



THE CONSULTANCY BUREAU

**OVERALL
BUSHFIRE MANAGEMENT PLAN
“REDLAND SHORELINE DEVELOPMENT”
FOR
THE FOX AND BELL GROUP
AND FITENI HOMES**

REDLAND CITY COUNCIL
Approved Plan

06/03/2019

Application No. MCU18/0220

See Decision Notice for conditions of approval

by



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Executive Summary

The development of a new village on the shores of Southern Moreton Bay requires the assessment of the potential for bushfire as one of the planning considerations.

This proposed "Shoreline" development enjoys a maritime climate influence and most of the proposed development area is subject to some form of existing development.

Vegetation clearing, water storage, infrastructure and residences are all existing features of the site.

The site is dissected by the north/south Serpentine Creek Road. The eastern section is further sub-divided by Scenic Road. The north-eastern section has small remnants of vegetation. These will require some separation from development but are not more than a low level risk from unplanned fires.

The south-eastern section has medium to high risk vegetation to the west and south-east with existing road separations.

The proposed open space link joining existing remnant through from west to east will require access and separations from any development. Again, this section is not a high risk area but the potential for some unplanned fires causing ember attack does exist and will require attention during the planning stage.

The entire eastern area can be designed with perimeter roading, manicured separations and the use of walking tracks, sporting and recreational facilities to ensure the safety of people and property.

The section west of Serpentine Creek Road, while a fully cleared area and of low risk itself, has medium to high risk lands to the west and south.

These retained vegetation areas are extensive and are sited such that any unplanned fire from the north and north-west, could threaten this part of the development. These vegetated areas are in long term conservation tenure and to date there is little evidence of active fire management on these areas.



The development of this area will require a strong set of actions to ensure the inevitable unplanned fire from the west does not threaten people or property.

The actions will include:-

- The development of the 20 metre gazetted road for access and a suitable separation zone. This will require the clearing of the entire 20 metres with special attention to fire dangerous trees.
- The provision of water points along this interface for fire fighting purposes.
- Recognition that habitable buildings within 100 metres of the adjoining hazard will require Building Code assessment under AS3959-2009 at residence construction stage.
- The connecting open space corridor must be designed and managed recognising that this area will act as a “wick” for the hazardous vegetation to the west and south.
- The owners and management of the adjoining lands, while out of the control of this development, must recognise the risk that unplanned fires from these lands will threaten the development. This would be best dealt with by a Management Plan on these lands that includes periodic ecologically designed hazard reduction burns.
- The need for an awareness program for all residences along this risk interface.

Overall, bushfire will not be a limiting factor to this development. The mitigating actions in this Bushfire Management Plan must be designed into the development and followed through at the construction phase.

Management of the fuel in the hazardous adjoining vegetation should also be pursued with the landholders.



1. Introduction

A large, mostly cleared aggregation of land parcels totalling some 303ha is proposed for a discrete village development (see Aerial Overview and Master Plan). This includes a range of residential styles, open space, fauna corridors and public and private utilities.

The site has Moreton Bay as its eastern boundary with retained vegetation around the west, south and some south-eastern perimeters.

While the general area enjoys a maritime influence, sections of the native vegetation have the capacity to carry a threatening unplanned bushfire from time to time.

This Plan assesses these hazards and risks and provides direction via mitigating actions to ensure the safety of all people and property on the subject site.



2. Description of the Site

2.1 General

The Aerial Photograph shows the largely developed nature of the site including extensive grazing, plant nurseries, poultry farms and small cropping. These pursuits range from very active to abandoned and most of the current lands are seriously under-utilised.

The site is divided into eastern and western precincts by Serpentine Creek Road. Scenic Road divides the eastern precinct into northern and southern units.

2.2 Topography

The site and surrounds are gently undulating with a ridge line running from the north-west to the south-east dividing water flows from the west and those to the east into Moreton Bay (see Aerial Photograph). Many of these drainage lines have dams constructed for various rural pursuits. Several are large and are topographical features in their own right.

It is proposed for two corridors (minimum of 100m width) to traverse east to west. These are fauna corridors and not catchment corridors.

2.3 Vegetation and Fauna

The Regional Ecosystem Map shows only one internal unit of vegetation of Ecosystem 12.3.6. There is also a band of native vegetation along the water frontage. This is largely mangroves and other mixtures not normally associated with bushfire considerations.

The Koala Habitat Values Map shows some Koala Bushland fringing the RE 12.3.6. The Aerial Photograph and site inspection confirms this band of vegetation (some regrowth) has the potential to carry an unplanned fire in a dry time.

There is also a small unit of regrowth in the south-eastern precinct that could carry an unplanned fire.

The current position of vegetation will change with the inclusion of rehabilitation and enhancement of the proposed open space corridors (see Master Plan).



2.4 Surrounding Lands

2.4.1 East

Moreton Bay is fringed by vegetation that will be protected and enhanced as per the Master Plan.

2.4.2 North

This property, while partly vegetated, is largely managed with understorey slashing etc. with a mapped section of open dry sclerophyll forest (see Regional Ecosystem Map).

2.4.3 West, South and South-East

These lands are heavily vegetated with mature and regrowth areas. Most, upon inspection, are unmanaged from a bushfire perspective. It appears that the Regional Ecosystem mapping in the bulk of this area may be inaccurate. While this does not affect the bushfire hazard assessment, these vegetation associations should be correctly mapped.

The Koala Habitat Map also confirms they are rated as High Value Bushland which places their tenure as long term vegetation retention.

There is an existing residential development in the eastern and southern sections off Scenic Road and while this has normal landscaping and garden plantings, this is a bushfire safe area.



3. Potential Bushfire Hazard Assessment

3.1 General

In December 2013, a new State Planning Policy (SPP) was released, however this SPP is incomplete when it comes to determining the potential bushfire hazard for a site. The Department of State Development, Infrastructure and Planning have advised the Rural Fires Association of Queensland that the old SPP 1/03 should be used for this purpose until more appropriate hazard calculation methodology is produced. Thus SPP 1/03 provides a suitable methodology for assessing sites for their potential Bushfire Hazard status in this case. This system uses slope, aspect and vegetation type to rate any area (see Appendix 1).

Redlands Planning Scheme – Version 3 provides a Bushfire Hazard Overlay Map which shows three units of medium bushfire hazard and the remainder of the site as low hazard.

3.2 Subject Site

An onsite assessment confirmed that all the cleared pasture, farming and horticultural areas on the site have a low hazard status.

The three units of medium hazard on the overlay are also correctly rated with the most northern area of a much lower risk because of its size, position and proximity to the water.

Overall, the subject site has little bushfire hazard issues at present. The proposed open space links do provide some additional potential hazard as it is largely proposed to develop these back to pre-existing Regional Ecosystem status.

The three open space areas that basically dead-end at Serpentine Creek Road are not expected to rise above low hazard status but some separation may be prudent.

The two areas that connect from east to west will be of medium hazard status and they will require some mitigating actions to render them safe.



The three small areas on parts of the southern boundary and the two on the northern boundary (of the western area) have some potential from adjoining hazardous vegetation and this will require some design considerations.

3.3 Surrounding Areas

The Council's Overlay Map shows the adjoining vegetation to the north and west and along the south-east side as medium hazard status. Site inspection confirms the medium status of all these areas. Some of these areas have the potential to carry high intensity fires if fuel loads are not managed, especially on the extensive units of vegetation to the west.

3.3.1 West of Serpentine Creek Road

This unit has extensive regrowth forest to the south with high fuel loads (20 tonnes/ha) (see Photographs 1 & 2). This area has not been burnt for many years and would carry a high intensity fire.

There is a 20 metre gazetted road along this boundary and along the western edge. The vegetation along the west is more open and the fuel loads are lower; this area appears to have a more recent fire regime. It is still in the high range of medium hazard and without ongoing regular fire management will always pose a risk to the adjoining development.

The strip to the north is of much lower hazard status but requires recognition for the potential for a nuisance fire.

This external large expanse of hazardous vegetation will be provided with an internal wick by the rehabilitation of the gully system through to Serpentine Creek Road. It has to be assumed that these areas will burn infrequently and the severity of this fire will depend largely on the management of these lands over time i.e. if fuel loads are allowed to build up to where some parts are now, fires will be an issue for the proposed development.



3.3.2 East of Serpentine Creek Road

- **North of Scenic Road**

There will be a need to determine the exact purpose and use of the three dead end open space units. It is not envisaged that these will be any threat to the proposed development. There may be a need to recognise that these gully enhancements could have some hazard potential depending on extent of replantings, species used and proposed adjoining development style. The existing external vegetation to attach to these units is largely fire proof, narrow and will have separation in the form of walkways etc.

- **South of Scenic Road**

There is vegetation along the western, southern and half of the eastern boundaries.

The western area has been identified as in the high range medium hazard category and while there is a road separation, any construction along this edge will be subject to Australian Standard 3959-2009 standards.

The southern boundary is a mixture of medium hazard and low hazard with two small gully retention units. It will be necessary to recognise these constraints.

The vegetation to the east is separated by a road and will attract similar requirements to the western section.

Overall, the bushfire hazard status of the subject site is low but a large external section in the west and south has the potential to impact on the proposed development.



4. Bushfire Risk Analysis

The bushfire hazard status of any area is a measure of the physical attributes of the site. The risk of these hazards starting and developing into a threatening bushfire are about sources of ignition, prevailing climate, management of hazards etc.

The risk of a fire starting and developing on the subject sites is low to very low and restricted to small isolated units of retained vegetation, regrowth, and revegetated areas.

Externally, the risk from a large area of vegetation to the west and south (see Hazard Map) is medium to high. This is because our bad bushfire weather is often associated with NW to W winds which, when blowing across a large area containing an unbroken mass of fuel, gives the fire scope to intensify and threaten the entire proposed development with an ember attack. This ember attack could expand to direct fire front involvement in areas directly adjoining this vegetation.

This assessment applies to the western and southern boundaries of the west of the Serpentine Creek Road unit.

Overall, there is a low risk east of Serpentine Creek Road and a medium to high risk west of Serpentine Creek Road. The proposed development, including the linear units of open space protruding from these high risk areas, has the potential to introduce a risk into the residential areas.



5. Mitigating Actions

5.1 Policy and Principles

Redland City Council Planning Scheme provides a Bushfire Hazard Purpose Statement which confirms the need to ensure uses and development are sited, designed and managed to minimise the risk of bushfire to people and property.

Section 1.6 (d) lists the aspects to be addressed to recommend actions for any proposed development (Appendix 2).

They include:-

- Roading and lot layout.
- Fire trails and fire breaks.
- Fuel reduction areas and buffers.
- Water supply.
- Environmental considerations and landscaping.
- Education and awareness programs.

For a proposed development of the subject area's size and nature, the following principles should apply:-

5.1.1 Roading (Access and Separation)

- In all areas adjoining medium hazard vegetation, a perimeter road with a total of 20m fuel reduction area. It will be essential to ensure this road is connected to the trafficable tracks that exist through the expanse of adjoining forest.
- Where the hazardous adjoining vegetation is a small area, narrow, riparian and generally a lower risk situation, a 5m cleared zone with a compacted 3m trail will be provided. This will be strengthened by an appropriate slashed zone either side of the trail.
- All roads and fire trails adjoining hazardous vegetation are to have access at either end i.e. no dead ends or cul-de-sacs.
- Where cul-de-sac designs are used internally, they should not exceed 200m in length when they are within 50m of medium hazard areas.



5.1.2 Fuel Reduction Areas and Buffers

These fuel reduction zones provide separation from adjoining hazardous vegetation. They also provide low fuel levels to allow fire fighters the capacity to effect suppression activities. Table 1, page 14, of the Bushfire Hazard Overlay provides the acceptable requirements.

Some tree retention is allowed in these zones but these retained trees **cannot** be fire dangerous species i.e. fibrous barked species.

5.1.3 Water Supply

- All habitable buildings will be connected to a reticulated water supply with a minimum pressure and flow of 10 litres/sec at 200kpa.
- Provision of water points will be required at 400m intervals on external roads or firebreaks adjoining major areas of medium hazard. If reticulated water is not available, tanks, dams, swimming pools etc. should be detailed and marked on maps in the Bushfire Management Plan.

5.1.4 Environmental and Landscaping

- Fuel reduction areas will maximise the use of existing roads, tracks and natural breaks (e.g. fireproof riparian vegetation).
- Use of walking and cycling tracks as firebreaks along with landscaping, parks, stormwater retention and strategically located sporting fields to strengthen access and separation from hazardous vegetation.

5.1.5 Community Awareness

All residents within 100m of medium hazard areas should be provided with copies of the Bushfire Management Plan and other necessary requirements e.g. AS3959-2009.



5.2 Specific Requirements for Shoreline Development

5.2.1 Roading

Western Precinct

- The entire precinct needs an external 20m separation including a constructed road with access to Serpentine Creek Road at each end (as per Type 1 Fuel Reduction Area (FRA), page 8 of the Code). This would be best located on the existing gazetted road where available and on best location along the northern boundary (some reductions to Type 2 FRA can be considered against low hazard sections).
- The small retained area in the south-east could be incorporated in the vegetation to the south by locating the road on the edge of this retained zone. This should apply to the two small retention areas to the north.
- The open space connecting the western vegetation to the east will require access and separation as per Type 2 FRA, page 8 of the Code i.e. 10m slashed with access and 5m of fuel managed zone.
- For other small areas of open space, a Type 5 FRA will suffice.

Eastern Precinct

- The southern boundary including retained wetland areas should have a minimum of Type 2 FRA separation including a road.
- The two proposed open space corridors that join to the west should also have Type 2 FRA separation with access. The access could be a road or walking/cycling track which is wide enough for a 4x4 rural fire fighting appliance in cases of emergency.
- The remainder of the open space including the entire foreshore zone will need a Type 4 separation and would benefit from some access along each side where possible.
- The foreshore zone should receive treatment similar to the existing sub-division to the north (see Photographs 3, 4 & 5 and Figure 1). This is not a bushfire problem except in a couple of locations where forest species exist.
- The section in the south-east corner adjoining hazardous vegetation enjoys a road separation and provided this is a total of 20m, no further action is needed.



- For other small areas of open space, a Type 5 FRA will suffice.
- Any fire trails or other use access to be incorporated into the bushfire access system must have access at each end. These can be restricted access but available for emergency use (e.g. locked gates or bollards).

The location of the recommended FRA Types is illustrated in Figure 2.

5.2.2 Fuel Reduction Areas and Buffers

These zones must be slashed grass and not in private ownership i.e. they must form part of the managed open space and roading network.

Maximum use should be made of existing cleared areas for recreational uses to provide buffers from hazards.

Retained mature trees or replacement plantings must be of low flammability species i.e. non fibrous bark species will not increase the potential for ember attack. This is especially important along the western and southern interface where the risk is the highest.

5.2.3 Water Supply

The entire area will have reticulated water. Provision of water points with fittings compatible with the local Rural Fire Brigade should be located as per the draft Master Plan (i.e. 7 in total).

5.2.4 Vegetation Management and Environmental Considerations

The retained open space and proposed enhanced open space corridors should have management that minimises the bushfire risk to adjoining areas of development. This should include planting of low flammability plant species and include fuel load management in the design e.g. the riparian strip could be aimed to achieve canopy closure with low ground fuel loads.

These significant areas of vegetation to the west and south on lands in private ownership and reserves need a Fire Management Plan developed that desirably includes a long term recognition of fuel reduction across these areas.



They currently have poor access and little or no management. Fuel loads are already very high and it is inevitable that a high intensity wildfire will have the potential to cause enormous biodiversity damage including fauna losses.

The use of aerial ignition techniques should not be ruled out, but with proper planning these areas can be burnt on a rotational basis to create a mosaic of recovery times with little or no harm to the ecological biodiversity.

5.2.5 Construction Standards under AS3959-2009

The best possible planning outcome should be implemented during the development stage to minimise the impact of any unplanned fires. However, it is inevitable with such a large expanse of hazardous vegetation to the north-west, west and south that some threat will always be present.

All proposed habitable structures within 100m of these assessable sections of vegetation will require a Bushfire Attack Level (BAL) assessment to be conducted at the residence construction stage. This will provide the owner, builder and certifier with the appropriate construction standard required to deal with any assessed bushfire threat.



6. Conclusion

The subject site enjoys a maritime climatic influence and the area east of Serpentine Creek Road has a low risk of bushfire impact. Simple precautions providing access, separation and isolation of vegetated areas will provide a safe outcome.

The area west of Serpentine Creek Road has the potential for long term bushfire threat from the outside vegetation.

It is essential that high quality external access, fuel separation and water supply, combined with long term management of this external hazard, be implemented to provide a safe environment for people and property.

All this can be achieved, but it is recognised that the management of the adjoining lands is out of the control of the developer and future residents, therefore planning must anticipate the worst case scenario unless the proposed management can be negotiated.

It will be necessary to provide Stage Plans as the design of the development proceeds.

Submitted for your consideration and adaptation for particular units of development.



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Senior Associate

for L.S. Hawkes, R.E. Pegg & B. Trembath

CVs attached



Photograph No. 1



Photograph No. 2

Photograph No. 3



Photograph No. 4

Photograph No. 5





1:10000 @ A3

0 250 500 750 1000m



Unit 1, 38 Wyandra street, Newstead Q 4006
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info@lat.com.au
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Aerial Photograph

Redlands Planning Scheme - Version 3
BUSHFIRE HAZARD OVERLAY
 SHEET 1/2

- LEGEND**
- High Bushfire Hazard
 - Medium Bushfire Hazard
 - Cadastral Properties
 - Outline of RCC
 - Local Authorities Outside RCC

Notation

Land identified within the 'High Bushfire Hazard' and 'Southern Hawkes Bay Islands Bushfire Hazard' is designated as a bushfire prone area and the medium category bushfire protection provisions of the Building Code Australia apply for the purposes of Section 55 of the Standard Building Regulations 1993.

Produced by
 Land Use Planning
 REDLAND CITY COUNCIL

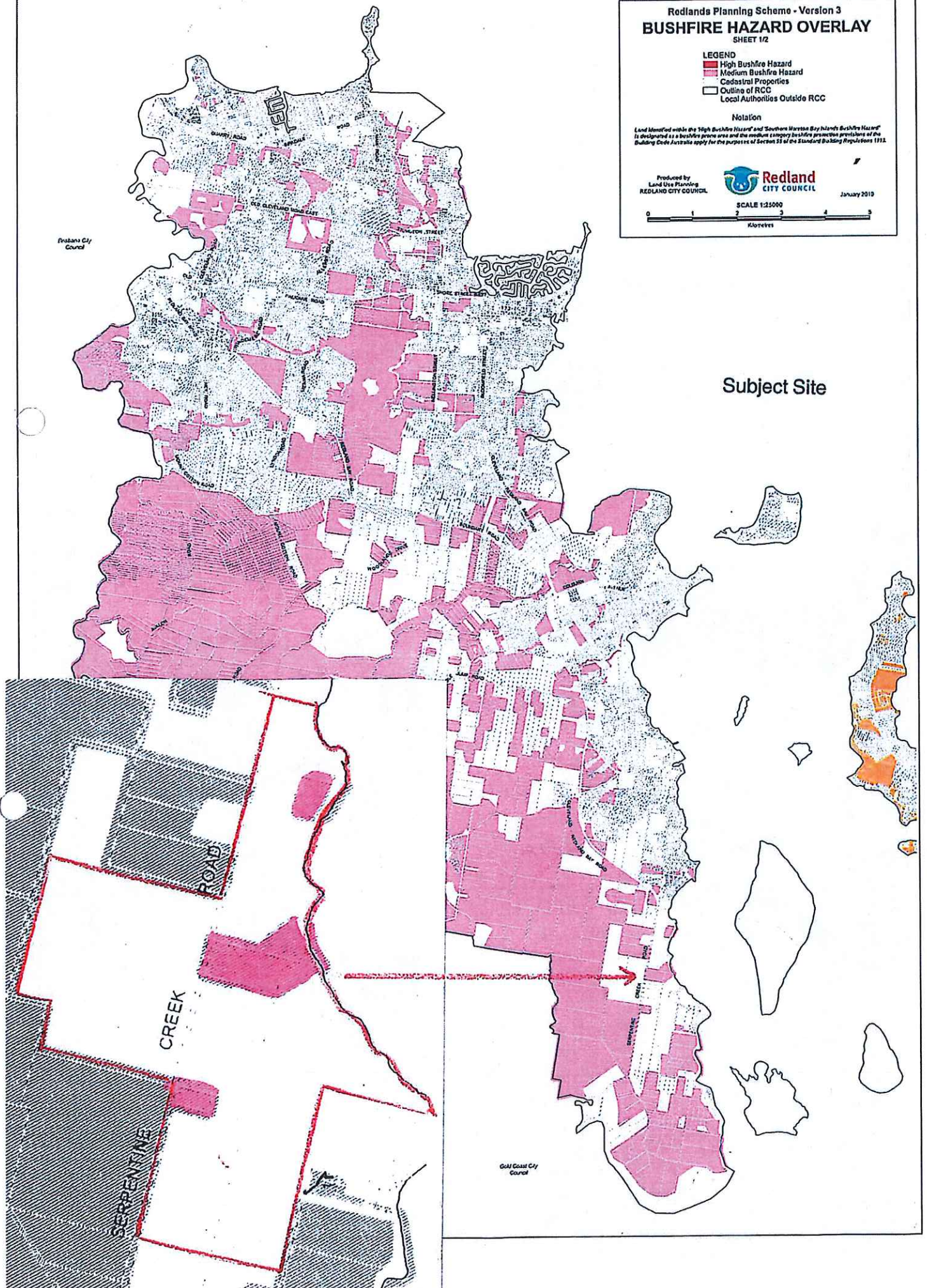


January 2019

SCALE 1:25000



Subject Site



**South East Queensland
Koala Conservation.
State Planning Regulatory
Provisions.
Assessable Development
Area Koala Habitat Values.**

Map Legend

- Priority koala assessable development area (PKADA)
- koala assessable development area (KADA)
- Koala Habitat Value Category
- Bushland Habitat
- High Value Bushland
- Medium Value Bushland
- Low Value Bushland
- Suitable for Rehabilitation
- High Value Rehabilitation
- Medium Value Rehabilitation
- Low Value Rehabilitation
- Other Areas of Value
- High Value Other
- Medium Value Other
- Low Value Other
- Generally not suitable
- Water
- Urban Footprint
- Cadastre (January 2010)
- Major Roads
- SPRP Does not apply

map SPRP_KHV 25
May 31, 2010.
(SEQKPA V1.2)
Map index

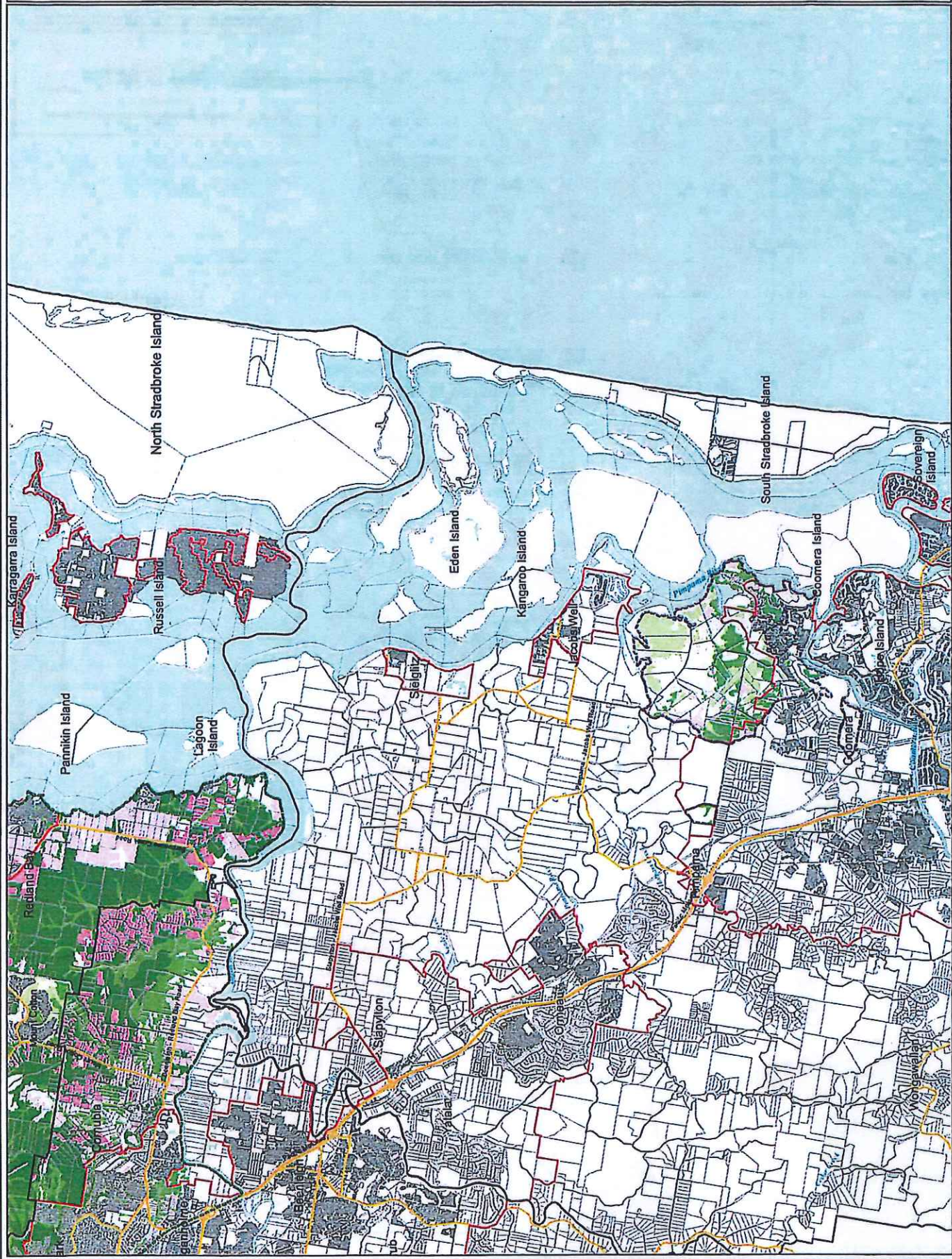


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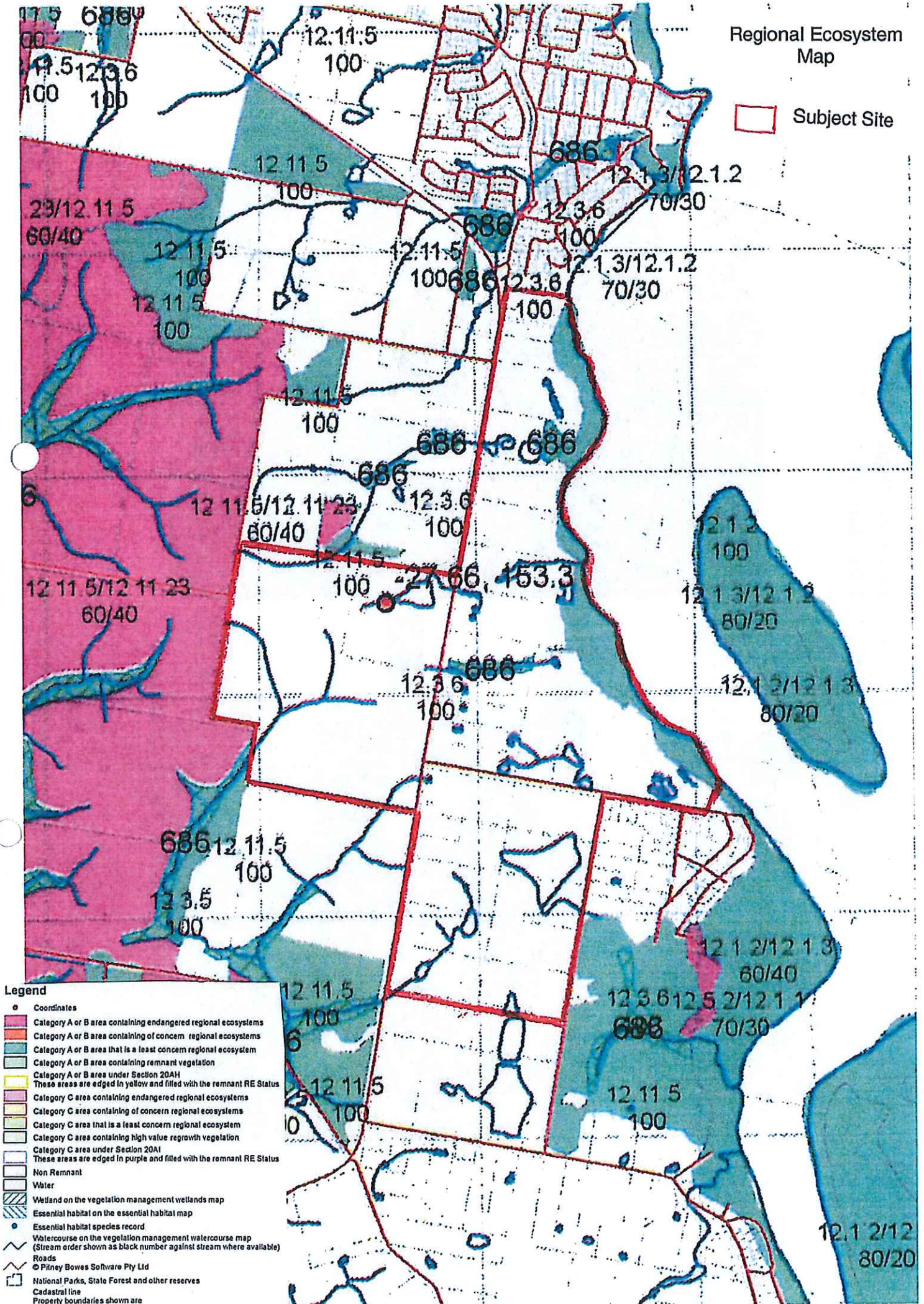


NOT A SURVEY MAP. This map is for information only and should not be used for legal purposes. It is not a substitute for a professional survey. The Queensland Government is not responsible for any loss or damage arising from the use of this map. The Queensland Government is not responsible for any loss or damage arising from the use of this map. The Queensland Government is not responsible for any loss or damage arising from the use of this map.

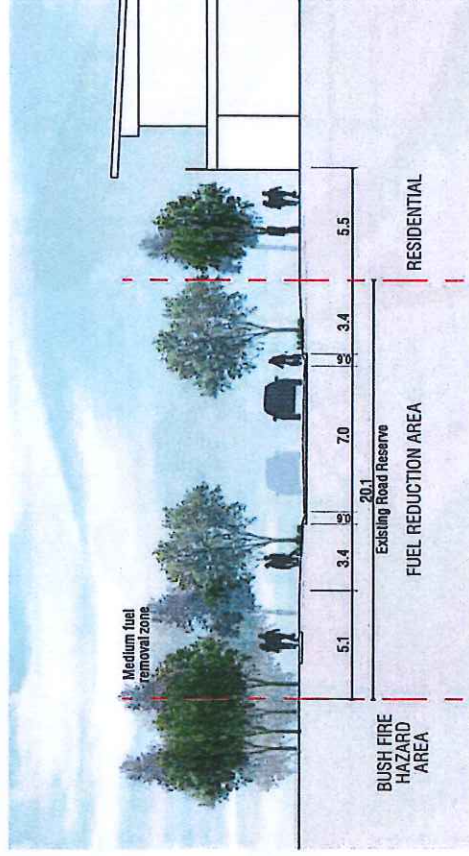


Regional Ecosystem Map

Subject Site



Medium / High Fire Risk Residential Interface



Sample Imagery

Figure 1

Figure 2. Specification of FRA Types on Shoreline (FRA as per Planning Scheme).

Area/Boundary	FRA Type	Fuel Reduction Zone (m)	Road, Track or Path (m)
A	1	15	5
B	2	10	5
C	4	5	3
Unmarked areas of revegetation	5	3	2

Land use category	Dw/ha	Land area (ha)	% of Total Land Area	Bedrooms	% of Total Dwellings
Village Centre	40	10.4	3.4%	415	10.2%
Service Centre		0.35	0.1%		
High Density Residential	60	2.0	0.7%	121	3.0%
Medium Density Residential	30	34.7	11.4%	1040	25.5%
Detached Residential 1	15	133.3	44.0%	1999	49.1%
Detached Residential 2	12	41.5	13.7%	498	12.2%
Total developable area		222.2	73.3%	4073	100.0%
Open Space		49.1	16.2%		
Foreshore Open Space		31.7	10.5%		
Total		303.0	100.0%	4073	100.0%



A horizontal scale bar with markings at 0, 250, 500, 750, and 1000m.

APPENDIX 3: UNDERTAKING NATURAL HAZARD ASSESSMENT – BUSHFIRE

What is a bushfire?

- A3.1** A bushfire is an uncontrolled fire burning in forest, scrub or grassland vegetation, also referred to as a wildfire.
- A3.2** Bushfire may occur on most vegetation and topography types in Queensland where there is a fuel path of sufficient dryness to be flammable.

Natural hazard management area (bushfire)

- A3.3** A natural hazard management area (bushfire) is described in Annex 3 of the SPP as follows:
- a) 'an area identified by a local government in its planning scheme consistent with the conclusions of a bushfire hazard assessment prepared in accordance with Appendix 3 of the SPP Guideline or other methodology approved by the Queensland Fire and Rescue Service (QFRS); or
 - b) where such a study has not been undertaken, an area identified by a local government in its planning scheme, reflecting the Medium and High hazard area of the Bushfire Risk Analysis maps produced by QFRS, suitably modified following a visual assessment of the accuracy of the maps; or
 - c) where an area has not been identified by a local government, the Medium and High hazard areas on the Bushfire Risk Analysis maps produced by QFRS.'
- A3.4** Outcome 4 of the SPP requires natural hazard management areas (bushfire) to be identified in planning schemes (except for those local government areas to which the SPP does not apply in relation to bushfires – refer to Annex 2 of the SPP). Natural hazard management areas (bushfire) trigger the development outcomes and development assessment requirements specified in Outcome 1 of the SPP, and are also required to enable the development of the planning strategies and detailed measures required by Outcomes 5 and 6 of the SPP.
- A3.5** The following methodology has been developed to assist local governments and developers to identify natural hazard management areas (bushfire). It is an appropriate method for land use planning purposes and is suitable for use by local governments when identifying natural hazard management areas (bushfire) as part of the plan making or amending process and also for site-specific bushfire hazard assessments.
- A3.6** However, other methodologies may also be appropriate. Local governments or their consultants should contact the QFRS to discuss alternative methodologies and ensure that they are acceptable.

Climate change impacts

- A3.7** Climate change is expected to cause a gradual change in vegetation health and vigour, and some species and vegetation communities will be advantaged over others. Climate change impacts will be reflected over time through changes to vegetation communities and fuel characteristics. These changes are difficult to predict and are likely to occur very gradually over a long timeframe. The changes to bushfire hazard associated with climate change impacts will generally be outweighed by changes caused by human activity in the short term. For these reasons it is not practicable to consider the impacts of climate change in bushfire hazard assessment studies at present.

Methodology for assessing bushfire hazard⁴³

- A3.8** The methodology involves quantitative and qualitative assessments. The quantitative element requires an assessment of three key characteristics of land that have been found to be the main determinants of the severity of bushfire hazard. These factors are vegetation communities, slope and aspect.
- A3.9** The area to be assessed should be disaggregated into sub-units according to vegetation communities, slope and aspect characteristics. Tables A3.1 to A3.3 provide the ranges that should be applied for the analysis of each of the three factors. These ranges will also help to determine the sub-units that should be used to conduct the assessment. The size of the sub-units, and level of accuracy of the resultant bushfire hazard map, may vary with the extent of the area being assessed, the characteristics of the land and vegetation communities, and the accuracy of the base information being used.
- A3.10** Each sub-unit is allocated a score for each of the three factors. The total score for each sub-unit determines the severity of bushfire hazard for that sub-unit. A qualitative review of these findings should then be undertaken to verify the results of the quantitative assessment.
- A3.11** The qualitative review should consider the known bushfire behaviour.
- A3.12** Finally, a safety buffer of land in close proximity to identified bushfire hazard areas needs to be included within the natural hazard management area (bushfire). The safety buffer is required because bushfires can affect unvegetated land in close proximity, particularly due to winds fanning flames, smoke, embers and radiant heat.

Step 1: Assessment of vegetation communities

- A3.13** The different types of vegetation communities determine the rate at which dry fuel accumulates. 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. The characteristics of different vegetation communities are reflected in Table A3.1. This

⁴³ Alternative methodologies may also be acceptable but should be referred to the QFRS for assessment and approval prior to implementation.

table also presents the hazard scores for a range of vegetation communities. Vegetation community data is available in digital map form from the Queensland Herbarium, Environmental Protection Agency, at a scale of 1:100,000.

Table A3.1: Hazard scores and associated fire behaviours for various vegetation communities

Vegetation communities	Fire behaviour	Hazard score
Wet sclerophyll forest, tall eucalypts (>30 m), with grass and mixed shrub understorey.	Infrequent fires under severe conditions, flame lengths may exceed 40 m, floating embers attack structures for 1 hour, radiant heat and direct flame are destructive for 30 minutes.	10
Paperbark heath and swamps, eucalypt forest with dry-shrub ladder fuels.	Fire intensity depends on fuel accumulation, but can be severe, with flame lengths to 20 m, spot fires frequent across firebreaks, radiant heat and direct flame for 15 minutes.	8
Grassy eucalypt and acacia forest, exotic pine plantations, cypress pine forests, wallum heath.	Fire intensity may be severe with flame lengths to 20 m, but less attack from embers.	6
Native grasslands (ungrazed), open woodlands, canefields.	Fast moving fires, available to fire annually to 4 years. Usually no ember attack, radiant heat for >10 m, duration <2 minutes.	5
Intact acacia forests, with light grass to leaf litter, disturbed rainforest.	Fires infrequent, usually burn only under severe conditions, relatively slow fires, usually little ember attack.	4
Orchards, farmlands, kikuyu pastures.	Fires very infrequent, slow moving, may be difficult to extinguish, frequent fire breaks.	2
Grazed grasslands, slashed grass.	Grazing reduces intensity and rate of spread of fire, duration <2 minutes.	2
Desert lands (sparse fuels), mowed grass.	Gaps in fuel, usually slow fire spread.	1
Intact rainforest, mangrove forest, intact riverine rainforest.	Virtually fireproof.	0

Note 1: Vegetation assessment should be based upon examination of the vegetation on the subject site and surrounding the subject site. Narrow strips of vegetation may be flammable; however, bushfires will not generally reach their full intensity where bushfire fronts are less than 100 metres wide. For this reason the following examples may be viewed as having the next lower hazard score (i.e. paperbark heath would have a score of 6 not 8, cypress pine forest 5 not 6):

- areas with a linear shape (e.g. roadside vegetation beside a cleared paddock); and
- units of vegetation less than 50 hectares in area and more than one kilometre from the nearest extensive vegetation.

A3.14 Where the vegetation community is assessed as having a vegetation community hazard score of zero, no other factors need to be taken into account and the relevant sub-units should be given a Low severity of overall bushfire hazard. No further action is required.

Step 2: Assessment of slope⁴⁴

- A3.15** 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 A3.2 presents the hazard scores for different categories of slope.

Table A3.2: 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

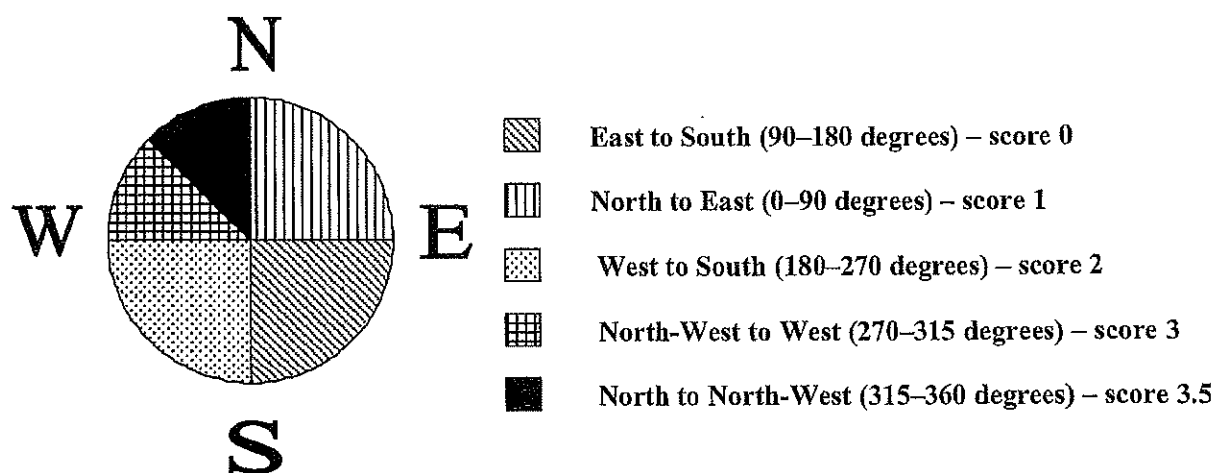
- A3.16** Aspect affects bushfire hazard due to the effects that exposure to direct sunlight has on different vegetation communities, including the drying rates of fuels. Aspect also correlates closely with exposure to low humidity winds that increase bushfire intensity. In extremely broken country where there is a variety of aspects, the predominant aspect should be used.
- A3.17** 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 A3.2 lists the hazard score for different aspects and Figure A3.1 illustrates the compass degree ranges for each aspect category.

Table A3.2: 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

⁴⁴ See Appendix 10 for the methodology for calculating slope.

Figure A3.1: Compass degree ranges for each aspect category



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

A3.18 The scores for the individual factors determined for vegetation communities, slope and aspect are added together to give a total for each sub-unit as follows:

$$\text{Total hazard score} = \text{vegetation community hazard score} + \text{slope hazard score} + \text{aspect hazard score.}$$

A3.19 The total hazard score determines the severity of bushfire hazard for each sub-unit as set out in Table A3.4.

Table A3.4: Hazard score ranges to identify the severity of bushfire hazard

Total hazard score	Severity of bushfire hazard
13 or greater	High ⁴⁵
6 to 12.5	Medium
1 to 5.5	Low

⁴⁵ 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

- A3.20** 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.⁴⁶ 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

- A3.21** Known bushfire behaviour complements the quantitative assessment and should be considered as part of the qualitative review.
- A3.22** 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 QFRS should be consulted if problems are indicated.

Step 7: Safety buffers

- A3.23** The final step in identifying bushfire hazard areas is to add a safety buffer, as land adjacent to bushfire hazard areas is vulnerable to bushfire attack from these areas.
- A3.24** Any land within 100 metres of an area identified as having a High bushfire severity classification should be included in the High bushfire hazard area and any land within 50 metres of an area identified as having a Medium bushfire severity classification should be included in the Medium bushfire hazard area.⁴⁷ The safety buffers should be integrated into the preparation of maps identifying bushfire hazard areas. Table A3.5 shows the width of the safety buffers that apply to the various bushfire hazard severity classifications.

Table A3.5: Total hazard score and severity of bushfire hazard with safety buffers

Total hazard score	Severity of bushfire hazard	Width of safety buffer
13 or greater	High	100 metres
6 to 12.5	Medium	50 metres
1 to 5.5	Low	Not applicable

⁴⁶ Areas of Low bushfire hazard severity may also be mapped, but the natural hazard management area (bushfire) for the purposes of the SPP comprises only areas identified as being of High or Medium severity.

⁴⁷ Safety buffer areas on the boundary between High and Medium bushfire severity areas should be included in the High bushfire severity area.

Part 11 - Planning Scheme Policies

Planning Scheme Policy 1 - Bushfire Hazard

1.1 Purpose

- (1) The purpose of this policy is to set out requirements for the preparation and submission of development applications, including technical reports, for premises subject to bushfire hazard to -
 - (a) minimise the density of uses or other development at risk from bushfire hazard so as to reduce the number of people and properties subject to the risk;
 - (b) ensure uses and other development are sited, designed and managed to minimise the risk of bushfire to people and property.

1.2 Applicability

This policy applies when a proposed development is situated on premises affected by the Bushfire Hazard Overlay Map and Code.

1.3 Formulating a Development Proposal

- (1) Bushfire hazard assessment and reporting should be undertaken before determination of a potential development scenario.
- (2) Recommendations of the reports are required to ensure the resulting development is compatible with the risk of bushfire and is fully understood by the applicant and premises operator/occupier.
- (3) It is strongly recommended that applicants arrange a pre-lodgement meeting to discuss matters to be included in any reports and the timing of lodgement of the report.

1.4 Bushfire Hazard Mapping

- (1) The Bushfire Hazard Overlay Map is based on hazard mapping developed for the mainland and Southern Moreton Bay Islands by the local government and the Queensland Fire and Rescue Service (QFRS).
- (2) The methodologies used for determination of the hazard is based on Appendix 3 of *SPP 1/03 - Guidelines - Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* and has been modified in accordance with QFRS recommendations for the local area.
- (3) The hazard mapping for North Stradbroke Island is based on mapping produced by the State Government.

1.5 Bushfire Hazard Assessment

- (1) In accordance with the Bushfire Hazard Overlay Code site specific bushfire hazard assessment is required when the premises is affected by medium or Southern Moreton Bay Islands bushfire hazard to ensure the proposal is located on land with the least risk and where management of the hazard is achievable.

- (2) Bushfire hazard assessment is conducted in accordance with the methodology described in Appendix 3 of *SPP 1/03 Guidelines - Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*.
- (3) The assessment manager should be consulted prior to undertaking any study using alternative methodologies.

1.6 Bushfire Management Plans

- (1) In accordance with the Bushfire Hazard Overlay Code site specific bushfire hazard assessment and a management plan is required when the premises is affected by -
 - (a) high bushfire hazard; or
 - (b) medium or Southern Moreton Bay Islands bushfire hazard and is for the purposes of community infrastructure; or
 - (c) high, medium or Southern Moreton Bay Islands bushfire hazard and involves the manufacture or storage of hazardous materials in bulk; or
 - (d) high bushfire hazard and for the purpose of reconfiguration or uses that involve numerous buildings.
- (2) The Bushfire Management Plan (BMP) identifies strategies 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.
- (3) Mitigation measures need to consider the four main factors of bushfire attack as detailed in *Protecting your Home Against Bushfire Attack* (DLGPS&R, 2000) -
 - (a) burning debris;
 - (b) radiant heat;
 - (c) direct flame contact;
 - (d) wind.
- (4) The BMP is prepared by a suitably qualified professional with technical expertise in the identification and mitigation of bushfire hazard. Suitable professionals may include those in the environmental management, landscape architecture, architecture, town planning and civil engineering fields.
- (5) Consultation with the local government, responsible Rural and/or Urban Fire Brigade, and managers of adjacent parks or reserves is necessary in the preparation of a BMP.
- (6) 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.
- (7) A comprehensive BMP -
 - (a) includes an assessment of the nature and severity of the bushfire hazard affecting the site. This should comprise a detailed site specific bushfire hazard assessment using methodology set out in Appendix 3 of *SPP 1/03 Guideline Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*;
 - (b) addresses other site specific factors that are important in devising suitable bushfire mitigation strategies. These factors could include matters such as -
 - (i) likely direction of bushfire attack;
 - (ii) environmental values that may limit mitigation options;
 - (iii) locations of evacuation routes and/or safety zones;



- (c) assesses the specific risk factors associated with the development proposal, including matters such as -
 - (i) the nature of activities and materials to be conducted/stored on the premises;
 - (ii) numbers and types of persons likely to be present;
 - (iii) warning and/or evacuation requirements;
- (d) addresses each of the specific outcomes and associated probable solutions in the Bushfire Hazard Overlay Code and recommends mitigation actions for the proposed development including -
 - (i) road and lot layout for reconfiguration;
 - (ii) fire trails and fire breaks;
 - (iii) accessways, driveways and evacuation routes;
 - (iv) land uses;
 - (v) site layout;
 - (vi) fuel reduction areas and buffers;
 - (vii) water supply;
 - (viii) landscaping;
 - (ix) fire fighting requirements including infrastructure;
 - (x) any other specific measures such as external sprinkler systems and alarms;
 - (xi) purchaser/resident education and awareness programs;
 - (xii) ongoing maintenance and response awareness programs.

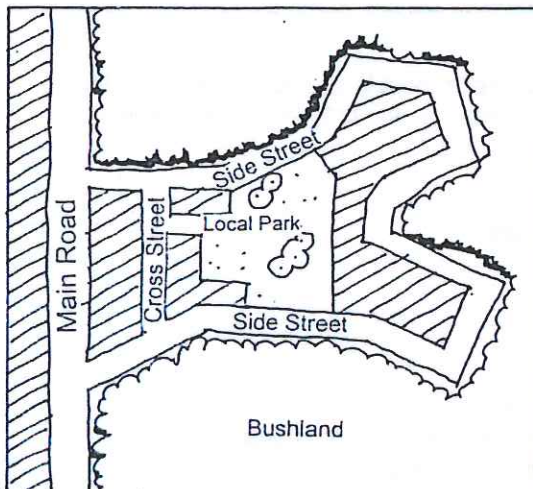
1.7 Development Involving Hazardous Materials Manufactured or Stored in Bulk

- (1) Hazardous materials in bulk for the purposes of bushfire hazard are those detailed in SPP 1/03 as being hazardous materials defined in the *Dangerous Goods Safety Management Act 2001*, in quantities that -
 - (a) would be equivalent to or exceed the minimum quantities set out to determine a Large Dangerous Goods Location in the *Dangerous Goods Safety Management Regulation*; or
 - (b) would require a licence for a magazine for the storage of an explosive under the *Explosives Regulation 1955*.
- (2) Radioactive substances and infectious substances are excluded from the definition of hazardous materials for the purposes of the SPP.
- (3) Development involving hazardous materials manufactured or stored in bulk has the potential to -
 - (a) be significantly affected by bushfire hazard;
 - (b) significantly assist the progression of bushfire.
- (4) Where a development requires a Flammable and Combustible Licence under the *Dangerous Goods Act 2001*, it is recommended that application for that licence be made at the same time as the development application to ensure all relevant issues are addressed in an integrated manner.
- (5) Depending on design or production capacity chemical manufacture and/or storage may constitute an Environmentally Relevant Activity as defined under the *Environmental Protection Act 1994*. This use or component of a use is required to be assessed for environmental impacts in accordance with the *Environmental Protection Act 1994* and the *Redland City Council Operator's Compliance Guidelines*. Further advice on this matter can be provided at the time of the pre-lodgement meeting.



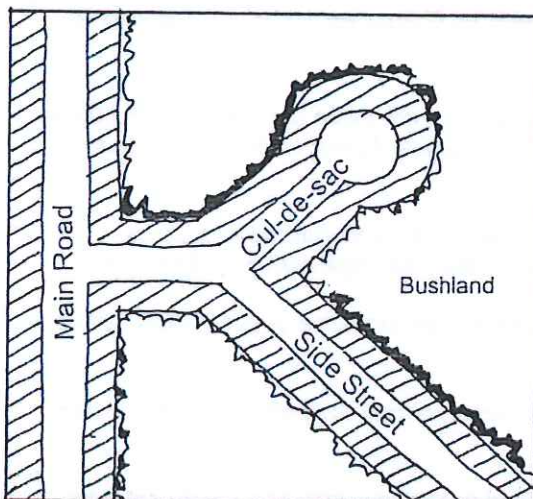
1.8 Road and Lot Layout

Diagram 1 - Preferred road layout in and adjoining bushfire hazard areas



Acceptable – perimeter road system provides separation between hazard and assets; access for fire fighters, and provides two directions for evacuation.

Diagram 2 - Unacceptable road layout in and adjoining bushfire hazard areas



Unacceptable – closed road system congregates evacuation and response traffic, access for fire response restricted.

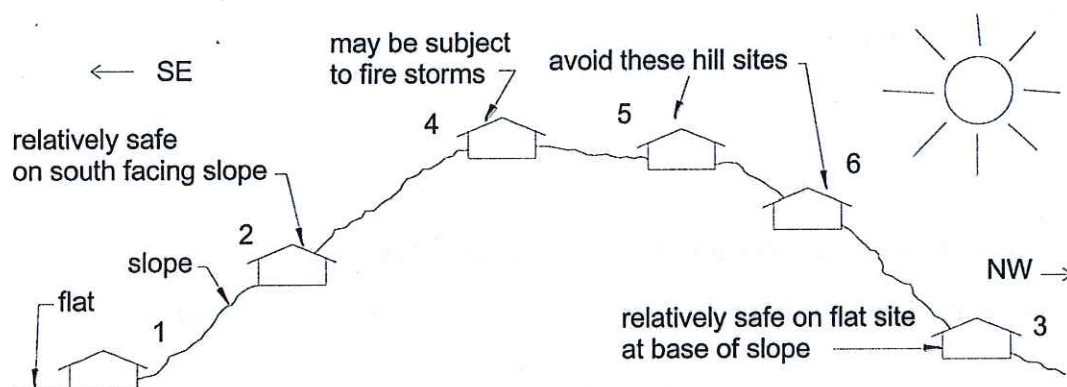
1.9 Building Siting and Development Envelopes

- (1) The way a building is sited on land is a basic factor influencing the ability to protect people and property. As the pattern of fires is predictable, it is possible to determine the most favourable areas to minimise impacts. For example -
 - (a) check data about previous fires in the area to determine the possible directions a fire would travel;
 - (b) be aware most bushfires occur during dry conditions, particularly in times of hot temperatures and low humidity, and are often accompanied by strong winds;
 - (c) remember fires accelerate going up hill and decrease in speed traveling down hill.
 - (d) hanging a building out over the hazard will increase the risk such as a pole house with timber decks will be much more exposed than one set into the slope;
 - (e) siting the structures downhill from the hazard reduces the risk, and this is reflected in the site-specific assessment method. Setbacks are still necessary to avoid falling trees and debris rolling down hill.



- (2) There are two key principles to be considered in siting a building in a bushfire hazard area -
- avoiding higher risk situations, particularly locations with a combination of slope and certain aspects;
 - maximising the setbacks from hazardous vegetation (refer fuel reduction areas above).
- (3) On larger lots it may be possible to site buildings in an area depicted on bushfire hazard assessment maps as lower bushfire risk.
- (4) Irrespective of the severity of hazard in any bushfire hazard assessment, combinations of slope and aspect on individual sites should be considered. Diagram 3 illustrates the relative bushfire safety of building site locations based on slope and aspect considerations.
- (5) The order of preference is low flat sites, sites set into Southerly or South East slopes, sites 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. Building sites should also avoid the head of gullies with Westerly aspects, because fire winds funnel up such sites.
- (6) Although fires may tend to come from a particular direction, local variations are always likely and protection for the southern and eastern side of developments must never be overlooked.

Diagram 3 - Bushfire safety based on slope and orientation



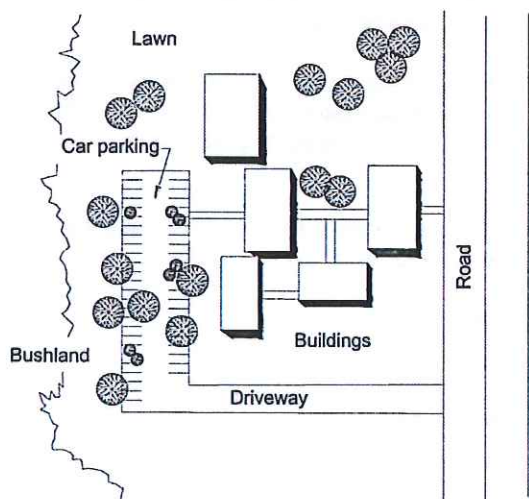
Note -

House sites numbered in order of degree of fire safety - 1 being the safest and 6 being the most hazardous.

- (7) Siting should also -
- avoid ridge tops;
 - avoid steep slopes, particularly upper slopes and narrow ridge crests;
 - avoid locations where adequate fuel reduction areas and buffers can not be provided within the property;
 - locate buildings where vehicular access from two directions can be provided away from identified hazard areas wherever possible;
 - build on level ground wherever possible;
 - where buildings must be constructed on sloping land, incorporate cut-in benches rather than elevated or above fill;
 - avoid raised floors in preference to concrete slabs;

- (h) locate the building near the property entrance for easier access/egress, refer to Diagram 4;
 - (i) keep services underground, particularly electricity;
 - (j) locate on-site water storage near buildings.
- (8) Development envelopes should be sited in the same manner to the above. Development envelope size and shape is designed to allow for the allocation of fuel reduction areas and buffers to assets within the building envelopes.

Diagram 4 - Preferred Site Layout



Consideration should be given to placing least susceptible land uses closer to the likely direction of fire attack than more susceptible land uses.

1.10 Construction of Buildings in Bushfire Hazard Areas

- (1) Building design can have a significant impact on the likelihood of damage occurring due to bushfire.
- (2) Compliance with *Australian Standard 3959:1999 - Construction of Buildings in Bushfire Prone Areas* is required when a premises is affected by Southern Moreton Bay Islands Bushfire Hazard and fuel reduction opportunities are limited due to lot size.
- (3) Incorporation of principles contained in the above standard are encouraged for all buildings within high, medium and SMBI bushfire hazard affected premises.
- (4) The document *Protecting your home against bushfire attack* (DLGPS&R, 2000) provides further guidance on how a building should be designed.
- (5) In addition, it is recommended that -
 - (a) external gas cylinders are shielded from possible exposure to radiant heat by the construction of a masonry shield;
 - (b) building elevation and roof pitches are minimised;
 - (c) all external gaps are less than 2mm;
 - (d) timber decking is kept to a minimum.



1.11 Landscaping

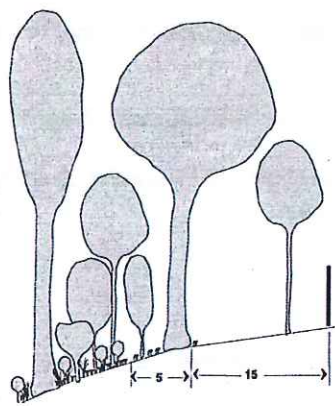
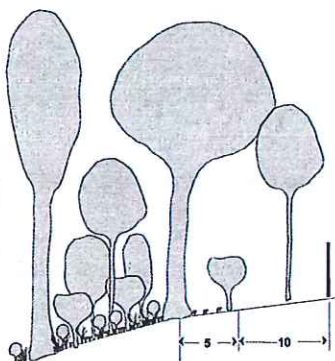
- (1) Landscaping should be designed to assist in creation of buffers and fuel reduction areas.
- (2) Consideration should be given to surround isolated buildings with a wide driveway or paths of gravel, concrete, pavers etc or mown areas.
- (3) Landscaping, particularly using mulch, adjacent to buildings can facilitate spot fires.
- (4) Low flammability plant species indigenous to the local government area should be used and are identified within Table 2 of the Bushfire Hazard Overlay Code.

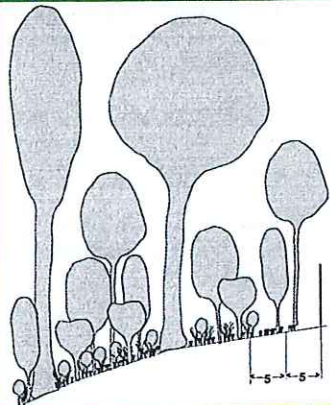
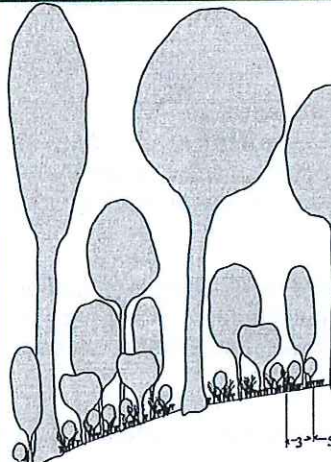
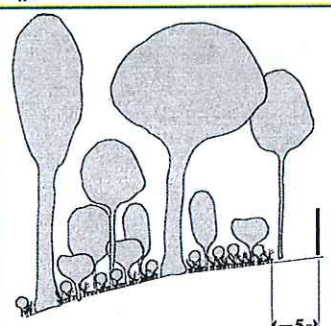
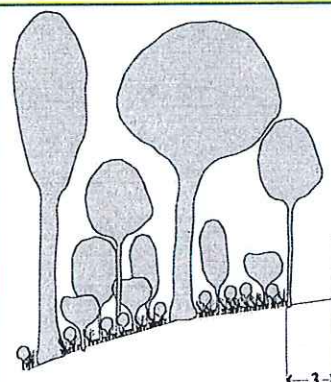
1.12 Fuel Reduction Areas

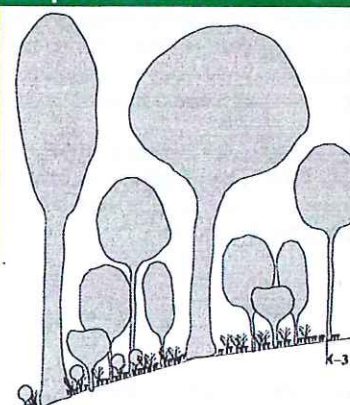
- (1) Fuel reduction areas (FRA) require the gradual removal of fuel between development and a hazard and are located to provide -
 - (a) areas of reduced fuel to slow advancing fire;
 - (b) adequate access for fire fighting and other emergency vehicles;
 - (c) for the retention of environmental values.
- (2) FRA types for the local government area were developed over time as land management agencies and the community addressed the separation of bushland from private and public assets with regard to bushfire risk management.
- (3) FRA types have been classified and are used to demonstrate the flexibility required by a land manager in balancing the built environment with the natural environment.
- (4) A FRA consists of varying widths of a slashed zone, and a medium fuel removal zone.
- (5) General characteristics of these FRA include -
 - (a) in the slashed zone -
 - (i) removal of all understorey plants and ground covers;
 - (ii) retention of trees with a trunk diameter at the base of greater than 15cm;
 - (iii) allowance for the movement of fire tender within the FRA in all situations;
 - (b) in the medium fuel removal zones (MFR) -
 - (i) retention of trees and groundcovers;
 - (ii) selective removal of plants that will be less than 1.5 metres in height on maturity.
- (6) Minimum FRA's are specified in Table 1 of the Bushfire Hazard Overlay Code.
- (7) Additional types may be appropriate as determined by a bushfire management plan for the development and are set out in Table 1 of this policy.
- (8) Distances and treatments should be -
 - (a) used as a guide and may be varied at the discretion of the local government in consideration of site specific hazards and significant environmental features. For this reason all 7 types of fuel reduction areas are detailed;
 - (b) measured from any buildings or structures associated with the development.
- (9) On lots greater than 2500m², buildings should be sited so that the minimum setbacks from hazardous vegetation detailed for the FRA can be achieved.



Table 1 - Fuel Reduction Area Descriptions

FRA Type	Representation	Description
1		Requires the removal of canopy, understorey and groundcover and installation of measures to minimise the erosion of the bare soil and direct stormwater run-off. Is only necessary where the fire risk is very high due to highly combustible fuel and the slope of the land would allow for a high rate of spread and a high flame height in periods of high fire danger, and where the risk to life and infrastructure is high. Zone widths - ■ Slashed - 15 metres ■ MFR - 5 metres It is noted that this type of FRA results in substantial impact on environmental values and allows for increased opportunities for environmental weeds, soil erosion and other impacts. Erosion control measures should be constructed and maintained in all situations.
2		Requires the removal of the understorey and ground cover but retains some of the canopy. This will depend on the slope, vegetation structure and the type of available fuel. The FRA is used in locations of medium slope with combustible material and where the risk to people and property is high. The slashed zone allows for the easy movement of a fire tender within the FRA in all situations and allows for the re-growth of grasses that need regular slashing or mowing particularly during the fire season. Zone widths - ■ Slashed - 10 metres ■ MFR - 5 metres It is noted that this type of FRA results in substantial impact on environmental values and allows for increased opportunities for environmental weeds, soil erosion and other impacts. Erosion control measures should be constructed and maintained in all situations.

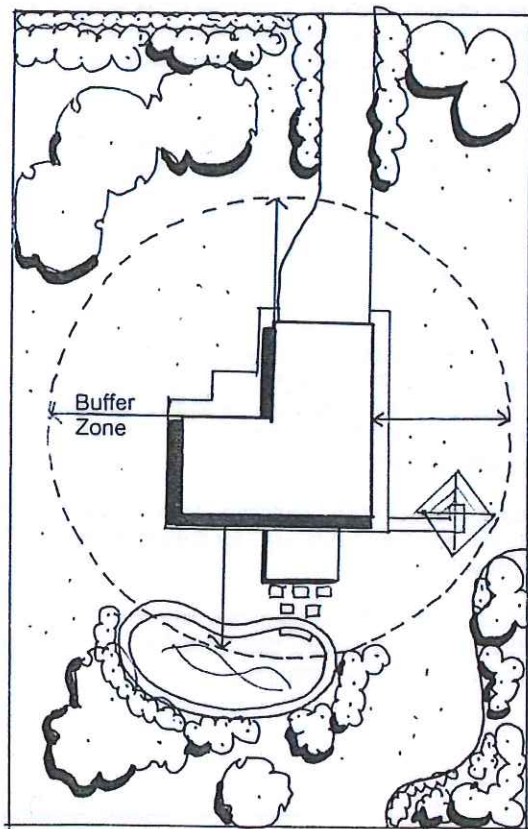
FRA Type	Representation	Description
3		Requires the removal of the understorey and ground cover but retains canopy vegetation. This FRA is used in locations of medium to low slope, with combustible material and where the risk to people and property medium to low. The slashed zone allows for the easy movement of a fire tender within the FRA in all situations and allows for the re-growth of grasses that need regular slashing or mowing particularly during the fire season. Zone widths - ■ Slashed - 5 metres ■ MFR - 5 metres Erosion control measures are required.
4		Requires the removal of the understorey and the slashing of the ground cover. This FRA is used in locations of minimal slope with low fire risk to people or property. It may form internal FRAs within bushland areas where vehicle access is required. Access is provided for fire tenders around the canopy trees within this FRA. Zone widths - ■ Slashed - 5 metres ■ MFR - 3 metres Natural drainage lines are maintained and the grasses regularly mowed.
5		Requires the removal of understorey and fire fuels with the slashing of the groundcovers. This FRA type is used in locations of minimal slope and no risk to property. Fire prevention activities are conducted from this FRA, such as prescribed burns, and access is required for fire tenders within the FRA. This FRA is used in areas with environmental values such as riparian areas, where minimal disturbance to values is required. Zone widths - ■ Slashed - 3 metres ■ MFR - 2 metres This FRA may provide access in bushland areas such as walking tracks, bikeways, horse trails.
6		Requires the slashing of the groundcovers and the thinning of the understorey to form a FRA of 3 metres. This FRA would receive regular maintenance. This FRA is used in areas of no or minimal slope or where there is no fire risk and the FRA is used for fire prevention, such as prescribed burns. This FRA is used in areas of environmental value or cultural significance, where minimal disturbance is required. Vehicle access is not required.

FRA Type	Representation	Description
7		Allows for the thinning of the understorey and the minimal slashing/mowing of the groundcovers. The nominal width of this thinned area would be up to 3 metres. This FRA is used in areas of no or minimal slope or where there is no fire risk and the FRA is used for fire prevention such as prescribed burns, purposes. This FRA is used in areas where the adjacent land has a cleared well maintained open area between the hazard and any building or structure.

1.13 Buffer Zones

- (1) Barriers and buffer zones around buildings will assist in slowing bushfire. Barriers may include planting suitable trees, vegetation and building permanent barriers such as low stone or masonry walls. These barriers or buffers assist in protecting buildings from possible attack by burning debris, heat radiation and direct flame contact.
- (2) Between the barriers and buildings, a 'buffer zone' is created by reducing the number of combustible items near, refer to Diagram 5. This means that if burning debris passes through the barriers, there is minimal opportunity to create further outbreaks and provides an opportunity to put out spot fires.
- (3) Consideration should be given to providing a grassed area or gravel, concrete or paved driveway in proximity to isolated buildings or mown areas.

Diagram 5 - Creation of buffer zones between buildings and hazardous vegetation



Division 3 - Bushfire Hazard Overlay

5.3.1 Introduction

- (1) This division contains the provisions for the Bushfire Hazard Overlay. They are -
- (a) The Bushfire Hazard Overlay Tables of Assessment, that incorporates -
 - (i) Levels of assessment for development in the Bushfire Hazard Overlay (section 5.3.2);
 - (ii) Assessment criteria for development in the Bushfire Hazard Overlay (section 5.3.3);
 - (iii) Bushfire Hazard Overlay - Table of Assessment for Material Change of Use of Premises (section 5.3.4);
 - (iv) Bushfire Hazard Overlay - Table of Assessment for Other Development not associated with a Material Change of Use of Premises (section 5.3.5).
 - (b) The Bushfire Hazard Overlay Code, that incorporates -
 - (i) Compliance with the Bushfire Hazard Overlay Code (section 5.3.6);
 - (ii) Overall Outcomes for the Bushfire Hazard Overlay Code (section 5.3.7);
 - (iii) Acceptable Solutions applicable to Self-Assessable Development (section 5.3.8);
 - (iv) Specific Outcomes and Probable Solutions applicable to Assessable Development (section 5.3.9).

5.3.2 Levels of assessment for development affected by the Bushfire Hazard Overlay

- (1) Sections 5.3.4 and 5.3.5 identify the level of assessment for development affected by the Bushfire Hazard Overlay, as follows -
- (a) Section 5.3.4 Bushfire Hazard Overlay - Table of Assessment for Making a Material Change of Use of Premises -
 - (i) column 1 identifies uses that are exempt, self-assessable or assessable;
 - (ii) column 2 identifies the level of assessment for the uses listed in column 1;
 - (iii) where the use is defined in Schedule 3 - Dictionary, Division 1 - Uses and is not listed in column 1 it is exempt;
 - (iv) where the use is not defined in Schedule 3 - Dictionary, Division 1 - Uses and is not listed in column 1 it is code assessable.
 - (b) Section 5.3.5 Bushfire Hazard Overlay - Table of Assessment for Other Development not associated with a Material Change of Use of Premises -
 - (i) column 1 identifies other development that is exempt, self-assessable or assessable;
 - (ii) column 2 identifies the level of assessment for other development listed in column 1;
 - (iii) where the other development is not listed in column 1 it is exempt.
- (2) Other Overlays may alter the level of assessment identified in 1(a) and (b)^{5.10}.

Note -

Land identified within the High Bushfire Hazard and Southern Moreton Bay Islands Bushfire Hazard is designated as a bushfire prone area and the medium category bushfire protection provisions of the *Building Code of Australia* apply for the purposes of section 55 of the *Standard Building Regulations 1993*.

^{5.10} Refer to Part 5 - Overlays to determine the level of assessment for the use or other development where another Overlay affects the lot and Part 1, section 1.2.5(10)(f) that explains how the highest level of assessment applies.

5.3.3 Assessment criteria for development in the Bushfire Hazard Overlay

- (1) Development affected by the Bushfire Hazard Overlay is assessed against the assessment criteria listed in column 3 of sections 5.3.4 and 5.3.5, as follows -
 - (a) acceptable solutions in section 5.3.8 of the Bushfire Hazard Overlay Code for self-assessable development; or
 - (b) specific outcomes in section 5.3.9 of the Bushfire Hazard Overlay Code for assessable development.
- (2) Self-assessable development that does not comply with all the acceptable solutions in section 5.3.8 of the Bushfire Hazard Overlay Code is assessable development.

5.3.4 Bushfire Hazard Overlay - Table of Assessment for Material Change of Use of Premises

Bushfire Hazard Overlay - Table of Assessment for Material Change of Use of Premises

column 1	column 2	column 3
Use ^{5.11}	Level of Assessment ^{5.12}	Assessment Criteria
■ Aged Persons and Special Needs Housing ■ Agriculture ■ Airport ■ Animal Keeping ■ Apartment Building ■ Bed and Breakfast ■ Brothel ■ Bulky Goods Showroom ■ Car Wash Facility ■ Caretakers Dwelling ■ Child Care Centre ■ Commercial Office ■ Community Facility ■ Display and Sale Activity ■ Drive Through Restaurant ■ Dual Occupancy ■ Dwelling House ■ Education Facility ■ Emergency Services ■ Estate Sales Office ■ Extractive Industry ■ Forestry ■ Funeral Parlour ■ Garden Centre ■ General Industry ■ Health Care Centre ■ Heavy Industry ■ Home Business ■ Hospital ■ Hotel ■ Indoor Recreation Facility ■ Institution ■ Intensive Agriculture ■ Landscape Supply Depot ■ Marine Services ■ Minor Utility ■ Mobile Home Park ■ Multiple Dwelling ■ Night Club ■ Outdoor Dining ■ Outdoor Recreation Facility ■ Passenger Terminal ■ Place of Worship	<u>Self-Assessable</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not self-assessable	■ Acceptable Solutions in section 5.3.8 of the Bushfire Hazard Overlay Code ■ Bushfire Hazard Overlay Code

^{5.11} See Schedule 3 - Dictionary, Division 1 - Uses for defined uses.

^{5.12} See Schedule 3 - Dictionary, Division 2 - Administrative Terms for a definition of level of assessment.

Bushfire Hazard Overlay - Table of Assessment for Material Change of Use of Premises

column 1	column 2	column 3
Use ^{5.11}	Level of Assessment ^{5.12}	Assessment Criteria
Continued - ■ Produce Store ■ Refreshment Establishment ■ Retail Warehouse ■ Roadside Stall ■ Rural Enterprise ■ Service Industry ■ Service Station ■ Shop ■ Telecommunications Facility ■ Temporary Use ■ Tourist Accommodation ■ Tourist Park ■ Utility Installation ■ Vehicle Depot ■ Vehicle Parking Station ■ Vehicle Repair Premises ■ Veterinary Surgery ■ Warehouse	<u>Self-Assessable</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not self-assessable	■ Acceptable Solutions in section 5.3.8 of the Bushfire Hazard Overlay Code ■ Bushfire Hazard Overlay Code
Defined uses not listed in column 1	<u>Exempt</u>	
Uses not defined in Part 9 - Schedule 3 - Dictionary, Division 1 - Uses	<u>Code Assessable</u>	■ Bushfire Hazard Overlay Code

5.3.5 Bushfire Hazard Overlay - Table of Assessment for Other Development not associated with a Material Change of Use of Premises

· Bushfire Hazard Overlay - Table of Assessment for Other Development

column 1	column 2	column 3
Other Development	Level of Assessment ^{5.13}	Assessment Criteria
Reconfiguration for -		
Creating lots by subdividing another lot by Standard Format Plan ^{5.14}	<u>Code Assessable</u>	■ Bushfire Hazard Overlay Code
Rearranging the boundaries of a lot by registering a plan of subdivision	<u>Code Assessable</u>	■ Bushfire Hazard Overlay Code
Building Work for -		
■ Domestic Outbuilding ■ On-site raising or relocation of an existing dwelling unit	<u>Self-Assessable</u> If complying with the assessment criteria being the acceptable solutions listed in column 3 <u>Code Assessable</u> If not self-assessable	■ Acceptable Solutions in section 5.3.8 of the Bushfire Hazard Overlay Code ■ Bushfire Hazard Overlay Code
Operational Work for -		
Operational Work for Reconfiguring a Lot (by Standard Format Plan)	<u>Code Assessable</u>	■ Bushfire Hazard Overlay Code
All other development not listed in column 1	<u>Exempt</u>	

^{5.13} See Schedule 3 - Dictionary, Division 2 - Administrative Terms for a definition of level of assessment.

^{5.14} Whether or not having a Community Management Statement.

5.3.6 Compliance with the Bushfire Hazard Overlay Code

- (1) Development that is consistent with the following complies with the Bushfire Hazard Overlay Code -
 - (a) acceptable solutions in section 5.3.8 where self-assessable development; or
 - (b) specific outcomes in section 5.3.9 where assessable development.

Note -

- Planning Scheme Policy 1 - Bushfire Hazard will assist in achieving the requirements of the Bushfire Hazard Overlay Code.
- Land identified within the high bushfire hazard and Southern Moreton Bay Islands bushfire hazard is designated as a bushfire prone area and the medium category bushfire protection provisions of the *Building Code of Australia* apply for the purposes of section 55 of the *Standard Building Regulations 1993*.

5.3.7 Overall Outcomes of the Bushfire Hazard Overlay Code

- (1) The overall outcomes are the purpose of the Bushfire Hazard Overlay Code.
- (2) The overall outcomes sought for the Bushfire Hazard Code are the following -
 - (a) to minimise the density of uses and other development at risk from bushfire hazard so as to reduce the number of people and properties subject to that risk;
 - (b) to ensure uses and other development are sited, designed and managed to minimise the risk of bushfire to people and property.

5.3.8 Acceptable Solutions applicable to Self-Assessable Development

Self-Assessable Development	
Acceptable Solutions	
A1.	(1) Where on the mainland and on a lot or premises identified as medium or high bushfire hazard on this overlay map, uses and other development are located outside the area shown on the overlay map; or (2) Uses and other development are located within an approved development envelope.

5.3.9 Specific Outcomes and Probable Solutions applicable to Assessable Development

Assessable Development			
Specific Outcomes		Probable Solutions	
	<u>General -</u>		
S1.	(1) Where on the mainland and on a lot or premises identified as medium or high bushfire hazard on this overlay map, uses and other development are located outside the area shown on the overlay map; or Note - Compliance with specific outcome S1.(1) achieves compliance with this Code. (2) Uses and other development maintain the safety of people and property by - (a) avoiding areas shown on this overlay map as - (i) high bushfire hazard; or (ii) medium bushfire hazard; or (iii) Southern Moreton Bay Islands (SMBI) bushfire hazard;	P1.	(1) No probable solution identified. (2) Uses and other development - (a) locate on land that is not shown on this overlay map as - (i) high bushfire hazard; or (ii) medium bushfire hazard; or (iii) Southern Moreton Bay Islands (SMBI) bushfire hazard; or (b) where shown as medium or SMBI bushfire hazard on this overlay map - (i) determine that the hazard on that part of the lot or premises where the development is proposed is low through a bushfire hazard assessment; or (ii) comply with the recommendations of a bushfire management plan previously prepared for the specific premises; or (c) where shown as high bushfire hazard on this overlay map, all uses and other development, excluding dwelling houses on existing lots, comply with the

Assessable Development			
Specific Outcomes		Probable Solutions	
			recommendations of a comprehensive bushfire management plan for the premises; Note - To assist in achieving P1.(2)(b) and (c) refer to Part 11 - Planning Scheme Policy 1 - Bushfire Hazard for requirements of a bushfire hazard assessment or bushfire management plan.
	(3) Buildings and structures mitigate risk from bushfire hazard through siting, setback and design;		(3) Buildings and structures - (a) on a lot or premises greater than 2500m² - (i) are located on that part of the lot or premises with the lowest bushfire hazard; (ii) where shown in medium or high bushfire hazard areas on this overlay map, are provided with a fuel reduction area that is a minimum of 1.5 times the predominant mature canopy height; or (iii) where shown in SMBI bushfire hazard areas on this overlay map, provide a fuel reduction area that complies with Table 1 - Type 2; or (b) on a lot or premises less than 2500m² - (i) maximise setbacks from the bushfire hazard; or (ii) where shown as SMBI bushfire hazard on this overlay map - a. provide a fuel reduction area that complies with Table 1 - Type 2; or b. provide a fuel reduction area that complies with Table 1 - Type 4 and buildings are constructed in accordance with <i>Australian Standard 3959:1999 - Construction of Buildings in a Bushfire Prone Area</i>;
	(4) Reconfiguration and uses that involve numerous buildings, such as tourist accommodation, aged person and special needs housing		(4) Reconfiguration that creates lots or uses that will involve numerous buildings - (a) where shown as high bushfire

Assessable Development	
Specific Outcomes	Probable Solutions
or the like, mitigate risk from bushfire hazard through lot design and roads and firebreaks that provide adequate access for fire fighting and other emergency vehicles and safe evacuation routes;	hazard on this overlay, comply with a bushfire management plan for the premises; or (b) where shown as medium or SMBI bushfire hazard, identify an area, in the form of development envelope, that is of sufficient size to - (i) comply with setbacks detailed in P1.(3)(a) and (b) depending on the hazard that is shown on the lot or premises where the development envelope is proposed; (ii) contain all expected uses and associated activities, including buildings, structures, open space, infrastructure and access; (c) provides efficient emergency access for fire fighting purposes by - (i) limiting long narrow lots and accessways; (ii) providing an alternative evacuation route by - a. through roads; or b. where culs-de-sac are used, alternative vehicle access connects the culs-de-sac to the through roads; (iii) providing a perimeter road to separate the development from the hazard that is designed - a. with a minimum cleared width of 20 metres, b. a maximum gradient of 12.5 percent; c. a maximum crossfall of 7 percent; or (iv) where the provision of a perimeter road is not achievable, fire trails are located within the site and comply with the following - a. separate development from the hazard; b. where in the SMBI bushfire hazard have a minimum cleared width of 3 metres that is supported by a slashed zone that complies with Table 1, Type 2 either side of the trail; or

Assessable Development			
Specific Outcomes		Probable Solutions	
			c. where in the medium bushfire hazard have a minimum cleared width of 6 metres that is supported by a 10 metre slashed zone either side of the trail; d. where in the high bushfire hazard have a minimum cleared width of 6 metres that is supported by a 15 metre slashed zone either side of the trail; e. have a maximum gradient of 12.5 percent, f. have a maximum crossfall of 7 percent; g. are a constructed finish of 50mm deep decomposed granite; h. have vehicle access at each end; i. include passing bays and turning areas for fire fighting trucks; j. are ultimately dedicated to the local government or provided with an access easement in favour of the local government and Queensland Fire and Rescue Service;
			Note - Fire trails will only be accepted if it is not practicable to provide the firebreak in the form of a perimeter road due to - ■ topographical or remnant or significant vegetation constraints; or ■ access to the proposed lots being provided from an existing road and it would be unreasonable to require the construction of a new road.
	(5) Uses and other development mitigate risk from bushfire hazard through providing an adequate and accessible water supply for fire fighting purposes.		(5) Uses involving proposed or existing buildings with a gross floor area greater than 50m² are provided with a reliable on-site water supply by - (a) being connected to a reticulated water supply with a minimum pressure and flow of 10 litres per second at 200kPa; or

Assessable Development			
Specific Outcomes		Probable Solutions	
			(b) provision of a storage system that is capable of holding a minimum of 5000 litres in the form of a - (i) dam; (ii) swimming pool; or (iii) tank storage system; (c) where a storage system is used it is - (i) fireproof; (ii) fitted with necessary fire hose connections; (iii) accessible for fire fighting vehicles; (iv) provided with a hard stand area within 6 metres of the water supply; (v) connected to a pump that is independent of mains electricity supply; (vi) capable of retaining 5000 litres solely for fire fighting purposes. Notes - ■ Where the use incorporates roof sprinkler systems it is advised that the water supply be increased to 22,000 litres. ■ Communal bushfire water supply is encouraged and will be determined on an individual development basis.
S2.	<u>Environmental Values -</u> (1) Bushfire risk is managed in conjunction with the conservation of the ecological and scenic values of the lot or premises and surrounding landscape; (2) Minimise adverse impacts of visual scarring due to vegetation clearance on hillsides and ridgelines; (3) Fuel reduction areas maximise the use of existing or natural fire breaks and minimise the need to clear additional native plants; (4) Bushland areas are segmented with fire breaks in the form of walking trails and infrastructure or the like to assist in fire management practices; (5) Landscaping incorporates species that are less likely to exacerbate a bushfire event.	P2.	(1) No probable solution identified; (2) Avoid locating uses and other development where it will extend beyond the canopy height of vegetation on a ridgeline or on slopes greater than 15 percent (1 in 7); (3) Fuel reduction areas, as detailed in P1.(3)(a) and (b) are - (a) measured from buildings and structures associated with the use and - (i) fully contained within the site; or (ii) where the lot contains a development envelope is within this defined area; or (iii) co-located with other facilities or infrastructure such as open space, stormwater management infrastructure, on-site wastewater treatment

Assessable Development			
Specific Outcomes		Probable Solutions	
			areas or the like; (4) No probable solution identified; (5) Low flammability plant species identified in Table 2 are used for any planted landscaping within 10 metres of a building or structure. Note - Sites with an average slopes in excess of 15 percent (1 in 7) require a geotechnical analysis report. Refer to Part 11 - Planning Scheme Policy 9 - Infrastructure Works.
S3.	<u>Hazardous Materials -</u> Public safety and the environment are not adversely affected by the detrimental impacts of bushfire on hazardous materials manufactured or stored in bulk.	P3.	Development complies with the recommendations of a bushfire management plan. Note - Refer to Part 11 - Planning Scheme Policy 1 - Bushfire Hazard for further information on bushfire management plans.
S4.	<u>Community Infrastructure</u> (1) Community infrastructure is able to function effectively during and immediately after bushfire events.	P4.	(1) Community infrastructure - (a) is not located on land that is shown as having a high, medium or SMBI bushfire hazard on this overlay map; or (b) does not result in any new building work other than an extension of less than 20m² gross floor area; or (c) is located where site assessment identifies that the use is able to function effectively during and immediately after a bushfire event. Note - ■ If the proposal complies with P4.(1)(a) no further assessment is required in relation to bushfire hazard. ■ Where the use will be within a bushfire hazard, site-specific assessment is necessary to demonstrate that the bushfire hazard is low on the proposed site. ■ Refer to Part 11 - Planning Scheme Policy 1 - Bushfire Hazard for requirements of a bushfire

Assessable Development			
Specific Outcomes		Probable Solutions	
			hazard assessment and management plan.

Table 1 -SMBI Bushfire Hazard Fuel Reduction Area Requirements

Fuel Reduction Area Type - See Note 1	Description			Applicable to -
	Slashed Zone See Note 2	Fuel Removal Zone See Note 3	Total Fuel Reduction Area See Note 4	
Type 2	10 metres	5 metres	15 metres	■ SMBI bushfire hazard
Type 4	5 metres	3 metres	8 metres	■ SMBI bushfire hazard if in conjunction with buildings constructed in accordance with <i>Australian Standard 3959:1999 - Construction of Buildings in Bushfire Prone Areas</i>

Note 1 - The Rural Fire Service identifies 7 types of fuel reduction areas. Of these only 2 and 4 are applicable to the planning scheme area.

Note 2 - Slashed Zone is the area where all understorey and ground cover is removed, trees greater than 15cm diameter at chest height are retained and provides for the easy movement of fire fighting vehicles along the Fuel Reduced Area in all situations.

Note 3 - Fuel Removal Zone is the area where trees and groundcovers are retained and vegetation that is not expected to exceed 1.5 metres in height on maturing is selectively removed.

Note 4 - Fuel Reduction Areas are measured from buildings and structures associated with the development. Refer to Planning Scheme Policy 1 - Bushfire Hazard, section 1.12 for further information.

Table 2 - Low Flammability Plant Species

Mainland		SMBI	
Species	Common Name	Species	Common Name
Acacia melanoxylon	Blackwood	Acacia melanoxylon	Blackwood
Acacia sophorae	Coastal Wattle	Acacia sophorae	Coastal Wattle
Acmena smithii	Lilly Pilly	Banksia integrifolia	Coastal Banksia
Banksia integrifolia	Coastal Banksia	Banksia spinulosa var collina	
Banksia spinulosa var collina		Casuarina glauca	Swamp Oak
Brachychiton acerifolius	Flame	Cupaniopsis anacardioides	Tuckeroo
Buckinghamia celicissima	Ivory Curl	Dodoneaea spp.	
Casuarina glauca	Swamp Oak	Elaeocarpus reticulatus	Blueberry Ash
Cupaniopsis anacardioides	Tuckeroo	Ficus macrophylla	Moreton Bay Fig
Dodoneaea spp.		Glochidion ferdinandii	Cheese Wood
Elaeocarpus reticulatus	Blueberry Ash	Hymenosporum flavum	Native Frangipani
Ficus macrophylla	Moreton Bay Fig	Jacksonia scoparia	Dog Wood
Glochidion ferdinandii	Cheese Wood	Lophostemon confertus	Brushbox
Guioa semiglaucula		Mallotus philippensis	Red Kamala
Hymenosporum flavum	Native Frangipani	Myoporum acuminatum	Boobialla
Jacksonia scoparia	Dog Wood	Pittosporum revolutum	Brisbane Laurel
Lophostemon confertus	Brushbox	Rapanea variabilis	
Mallotus philippensis	Red Kamala	Carpobrotus glaucescens	Pigs Face
Myoporum acuminatum	Boobialla	Hardenbergia violacea	
Pittosporum revolutum	Brisbane Laurel	Kennedia rubicunda	
Pittosporum rhombifolium		Lomandra longifolia	
Rapanea variabilis		Themeda triandra	
Stenocarpus sinuatus		Viola hederacea	
Carpobrotus glaucescens	Pigs Face	Chrysocephalum apiculatum	
Hardenbergia violacea			
Kennedia rubicunda			
Lomandra longifolia			
Themeda triandra			
Viola hederacea			
Chrysocephalum apiculatum			

Redlands Planning Scheme Fact Sheet



November 2010

Fact Sheet 13 - Hazard Overlays

What is the role of Hazard Overlays?

Hazard overlays show that a property is constrained by a risk that may affect the safety of people and property. Hazard overlays in the scheme are the -

- Acid Sulfate Soils Overlay
- Bushfire Hazard Overlay
- Flood Prone, Storm Tide and Drainage Constrained Land Overlay
- Landslide Hazard Overlay

What is the purpose of the Acid Sulfate Soils Overlay?

The purpose of the **Acid Sulfate Soils Overlay** is to ensure that development identifies and manages acid sulfate soils. The overlay protects the natural and built environments and human health from negative impacts that result from the exposure of acid and metal contaminants from the soil.

Acid sulfate soils (ASS) occur naturally over extensive low-lying coastal areas, mainly below 5 metres Australian Height Datum (AHD). Potential ASS only become a problem when they are exposed to air. Exposure is usually a result of excavation associated with development. The release of ASS may cause harm to the natural and built environment and human health.

The State Government manages ASS through *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils*. The overlay ensures development complies with the State Planning Policy.

What are the Acid Sulfate Soil Overlay Maps?

The **Acid Sulfate Soils Overlay Map** shows properties across the Redlands with a surface level -

- at or below 5 metres Australian Height Datum (AHD);
- between 5 metres AHD and 20 metres AHD.

These properties may contain acid sulfate soils. There is a map for the mainland and another for SMBI and North Stradbroke Island.

When will the Acid Sulfate Soils Overlay apply?

The Acid Sulfate Soils Overlay will apply depending on the quantity of filling and/or excavation that occurs in association with development. Often, development will be self-assessable because of limited excavation or fill.

For instance, development is self-assessable where -

- removing less than 100m³ of soil from below 5 metres AHD; or
- filling of land with less than 500m³ of material at an average depth of less than 500mm below 5 metres AHD.

Otherwise development is code assessable and will need to satisfy the assessment criteria of the code. Where development is code assessable ASS need to be identified and managed. This may involve -

- ensuring ASS are not removed;
- neutralizing existing acidity;
- preventing surface or groundwater flows containing ASS from release into the environment.

What is the purpose of the Bushfire Hazard Overlay?

The **Bushfire Hazard Overlay** shows land at risk from bushfire. The purpose of this overlay is to protect people and property from the risk of bushfire while maintaining environmental values.

The State Government manages bushfire hazard through *State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*. The overlay ensures development complies with the State Planning Policy.

What are the Bushfire Hazard Overlay Maps?

The **Bushfire Hazard Overlay Map** identifies properties affected by bushfire hazard, including properties that adjoin a hazard. Hazard levels affecting Redland City are -

- high hazard - small areas in Mount Cotton and on North Stradbroke Island (NSI);
- medium hazard - across the mainland and NSI;
- SMBI hazard - that is specific to the Southern Moreton Bay Islands.

There is a map for the mainland and another for SMBI and North Stradbroke Island.

When will the Bushfire Hazard Overlay apply?

Most development will need to satisfy the assessment criteria of the overlay code. Where development is located in an area outside the hazard it may be self-assessable.

When development is proposed to locate on land affected by a bushfire hazard, it is code assessable and will need to satisfy the assessment criteria of the overlay code. This means that development will need to avoid the identified bushfire hazards or mitigate bushfire risk through a combination of the following measures -



Fact Sheet 13 - Hazards Overlays - Continued

- locating where the hazard is the lowest;
- maximising setbacks from the hazard;
- designing buildings in accordance with *Australian Standard 3959:1999 Construction of Buildings in a Bushfire Prone Area*;
- providing fuel reduction areas;
- undertaking a bushfire hazard assessment or a bushfire management plan.

Part 11 of the planning scheme contains Planning Scheme Policy 1 - Bushfire Hazard that provides help on how to prepare a bushfire hazard assessment or bushfire management plan, among other matters.

NOTE: The SPA Regulations (Schedule 4) exempts development for residential purposes on lots under 2000m² where the only overlay affecting the land is the Bushfire Hazard Overlay. Please discuss with Council planning officers if you believe this to be your circumstance.

What is the purpose of the Flood Prone, Storm Tide and Drainage Constrained Land Overlay?

The **Flood Prone, Storm Tide and Drainage Constrained Land Overlay** identifies land subject to flooding, storm tide and drainage constraints. The overlay aims to protect the safety of people and property from the risk of flooding. To avoid risks, development should locate outside flood, storm tide and drainage affected areas.

What are the Flood Prone, Storm Tide and Drainage Constrained Land Overlay Maps?

The overlay map identifies land affected by flooding, or storm tide. This means the property is constrained by a -

- Storm Tide Area; or
- Flood Prone Area.

The storm tide area currently includes land below RL 2.4 metre Australian Height Datum (AHD) and the flood prone area includes land that may be affected by the 1percent AEP (1 in 100 year ARI).

The State Government manages the risk of flooding through *State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*. The overlay ensures development complies with the State Planning Policy.

The term used to describe this flood level is the 1 percent Annual Exceedance Probability (1% AEP) previously referred to as the 1 in 100 year Average Recurrence Interval (ARI). The 1% AEP describes a flood event that has a 1 percent chance of occurring in a 100 year period. Flood levels are generally based on historical rainfall data and extensive surveys and modelling.

The overlay map also shows properties on the Southern Moreton Bay Islands (SMBI) that have a drainage problem by identifying lots that, during extended wet weather, may have the following problems -

- are within a water overland flow path
- have a high water table
- has significant seepage problems
- there is flooding of the road reserve restricting vehicular access to the lot.

Where Council does not have extensive survey or flood analysis, a detailed flood investigation is required to identify the 1% AEP or specific drainage constraint.

The planning scheme contains a planning scheme policy, Planning Scheme Policy 7 - Flood Prone, Tidal Affected and Drainage Constrained Land, to provide help on what technical information is required in survey information and flood studies, among other matters. There is an overlay map for the mainland and another for SMBI and North Stradbroke Island.

When will the Flood Prone, Storm Tide and Drainage Constrained Overlay apply?

Development on land covered by the overlay map and listed in the overlay table of assessment is code assessable and will need to satisfy the assessment criteria of the overlay code.

What is the purpose of the Landslide Hazard Overlay?

The purpose of the **Landslide Hazard Overlay** is to ensure that development on steep slopes does not increase the risk of landslide through poor design, inappropriate excavation and fill or removal of vegetation.

It aims to:

- provide guidance relating to the identification of potential slope instability areas;
- set out the requirements for preparation and submission of development applications, including technical reports on land located within the designated Landslide Hazard Management Area; and
- provide information relating to good engineering practices for hillside development to assist applicants, engineers and planners in the design and application of appropriate type and form of developments that best reflects the capability of the land.

The State Government manages landslide hazard through *State Planning Policy 1/30: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*. The overlay ensures development complies with the State Planning Policy.

What are the Landslide Hazard Overlay Maps?

The **Landslide Hazard Overlay Map** identifies locations across the City with potential for landslide hazard.

Landslide Hazard Management Areas affecting Redland City are described as Very High, High, Moderate or Low. There is a map for the mainland and another for SMBI and North Stradbroke Island.

For further information on specific overlays refer to -

- Fact Sheet 12 - Overlays Overview
- Fact Sheet 14 - Value Overlays
- Fact Sheet 15 - Resource Overlays
- Fact Sheet 16 - Amenity Overlays

Disclaimer -

This fact sheet is intended to help people gain an understanding of the Redlands Planning Scheme and is a **GUIDE ONLY**. The content of this fact sheet is not intended to replace the provisions of the Redlands Planning Scheme.