However, the Bushfire Management Plan includes management measures for existing landscaping to ensure ongoing bushfire risk is appropriately managed.</p>
<p>Section C—If for ROL</p>		
<p>PO15 Development does not materially increase the number of premises exposed to unacceptable risk during bushfire events.</p>	<p>AO15 Development does not materially increase the number of people living or working in the Bushfire overlay area.</p>	<p>NA The proposed development does not involve reconfiguring a lot and does not materially increase the number of premises exposed to bushfire risk.</p>
<p>PO16 Development is designed to:</p> <p>a. mitigate the risk of bushfire hazard to each lot;</p> <p>b. limit the spread of bushfire;</p> <p>c. achieve and maintain sufficient separation distance between development and hazardous vegetation to minimise bushfire hazard to future buildings during a bushfire;</p> <p>d. allow for emergency services access;</p> <p>e. locate buildings within a building protection zone</p> <p>Note—Lot size, location, configuration, dimensions and building measures are balanced to achieve an acceptable level of risk to future occupants. Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome.</p>	<p>AO16 Development requires that lot number, size, shape and layout allow for the siting of future buildings within the lowest hazard locations on the site being located:</p> <p>a. within a building protection zone in accordance with Figure b and Figure c;</p> <p>b. away from ridgelines and hilltop sites in compliance with Figure a;</p> <p>c. on land with a gradient less than 15%;</p> <p>d. preferably on east to south facing slopes and avoiding north to west facing slopes unless the slope is clear of vegetation and is not located in the High hazard buffer area sub-category or Medium hazard buffer area sub-category.</p>	<p>NA The proposed development does not involve reconfiguring a lot.</p>

<p>PO17 Development promotes safe site access, avoids creating a potential entrapment situation and supports accessibility and manoeuvring for fire fighting during bushfires. Note—This includes easements and boundary realignments. Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome.</p>	<p>AO17 Development provides a lot layout which:</p> <ol style="list-style-type: none"> a. provides direct road access and egress for new lots to public roads, rather than the creation of easements; b. in an urban category, avoids creating a new lot less than or equal to 2,500m² which directly adjoins hazardous vegetation; c. in an urban category, locates a future building protection zone to avoid a driveway of longer than 70m from the road frontage to a habitable building; d. in a rural category, provides for an alternative access where the private access roads or driveways are longer than 200m to reach a public road. 	
<p>PO18 Development ensures that the road layout and design provides:</p> <ol style="list-style-type: none"> a. efficient emergency services access to sites and manoeuvring within the subdivision; b. safe and efficient movement of residents, workers and visitors out of the subdivision and away from an approaching bushfire; c. safe and efficient movement of emergency services into the subdivision; d. alternative egress routes considering the most likely bushfire scenarios; e. ongoing availability and maintenance of access and egress routes for the purposes of evacuation and emergency services access. <p>Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome.</p>	<p>AO18.1 Development involving a new road or fire maintenance trail is designed and constructed in compliance with:</p> <ol style="list-style-type: none"> a. Table 8.2.5.3.C; or b. an approved bushfire management plan. <p>AO18.2 Development has a road layout and design which:</p> <ol style="list-style-type: none"> a. provides for alternative access routes to the subdivision, by public roads that meet the requirements in Table 8.2.5.3.C and are able to access the arterial road network; b. excludes cul-de-sacs, except where a perimeter road with a cleared width of 20m isolates the development from hazardous vegetation; c. does not include dead-end roads or if a dead-end road is unavoidable, it is a maximum of 60m long, or 200m where located in the Environmental management zone, Conservation zone, Rural zone, or Rural residential zone, and an alternative 	<p>NA</p> <p>The proposed development does not involve reconfiguring a lot.</p>

	<p>emergency evacuation and egress route away from the most likely source of bushfire risk is provided for lots where multiple road access or exit points are not possible;</p> <p>d. links road within the subdivision to, or provides for future links to roads in adjacent subdivisions.</p> <p>Note—Where staged development occurs or development is in accordance with an approved master plan, a temporary perimeter road may be considered, subject to availability of reticulated water supply.</p>	
<p>PO19 Development involving new premises provides adequate infrastructure to support fire fighting.</p>	<p>AO19.1 Development involving new premises ensures that:</p> <p>a. lots have access to reticulated water supply and water pressure available for fire-fighting requirements with water supply and pressure that accord with the standards specified by the relevant utilities provider; or</p> <p>b. where reticulated water supply is not available for:</p> <p>i. residential lots, there is a minimum water supply available and retained for fire-fighting purposes in compliance with Table 8.2.5.3.B, which may be in the form of a separate tank or a reserve section as part of a main water supply tank;</p> <p>ii. development other than residential lots, onsite water storage is provided which is appropriate to the proposed future use according to the standards specified by the relevant emergency services agency and is not less than 5,000 litres.</p> <p>Note—Water supply for fire-fighting is in addition to water supply for household use. Where a non-reticulated supply of water is required, swimming pools, creeks and dams should not be used as a substitute for a dedicated static supply as these sources of water are not reliable during drought conditions.</p> <p>AO19.2</p>	<p>NA</p> <p>The proposed development does not involve reconfiguring a lot or construction of new premises.</p>

	<p>Development provides fire hydrants in accordance with Central SEQ Distributor-Retailer Authority, Queensland Urban Utilities (incorporating Water Services Association of Australia) standards.</p>	
<p>Section D—If for accepted development subject to compliance with identified requirements (acceptable outcomes only) or assessable development where in Potential impact sub-category</p>		
<p>PO20 Development is designed and constructed to reduce vulnerability to bushfire attack and addresses the bushfire hazard by a bushfire hazard assessment that:</p> <ul style="list-style-type: none"> a. utilises a fit for purpose methodology prepared in accordance with the State Planning Policy — State interest technical manual — Natural hazards, risk and resilience; b. includes the following measures and inputs: <ul style="list-style-type: none"> i. potential fuel loads for vegetation in its mature state from areas subject to revegetation or regrowth vegetation; ii. a published vegetation hazard classification dataset from the relevant fire authority; iii. forest fire danger index of 54 (AEP 5%); iv. potential flame length; v. potential rate of fire spread. c. is undertaken by a person suitably qualified and experienced with technical expertise in the field of bushfire hazard identification and mitigation, including protection of biodiversity values; d. determines the relevant bushfire attack level for that part of the site in which development is proposed. <p>Note—The Bushfire planning scheme policy provides advice about the sources of information to be consulted to determine areas subject to revegetation or regrowth vegetation and the hazard classification of that vegetation in its mature state.</p>	<p>AO20.1 Development is designed and sited in compliance with an approved bushfire management plan relevant to the full nature of the uses, which identifies the level of future bushfire hazard and the location of future hazardous vegetation affecting the development. Note—The Bushfire planning scheme policy provides advice about the sources of information to be consulted to determine areas subject to revegetation or regrowth vegetation and the hazard classification of that vegetation in its mature state.</p> <p>AO20.2 Development other than ROL determines bushfire attack level using:</p> <ul style="list-style-type: none"> a. potential fuel loads for vegetation in its mature state from areas subject to revegetation or regrowth vegetation; b. forest fire danger index of 54 (AEP 5%). <p>Note—In the absence of an approved rehabilitation and revegetation plan refer to Figure d—Regional ecosystem vegetation communities. Note—Revegetation and regrowth vegetation may be planned within the Potential impact sub-category on both private and public lands. The level of bushfire hazard posed by any areas subject to revegetation or regrowth vegetation is to be assessed as if that area had reached its mature state. A 'low' bushfire attack level must not be assumed in these locations even where the area is non-vegetated or vegetation is considered low threat in accordance with AS 3959-2009 Construction of buildings in bushfire-prone areas. The Bushfire planning scheme policy provides advice about the sources of information to be consulted to determine areas subject to revegetation</p>	<p>Complies</p> <p>A site-specific bushfire hazard assessment has been undertaken in accordance with the State Planning Policy and the Bushfire Planning Scheme Policy. The assessment applies a fit-for-purpose methodology and considers potential fuel loads in their mature state, published vegetation hazard classification data, site slope, separation distance, and fire behaviour characteristics.</p> <p>In accordance with guidance provided by the Queensland Fire Department Bushfire Resilient Communities Mapping interface, a forest fire danger index (FFDI) of 53, representing a 5% annual exceedance probability, is shown for the site. However, in accordance with Brisbane City Council requirements, an FFDI of 54 has been adopted for the Bushfire Attack Level calculations. The assessment has been prepared by a suitably qualified and experienced bushfire management consultant and determines the relevant Bushfire Attack Level for the proposed development footprint. The outcomes demonstrate that bushfire risk to the development can be appropriately managed through the mitigation measures identified in the Bushfire Management Plan.</p>

	or regrowth vegetation and the hazard classification of that vegetation in its mature state.	
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Table 8.2.5.3.B—Dedicated water supply requirements for residential lots without access to reticulated water supply

Development type	Water requirement
Lot less than 1,000m ²	5,000L per lot
Residential lot between 1,000m ² and 9,999m ²	10,000L per lot
Residential lot greater than 1ha	20,000L per lot
Multiple dwelling	5,000L per unit up to a maximum of 20,000L

Table 8.2.5.3.C—Road design requirements for emergency vehicle access

Item	Requirements	Public road	Private access roads or driveways	Fire maintenance trails
1	Horizontal clearance	6m total: minimum carriage way width of 4m with additional 1m wide strip on each side (clear of bushes and long grass) Note—Roads should provide sufficient width to allow fire-fighting vehicle crews to work around the vehicle with fire-fighting equipment.	A minimum formed width of 4m. Note—Gates must also provide for this clearance.	A minimum clearance width of 6m. A minimum formed width of 4m.
2	Vertical clearance	Minimum vertical clearance of 4m to any overhanging obstructions including tree branches.	Minimum vertical clearance of 4m to any overhanging obstructions including tree branches. 5m clearance to all powerlines	
3	Vegetation clearing	Maintained cleared vegetation 10m on either side of centre-line	Maintained cleared vegetation with minimum 6m cleared width	
4	Maximum grade	Maximum gradient of 12.5%	A maximum gradient of 12.5% where exceeding a distance of 70m from the road	A maximum gradient of 12.5% with adequate drainage to prevent soil erosion and minimise ongoing trail maintenance

5	Cross fall	Cross fall does not exceed 10 degrees	—	—
6	Surface rating	Minimum 15t rated surface for urban appliances, which do not operate on unsealed roads or trails; Minimum 6.5t rating for rural fire-fighting appliances.		
7	Pavement type	All weather		
8	Turning	For both public and private roads and fire maintenance trails: 6m inner radius 12m outer radius		
9	Access, passing and reversing	Reversing bays using the access to properties to reverse fire tankers, which are 6m wide and 8m deep to any gates, meeting above turning requirements; and/or A passing bay every 200m, 20m long by 3m wide, making a minimum trafficable width of 7m at the passing bay. Note—Some short constrictions in the access may be accepted where they are not less than the minimum 3.5m and extend for no more than 30m and where obstruction cannot be reasonably avoided or removed.	Fire maintenance trails provide areas for vehicles to pass or turn at intervals of not more than 400m with a maximum grade of 5%. Fire maintenance trails have vehicular access at each end. Fire maintenance trails are either located on public land or within an access easement that is granted in favour of Brisbane City Council and Queensland Fire and Rescue Service.	

Note—Urban appliances do not operate on unsealed roads or trails. Urban appliances require 15 tonne rated surfaces. Rural appliances are typically 6.5t Gross Vehicle Mass (GVM)(4x4).

Table 8.2.5.3.D—Threshold quantities for hazardous chemicals

Item	Description of hazardous chemical		Threshold quantity
1	Flammable gases	Category 1	5,000L
2	Gases under pressure	With acute toxicity, categories 1, 2, 3 or 4	500L
3		With skin corrosion categories 1A, 1B or 1C	500L
4		Aerosols	10,000L
5		Not stated elsewhere in this table	10,000L
6	Flammable liquids	Category 1	500L
7		Category 2	2,500L

8		Category 3	10,000L
9		Any combination of chemicals from items 6 to 8 where none of the items exceeds the threshold quantities on their own	10,000L
10		Category 4	100,000L
11	Self-reactive substances	Type A	50kg or 50L
12		Type B	500kg or 500L
13		Type C to F	2,500kg or 2,500L
14	Flammable solids	Category 1	2,500kg
15		Category 2	10,000kg
16		Any combination of chemicals from items 12 to 15 where none of the items exceeds the threshold quantities on their own	10,000kg or 10,000L
17	Pyrophoric liquids and pyrophoric solids	Category 1	500kg or 500L
18	Self-heating substances and mixtures	Category 1	2,500kg or 2,500L
19		Category 2	10,000kg or 10,000L
20		Any combination of chemicals from items 17 to 19 where none of the items exceeds the threshold quantities on their own	10,000kg or 10,000L
21	Substances which in contact with water emit flammable gas	Category 1	500kg or 500L
22		Category 2	2,500kg or 2,500L
23		Category 3	10,000kg or 10,000L
24		Any combination of chemicals from items 21 to 23 where none of the items exceeds the threshold quantities on their own	10,000kg or 10,000L
25	Oxidising liquids and oxidising solids	Category 1	500kg or 500L

26		Category 2	2,500kg or 2,500L
27		Category 3	10,000kg or 10,000L
28		Any combination of chemicals from items 25 to 27 where none of the items exceeds the threshold quantities on their own	10,000kg or 10,000L
29	Organic peroxides	Type A	50kg or 50L
30		Type B	500kg or 500L
31		Type C to F	2,500kg or 2,500L
32		Any combination of chemicals from items 30 and 31 where none of the items exceeds the threshold quantities on their own	10,000kg or 10,000L
33	Acute toxicity	Category 1	500kg or 500L
34		Category 2	2,500kg or 2,500L
35		Category 3	10,000kg or 10,000L
36		Any combination of chemicals from items 33 to 35 where none of the items exceeds the threshold quantities on their own	10,000kg or 10,000L
37	Skin corrosion	Category 1A	500kg or 500L
38		Category 1B	2,500kg or 2,500L
39		Category 1C	10,000kg or 10,000L
40	Corrosive to metals	Category 1	10,000kg or 10,000L
41		Any combination of chemicals from items 37 to 40 where none of the items exceeds the threshold quantities on their own	10,000kg or 10,000L

Notes—

- In item 2, gases under pressure with acute toxicity, category 4, only applies up to a LC50 of 5000ppmv. This is equivalent to dangerous goods of Division 2.3 as defined in the Australian code for the transport of dangerous goods by road and rail.
- Item 4 includes flammable aerosols.
- If a flammable liquid category 4 is used, handled or stored in the same spill compound as 1 or more flammable liquids of categories 1, 2 or 3, the total quantity of flammable liquids categories 1, 2 or 3 must be determined as if the flammable liquid category 4 had the same classification as the flammable liquid in the spill compound with the lowest flash point. Example: For placarding and manifest purposes, a spill

compound containing 1000L of flammable liquid category 1 and 1000L of flammable liquid category 4 is considered to contain 2000L of flammable liquid category.

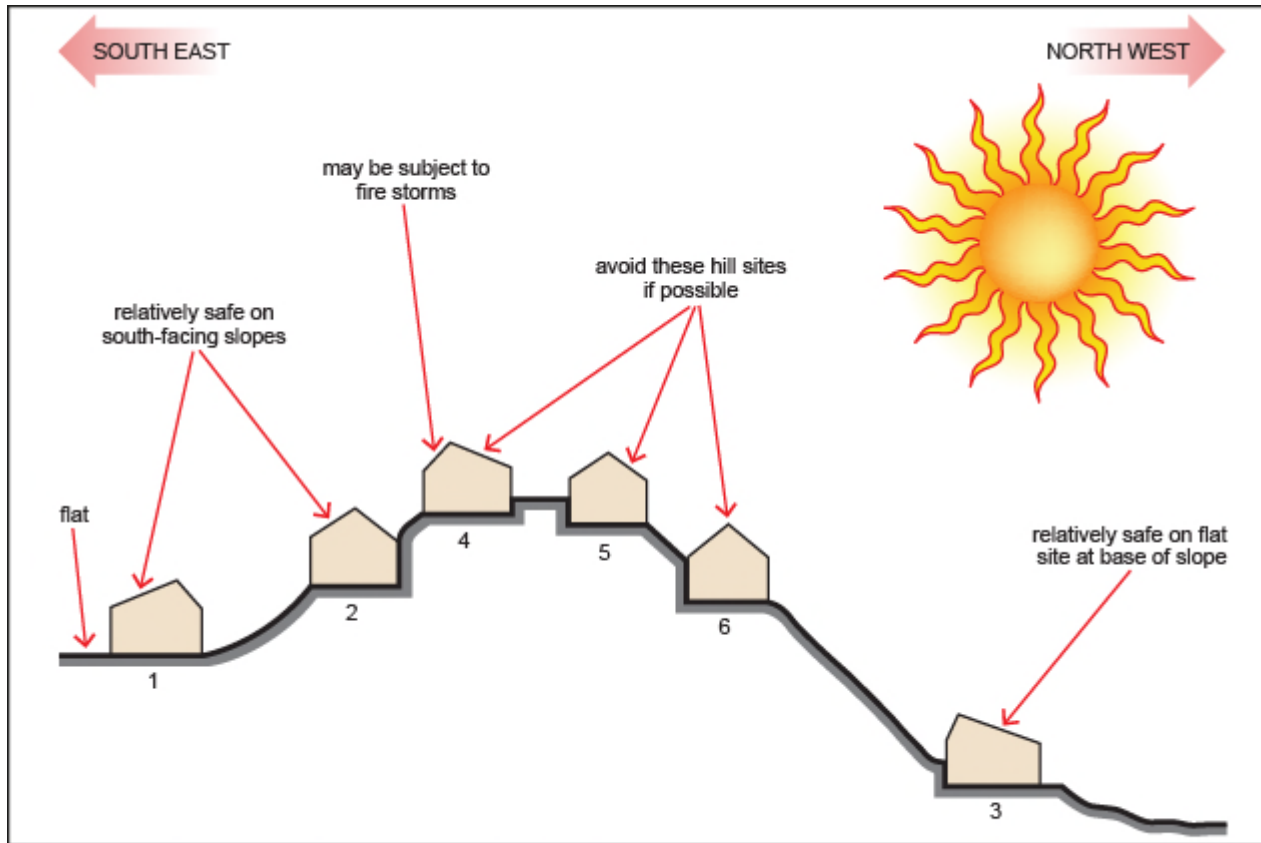


Figure a—Preferred building location to minimise bushfire risk intermediate

View the high resolution of Figure a—Preferred building location to minimise bushfire risk intermediate

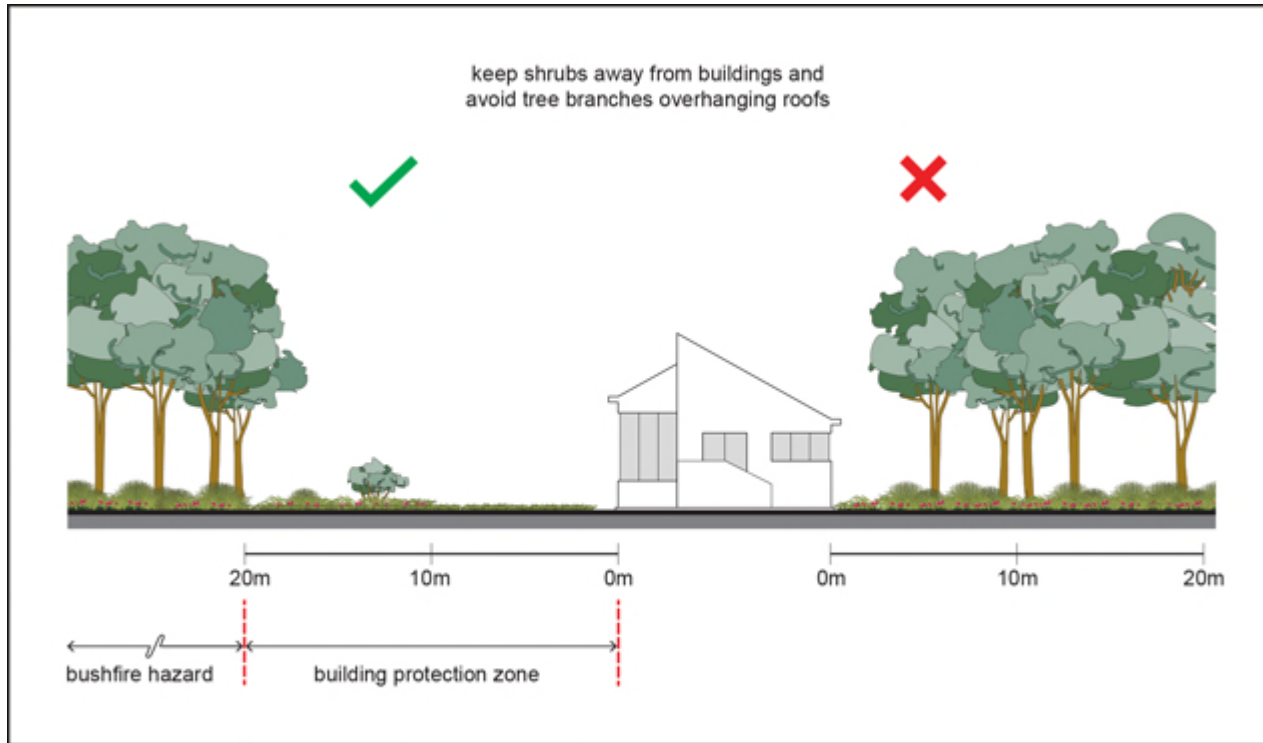


Figure b—Building protection zones

View the high resolution of Figure b—Building protection zones

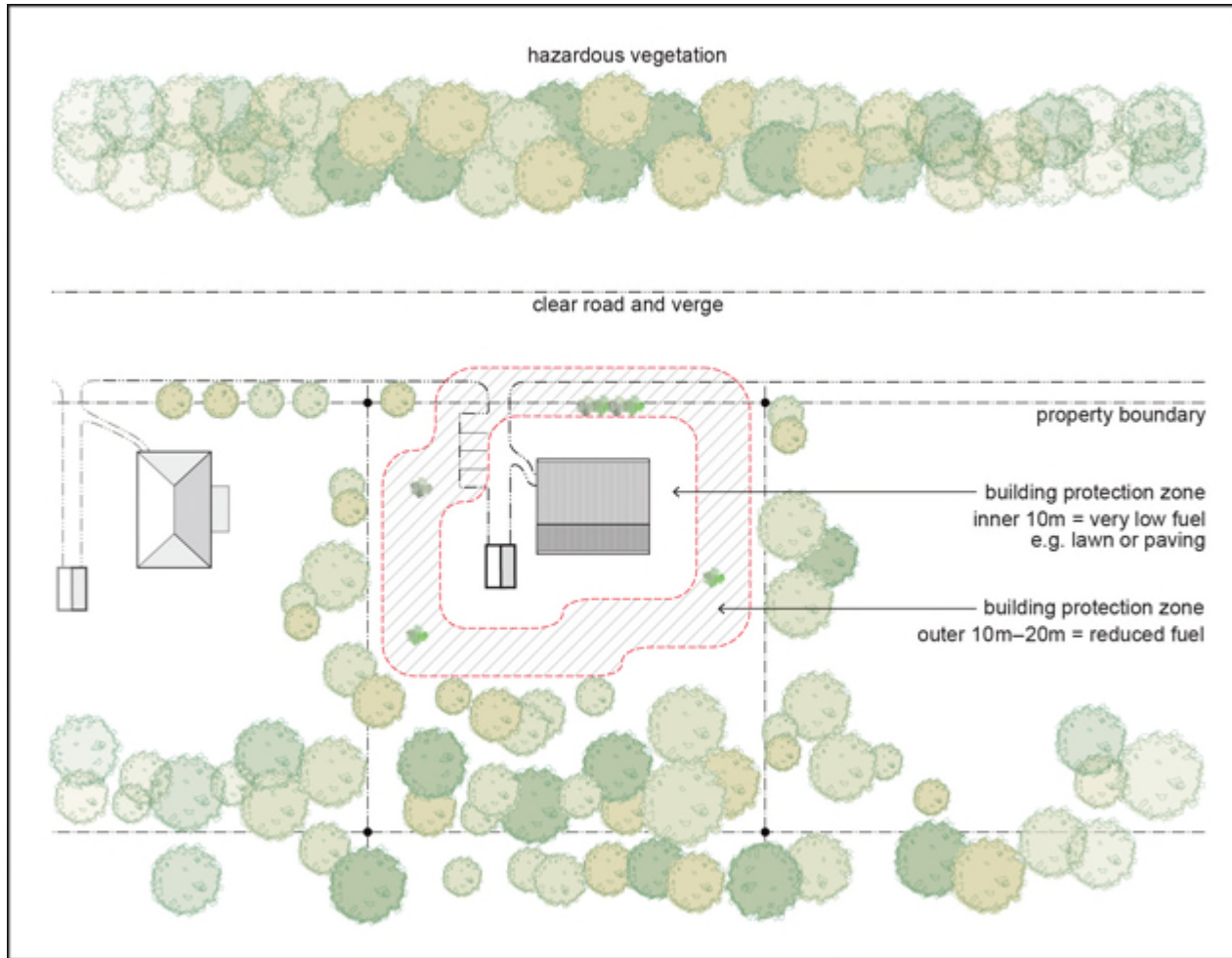


Figure c—Requirements for a building protection zone

View the high resolution of Figure c—Requirements for a building protection zone

Note—Building Protection Zone (minimum 20m):

The building protection zone may contain roads, bushfire management trails, cleared road verges, and on a site less than or equal to 2,500m² the building protection zone on a neighbouring site where the land use is compatible. The building protection zone includes all buildings and ancillary structures. Trees should be at least their mature canopy height away from buildings and not overhang the roof.

Inner 10m—Very low fuel area:

The inner 10m of the building protection zone directly adjacent to any building or structure is kept free of litter and may be paved or concreted, gravel or lawn. This zone prevents continuity of fuel such as shrubs, leaf litter build up, extending to the building. Trees are retained or planted as individual specimens and are a distance equal to their mature canopy height away from buildings. Trees do not overhang buildings.

Outer 10m—Reduced fuel area:

The outer 10m of the building protection zone may contain shrubs where not under trees, and trees may be retained or planted where spaced to avoid a continuous canopy across or into a site. This area is designed to reduce bushfire intensity, shield buildings from radiant heat, and prevent flames transferring from ground fuels to the canopy of trees. Trees are retained or planted sparsely or in small clumps to avoid providing a continuous canopy towards the building. Shrubs are not planted beneath trees as these act as a 'fuel ladder' to the tree canopy. Trees maintain a minimum of a distance equal to their mature canopy height away from buildings, and do not overhang buildings.

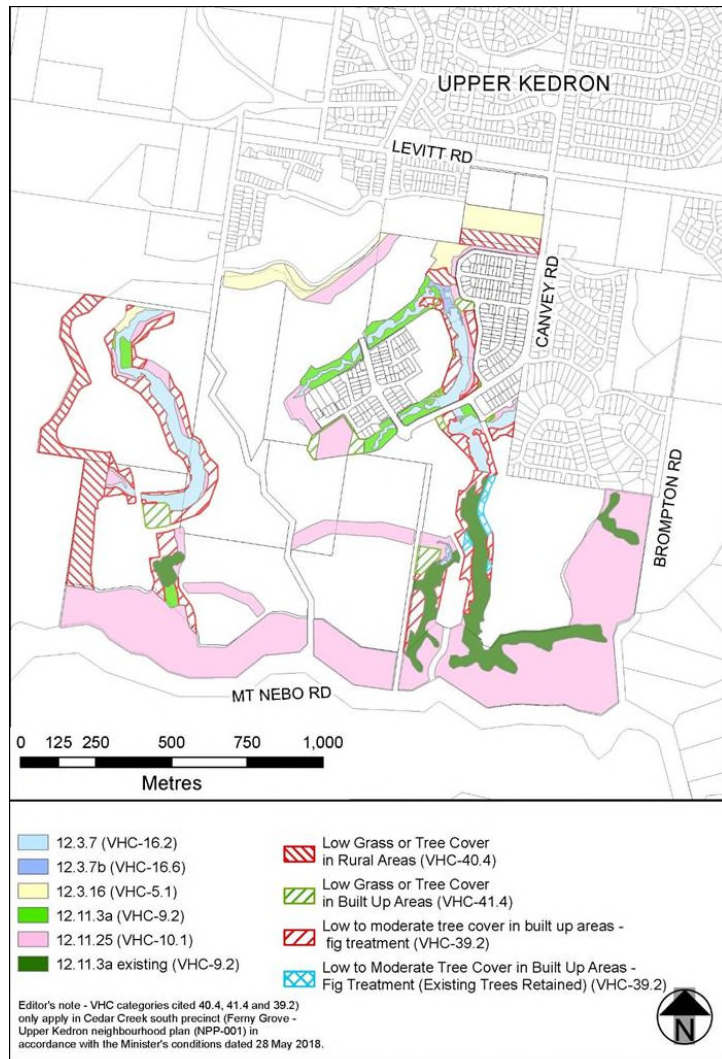


Figure d—Regional ecosystem vegetation communities

View the high resolution of Figure d—Regional ecosystem vegetation communities