



Town Planning Management Engineering



Point Henry Fire Management Strategy



town planning
management
engineering
environmental

Research, Design & Delivery of Sustainable Development

11336P
January 2014



CONTENTS

1.0	Background	6
1.1	Introduction	6
1.2	Aims, Objectives and Assets	9
1.3	Methodology	9
1.4	Previous Investigation.....	10
2.0	Existing Conditions	13
2.1	Land Tenure	13
2.2	Land Use	15
2.3	Climate	19
2.4	Topography	19
2.5	Vegetation	20
2.6	Water Supply	22
3.0	Existing Fire Protection Measures	23
3.1	District Measures	23
3.2	Local Measures.....	24
4.0	Policy Framework	27
4.1	Emergency Management.....	27
4.2	Prepare, Act, Survive	29
4.3	State Planning Policies	29
4.3.1	SPP 3.4 Natural Hazards and Disasters	29
4.3.2	Proposed Bush Fire SPP	30
4.3.3	Planning Bulletin 111	30
4.4	Planning for Bush Fire Protection.....	30
4.5	Australian Standard AS3959 (2009)	31
4.6	Planning Strategies.....	32
4.6.1	Local Planning Strategy.....	32
4.6.2	Point Henry Limited Rural Strategy.....	32
4.7	Local Planning Scheme No 2	34
4.7.1	Zoning and Aims	34
4.7.2	Rural Residential Zone General Provisions	34
4.7.3	Specific Rural Residential Zones	35
4.7.4	Rural Zone	35
4.7.5	Special Use Zones	37
4.7.6	Amendment No 5	37
4.8	Vegetation Controls.....	38
5.0	The Bush Fire Issue	40
5.1	The Bush Fire Threat	40
5.2	The Bush Fire Hazard	41
5.3	The Bush Fire Risk.....	42
5.3.1	Likelihood	43
5.3.2	Consequences	48
6.0	Development / Management Options.....	49
7.0	Development and Management Issues	51
7.1	Acceptable Level of Risk.....	51
7.2	Community Vulnerably.....	53
7.2.1	Community Programs	54
7.2.2	Defending Properties	57
7.3	Single Road Access.....	58
7.4	Hazard Management.....	59
7.4.1	Fuel Reduction	59
7.4.2	Fuel Management Zoning.....	62
7.4.3	Hazard Separation.....	62
7.5	Construction Standards.....	64
7.5.1	New Dwellings	64
7.5.2	Existing Dwellings.....	66



7.6	Building Protection Zones.....	67
7.7	Building Envelopes.....	70
7.8	Water Supplies.....	71
7.9	Property Access.....	72
7.10	Shelters.....	72
7.10.1	Community Fire Refuge.....	72
7.10.2	Neighbourhood Safer Places.....	73
7.10.3	Private Shelters.....	73
7.11	Sprinklers.....	74
7.12	Dwelling Design.....	74
7.13	Holiday Homes.....	75
7.14	Future Development.....	75
7.15	Local Planning Scheme Provisions.....	77
7.15.1	Bush Fire Prone Areas.....	77
7.15.2	Clause 5.25 Rural Residential Zone.....	77
7.15.3	Consideration of Planning Applications.....	78
7.16	Fire Break Notice.....	80
7.17	Signage and Information.....	81
7.18	Climate Change.....	83
7.19	Variations and Other Measures.....	83
8.0	Conclusion and Implementation.....	84
9.0	Bibliography.....	88

FIGURES

Figure 1	Location Plan.....	7
Figure 2	Risk Cycle.....	8
Figure 3	Methodology.....	10
Figure 4	Legislative Relationships.....	11
Figure 5	Land Tenure.....	14
Figure 6	Existing Conditions Aerial.....	16
Figure 7	Road Network.....	18
Figure 8	Existing Protection Measures.....	26
Figure 9	Strategy Plan Extract.....	33
Figure 10	Zoning.....	36
Figure 11	Bush Fire Threat.....	40
Figure 12	2002 Fire.....	45
Figure 13	Integrated Outcomes.....	49
Figure 14	Risk Levels.....	51
Figure 15	Risk and Expenditure.....	52
Figure 16	Hazard Separation.....	63
Figure 17	Building Envelope.....	70
Figure 18	Planning Applications.....	79
Figure 19	Example Information Sign.....	81
Figure 20	Bush Fire Strategy Plan.....	86



TABLES

Table 1 Landowner Locations	13
Table 2 Crown Reserves	13
Table 3 Agency Responsibilities	28
Table 4 Rural Residential Zones	35
Table 5 Risk Matrix	42
Table 6 Fire Danger Rating	43
Table 7 Example FDRs	44
Table 8 Management Options	50
Table 9 Qualitative Risk Assessment	52
Table 10 Community Programs	56
Table 11 Fuel Management Options	61
Table 12 Vegetation Classifications	64
Table 13 BAL Table	65
Table 14 Potential Development	76
Table 15 Shared Responsibilities	87

APPENDICES

Appendix 1	Example Aerial and Contour Plan
Appendix 2	Weather Charts
Appendix 3	Contour Mapping
Appendix 4	Slope Gradients
Appendix 5	Firebreak Agreement
Appendix 6	BAL Summary
Appendix 7	DPaW Fact Sheet 20
Appendix 8	Vegetation Classification Table
Appendix 9	BAL Assessment Sheets
Appendix 10	Draft Special Control Area Provisions

Draft for Comment



1.0 Background

1.1 Introduction

TME Town Planning, Management, Engineering Pty Ltd has been engaged by the Shire of Jerramungup to prepare a fire management strategy for the Point Henry peninsula located south of the Bremer Bay townsite.

The study brief for the project notes that:

“Recent fires north of the Bremer Bay townsite have highlighted ongoing concerns with the adequacy of the fire management measures in Point Henry. The fire management regime for Point Henry has evolved over time in accordance with the policy requirements as each new rezoning and subdivision occurred in Point Henry. Given that the first subdivision in Point Henry began in 1990 it may be appropriate to review all of the fire management requirements in Point Henry and bring them up completely to date, meeting current standards.”

The Study Area is shown in Figure 1 and includes more than 2,300 hectares of land extending southwards from White Trail Road for approximately 8 kms. It is the major location of rural residential development within the Shire.

In December 2012 a bush fire in the Fitzgerald River National Park potentially threatened the Bremer Bay townsite. It was publicised that Point Henry was not considered defensible in the event that:

- The fire broke its containment lines; and
- The wind direction changed to the north east with expected hotter and dryer conditions.

The primary concern was that there would not be sufficient time to evacuate residents because there was only a single access road to Point Henry.

Bush fires occur annually throughout Western Australia including the southern parts of the State. Notable recent fires include:

- Black Cat Creek October 2012;
- Milyeannup November 2011;
- Margaret River November 2011;
- Roleystone February 2011;
- Lake Clifton January 2011;
- Toodyay December 2009;
- Bridgetown January 2009;
- Boorabbin December 2007 – January 2008;
- Dwellingup January – February 2007.

The bush fires Roleystone (Perth Hills), Margaret River and Milyeannup (Nannup) resulted in a number of formal inquiries being conducted by the State Government. The recommendations from these are currently being implemented and many of these build on previous inquiries and especially the Victorian Royal Commission Inquiry into the 2009 fires.

Previous inquiries (1) have recognised that land use planning is the single most important mitigation measure for preventing future disaster losses from bush fires in areas of new development. In considering a green fields development it would normally be necessary to demonstrate that the subdivision complies with the provisions in the Planning for Bush Fire Protection Guidelines (2).

1 Council of Australian Governments (2004), *National Inquiry on Bushfire Mitigation and Management*, Page 92.
2 DFES (2010) *Planning for Bush Fire Protection Guidelines* Perth Guidance Statements A3 & A4.



Figure 1 Location Plan



The peninsula is already substantially subdivided with approximately one third of the lots being developed.

Consequently the Strategy seeks to promote measures to improve the safety of the community providing for the protection of life, property and the environment. However it will not be possible to make the area “fire safe” and there will always be an inherent risk from bush fires.

The long term management of the bush fire risk is a shared responsibility between landowners, government and industry. The Strategy seeks to increase community resilience by raising awareness and encouraging participation in the management of mitigation measures.

Both the Victorian Royal Commission (3) and the National Inquiry on Bushfire Mitigation have recognised that there is a cycle of bush fire events, inquiries and community concern which repeats over a period of time usually extending for twenty years. This is shown in Figure 2 which illustrates that after each major bush fire event that there is a period of increased awareness and determination to avoid a recurrence. However this awareness and concern slowly decline and compete with other policy issues which eventually results in another major bush fire event.

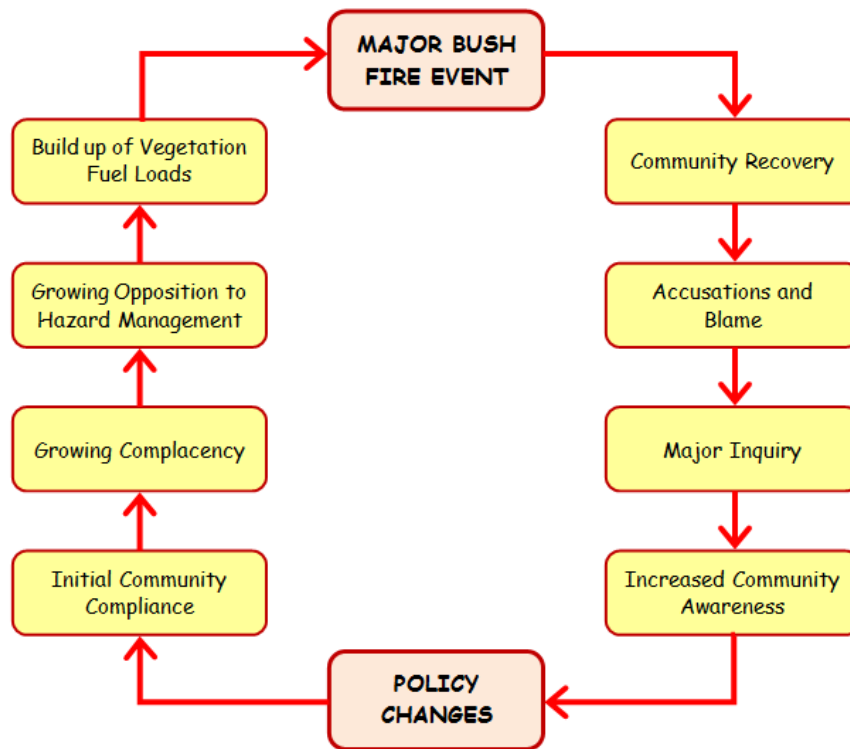


Figure 2 Risk Cycle

3 Victorian Bushfires Royal Commission (2010) *Final Report* Government Printer Melbourne Page 355



1.2 Aims, Objectives and Assets

The aim of the Strategy is:

“That the fire risk at Point Henry be managed to be as low as is reasonably practicable in the existing circumstances”

The objectives of the Strategy are:

- a) To integrate fire management as a key element of development and subdivision design in balance with environmental, landscape, community and residential objectives;
- b) That all levels of the community work towards fostering a permanent culture of fire consciousness and preparedness;
- c) That the Strategy clarify what landowners, managers and occupiers must do; should do and can do; and
- d) Manage fuel to reduce the rate of spread and intensity of bush fires, while minimising environmental/ecological impacts.

Within the Study Area there are a number of defined assets, which are further documented in Section 2.2. An asset is anything which is valued by the community and generally there are four categories of assets as outlined below (4):

- Human settlement which is predominantly the existing rural residential development. It also includes any development needing special fire protection such as schools, child care centres, hospitals, retirement villages etc);
- Economic (agricultural, commercial/industrial, infrastructure, tourist and recreational, mines, commercial forests, and drinking water catchments);
- Environmental assets (endangered, vulnerable, and locally important); and
- Cultural assets (Aboriginal heritage, non indigenous heritage, and other cultural assets).

1.3 Methodology

The Strategy has been prepared having regard to:

- The Planning for Bush Fire Protection Guidelines;
- Australian Standard AS3959 Construction of Buildings in Bushfire Prone Areas;
- AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines;
- Previous bush fire investigation reports in Western Australia, interstate and nationally; and
- National and State bush fire and emergency management policies.

The methodology recognises the principles of risk management as contained in AS/NZS ISO 31000 with the process shown in Figure 3.

The Strategy is focussing on the current development approval processes as shown in Figure 4. The recommendations have been framed to reduce inconsistencies between these processes. The Strategy is not intended to be a traditional fire management plan in terms of what is stipulated in the Planning Bush Fire Protection Guidelines. As a Strategy it is able to consider a broader range of issues; fire mitigation measures and community awareness.

The preparation of the Strategy has included:

- Landowner consultation, letters and meetings;
- Stakeholder consultation, letters and meetings;
- Site inspections;
- Review of previous reports and relevant literature.



Detailed mapping of the Study Area has been prepared including high resolution aerial photography and contour information for individual properties. An example of this is shown in Appendix 1.

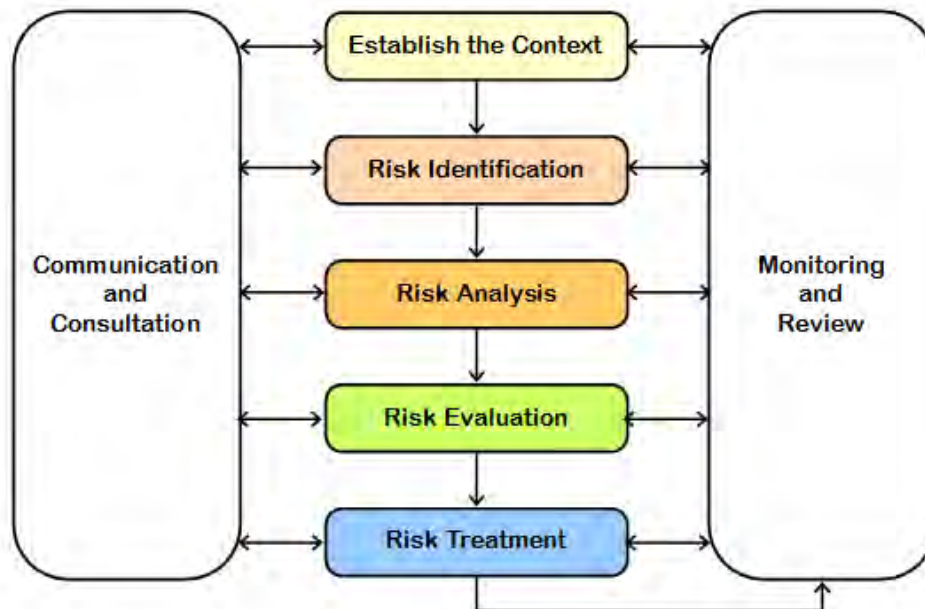


Figure 3 Methodology

1.4 Previous Investigation

In 2008 FirePlan WA Pty Ltd undertook a review of the fire management measures within the Study Area. This focussed on the maintenance of existing strategic firebreaks, installation of building protection zones around all dwellings and implementation of a public education program in the Bremer Bay Point Henry area.

It was recommended that:

- Council issue an individual notice under Section 33(1) of the Bush Fire Act requiring land owners to install strategic firebreaks in their original position as detailed in the approved development plan or come up with a suggested alternative position.
- Council change the Firebreak Notice to include building protection zones around all dwellings.
- Council is to endorse "Planning for Bush Fire Protection" be used as a guideline for the preparation of Fire Management Planning for developments within the Shire.
- Council should require "Concept Plans" or "Structure Plans" for future development areas including Lots 19 & 89 and other areas in Point Henry and the Bremer Bay townsite.
- Council should require Developers to submit a fire management plan as part of a Master Plan or "Outline Development Plan", this can be fine tuned at the subdivision stage.
- That Council modifies its Firebreak Notice to specifically have requirements for rural residential/special rural and urban lots.

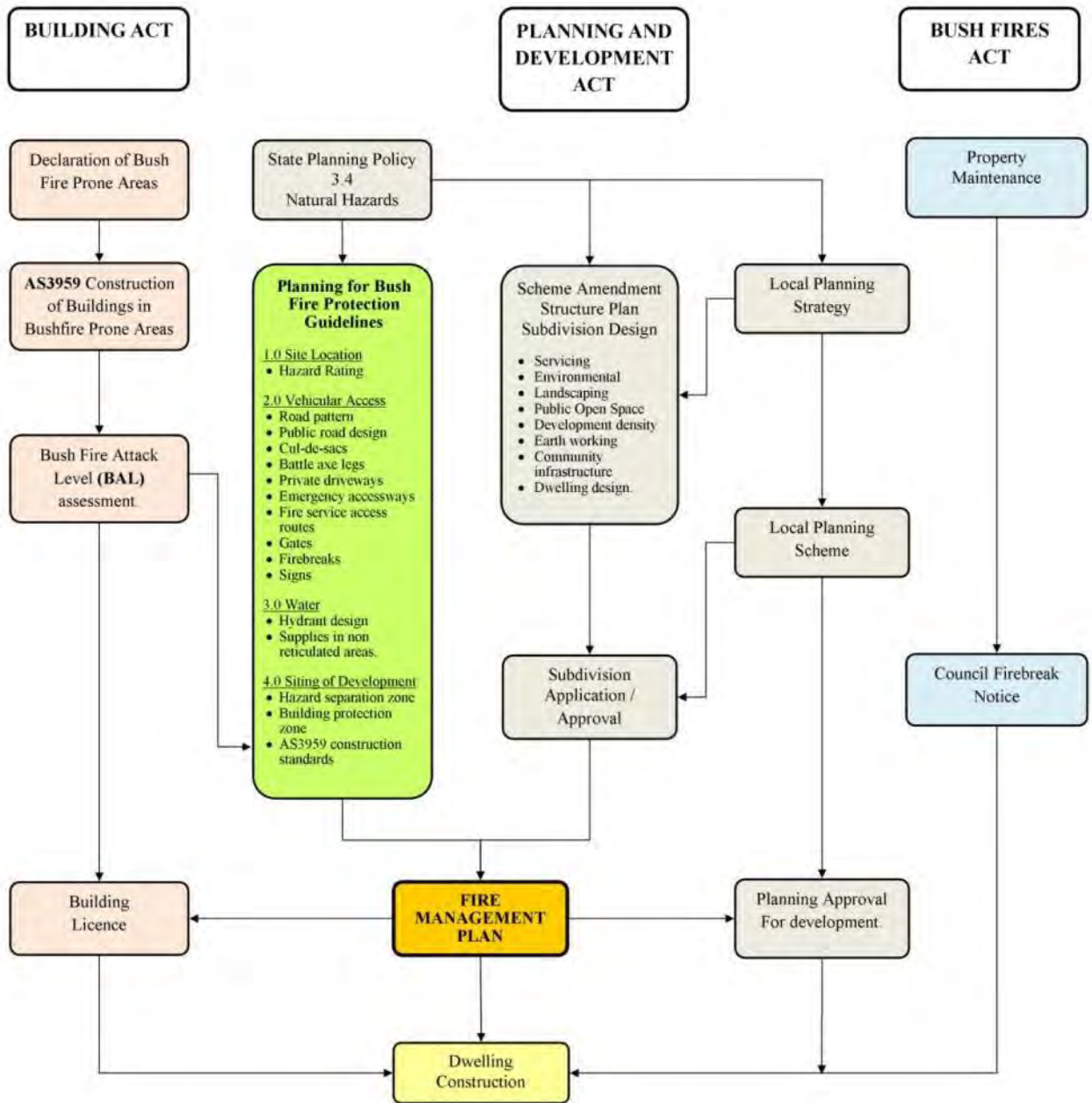


Figure 4 Legislative Relationships



It is common for development in coastal areas to be sheltered in dense vegetation which can have major consequences when a wild fire occurs.



2.0 Existing Conditions

2.1 Land Tenure

The Study Area contains a mixture of crown and freehold land as shown in Figure 5. The crown land includes managed reserves, unmanaged reserves and unallocated crown land.

There are an estimated 207 freehold properties within the Study Area. The predominant lots are for rural residential development with areas of between 3 and 10 hectares. The postal location of the landowners is shown in Table 1. The vast majority of owners are non local with these evenly split between the Perth metropolitan and non metropolitan areas.

Table 1 Landowner Locations

Location	Number	Total	%
Bremer Bay	35	35	17%
Non Local			
Perth Metropolitan	88	88	42.5%
Non Metropolitan			
South of Perth	34		
Jerramungup	10		
North of Perth	32		
Interstate	8		
Sub Total	84	84	40.5%
Total		207	100%

The crown reserves within the Study Area are documented in Table 2 and it is noted that:

- The beach foreshore areas are generally Unallocated Crown Land;
- Point Gordon and Point Henry are both vested to the Department of Planning and Infrastructure which is now the Department of Lands;
- The largest reserve is R511 on the northern boundary of the Study Area and this is managed by Council; and
- Reserve 31737 being the Fitzgerald River National Park adjoins the western border of the Study Area.

Table 2 Crown Reserves

Number	Class	Lots	Area (ha)	Purpose	Management Agency
511	C	790, 791, 3000, 3002	640	Recreation	Shire of Jerramungup
3766	B		202	Public Utility	Department of Planning
4121	B		70	Govt Requirements	Department of Planning
9534	C	2165	2	Communications Facility	Shire of Jerramungup
39946	C	650	4	Cemetery	Shire of Jerramungup
39967	C	2094	5	Recreation	Shire of Jerramungup
39968	C	2095	4	Recreation	Shire of Jerramungup
39969	C	2096	4	Recreation	Shire of Jerramungup
43434	C	2135	3	Water Supply	Shire of Jerramungup
43351	C	2136	11	Water Supply	Shire of Jerramungup
43358	C	2137	91	Recreation	Shire of Jerramungup
45279	C	2163	7	Recreation	Shire of Jerramungup
46171	C	797, 799	10	Harbour Purposes	Department of Transport
46625		2190	75	Recreation	Shire of Jerramungup



46774	C	2192, 2195	50	Parkland	Shire of Jerramungup
-------	---	------------	----	----------	----------------------

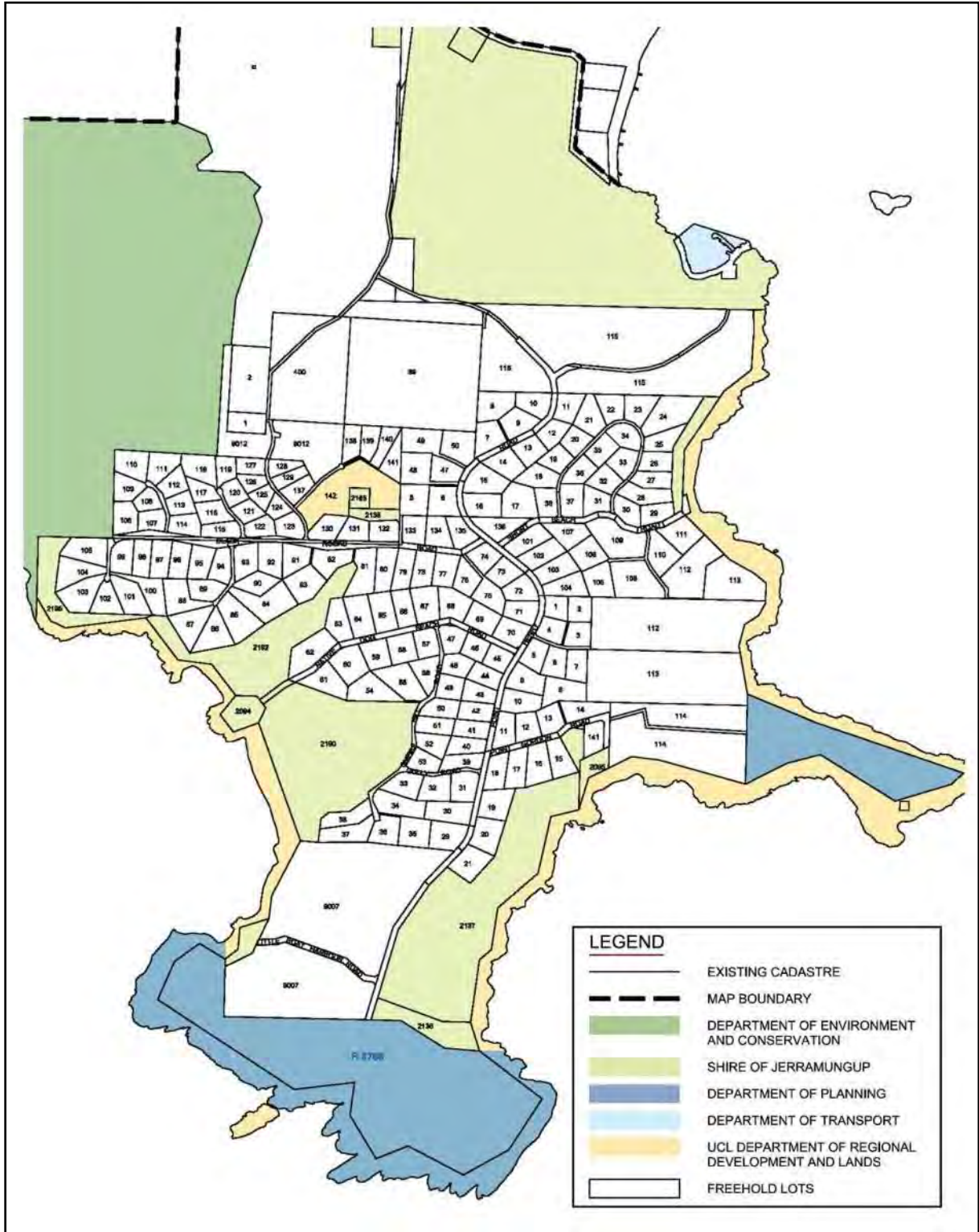


Figure 5 Land Tenure



2.2 Land Use

The existing land uses within the Study Area and adjoining land are shown in Figure 6. The majority of the land is vacant with approximately 80 lots being developed.

The predominant land use is for the rural residential purposes and these lots have been developed for both permanent residency and for holiday homes. There are a number of businesses within the Study Area including:

- 888 Abalone Pty Ltd with 15 full time and 10 casual employees;
- Bremer Bay Beaches Resort and Caravan Park; and
- Wellstead Museum and Cafe

Major infrastructure includes;

- Fishery Beach marina;
- Communication tower and base equipment on Tooreburrup Hill;
- Bremer Bay cemetery;
- Water pipelines etc

A significant cultural and recreation feature are the public beaches and the associated infrastructure etc. The use of these is greatest during the peak summer holiday period. Over summer there is a dramatic increase in the population from tourism and visitors. This has been estimated to be more than 20,000 persons per month (5).

The existing road network is shown in Figure 7. Access to the Study Area is from Wellstead Road which is a sealed distributor road. This then connects in to Point Henry Road which has a number of subdivision roads extending from it which also provide access to the beaches. A number of these roads are unsealed gravel roads which have been formed and are more than 6m wide.

Communication equipment on Tooreburrup Hill



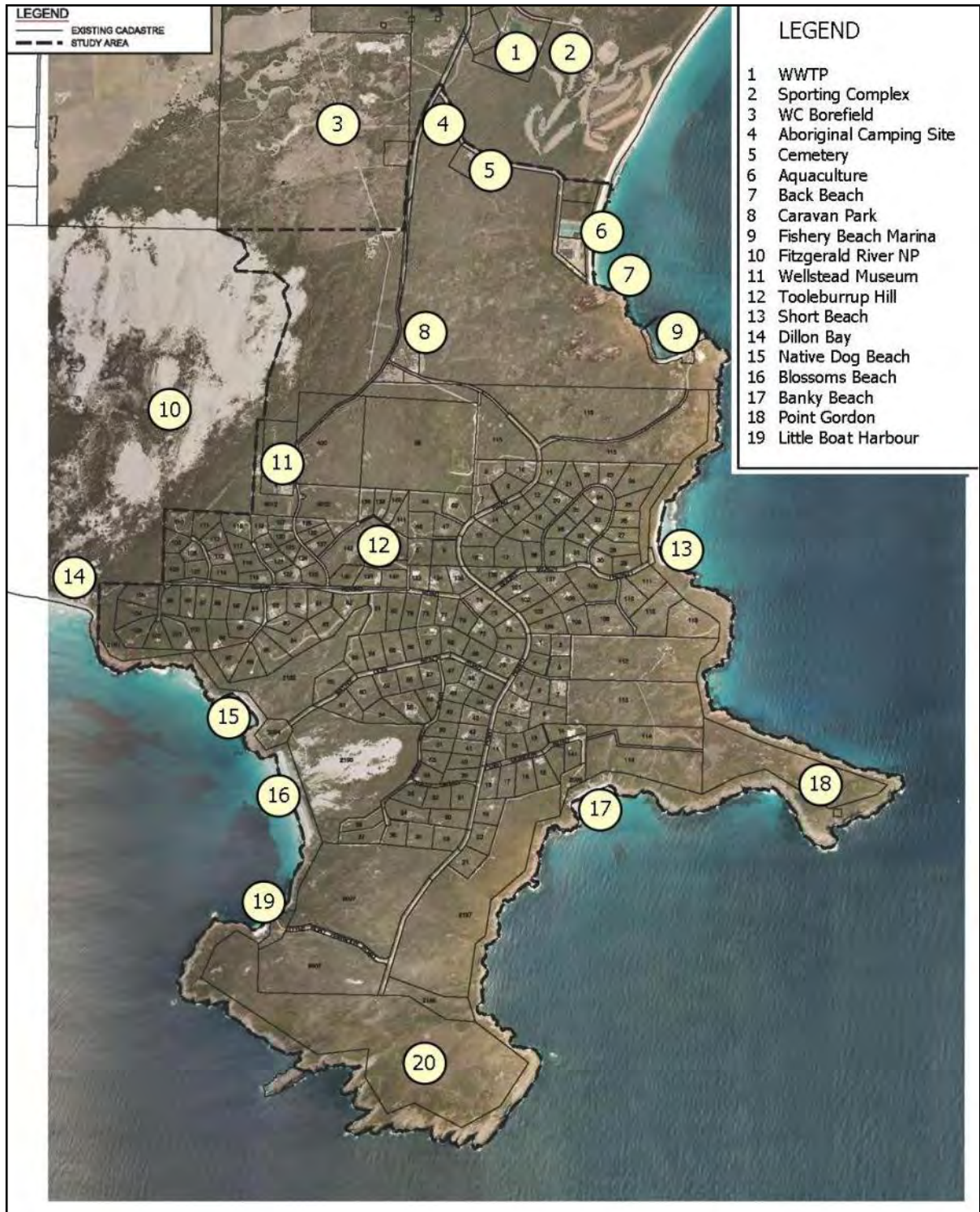


Figure 6 Existing Conditions Aerial



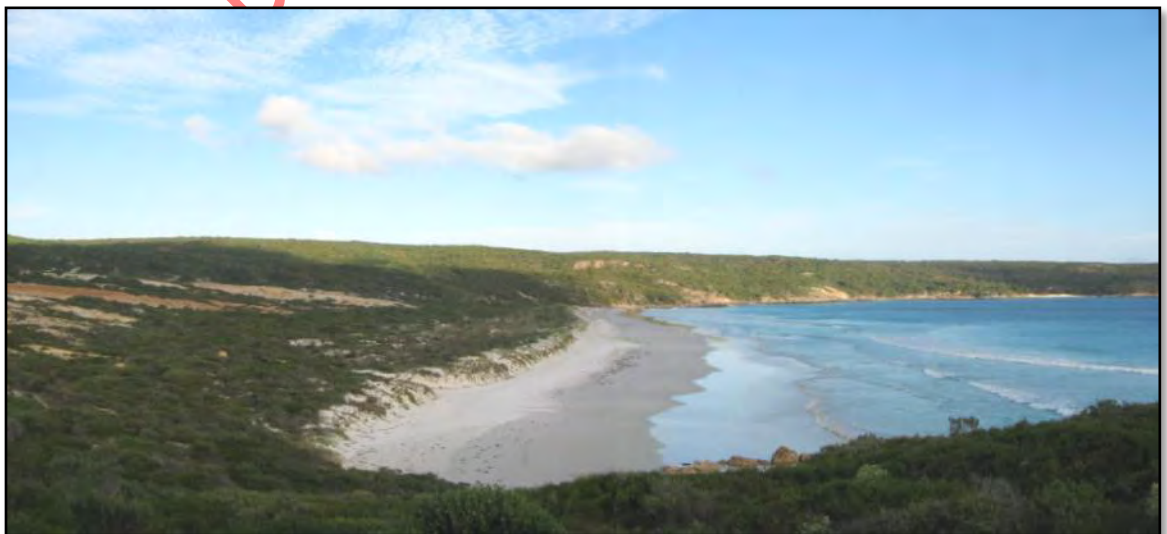
888 Abalone Farm



Dwelling on Lot 114



Blossom's Beach



Draft for

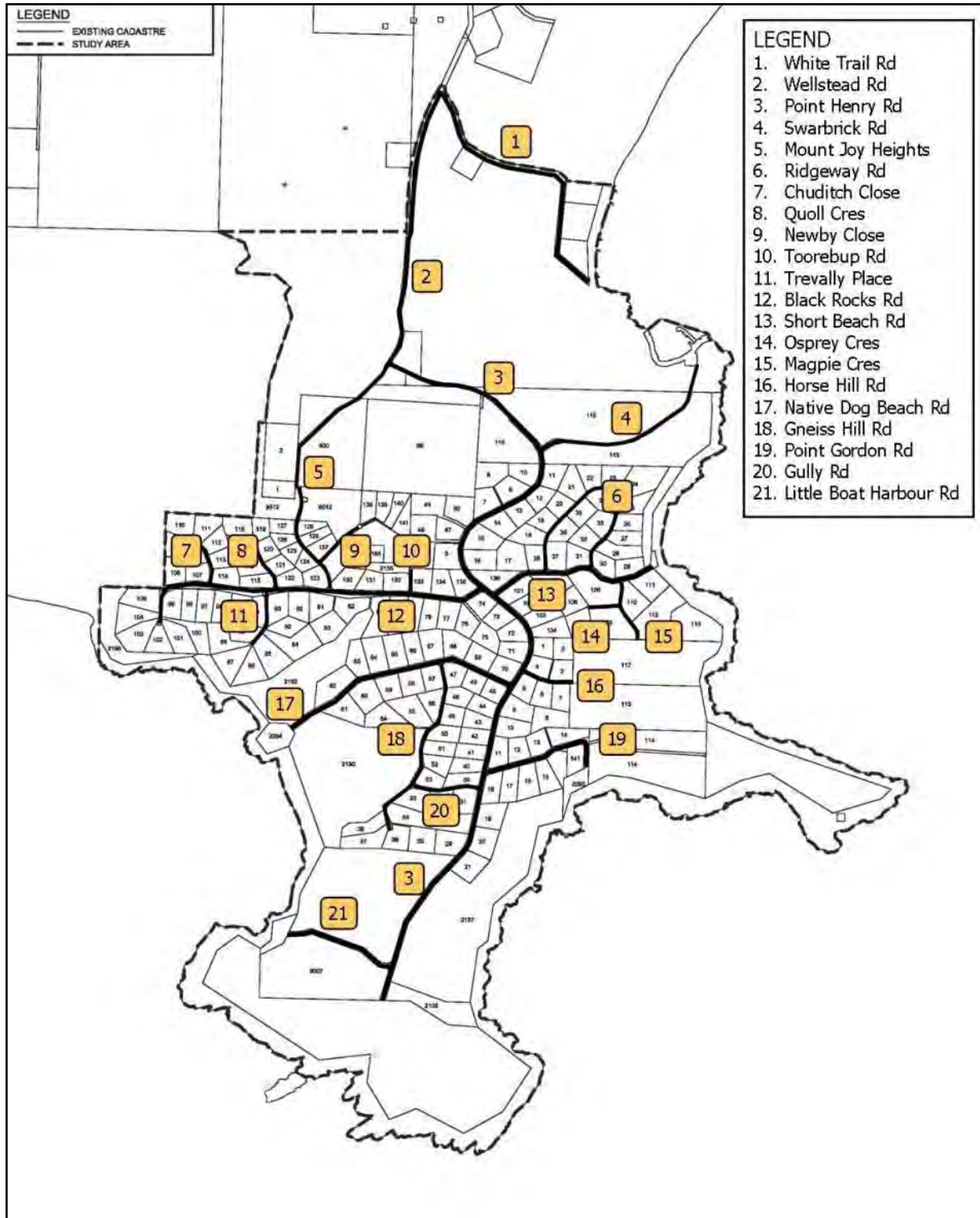


Figure 7 Road Network



2.3 Climate

The Study Area has a Mediterranean climate, which is characterised by hot dry summers and mild wet winters. The nearest weather station is at Mettler which is located approximately 90kms west of Bremer Bay.

There is an annual average rainfall of 606 mm. The mean maximum temperature ranges from 16.2C in July to 25.1C in January. The mean minimum temperature ranges from 6.1C in August to 14.0C in February (6).

The wind direction at 9:00am is generally from the west and north east. At 3:00pm the wind direction is generally from the south east. Wind speeds are typically up to 10 kph in the mornings and 15 to 20 kph in the afternoon.

The strongest afternoon winds are normally in January and the locality also experiences strong easterly winds in summer. Very high temperatures occur often in conjunction with hot northerly winds. The highest temperature was 47 degrees in February 1991. In February 2012 the region had temperatures of 41 degrees with winds of 48kph from a north westerly direction. The average numbers of 2.9 days in December with temperatures higher than 30 degrees and in 3.5 days in both January and February.

Annual weather information charts are included in Appendix 2.

2.4 Topography

The physiography of the Study Area has been described as (7)

".....the landforms are varied, with rolling hills, valleys, some deeper ravines, a mobile dune system and a scenic coastline. Steep granitic coastal slopes give way intermittently to sandy beaches, each with its own character. Limestone, granitic and sand landforms are evident.

A spine of higher ground winds down the peninsula in an overall north – south direction. From this spurs descend in generally easterly or westerly directions to the ocean. The main spine and spurs are generally rounded.

The highest point is Tooreburrup Hill, a rounded hill with some granitic outcrops, 156m high, from which views in all directions are attained. The views of the peninsula gained from Mt Tooreburrup are of low green undulations surrounded by ocean.

A number of drainage lines descend to the coast. These are occupied by small intermittent streams during winter. There is only one permanent stream on the eastern side of the peninsula near the tip of Point Henry on Lot 2098."

The contour levels for the site are shown in Appendix 3.

The gradient of the slopes in the Study Area have been calculated and these are shown in Appendix 4. Due to the mapping size steeper areas may occur over shorter local distances. The flatter land is generally located on the top of the central spine and some of the spurs. Slopes of up to 10 degrees are associated with the landform descending towards the coastline.

6 Bureau of Meteorology – Mettler Weather Station

7 Land Planning Consultants (1991) Point Henry Limited Rural Strategy page 21



2.5 Vegetation

The Study Area is generally heavily vegetated with coastal peppermint being endemic and coastal heath on exposed areas.

A flora survey (8) was prepared for the original Point Henry Limited Rural Strategy and this described the vegetation in the Study Area as follows:

- Mallee shrublands, low woodlands and low forests to 15m tall dominated by peppermint (*Agonis flexuosa*) and *Acacia cyclops*, chiefly on sandy, sheltered soils;
- *Eucalyptus angulosa* mallee thickets on a few limestone ridges slopes and gullies;
- Mixed heaths, often characterised by *Dryandra pteridifolia* and other domed shrubs on granite uplands by *Hakea triurcata* on the northeastern granite point, by *Dryandra sessilis* on upland limestone soils and by *Phebalium rude* and *Spyridium globulosum* on steep coastal slopes,
- Thickets of *Melaleuca pentagona*, *Melaleuca lanceolata* and *Melaleuca* sp., and
- Coastal vegetation of established aliens and native grasses, sedges and small shrubs.

These are described generally on Florabase (9) as follows noting that local characteristics may vary:

- *Eucalyptus angulosa* (Ridge-fruited Mallee) grows to between 1 to 7 m high;
- *Acacia cyclops* (Coastal Wattle) is a dense shrub growing to between 0.8 to 4m high;
- *Agonis flexuosa* (Peppermint) is a shrub or tree (small), to 15m high;
- *Dryandra pteridifolia* (Tangled Honeypot) now known as *Banksia pteridifolia* is a shrub, 0.3- 0.5m high
- *Hakea triurcata* (Kerosene Bush)
- *Dryandra sessilis* (Parrot Bush) is a Prickly shrub or tree, 0.5-5m high
- *Melaleuca pentagona* is a shrub, 0.1-3 m high.
- *Melaleuca lanceolata* (Rottnest Teatree) is a shrub or tree, 1-8m high

The vegetation within the Study Area has been changing over time both before and after the above survey was conducted particularly as a result of fire regimes on the peninsula.

Coastal heath



8 AS Weston (1990) Native Vegetation and Significant Flora on the Point Henry Peninsula Section 2.2
9 <http://florabase.dpaw.wa.gov.au/>



Regrowth adjacent to firebreak.



Higher vegetation on Gully Road



Dense scrub vegetation



Draft for



2.6 Water Supply

There is no reticulated water supply within the Study Area. The Water Corporation has a bore field to the north west of the Study Area and this supplies the Bremer Bay townsite. A supply water main extends along portion of Wellstead Road.

There are strategic water supplies for fire fighting which are described further in Section 3.0.

Water tanks and catchment



Standpipe





3.0 Existing Fire Protection Measures

3.1 District Measures

Fire protection measures operate at a state/regional; district and local levels. For the purposes of this report the focus is on district and local measures.

Under the Emergency Management Act 2005 each local government is required to establish a local emergency management committee (LEMC). It is the role of local government to ensure that effective local emergency management arrangements are prepared and maintained, and to manage recovery following an emergency affecting its community. The Local Emergency Management Committee co-ordinates emergency planning in the municipality and the Shire of Jerramungup local emergency management plan (10) describes the overall emergency management arrangements within the municipality.

The plan highlights the threat of bushfire between November and April on land with different tenure. It highlights that during various times of the year that there are special considerations which may affect the availability of resources and volunteers. These include the harvesting season (November to January) and the tourist season (November to April). It acknowledges (page 26) that contacting and getting information about an emergency to these people is difficult and previous education campaigns have focused on encouraging people to listen to the ABC Radio for information. It nominates the Bremer Bay Sports Club as an evacuation point but notes that it can only accommodate 100 persons.

The Council has also prepared a Local Recovery Management Plan.

Local emergency management planning is based upon the concept of the 'prepared community' (11). A prepared community is one which:

- Is alert, informed and active, and supports its voluntary organisations;
- Has an active and involved local government;
- Has agreed and coordinated local emergency management arrangements for prevention, preparedness, response and recovery; and
- Has an appropriate knowledge of emergency management arrangements.

The Bush Fires Act 1954 is the principal source of direction and authority for the prevention, preparedness and response phases of bushfire management in Western Australia.

The principal method for implementing fire measures on developed land is through Council's annual Fire Break Order. This Order is made pursuant to Section 33 of the Bush Fires Act 1954 and applies throughout the whole of the municipal district. It requires all owners and occupiers on or before the 1st day of November to clear inflammable material from firebreaks and thereafter to maintain the firebreaks clear of inflammable material up to and including the 1st day of May.

This requires that in the Rural zone that a landowner shall provide a bare earth 3 metre wide firebreak within 100 metres of all buildings, haystacks, stockpiled inflammable material and fuel dumps by removing all inflammable material and vegetation within the 3 metre wide firebreak between the ground and 5 metres above the ground so that the firebreak provides unrestricted vehicular access.

In the Rural Residential zone a landowner shall:

- a) Clear
 - i) a 3 metre wide bare access track between the boundary of the land and all buildings on the land by removing all inflammable matter and vegetation within the 3 metre wide access track between the ground and 5 metres above the ground so that the access track provides unrestricted access; and
 - ii) a 3 metre wide bare earth firebreak around all buildings on the land and within 20 metres of all haystacks and stockpiled inflammable matter by removing all inflammable matter and vegetation within the 3 metre wide firebreak between the ground and 4 metres above the ground so that the firebreak provides unrestricted access; or

10 Shire of Jerramungup (2010) Local Emergency Arrangements

11 State Emergency Management Committee (2012) 2012 Emergency Preparedness Report Page 16



- b) Where a subdivision guide plan lodged in accordance with the Scheme shows a strategic firebreak located on the land, clear or arrange for the Shire to clear, a 20 metre wide firebreak in the location of the strategic firebreak shown on the subdivision guide plan or such other location approved by the Shire by removing all inflammable matter and vegetation within the 20 metre wide firebreak between 5 cm above the ground and 5 metres above the ground so that the so that the firebreak provides unrestricted access; or
- c) Where a Fire Management Plan which relates to the property has been adopted by Council and endorsed by FESA, clear firebreaks and take measures in accordance with that Fire Management Plan.

3.2 Local Measures

The Shire of Jerramungup is the also the responsible agency for responding / extinguishing bush fires on private land, unmanaged crown land and crown reserves which it manages within the Study Area. This is primarily through the operation of the local volunteer bush fire brigades.

The Bremer Bay Volunteer Fire Service is located on the corner of John Street and the Borden Bremer Bay Road. The brigade has approximately 20 active members with a 2.4 Heavy Duty fire truck and 2 Light Tankers (fast attack vehicles).

The existing fire protection measures for the land south of the townsite and the Study Area are shown in Figure 8 and these include:

- The strategic firebreak network;
- Water supply tanks at Tooreburup Hill of 100,000L with associated catchment;
- Water supply tank near White Trail Road of 90,000L
- Townsite protection burns north of the Study Area.
- Classification of the airport for water bombers with associated water supply.

The strategic firebreak system and landowner contributions to the maintenance of these are an important local fire protection measure which is not common practice in local governments. There are legal agreements in relation to these as contained in Appendix 5.

There is also a range of general community awareness programs and distribution of general information.

There are a number of approved fire management plans within the Study Area as shown in Figure 8 and summarised below.

Lot 400 Wellstead Road (2009)

This was prepared by Fire Plan WA in 2009 and it also recognises the intended development of the adjoining Lot 89. It requires that:

- Dwellings to be constructed in accordance with AS3959
- Building protection zones must be a minimum of 20 metres wide on flat ground and increased by 10 metres for every 10 degrees increase in slope of the land.
- Bush Fire fuels and dry grass must be maintained below a height of 50mm. Bush fire fuels and dry grass must not exceed 2 tonnes/ha.
- A 50,000 litre ferro-cement tank is required to be jointly funded by the developers of Lot 400 and Lot 89 is to be located on the north eastern corner of Lot 89 near Point Henry Rd.
- Each property shall at all times store a minimum of 10,000 litres of water for structural fire fighting purposes
- Hazard separation zones with maximum fuel loads of between 4 - 6 tonnes/ha.

Lot 89 Wellstead Road

This was prepared by Opus International in 2010. This report has been modified from its original version which was done in 2007. It references the 2001 edition of AS3959 and the first edition of the Planning for Bush Fire Protection Guidelines, which are no longer applicable.

It requires that:



- Building protection zones for each lot of either 20 or 25m and these are required to be included within the building envelope;
- Bush fire fuels must be maintained below a height of 100mm; and
- Strategic fire breaks 20m wide.

Lot 645 Wellstead Road

This was prepared by Bio Diverse Solutions in 2013. This applies to the development of new park homes proposed at Bremer Bay Beaches Resort Tourist Park.

It requires that:

- Building protection zones of 20 metres around all buildings;
- Ensure that HSZ's and existing low fuel areas are maintained from the vegetation (fire) risks;
- A 20m firebreak to the north and east of the site within R511 and that these are maintained at a height of 50mm;
- That the park homes are built to BAL 12.5 as it applies to the park homes and AS3959-2009 Building Standards;
- Two additional 45,000L water tanks proposed with one for fire fighting

Lot 9007 Point Henry Road

This was prepared by Fire Plan WA in 2013. It requires that:

- 25 metre wide building protection zones with fuel loads of less than 2 tonnes/ha;
- Reduction of the fuel load within each building envelope to a maximum height of 100 mm and maintained annually irrespective whether a building is proposed to be constructed or not;
- 20 metre wide slashed strategic firebreaks;
- A trafficable surface to Council's specifications suitable for two wheel drive vehicles a minimum of 3 metres wide is to be located roughly in the centre of the slashed strategic firebreak;
- Provision of a contribution to the Shire of Jerramungup for the upgrading of the existing fire fighting water supply at the Bremer Bay Air Landing Ground; and
- Each landowner providing 10,000 litres for of water fire fighting.

Strategic firebreak



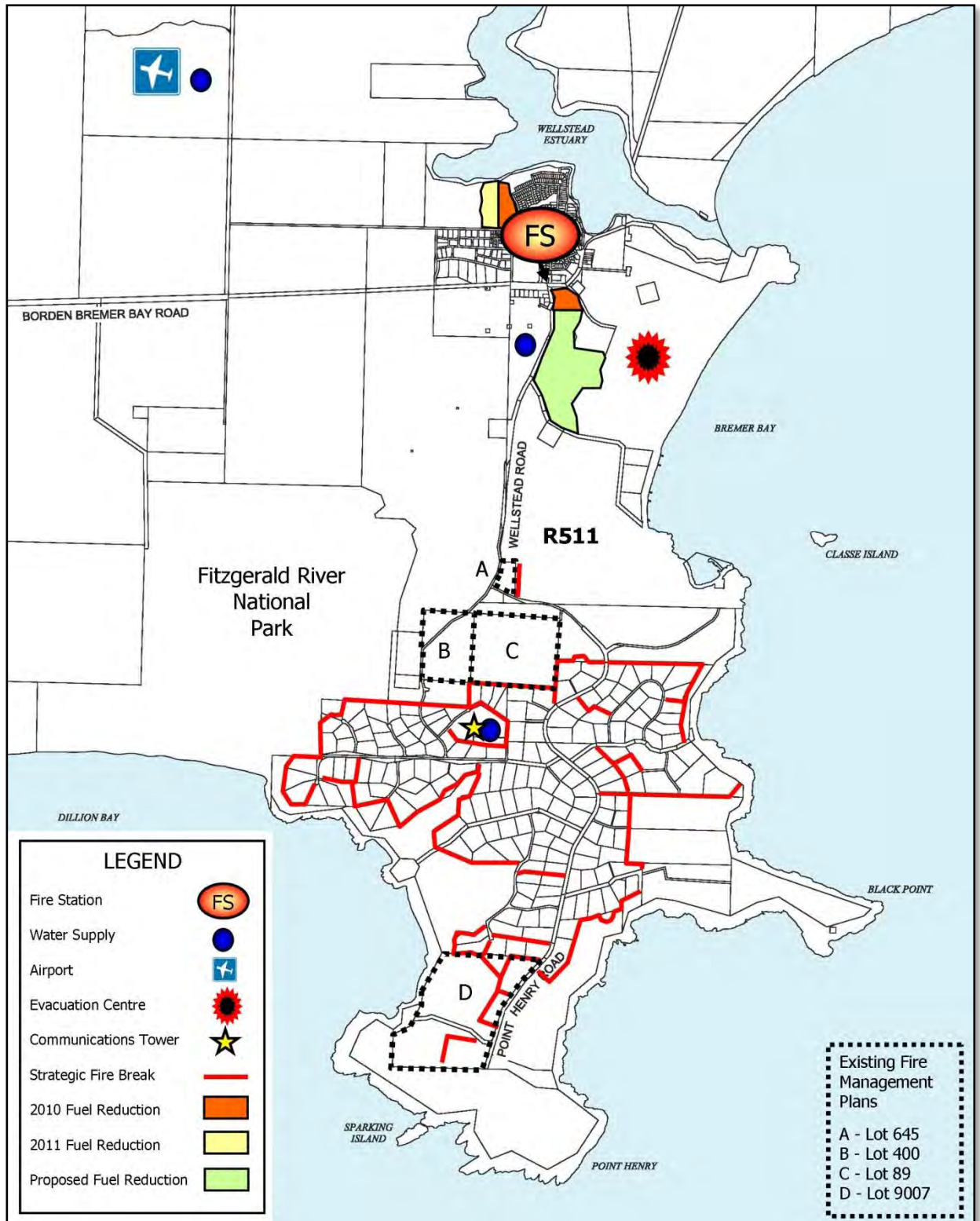


Figure 8 Existing Protection Measures



4.0 Policy Framework

4.1 Emergency Management

The peak legislation for emergency management in Western Australia is the Emergency Management Act 2005. The Act prescribes that the State Emergency Management Council is to develop policies to provide a strategic framework for emergency management and to prepare emergency management plans (12).

For each prescribed hazards there is a State emergency management plan (or Westplan) which contains detailed arrangements, responsibilities and procedures for the various agencies or support groups involved in preparation and response.

The responsibilities for fire management are documented in the State Emergency Management Plan Bushfire (13) and relate to Prevention; Preparedness; Response and Recovery which are summarised as follows:

Prevention and Mitigation

Prevention activities eliminate or reduce the probability of occurrence and impact of bushfire.

Preparedness

Preparedness activities focus on essential emergency response capabilities through the development of plans, procedures, organisation and management of resources, training and public education.

Response

Response activities combat and contain the effects of the event, provide emergency assistance for casualties, help reduce further damage and help speed recovery operations. The highest priority in any response activity will be given to the preservation and protection of human life.

Recovery

Recovery activities, support emergency affected communities in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical wellbeing.

These responsibilities are shared between the Department of Fire and Emergency Services, Department of Parks and Wildlife and Local Government as shown in Table 3.

The Department of Parks and Wildlife is responsible for the prevention of bushfires on the unmanaged reserves (Point Henry and Point Gordon) and the unallocated crown land within the Study Area. The Council is responsible for responding to fires in those areas.

In addition to these all landowners are required under Section 28 of the Bush Fires Act to take all possible measures at their own expense to extinguish a bush fire occurring on their property.

As shown in Figure 3 the main elements of the emergency risk management process are to establish the context, identify risks, analyse risks, evaluate risks (including acceptability of residual risk) and treat risks (14).

Once the risks have been identified and evaluated they must either be accepted or treated.

12 SEMC (2012) Loc cit Report Page 4

13 SEMC (2010) *Westplan Bushfire* - Pages 7 and 11

14 Emergency Management Australia (2002) Manual No 7 Planning Safer Communities – Land Use Planning for Natural Hazards Commonwealth Attorney General's Department Figure 5.



Table 3 Agency Responsibilities

	DFES	COUNCIL	DPaW
PREVENTION	<ul style="list-style-type: none"> • For Unallocated Crown lands (UCL) and other unmanaged reserves (UMR) within all townsites, regional centres and the Perth metropolitan area. • The declaration of restricted and prohibited burning times for the whole of the state, and approval of suspensions and exemptions • The declaration of Total Fire Bans. • The facilitation of statewide arson prevention programs in conjunction with WA Police, DPaW and Local Government. • The development and implementation of statewide community engagement and education programs. 	<ul style="list-style-type: none"> • For all their own lands. • Prescription and enforcement of bushfire prevention measures on all private lands and leaseholds within their local government district. • Imposition of harvest and movement of vehicle bans. • Issuing permits to use fire. • Varying the declared restricted and prohibited burning times in response to local conditions. • Enforcement of BF Act offences within the local government district. 	<ul style="list-style-type: none"> • For all DPaW managed land such as State Forest, Timber Reserves, National Parks, Conservation Parks and Nature Reserves. • For UMR and UCL outside townsites, regional centres and the Perth metropolitan area.
PREPAREDNESS & RESPONSE	<ul style="list-style-type: none"> • For all lands within prescribed Fire Districts declared under the FB Act or where a Fire Service brigade or Volunteer Emergency Service unit is established under the DFES Act. • Under Section 13 of the BF Act, DFES may, in writing, authorize a bush fire liaison officer or another person to take control of all operations at a fire. • The dissemination of public information and warnings. 	<ul style="list-style-type: none"> • For all land outside DPaW controlled land and DFES controlled areas and for UMR and UCL outside townsites, regional centres and the Perth metropolitan area. 	<ul style="list-style-type: none"> • For all DPaW managed land outside DFES controlled areas.
RECOVERY		<ul style="list-style-type: none"> • Within all the local government areas 	<ul style="list-style-type: none"> • As identified in Westplan-Recovery

Source – State Emergency Plan for Bushfire (November 2011)



4.2 Prepare, Act, Survive

Community bushfire safety in Western Australia is based upon the approach known as “Prepare, Act, Survive” (15). This approach promotes that:-

- Prepare your family, home or business – know your bushfire risk and have a bushfire survival plan.
- Act on the fire danger ratings - put your preparations into action, do not wait and see.
- Survive by monitoring conditions if a fire starts - know the bushfire warning alert levels and what you will do if you are caught in a fire.

These measures also relate to the level of bushfire warning which may be issued in the event of a fire.

<u>Advice</u>	Is issued when a fire has started but there is no immediate danger.
<u>Watch and Act</u>	Is issued when a fire is approaching and conditions are changing. There is a possible threat to lives and homes.
<u>Emergency Warning</u>	Is issued when there is immediate danger and threat to lives and homes.
<u>All Clear</u>	Is issued when the danger has passed and the fire is under control.



Underpinning this is that each household which is located near bushland must have a bushfire survival plan. This plan should include:

- Deciding whether to stay on your property or to leave for a safer location;
- Leaving should be done early and you must know where you will go and how to get there;
- Prepare a list of action to be undertaken when a fire approaches; and
- Ensure that all family members understand what to do.

4.3 State Planning Policies

4.3.1 SPP 3.4 Natural Hazards and Disasters

State Planning Policy 3.4 Natural Hazards and Disasters applies to the consideration of amendment, subdivision and development applications. The policy is based upon the principles contained in the report Planning Safer Communities prepared by Emergency Management Australia (16).

Land use planning can play a key and important part in reducing current and future community risk. This was also a key finding of the National Inquiry on Bushfire Mitigation and Management (17) which stated that:-

“The Inquiry supports the view, expressed in Natural Disasters in Australia, that land use planning that takes into account natural hazard risks is the single most important mitigation measure for preventing future disaster losses (including from bushfires) in areas of new development. Planning and development controls must be effective, to ensure that inappropriate developments do not occur.”

In relation to bush fires the statement of planning policy incorporates by reference the provisions and requirements contained in the Planning for Bush Fire Protection Guidelines (2010).

15 DFES (2010) *Prepare Act Survive – Your Guide to Preparing for and Surviving the Bushfire Season*.

16 EMA (2002) Op.Cit

17 Ellis, S, Kanowski, P & Whelan, R (2004), *National Inquiry on Bushfire Mitigation and Management*, Canberra. Council of Australian Governments - Page 92.



4.3.2 Proposed Bush Fire SPP

The Western Australian Planning Commission is currently preparing a State Planning Policy specifically for bush fire and this is expected to be publically advertised in 2014. The policy originates from the State Government's consideration of recommendations from the Victorian Bushfire Royal Commission (2009) and Western Australian Keelty reports (2010 and 2011) relevant to land use planning policy.

4.3.3 Planning Bulletin 111

In December 2013 the Western Australian Planning Commission released Planning Bulletin 111 Planning for Bushfire. This is an interim bulletin pending the finalisation of the proposed State Planning Policy. The Bulletin reinforces:

- The need to apply the Planning for Bush Fire Protection Guidelines to planning strategies; schemes and amendments; structure plans; subdivision and development applications;
- The presumption against development in areas with an extreme fire hazard rating; and
- That the use of BAL- 40 and BAL – FZ construction standards is not acceptable.

It states that:

In areas with an extreme bushfire hazard level, or areas with a BAL-40 or BAL-FZ, where the introduction or intensification of development is proposed, the proponent must justify why their proposal is unavoidable. Such a proposal should generally exhibit an overarching public benefit. In the absence of this information the proposal is unlikely to be supported.

The Bulletin also documents that many current practices are not suitable methods for applying AS3959 Construction standards. These include reference in a fire management plan; as a condition of development approval; as a local planning policy or in the firebreak notice.

4.4 Planning for Bush Fire Protection

Planning for Bush Fire Protection (DFES & WAPC - 2010) is the principal reference document in Western Australia for fire management in subdivisions and related development in rural and in urban/rural communities.

Planning for Bush Fire Protection promotes five key principles which are summarised below:

- Principle 1 Bush fire hazards must be considered in planning decisions at all stages of the planning process to avoid increased fire risk to life and property through inappropriately located or designed land use and development.
- Principle 2 Local governments are to identify bush fire hazard levels in their structure plans, local planning strategies and local planning schemes, based on the bush fire hazard assessment methodology in the guidelines.
- Principle 3 Subdivision and development in areas with an extreme bush fire hazard level or a bush fire attack level between BAL- 40 and BAL- FZ, is to be avoided unless specific fire protection requirements can be implemented to the satisfaction of the WAPC, DFES and/or the local government.
- Principle 4 In areas with an extreme bush fire hazard level where more intensive subdivision/development is considered unavoidable, permanent hazard reduction measures need to be implemented to reduce the hazard level to low or moderate or bush fire attack levels between BAL- Low and BAL- 29.
- Principle 5 Structure plans, subdivision and development in areas with a moderate to extreme bush fire hazard level needs to be supported by an assessment of the bush fire risk and compliance with the performance criteria and acceptable solutions set out in these guidelines.



The guidelines contain a set of performance criteria and acceptable solutions that new subdivision and developments are required to meet in bush fire prone areas. The main elements relate to:

- 1.0 Location:- hazard rating.
- 2.0 Vehicular access:- two access routes; public road design; cul-de-sacs; Battleaxes; private driveways; emergency accessways; fire access routes; gates; firebreaks and signs.
- 3.0 Water supply:- reticulated areas; non reticulated areas; and dams.
- 4.0 Siting of development:- hazard separation zones; AS3959 construction standards; building protection zones; and shielding.
- 5.0 Design of development:- compliant and non compliant development.

4.5 Australian Standard AS3959 (2009)

AS3959 Construction of Building in Bush Fire Prone Areas (18) provides measures for improving the ability of buildings to withstand burning debris, radiant heat and flame contact during a bush fire. The lower the separation distance from bushfire prone vegetation, the higher the standard of construction is required for buildings. The construction requirements relate to:-

- Subfloor Supports;
- Floor;
- External Walls;
- External Elements and Doors
- Roofs;
- Verandas, Decks, Steps; and
- Water and gas pipes.

The Standard contains six categories of Bushfire Attack Levels (BAL) as follows:

BAL Low	The risk is considered to be very low and does not warrant any specific construction requirements.
BAL 12.5	The risk is considered to be low but there is still a risk of ember attack.
BAL 19	The risk is considered to be moderate. There is risk of ember attack and burning debris by wind borne embers and a likelihood of exposure to radiant heat.
BAL 29	The risk is considered to be high. There is an increased risk of ember attack and burning debris by wind borne embers and a likelihood of exposure to an increased level of radiant heat.
BAL 40	The risk is considered to be very high. There is a much increased risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames.
BAL FZ	The risk is considered to be extreme. There is an extremely high risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames.

The specific construction requirements for each BAL are summarised in Appendix 6.

The Planning for Bush Fire Protection Guidelines do not recommend BAL 40 and BAL FZ as being suitable for Western Australia as these allow dwellings to be constructed in very close proximity to the vegetation hazard.

It is emphasised that only applying the construction measures contained in the Standard is not a complete response to bush fire safety. The Standard recognises this and it states (page 7) that:

18 Standards Australia (2009) *AS 3959 – Construction of Buildings in Bush Fire Prone Areas*. Sydney. Standards Australia International Ltd.



“Improving the design and construction of buildings to minimize damage from the effects of bushfire is but one of several measures available to property owners and occupiers to address damage during bushfire. Property owners should be aware that this Standard is part of a process that aims to lessen the risk of damage to buildings occurring in the event of the onslaught of bushfire. Other measures of mitigating damage from bushfire fall within the areas of planning, subdivision, siting, landscaping and maintenance.”

4.6 Planning Strategies

4.6.1 Local Planning Strategy

The Shire of Jerramungup Local Planning Strategy was originally endorsed by the Planning Commission in 2006. A limited review of the Strategy has been undertaken by Council and this was endorsed by the Planning Commission in January 2013.

Section 6.14.1 relates to Bush Fire Management and it notes that:

- the Planning for Bush Fire Protection Guidelines requires detailed fire management plans to be prepared through the rezoning and structure plan process; and
- the implementation of plans will principally be achieved through the subdivision approval process.

Section 7.3.1 relates to Existing Rural Residential Areas and it notes that:

No further subdivision of lots created under the approved Subdivision Guide Plans for Point Henry will be supported. Any new Rural Residential development on existing undeveloped lots on Point Henry Peninsula need to address impacts on the flora and fauna, specifically with respect to clearing for development, access and bush fire management (as required in the Scheme).

The strategy plan for Point Henry is shown in Figure 9. This identifies a number of properties which are recognised in the Point Henry Limited Rural Strategy.

4.6.2 Point Henry Limited Rural Strategy

The Point Henry Limited Rural Strategy was prepared in 1991. It contains planning precincts and development guidelines for the peninsula which have generally been carried forward into the Local Planning Strategy and the Local Planning Scheme zones and provisions.

Section 3.9 relates to Fire Hazard and promotes

- Strategic fire breaks as opposed to individual fire breaks;
- No fencing of boundaries;
- Adequately located roads to provide access for fire fighting vehicles and egress for residents in case of fire;
- Clearing within building envelopes to the Bush Fires Board recommendations (e.g. 20m of fuel reduced area to surround dwellings); and
- Supply of water for fire fighting purposes in the north and the south of the study area.

Point Henry Fire Management Strategy

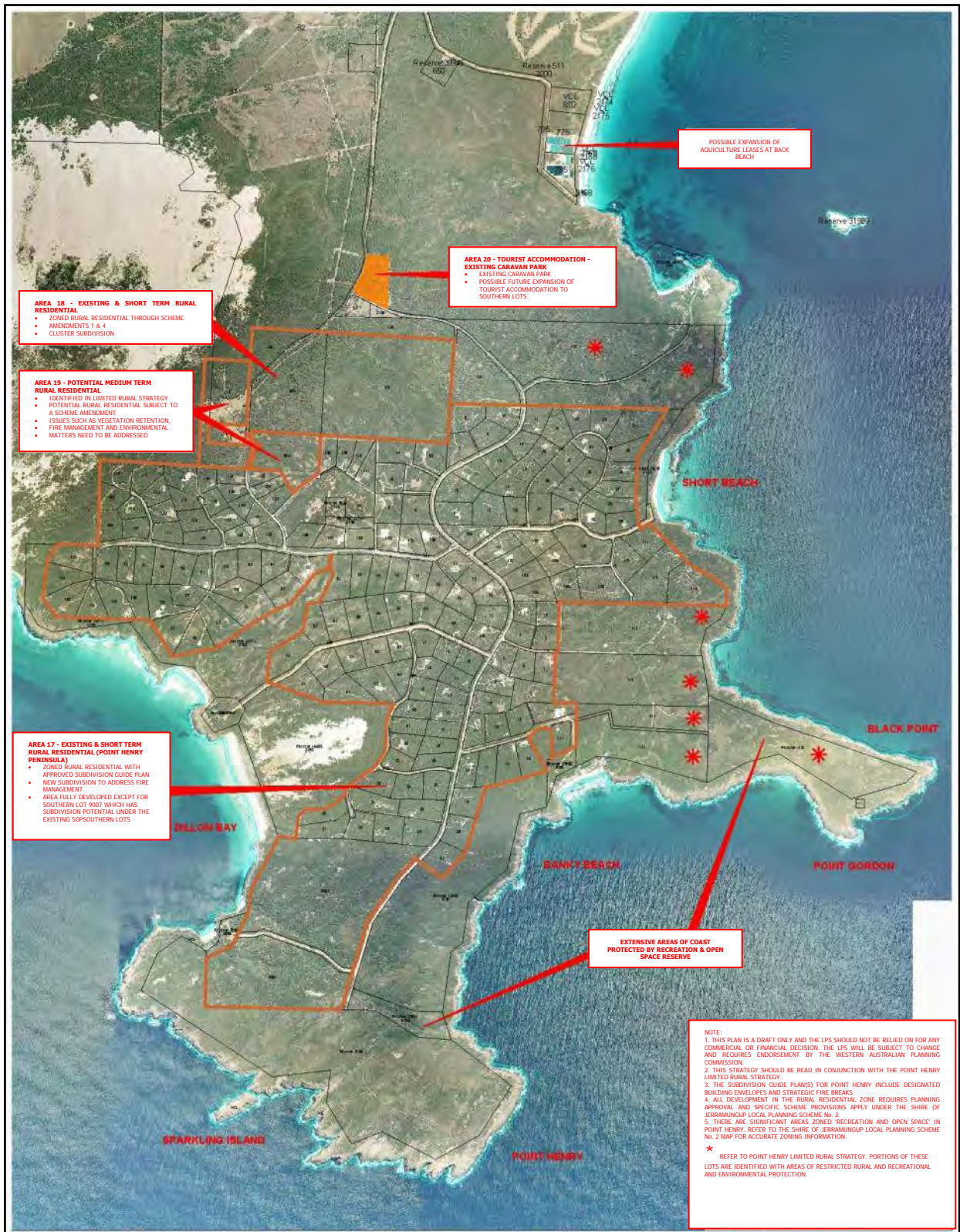


Figure 9 Strategy Plan Extract



The Strategy has three planning precincts being:

- Recreation and Environmental Protection;
- Rural Residential; and
- Restricted Rural.

The Rural Residential precinct includes land which has already been subdivided.

The Restricted Rural precinct includes land which is presently included in the Rural zone. There is a presumption against subdivision unless it can be demonstrated that there will not be any detrimental impacts. The Strategy also suggests that the density of development in the Restricted Rural precinct should be 1 lot per 10 hectares.

4.7 Local Planning Scheme No 2

4.7.1 Zoning and Aims

The zoning of the land within the Study Area is shown in Figure 10. The majority of the land on the peninsula is included in the Rural Residential zone.

The aims of the Scheme (clause 1.6) include:

- (e) to provide for a range of rural lifestyle opportunities and ensuring rural residential development is managed to minimise impacts on rural land uses, to protect and enhance rural landscapes and environmental values, and to ensure good accessibility to services and facilities.

The aims of the Rural Residential Zone (clause 4.2) are:

- To select areas wherein closer subdivision will be permitted to provide for such uses as hobby farms, horse breeding, and rural-residential retreats.
- To make provision for retention of the rural landscape and amenity in a manner consistent with the orderly and proper planning of such areas.
- To locate Rural Residential zones generally within 5 km of the towns of Jerramungup and Bremer Bay so that residents have convenient access to services and facilities without a drain on resources of the wider community.
- To encourage the use of cluster development in areas of natural beauty to minimise the overall impact of development on the land.

4.7.2 Rural Residential Zone General Provisions

The general provisions relating to the Rural Residential zone are included in clause 5.25 of the Scheme. In relation to potential fire management the following provisions are highlighted:

- Subdivision and development is to generally be in accordance with an approved Subdivision Guide Plan.
- While a Single House is a permitted (P) use, it still requires a planning approval.
- Unless otherwise provided for, the minimum building setbacks are:
 - Front : 30.0m
 - Rear : 10.0m
 - Side : 10.0m
- Approval is required for the removal of trees.
- Such approval may be granted for clearing of Hazard Separation and Building Separation zones.
- Building envelopes are not to exceed 10% of the lot area, or 3,000 m² whichever is the lesser.
- Driveways are to be constructed to Council's requirements.
- Dwellings are to have water tanks with a minimum total capacity of 92 kilolitres.
- Strategic fire breaks as nominated on the Subdivision Guide Plan, are to be constructed and maintained to the specification and satisfaction of the local government and Bush Fires Service.



- An access track, and fire reduction clearing around all buildings, is to be maintained to the satisfaction of the local government.
- The clearing of firebreaks along boundary lines other than for strategic fire breaks is not permitted unless to comply with requirements of the local government or Bush Fires Service.
- For subdivision of land on the Point Henry Peninsula the local government may request the Commission to require landowners at the time of subdivision to contribute to a special fund that will be administered by the local government, and solely used for the construction of standpipe facilities, and fire fighting equipment. The local government may recommend that at least 1 such facility is to be provided as part of the first stage of subdivision, with any remaining facility to be provided at a subsequent stage as determined by the local government in consultation with the Bush Fires Service.

Additional provisions for specific areas / zones are then provided for in Schedule 11 of the Scheme.

4.7.3 Specific Rural Residential Zones

Rural Residential Zone No's 1, 3, 4 and 5 are located within the study area. The largest zone is Rural Residential Zone No 1.

All four zones have specific objectives promoting the protection of landscape values and natural vegetation.

The provisions relating to the individual zones are compared in Table 4.

Table 4 Rural Residential Zones

Special Provision	RR 1	RR 3	RR 4	RR 5
Objective relating to landscape and natural vegetation.	Yes	Yes	Yes	Yes
Building Envelope Setbacks <ul style="list-style-type: none"> • Front • Side • Rear 	20m 15m 15m	20m 15m 15m	20m 15m 15m	20m 15m 15m
Annual contribution to fire fighting equipment.	Yes	Yes	Yes	Yes
Application of AS3959 * - may be a requirement of a fire management plan.	*	Yes	*	*
Fire Management Plan	Only on Lot 9007		Yes	Yes
Low Fuel Buffers		Yes	Yes	Yes

4.7.4 Rural Zone

Portions of the study area are included in the "rural" zone. The objectives of the Rural zone are:

- To ensure the continuation of broad-hectare farming as the principal land use in the district and encouraging where appropriate the retention and expansion of agricultural activities where the land is capable of such development.
- To consider non-rural uses where they can be shown to be of benefit to the district and not detrimental to the natural resources or the environment.
- To allow for facilities for tourists and travellers, and for recreation uses.
- To help protect rural land from land degradation and further loss of biodiversity by:
 - minimising clearing of remnant vegetation;
 - encouraging retention and protection of remnant vegetation;
 - encouraging development and protection of vegetation corridors;

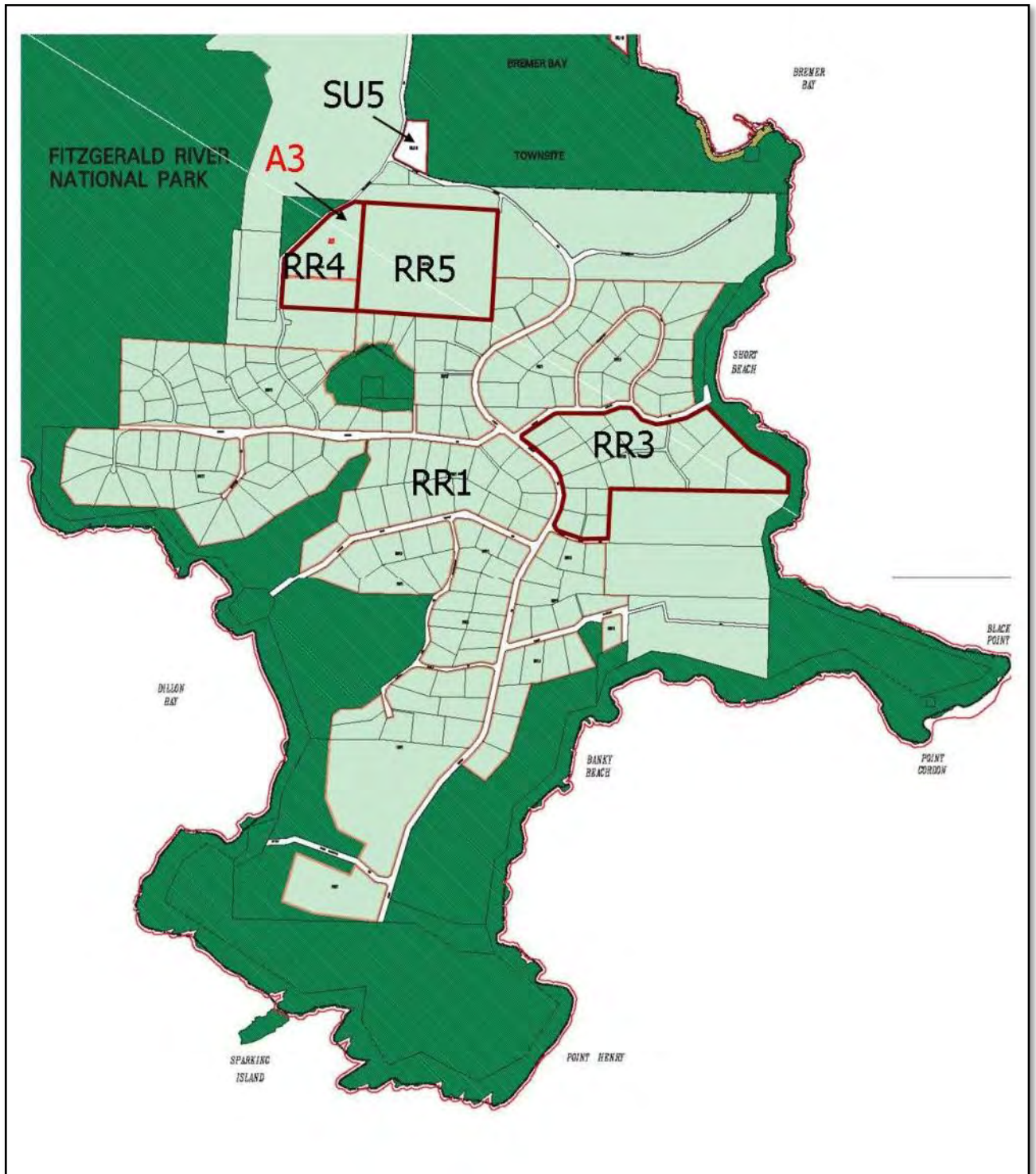


Figure 10 Zoning



- encouraging development of sustainable surface and sub-surface drainage works;
 - encouraging rehabilitation of salt-affected land;
 - encouraging soil conservation through land management measures;
 - encouraging identification and protection of wetlands; and
- To promote the sustainable management of natural resources, and the prevention of land degradation.

4.7.5 Special Use Zones

There are two Special Use Zones within the study areas as follows:

- Lot 645 Wellstead is included in Special Use Zone No 5 and this is for a Caravan Park; and
- Lots 775 and 795 White Trail Road are included in Special Use Zone No 6 and this Aquaculture.

Special conditions for both zones are contained in Schedule 4 of the Scheme.

Special condition 1 for Lot 645 stipulates that development is to be sited and designed to minimise the need for clearing of native vegetation for development, access, and fire protection.

4.7.6 Amendment No 5

Amendment No 5 is a general amendment to the Planning Scheme which also addresses a number of issues including fire management and strategic fire breaks. The amendment proposes to clarify the various provisions by:

- (a) Inserting a new Clause 5.25.2 (d) as follows;

'All landowners and development shall comply with the conditions for specific Rural Residential areas as listed under 'Schedule 11 – Rural Residential Zone'. Where conflict exists between the provisions under Clause 5.25 and Schedule 11, the conditions of Schedule 11 will prevail.'

- (b) Modifying existing Clause 5.25.3 (p) as follows;

'Strategic firebreaks as nominated on an approved Subdivision Guide Plan, Fire Management Plan or Subdivision Plan are to be constructed and maintained throughout the year to the specification and satisfaction of the local government'.

- (c) Inserting a new Clause 5.25.3 (t) as follows;

'Where the local government requires an owner of land specified in Schedule 11 to contribute to a special fund administered by the local government pursuant to Schedule 11, the owner must pay the contribution to the local government within 28 days of the date of the requisition being made.'

- (d) Inserting a new Clause 5.25.3 (u) as follows;

'Where an owner does not pay a contribution required by the local government pursuant to Schedule 11 within 28 days of the requisition being made, the local government may recover it as well as the costs of the proceedings for that recovery in a court of competent jurisdiction.'

- (e) Inserting a new definition for 'Strategic Fire Break' in 'Schedule 1 – Dictionary of defined words and expressions' under '1.



4.8 Vegetation Controls

The clearing of vegetation is jointly controlled by:

- The Local Planning Scheme (Clause 5.25.3 for the rural residential zone); and
- The Environmental Protection Act 1986 and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

The vegetation clearing provisions of the Environmental Protection Act 1986 and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 are administered by the Department of Parks and Wildlife. The Environmental Protection Act defines "clearing" as:

- (a) the killing or destruction of;
- (b) the removal of;
- (c) the severing or ringbarking of trunks or stems of; or
- (d) the doing of any other substantial damage to;

some or all of the native vegetation in an area, and includes the draining or flooding of land, **the burning of vegetation**, the grazing of stock, or any other act or activity, that causes:

- (e) the killing or destruction of;
- (f) the severing of trunks or stems of; or
- (g) any other substantial damage to, some or all of the native vegetation in an area.

Pursuant to Section 51C a person who causes or allows clearing commits an offence unless the clearing —

- (a) is done in accordance with a clearing permit; or
- (b) is of a kind set out in Schedule 6; or
- (c) is of a kind prescribed for the purposes of this section and is not done in an environmentally sensitive area.

Schedule 6 of the Act provides for exemptions to requiring a permit to clear vegetation and this includes:

- Clearing that is done in order to give effect to a requirement to clear under a written law (such as a Fire Break Notice);
- Clearing in accordance with a subdivision approval, a development approval or a planning approval given by the responsible authority;
- Clearing that is done for fire prevention or control purposes or other fire management works on Crown land, and
- Clearing done in accordance with specified sections of the Bush Fire Act.

The Environmental Protection (Clearing of Native Vegetation) Regulations 2004 then further prescribe/define twenty six activities for which clearing can occur. Of relevance to this report are:

- 1 Clearing to construct a building or other structure;
- 3 Clearing for fire hazard reduction burning if the clearing occurs outside of the prohibited or restricted burning times and it is done in such a way as to minimise long term damage to the environmental values of the vegetation.
- 15 Clearing to maintain existing cleared areas around infrastructure where:
 - (i) The clearing was originally done within the past 10 years for one of the following purposes:
 - (a) around a building or structure for the use of the building or structure;
 - (b) for a fire risk reduction area for a building;
 - (c) to maintain an area along a fence line to provide access to construct or maintain the fence; or
 - (d) to maintain a vehicular or walking track.
 - (ii) Clearing of land that was previously lawfully cleared for one of the following purposes if the clearing does not exceed the extent specified for the purpose —



- (a) around a building or structure for the use of the building or structure — 20m from the building or structure;
- (b) for a fire risk reduction area for a building — 20 m from the building;
- (c) to maintain an area along a fence line to provide access to construct or maintain the fence — 5m from the fence line;
- (d) to maintain a vehicular or walking track — 5 m wide.

The Regulations were amended (Government Gazette 12th December 2013) to increase the area under item (1) above from 1 hectare to 5 hectares.

The Department of Parks and Wildlife (19) has advised Council that:

On 3 September 2012 the Premier of Western Australia, Hon Colin Barnett MLA, issued the attached circular encouraging a shared responsibility of reducing bushfire risk in Western Australia by implementing or improving Building Protection Zones (BPZ).

The Office of Bushfire Risk Management is working with local government authorities to establish Bushfire Risk Management Plans.

The Government recognises the need to remove any unnecessary restrictions on clearing native vegetation to protect buildings and other assets, and it intends to progress legislative amendments to provide for this.

Until these amendments are in place, the Department of Environment and Conservation (DEC) will recognise the primacy of bush fire protection within 20 metres of a building to create or maintain a BPZ and will exercise its discretion in the public interest in relation to enforcement action that may arise from clearing native vegetation. DEC will also recognise the requirements of approved Bushfire Risk Management Plans. The attached Fact Sheet 20: *Clearing for fire protection (Building Protection Zones)* provides further information.

As part of the shared responsibility you may wish to require land owners and managers to carry out additional preventative measures as part of the bushfire risk management process managed by the Department of Fire and Emergency Services. In establishing Bushfire Risk Management Plans, local government authorities should give consideration to the environmental impacts of hazard reduction measures.

Fact Sheet 20 is contained in Appendix 7. Reference to Bushfire Risk Management Plans relates to an overall municipal risk management rather than a site specific fire management plan.



5.0 The Bush Fire Issue

5.1 The Bush Fire Threat

The threat posed by a bush fire is the combination of a number of factors as shown in Figure 11.

The bush fire threat is a function of the risk and the hazard. The bush fire risk is then a function of the likelihood of a bush fire occurring and its possible consequences (20).

The overall threat is greatest when the likelihood of a bush fire occurring is high and the potential consequences to the defined assets being protected are unacceptable. The assets which are at risk are described in Sections 1.2 and 2.2.

The bush fire threat may occur from different fire sources such as a fire originating from:

- External sources, particularly vegetated areas such as the National Park;
- Crown Reserves within the Study Area;
- Public recreation areas including beaches;
- Public road sides; or
- Private properties

A fire originating on a road side might be as a result of a motor vehicle accident. A fire on private property might be from any form of activity and could include a structural house fire.

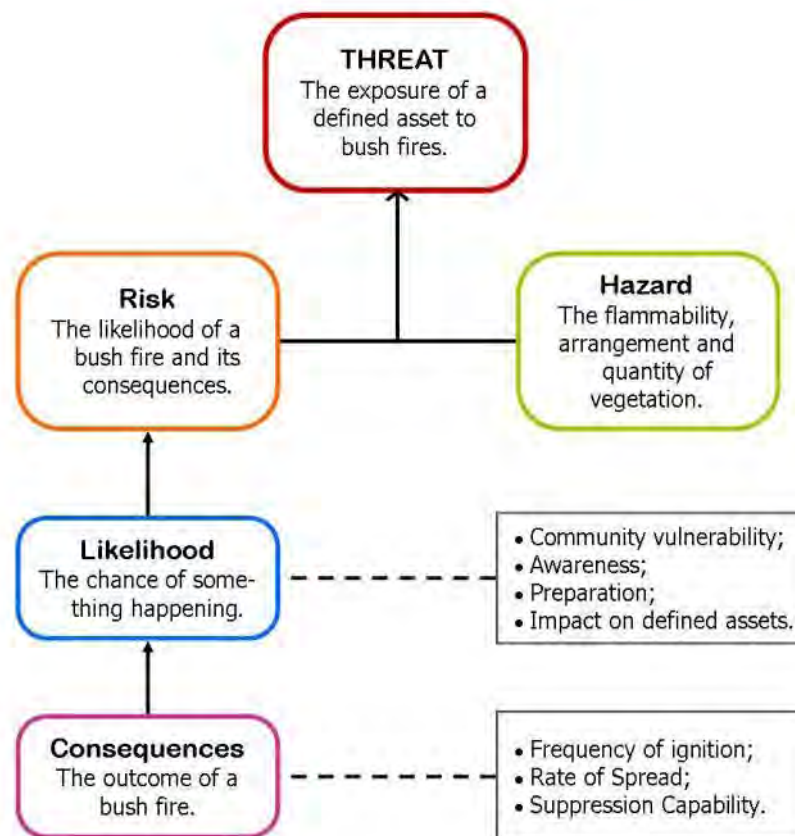


Figure 11 Bush Fire Threat



5.2 The Bush Fire Hazard

The bush fire hazard primarily relates to the vegetation (fuel) characteristics within the Study Area.

Appendix 1 of the Planning for Bushfire Protection Guidelines provides the methodology for determining the bush fire hazard. This classifies vegetation based on tree height and the percentage of foliage cover as summarised in Appendix 8.

The tree height classifications are:

- Tall trees – greater than 30m;
- Medium trees – 10 to 30m;
- Low trees – less than 30m;
- Shrubs greater than 2m;
- Shrubs less than 2m; and
- Grasses and other herbaceous plants.

The foliage cover density classifications are:

- Greater than 70%;
- Between 30 and 70%;
- Between 10 and 30%; and
- Less than 10%.

There are 28 vegetation classifications which are grouped into seven major vegetation types being:

- Forest;
- Woodland;
- Shrubland;
- Scrub;
- Mallee/Mulga;
- Rainforest; and
- Grassland.

The characteristics (21) of the different hazard categories are:

Low Hazard Areas

Are areas generally devoid of standing native vegetation and which do not experience bush fires. This includes grasslands managed in a minimal fuel condition (cropped to a nominal height of 100mm), maintained lawns, golf courses, maintained public reserves and parklands, vineyards and orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks (22).

Moderate Hazard Areas

Are areas generally of open woodlands, open shrublands, low shrubs in areas with slopes of less than 10 degrees, or areas of pasture and crops on slopes of more than 10 degrees. It also includes suburban areas that have some native tree cover.

Extreme Hazard Areas

Are areas generally of forests, woodlands and tall shrubs.

Based upon the above, the majority of the Study Area is classified as having an 'extreme' bush fire hazard rating, while areas of low shrubs on gentle slopes have a 'moderate' rating.

The general principles underpinning the Planning for Bush Fire Protection Guidelines contain a presumption against development in areas with an "extreme" bush fire hazard rating. Guidance Statement A2 (23) stipulates that development in an area that has an extreme bush fire hazard level will normally not be approved.

Guidance Statement A3 stipulates that in areas with an extreme bush fire hazard level that developments which are considered unavoidable will only be approved where it can be demonstrated that acceptable, permanent hazard reduction measures can be implemented to reduce the hazard to an acceptable level. This should include appropriate building protection zone, hazard separation zone and construction of dwellings to an appropriate standard as specified in AS3959.

21 DFES (2010) op.cit. Page 18 *Appendix 1: Methodology for Determining Bush Fire Hazard Level*.

22 Standards Australia (2009) op.cit. Amendment No 2 Clause 2.2.3.2.

23 FESA (2010) op.cit. Page 3



5.3 The Bush Fire Risk

Bush fire risk is a concept used to describe the likelihood of harmful consequences arising from the interaction of hazards, community and the environment i.e. what is the chance of a fire starting, spreading and causing damage to like and property?

Likelihood refers to the chance of a bush fire starting and spreading and is classified (24) as being:

Almost Certain	Is expected to occur in most circumstances; may occur once every year or more.
Likely	Will probably occur in most circumstances; may occur once every five years.
Possible	Might occur at some time; may occur once every twenty years.
Unlikely	Is not expected to occur; may occur once every hundred years.
Rare	May occur only in exceptional circumstances; may occur once every five hundred or more years.

Consequence refers to the outcome or impact of a bush fire and these are described in terms of being:

Insignificant	No injuries or fatalities, little damage or disruption.
Minor	Small number of injuries but no fatalities, some damage and disruption but no lasting effects.
Moderate	Some injuries requiring medical treatment required but no fatalities. Localised damage and short term impact on the environment.
Major	Extensive number of injuries requiring hospitalisation. Significant damage and impact on the community, longer term impacts on the environment.
Catastrophic	A large number of severe injuries, widespread damage and displacement of the community. Significant impact on the environment.

The above factors are often displayed in a matrix format as shown in Table 5 which provides a range of risks from low to extreme.

Table 5 Risk Matrix

LIKELIHOOD	CONSEQUENCES				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	High Risk	High Risk	Extreme	Extreme	Extreme
Likely	Moderate	High Risk	High Risk	Extreme	Extreme
Possible	Low Risk	Moderate	High Risk	Extreme	Extreme
Unlikely	Low Risk	Low Risk	Moderate	High Risk	Extreme
Rare	Low Risk	Low Risk	Moderate	High Risk	High Risk

The risk classifications can be assigned different priorities but generally:

- An 'Extreme' risk requires immediate action;
- A 'Very High' risk requires action will be required during the plan period;
- A 'High' risk means that some action may be required;
- A 'Medium' risk means that action may not be required; and
- A 'Low' risk means that the need for action is unlikely.

24 DFES (2005) *Western Australian Emergency Risk Management Guide* Appendix 1 Page 23



*Blossom's beach in summer.
High tourist use poses
additional risks.*



5.3.1 Likelihood

The likelihood of a bushfire occurring is high when there is a high chance of ignition due to the amount of fuel, the extent of vegetation curing (drying out) the temperature; relative humidity and wind speed. This is referred to as the "fire danger" which represents the difficulty of controlling a bushfire. This is reflected in a Fire Danger Index (FDI) which varies from 1 to 100 as described in Table 6.

Table 7 shows example conditions for each Fire Danger Rating. A severe Fire Danger Rating is when the Fire Danger Index is equal to or greater than 50. This is significant because under these conditions the severity (intensity and rate of spread) of a bushfire will be such that it is difficult to suppress.

Table 6 Fire Danger Rating

FDI Rating	Implications
Catastrophic 100+	<ul style="list-style-type: none"> • These are the worst conditions for a bush fire. • A bush fire will be extremely difficult to control and spread rapidly. It will take significant fire fighting resources and cooler conditions to bring it under control. • Spot fires will start well ahead of the main fire and cause rapid spread of the fire with embers from many directions. • Homes are not designed or constructed to withstand fires in these conditions. • Residents should be evacuated.
Extreme 75 – 99	<ul style="list-style-type: none"> • These are very hot, dry and windy conditions. • A bush fire is likely to be unpredictable, spreading quickly and be difficult for to control.
Severe 50 - 74	<ul style="list-style-type: none"> • Spot fires will start and move quickly with embers from many directions • Homes that are prepared to the highest level, have been constructed to bush fire protection levels and are actively defended may provide safety.
Very High 32 - 49	<ul style="list-style-type: none"> • These are hot, dry and possibly windy conditions for a bush fire. • A bush fire may be hard to control. • A well prepared home that is actively defended can provide safety
High 12 – 31	<ul style="list-style-type: none"> • If a bush fire starts, it is likely to be controlled in these conditions and homes can provide safety.
Low – Moderate 0 - 11	



Table 7 Example FDRs

Vegetation Curing	Temp.	Relative Humidity	Wind Km/h	Wind Knots	Fire Danger Index	Fire Danger Rating
100%	40	20%	55	30	100+	Catastrophic
100%	36	20%	44	24	80	Extreme
100%	33	25%	40	22	53	Severe
100%	30	30%	35	19	32	Very High
100%	26	42%	30	16	18	High
100%	20	50%	20	11	7	Low

The likelihood of a fire is also based upon the expected frequency of fires as reflected in the fire history. The fire history in the Study Area is divided between pre subdivision and post subdivision. Prior to the current subdivision large areas were cleared for grazing back to the early 1880s. The vegetation report (25) notes that prior to 1972 the vegetation on the freehold land was burnt on a three year rotation, with the last rotation was in 1969, 1970 and 1971.

Since then fuel reduction fires have been less frequent. The most notable wildfire was in November 2002 which affected a large portion of the Study Area as shown in Figure 12. This fire was understood to have started from a lightning strike near Blossoms Beach.



Coastal dunes and public access impacted by fire at Margaret River

25 Weston op.cit. Section 2.3

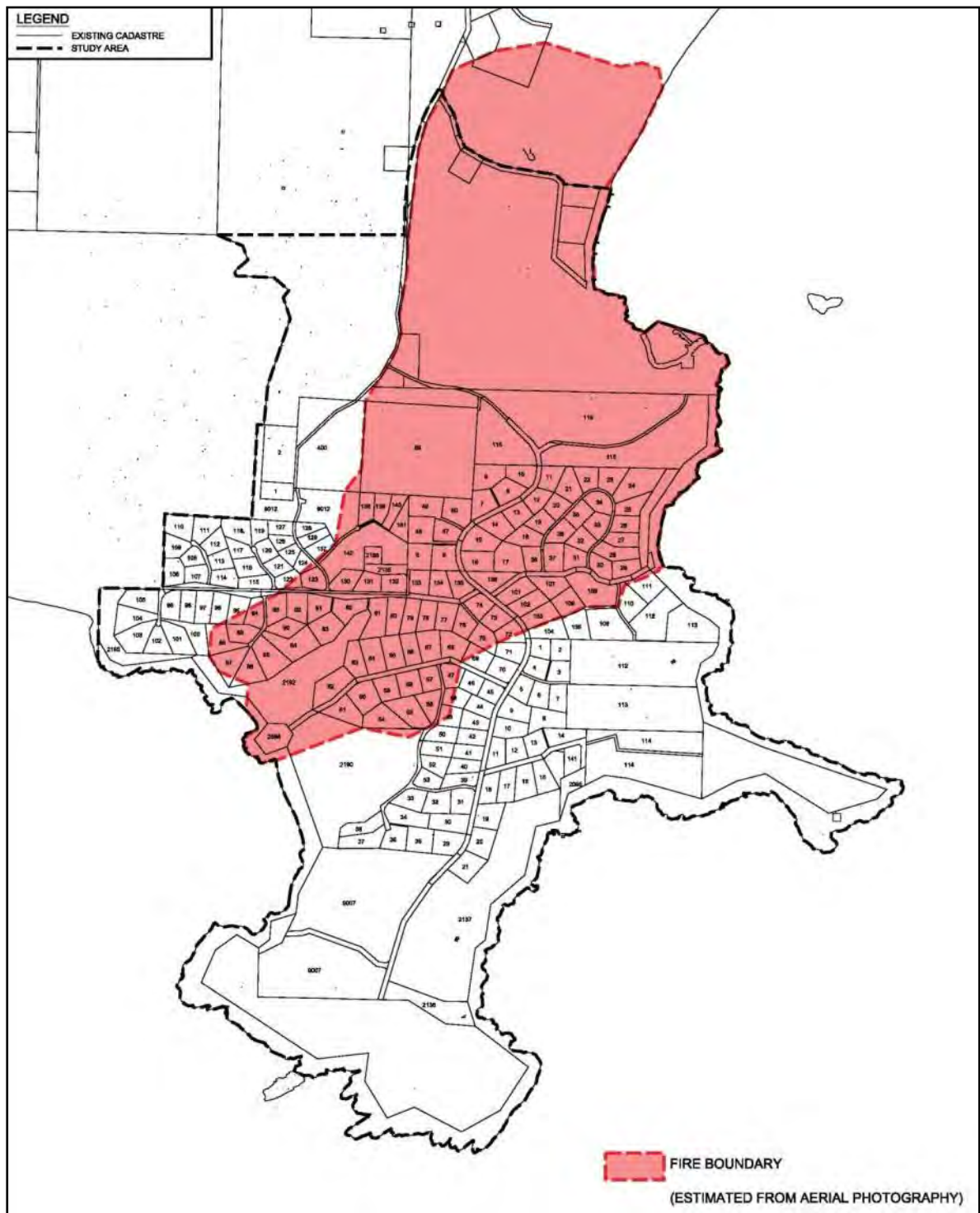


Figure 12 2002 Fire

Point Henry Fire Management Strategy



Draft / Document



2002 Bush Fire photos

Point Henry Fire Management Strategy



2002 Bush Fire photos



Draft Document



5.3.2 Consequences

Not all bush fires are the same, they can be large or small, and they can be surface or crown fires. The consequences of a bush fire will depend upon its severity (intensity and rate of spread) which is determined by a number of inter related factors including:-

- Fuel / vegetation type, fuel loads, moisture, continuity and compaction;
- Ignition sources both natural and human;
- Topography, the degree of slope and aspect;
- Weather, humidity, temperature and wind;
- Development density;
- Access to the area; and
- Effectiveness of the fire fighting service.

Higher fuel loads increase the intensity of bushfire, leading to greater damage over much wider areas (26). Fuel loadings naturally increase over time depending on soil type, aspect, local rainfall, canopy cover, tree type (species) and structure (mature trees, poles, saplings etc).

The rate of spread also increases as the slope of the increases. It will double when the upslope of the land is greater than 10 degrees (18%) and conversely halve when the downslope is greater than 10 degrees (18%).

The weather conditions determine the Fire Danger Index as described in Table 6 and as the FDI increases so will the severity of any bush fire.

Development density affects the severity in terms of how much vegetation is retained. Areas with low development densities may have more severe fires but the consequences of these may be different as the density increases.

The effectiveness of the fire fighting service can include landowner preparedness. An effective fire fighting response which can quickly access an area can reduce the severity and consequences of a fire.

Draft for Comment



6.0 Development / Management Options

It is often considered that bush fire management and environmental management objectives and practices are fundamentally opposed to each other. As with many philosophical issues an extreme view or position will result in conflict with opposing views.

The Victorian Royal Commission gave paramount importance to the protection of human life and noted that this has implications for the balance that is struck between competing community objectives. Ensuring the protection of human life means that sometimes it will be necessary to restrict choice as to where they want to live in order to protect pristine environments close to townsites (27).

The objectives in the Planning Scheme and for the rural residential zone clearly promote the retention of environmental, landscape values within the Study Area while recognising the need to incorporate appropriate fire management measures. The need for integration is summarised in Figure 13.

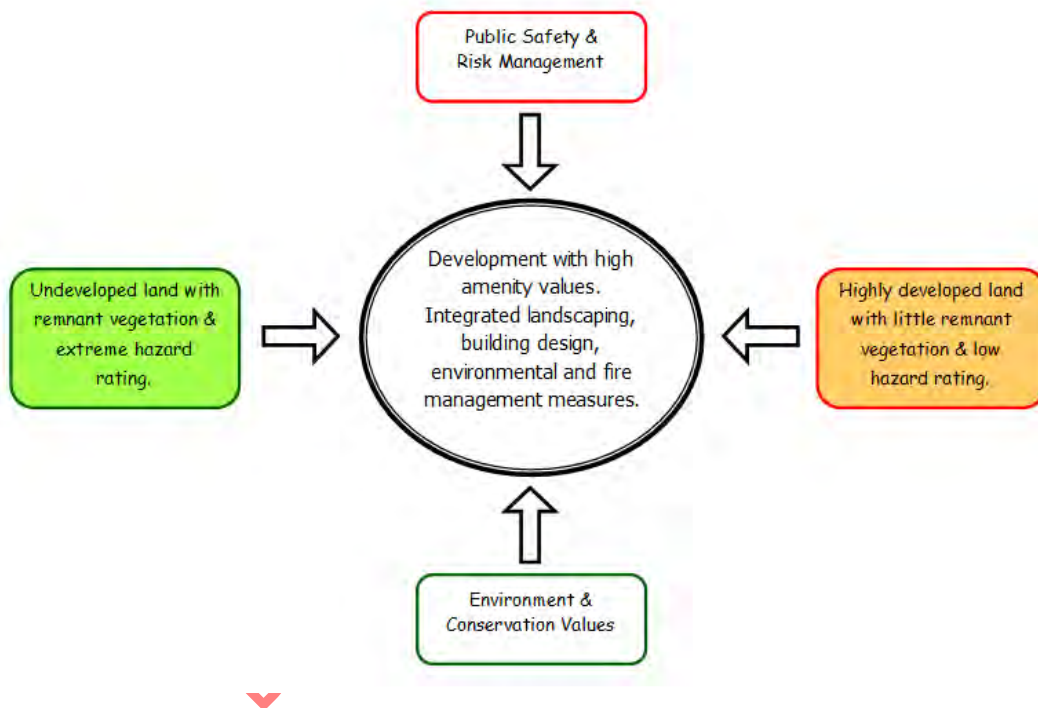


Figure 13 Integrated Outcomes

At one end of the scale is the need to manage vegetation for the protection of the defined assets. At the other end of the scale is the need to retain environmental and landscape values. This could lead to a range of potential management measures and associated implications as summarised in Table 8.



Table 8 Management Options

Measure	Description	Comment
Prohibit development	Would be based on the extreme hazard rating of the Study Area constitutes an unacceptable risk.	Unlikely to be acceptable politically or by the community.
Oppose any further zonings or subdivision	Would be based on development being an unacceptable risk.	Contrary to the approved planning strategy
Large scale clearing	Creation of 100m wide low fuel zones in selected areas.	Contrary to stated planning objectives, unlikely to be environmentally acceptable.
Require general hazard reduction works	Require all lots to reduce fuel loads to less than 8tph.	May not be environmentally acceptable and difficult to implement or enforce.
Status Quo	The "do nothing" option as existing measures would remain i.e. multiple fire management plans and provisions.	Community and Council concern in relation to this has been the basis for preparing this Strategy.
Only apply AS3959	Declaration of bush fire prone would apply AS3959 through the Building Regulations for all new dwellings.	Other fire management measures in the Bush Fire Protection Guidelines would not be addressed leading only to partial protection.
No building protection zone.	Vegetation setbacks as required under AS3959.	Reduces any active defence of the dwelling and potentially endangers lives of fire fighters.
Increased building protection zone.	Provides for increased physical separation between the dwelling and hazard vegetation. Important on sloping land.	Will make dwellings more visible in the landscape and require greater management and alteration to remnant vegetation.
Individual fire management plans	A fire management plan could be prepared for a single property especially if there is need to vary any standard provision due to the special circumstances.	This would allow for a more detailed consideration of the characteristics and features of the lot and could include various management zones.
Restrict non residential development.	Vulnerable land uses which have large numbers of customers may be greater risk.	This may have implications for the tourist industry.
Use of Fire Break Notice	Any changes apply retrospectively to all properties and existing dwellings.	Compliance with the fire break notice is clearly understood by land owners. Variations can also be sought by a landowner to a specific provision.
Use of Planning Scheme and permit conditions	Any changes to the Scheme only apply to new buildings / planning approvals.	While it is an offence under the Planning and Development Act to contravene the provisions of the Scheme and or the conditions of a planning approval, there is a less rigorous level of inspections than compared to the fire break notice.



7.0 Development and Management Issues

7.1 Acceptable Level of Risk

It will not be possible; practicable; or desirable to treat all bush fire risks. It is therefore important for community and the Council to determine what level of risk is acceptable. Things to consider when determining risk acceptability include:

- available resources;
- budget constraints; and
- practicality of implementation.

The simplest form of risk management is to divide risks which need treatment to those that don't. However it is more realistic to divide the level of risk into three bands three bands as shown in Figure 14. The width of the cone indicates the size of risk and the categories are (28):

- An upper band where adverse risks are intolerable whatever benefits the activity may bring, and risk reduction measures are essential whatever their cost;
- A middle band (or 'grey' area) where costs and benefits, are taken into account and opportunities balanced against potential adverse consequences; and
- A lower band where positive or negative risks are negligible, or so small that no risk treatment measures are needed.

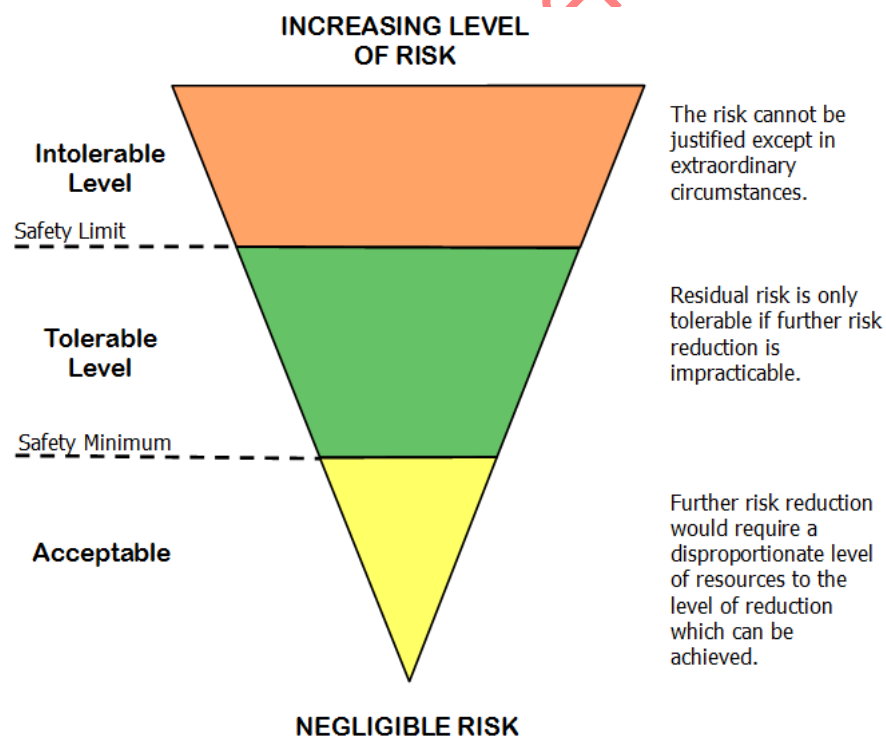


Figure 14 Risk Levels

The risk matrix (shown in Table 5) can also be displayed as shown in Table 9 which incorporates the levels of consequences and risk bands. To assess the "bands" of risk acceptability the likelihood and consequences classifications need to be defined in relation to bush fires.



Table 9 Qualitative Risk Assessment

Level of Consequences	Level of Likelihood	Level of Risk	Risk Band
Severe	Very Likely	Very High	INTOLERABLE
Severe	Occasional	High	
Severe	Infrequent	High	
Moderate	Very Likely	High	TOLERABLE
Moderate	Occasional	Medium	
Moderate	Infrequent	Medium	
Minor	Very Likely	Medium	
Minor	Occasional	Low	ACCEPTABLE
Minor	Infrequent	Low	

Source: Adapted from SA/SNZ HB 436:2013 Table C5

The stated aim of this Strategy is to manage the fire risk at Point Henry to be as low as is reasonably practicable in the existing circumstances. The "As Low As Reasonably Practicable" (ALARP) principle is a risk management concept which is used in assessing the optimal level of financial resourcing to allocate to preparedness activities. When allocating financial resources and expenditure to the reduction of risk, the results are not linear.

As shown in Figure 15 there is an optimal point in terms of resources and lowering of the level of risk. Beyond this there is only a limited reduction of risk while a disproportionate large increase in cost (29).

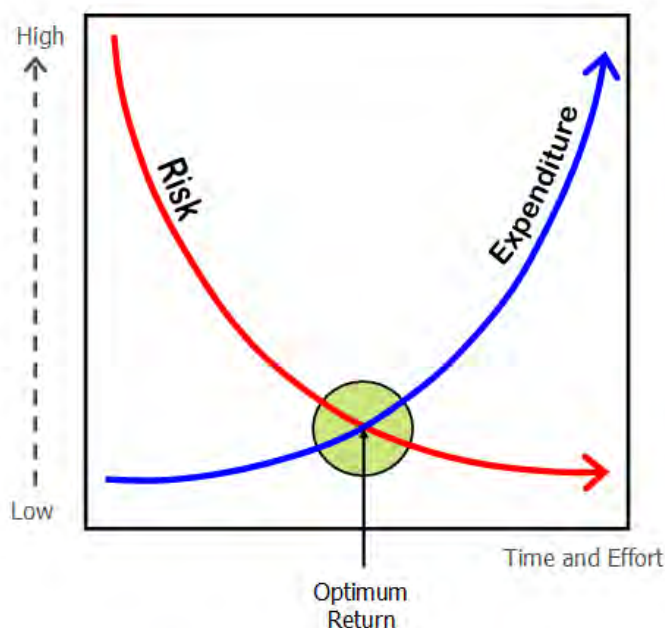


Figure 15 Risk and Expenditure

This has an important application as there are limited resources both publically and privately which can be used for preparation and response.

The consideration of risk treatments should also have a practicality component i.e. what measures give the greatest reduction in risk for the lowest effort? This has to be considered in terms of what is the acceptable consequence of a fire.

29 SEMC (2012) op.cit. Page 30



From the above it is possible to develop different scenarios to illustrate the issues.

Scenario 1 - Possible

The likelihood of a fire within the Study Area in the next ten years (however it might be caused) possible.

- a. Will this be an acceptable risk if there is no significant damage to property/buildings and no long term environmental impact?
- b. Is this a tolerable risk if there is possible damage to or destruction of property/buildings?

Scenario 2 – Almost Certain

The likelihood of a fire within the Study Area in the next ten years (however it might be caused) almost certain.

- a. Will this be an acceptable risk if there is no damage to property/buildings and no long term environmental impact?
- b. Will this be a tolerable risk if there is only minor damage to property/buildings and no long term environmental impact?
- c. Will this be an intolerable risk if property/buildings are destroyed? Does this depend upon how many dwellings are destroyed?

The potential loss of lives is considered to be an unacceptable / intolerable risk in all circumstances.

If the potential destruction of dwellings is considered to be intolerable then more stringent management measures are required to treat that risk.

7.2 Community Vulnerability

The level of vulnerability of a community can be categorised as follows (30):

Low Vulnerability	<ul style="list-style-type: none">• Area receives targeted community education programs.• Properties are prepared e.g. Building protection zones are maintained; gutter are cleaned and flammable objects are located away from hazards and buildings.• Adequate access and egress.• Residents/owners likely to be able to defend their own property.• Adequate water supply.• The majority of houses meet current construction standards for buildings in bush fire prone areas.
Moderate Vulnerability	<ul style="list-style-type: none">• The area has had targeted community education programs.• The properties are not prepared.• Adequate access and egress.• Residents/owners likely to be able to defend their own property.• Adequate water supply.• Special fire protection assets with fire relocation plans.
High Vulnerability	<ul style="list-style-type: none">• No recent or targeted community education programs or programs have been ineffective.• The properties are not prepared.• Inadequate access and egress.• Residents/owners unlikely to be able to defend their own property.• Inadequate water supply.• Special fire protection assets with no fire relocation plans.

30 CFA (2011)Victorian Fire Risk Register – Reference Guide Table 2.4



To address this all levels of the community should work towards fostering a permanent culture of fire consciousness and continuous practical fire preparedness.

Reducing vulnerability and increasing community resilience can be developed and strengthened over time. A resilient community is one where (31):

- People understand the risks that may affect them and others in their community.
- People have taken steps to anticipate disasters and to protect themselves their assets and their livelihoods,
- People work together with local leaders using their knowledge and resources to prepare for and deal with disasters.
- People work in partnership with emergency services, their local authorities and other relevant organisations before, during and after emergencies.
- Emergency management plans are resilience-based, to build disaster resilience within communities over time.
- Communities, governments and other organisations take resilience outcomes into account when considering and developing core services, products and policies.
- The emergency management volunteer sector is strong.
- Businesses and other service providers undertake wide reaching business continuity planning.
- Land use planning systems and building control arrangements reduce, as far as is practicable, community exposure to unreasonable risks from known hazards, and suitable arrangements are implemented to protect life and property.
- Following a disaster, a satisfactory range of functioning is restored quickly.

Fundamental to the concept of disaster resilience, is that individuals and communities should be more self-reliant and prepared to take responsibility for the risks they live with. Resilient communities are aware of the risks and engage in the management of these (32).

This reflects the philosophy of "shared responsibility" between communities and fire agencies. The best way of minimising the risk of bush fire to lives, property and environmental assets is to have well informed individuals and communities, with suitable levels of preparedness, to complement the roles of the fire agencies (33).

7.2.1 Community Programs

There is a range of community programs and activities which can be undertaken to improve awareness and preparation as shown in Table 10. These can be grouped as follows:

- warning systems;
- public information provision;
- localised information provision;
- localised community engagement and education activities and programs, and
- community consultation, collaboration and development approaches.

In Western Australia the key community program is DFES's "Bushfire Ready". This aims to build the community resilience by providing an opportunity for neighbours to network, share ideas and information and develop and implement strategies to reduce their bushfire risk.

The benefits of forming a Bushfire Ready Group can include:

- Increasing understanding of bushfire risk and learning how to prepare your property to reduce bushfire risk.
- Support for developing your own bushfire action plan.

31 COAG (2011) op.cit. Page 5

32 CFA (2008) op.cit. Page 12.

33 Ellis, S, Kanowski, P & Whelan, R (2004), op.cit. Page 240



- Reduction of fire risks around homes, streets and the immediate surrounding bush land in your area.
- Opportunities for meeting neighbours to develop support networks that may be needed in a bushfire emergency.
- Raising awareness of risk among your neighbours to prepare for bushfires to minimise the risks, hazards and dangers, across the whole community.
- Learning about bushfire behaviour and preparedness strategies.
- Reducing the cost that bush fire has on life, property and the environment.
- Developing realistic expectations of the capabilities (and limits) of the emergency services during a bush fire.

As with most local community programs the support of the Council is required.

In summary the community will be more resilient to the threat from bush fires, when they are actively engaged in an interactive process of education, awareness and management.



Draft for



Table 10 Community Programs

Type	Description
General hazard warnings	Warnings about hazards in high-risk areas such as a severe weather warning, total fire ban or roadside signs.
Warnings of imminent threat	Specific warnings for an actual event that prompt responses to minimise risks. Examples include standard emergency warning system, Radio/TV, sirens and public address systems.
Electronic warning systems	Accompanied by training in what to do if a warning is received. Many warning systems require that people register. Examples include StateAlert notification system (phones and emails) and Sentinel Alert.
Media campaigns	Media campaigns are widely used to raise awareness about natural hazards and related sources of information. This also includes television and radio advertisements.
Publications	Publications include print material, such as brochures and leaflets, as well as more interactive forms of publications including DVDs and websites. Publications are widely used to raise awareness about natural hazards and provide information about action to take before, during and after a natural disaster.
Telephone information lines	Dedicated hotlines providing advice about preparation and response to natural hazards.
School education and other programs targeting children.	A large amount of educational material about natural hazards has been developed for schools.
Publications tailored to local area/household	Some publications provide information tailored for a specific area or property such as brochures that show safe areas. This includes specific local information on agency websites.
Local agency activity	Day-to-day activities of emergency services that help to raise awareness and educate about natural hazards and preparedness. This ranges from attendance of volunteers at a school event through to displays at community events.
Telephone information lines.	May be established during an incident or be provided via an existing telephone information service.
Community meetings	These take on several forms and are most commonly found in the bushfire area. These include localised street corner meetings with a focus on preparedness, through to large community briefings held during or after a natural hazard event with a strong emphasis on keeping the community informed.
Community groups	Members of a community working together typically to increase their preparedness for a natural hazard event. These groups are facilitated by the emergency services agencies. Groups with a predominant response focus also exist in the bushfire area.
One-on-one consultations	Personnel from agencies providing face-to-face consultations with members of the community.
Planning incorporating community consultation	Varying levels of community involvement in planning, identifying risks, prioritising treatments to reduce risks.
<i>Source – Appendix A Attorney General's Department (2010) Guidelines for the Development of Community Education, Awareness & Engagement</i>	



7.2.2 Defending Properties

A fire can occur suddenly and when residents do not have sufficient time to safely leave a property they must then take shelter in their residence or another nearby safe place.

Prior to Black Saturday (2009) community bushfire safety was based upon the approach known as 'Prepare, stay and defend or leave early'. The basic principles of this approach were that:-

- (a) Residents should stay and defend / shelter in their properties as a fire front passes; or
- (b) Evacuate before the fire front arrives.

Item (a) requires that the residents and the property are well prepared. This includes "passive fire protection" measures such as the actual house construction, landscaping and maintenance of the physical surroundings of the property.

Actively defending a property relates to the residents' preparedness in terms of personnel equipment and training. The Victorian Royal Commission noted that (34):

There is no standard set of measures that constitute adequate preparation. Effective preparedness depends on a range of factors including house type, property location, surrounding vegetation and personal readiness. It is necessary to think of preparedness relative to an event. Preparation that is effective in one set of circumstances may not be effective in another. People may be able to defend a property with relatively modest levels of preparedness if a fire is of low or moderate severity, but be unable to do so in an extremely dangerous bushfire.

Some properties in some locations may be defensible in some fire weather conditions, but not in others. It is also very difficult for a landowner to assess the ferocity of a bush fire.

Properties should always be maintained with appropriate passive fire protection measures in the event that residents cannot leave.

Recommendations

1. To recognise that Council has limited resources with which it must manage on a Shire wide basis for fire management and other emergencies. The preparation of an overall Bush Fire Risk Management Plan for the whole municipality will prioritise fire mitigation works.
2. To recognise and promote that fire management is a shared responsibility between Council, government agencies, landowners and visitors.
3. That landowners should be aware that they live in a fire prone environment and need to take the initiative in learning about, preparing for and responding to bushfires.
4. That Council promote the bush fire ready and other associated community programs.
5. That Council maintain and develop the Point Henry Fire Strategy web page to use to engage with the broader Bremer Bay community including expanding this to include a community forum.
6. That Council identify opportunities for other community programs especially for absentee owners and holiday makers.



7.3 Single Road Access

The single access road within the Study Area increases the potential threat from bush fires.

Evacuation of residents from an approaching bushfire is one strategy that is employed by emergency managers to mitigate potential injury or loss of life. However, the database of Australian bushfire fatalities highlights that the most significant cause of deaths from bushfires occurs as a result of late evacuation (35). Late evacuation is a dangerous response to bushfires, and any decision to evacuate an area must be made as early as possible.

As indicated previously, many people may not feel confident in staying and defending their homes and will therefore elect to evacuate. This might include those with young children, the elderly, or people with disabilities. This is of particular concern on the urban fringe, where there is a higher likelihood of bush fire hazards. Furthermore, these areas are often dormitory suburbs where the primary income earner is working some distance away from the home.

There is no rule which prevents a major fire occurring on weekdays. A secondary concern is then of family members attempting to reach the subdivision to assist the family to evacuate.

The Planning for Bushfire Protection Guidelines have a stated objective to ensure that the vehicular access serving a subdivision/development is safe in the event of a bush fire occurring. This objective is to provide two different vehicular access routes, both of which connect to the public road network, and which are available to all residents/the public at all times. By providing two access options, residents can evacuate and fire services can enter even when one access route is blocked by fire.

In considering the likelihood of the Point Henry Road being closed during a bushfire the following the risk factors (36) would be considered by the Incident Controller:

- 1 Risk of direct impact from fire:
 - Fire may run from an open or contained edge on to the road; and
 - Fire may run from a new ignition source onto the road.
- 2 Risk of indirect (consequential) impact from fire:
 - Trees or branches may fall across the road;
 - Rocks, logs or debris may roll across the road;
 - Poles, power lines, pipes etc may fall or burst;
 - The road surface or shoulder may be damaged or unsafe;
 - Residual fire hazard, such as burning tree roots, may damage the road;
 - Bridges may be unsafe to cross; and
 - Roaming animals may pose a threat to road users.
- 3 Risk of impact from smoke:
 - Smoke from a running fire may affect the road;
 - Smoke from a smouldering fire may affect the road; and
 - Downhill drainage of smoke may affect a road.
- 4 Risk to fire control activities from road users:
 - Traffic will interrupt fire control and emergency service activities; and
 - Traffic will endanger personnel conducting fire control and emergency service activities.

Even if the Point Henry Road was widened or upgraded the above risk factors associated with the potential closure of the road in an emergency would still remain.

35 Handmer, J & Haynes, K (2008) – *Community Bushfire Safety* CSIRO Publishing Melbourne, Page 62
36 FESA (2010) *Guide to Traffic Management During Emergencies* – Annex C



The single road access exacerbates the level of risk associated with the development of Study Area and its high usage by tourists. It can result in an unacceptably high level of potential catastrophic consequences especially if there are no other compensating measures in place.

Recommendations

7. That consideration be given as to whether the single access road is a significant enough factor to justify increased management measures to be required including for vegetation (hazard) management.
8. That the "precautionary principle" be applied to the development of the Study Area especially where variations or other reductions to standards are proposed.
9. That the "local emergency management arrangements" should recognise that there can be multiple emergencies which may be affected by the single access i.e. a motor vehicle accident in one location and a separate medical emergency or incident at a beach.

7.4 Hazard Management

7.4.1 Fuel Reduction

As vegetation fuel loadings increase fire suppression becomes increasingly difficult as the rate of spread, fire intensity and the spotting distances increase. By managing and reducing fuel loads fire fighters are able to put bush fires out more quickly. This also reduces the impact a fire has on property and lives of the owners and surrounding neighbours.

The "fuel loading" of an area is the dry weight of fine fuel (less than 10mm in diameter) usually expressed as tonnes per hectare (37). The depth of the leaf litter can be converted to tonnes per hectare as follows:

Litter Depth mm	5	10	15	20	25	30	35	40	45	50
t/ha	2.7	5.3	8	11	13	16	19	21	24	27

Scrub type vegetation such as coastal heath will often have suspended fine fuel above the ground level.

Fuel loadings naturally increase over time depending on soil type, aspect, local rainfall, canopy cover, tree type (species) and structure (mature trees, poles, saplings etc). A level of 8 tonnes per hectare is recognised as the threshold above which fire suppression becomes increasingly difficult.

The management of fuel loads relates to the fuel at ground and suspended fuel at lower levels including, leaf matter, twigs etc which greatly increase the fire risk. Fuel loads can be managed in a number of ways including:

- Logging or harvesting of the vegetation;
- Grazing;
- Mulching;
- Mechanical removal such as slashing or mowing;
- Chemical spraying; or
- Prescribed burning.

The attributes of different management measures are shown in Table 11.

Of the above methods prescribed burning is considered to be the most effective large scale preventative measure that can be employed to manage fuel loads and thus mitigate the impact of bushfires. The Keelty Inquiry (38) heard extensive evidence in support of the effectiveness of prescribed burning in contributing to the control of bushfires and in limiting the incidence of major fires. It concluded that hazard reduction by

37 DFES (2007) *Visual Fuel Load Guide* Perth Page 36.

38 Keelty M (2011) *A Shared Responsibility – The Report of the Perth Hills Bushfire February 2011 Review* Government of Western Australia Perth; Page 57



prescribed burning will reduce the rate of spread, flame height and intensity of a fire, as well as the number and distance of spot fires by changing the structure of the fuel bed and reducing the total fuel load.

It is recognised that prescribed burning has an inherent risk associated with it and should only be undertaken by appropriately trained personnel. Often prescribed burns on private land would be carried out by the local volunteer bush fire brigade.

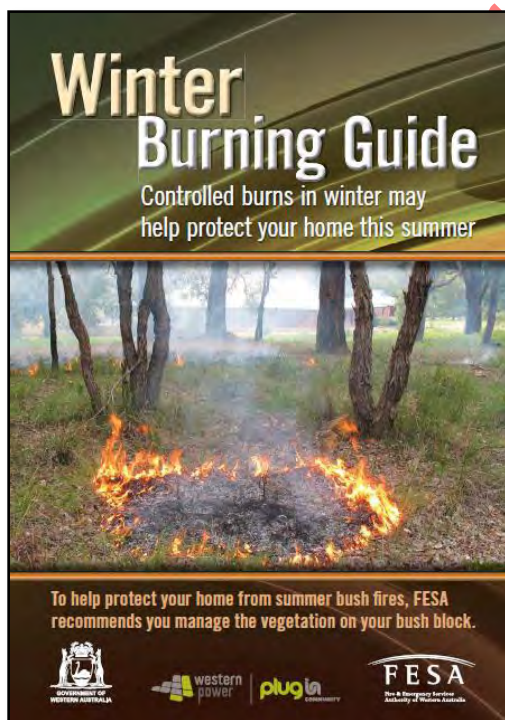
The State Emergency Management Committee (39) has summarised this issue as follows:

In addition to the consequences for forest fire managers, the state of fuel loads has consequences for landholder risk mitigation strategies and household level decision making in the context of the Prepare, Act, Survive public safety message. All landowners must be made aware of the importance of fuel reduction on their properties. In addition, a particular issue in recent years has been the appropriate balance between vegetation conservation on road reserves and ensuring that the fuel load on the reserves is managed.

At one end of the scale is the need to manage vegetation for the protection of the defined assets. At the other end of the scale is the need to retain environmental and landscape values.

DFES has developed a "winter burning guide" which promotes that landowners undertake fuel reduction progressively in small areas of between 50 – 200sqm in size.

Manual collection of material on a 5 hectare Special Rural lot in preparation for burning.



DFES Winter Burning Guide for Landowners



Table 11 Fuel Management Options

Management Strategy	Advantages	Disadvantage
Conservation Protection	<ul style="list-style-type: none"> Vegetation is not disturbed. Weed growth is not promoted. 	<ul style="list-style-type: none"> Fuel loads are not reduced.
Grading	<ul style="list-style-type: none"> Creates a fuel free area Provides a uniform ground surface level for other management treatments. 	<ul style="list-style-type: none"> Removes existing vegetation. Fuel loads are not reduced in the remainder of the reserve. Can introduce or spread weeds or disease. Can result in erosion.
Slashing	<ul style="list-style-type: none"> Minimal vegetation disturbance. Reduces risk of erosion. Minimal fuel area between development and the hazard vegetation. Provides a defensible space. 	<ul style="list-style-type: none"> Fuel loads are not reduced in the remainder of the reserve. Can introduce or spread weeds or disease.
Spraying	<ul style="list-style-type: none"> Minimal vegetation disturbance. Reduces risk of erosion. Minimal fuel area between development and the hazard vegetation. Provides a defensible space. 	<ul style="list-style-type: none"> Fuel loads are not reduced in the remainder of the reserve. Risk of damaging vegetation due to spray drift.
Selective fuel reduction (1)	<ul style="list-style-type: none"> Reduces fuel loads. Maintains or increases vegetation quality. Reduces the risk of spread of weeds. 	<ul style="list-style-type: none"> Potential damage to vegetation by spray drift. Excessive removal of branches can reduce habitat quality.
Fuel reduction burn - large (2)	<ul style="list-style-type: none"> Reduces fuel loads. Can promote recruitment of native plants. 	<ul style="list-style-type: none"> Promotion of colonising plants and proliferation of Peppermint trees leading to a change in the local ecology. Promotes weed growth. Could result in the loss of fire sensitive plant species. Flame scorching of canopy foliage. Reduces habitat for fauna. Potential for a fire to escape and cause a high intensity burn. Potential impact of smoke on neighbouring land.
Fuel reduction burn - trickle (3)	<ul style="list-style-type: none"> Reduces fuel loads. More easily managed than larger burns. Reduces potential impacts on the environment, flora and fauna. 	<ul style="list-style-type: none"> Requires more intensive and hence costly supervision. Requires a regular program.
<p>(1) Means the use of selective weed control including spraying and some fuel removal by hands or small mechanical means.</p> <p>(2) This could either be over the entire site or selected portions of it.</p> <p>(3) Would only be over a small area i.e. a maximum of 200sqm.</p> <p>Source – adapted from FESA (2011) Biodiversity Conservation and Fire in Road and Rail Corridors Management Guidelines.</p>		



7.4.2 Fuel Management Zoning

The concept of fuel management zoning has been promoted as a means of addressing potentially conflicting management objectives on the rural / urban or rural residential / conservation interfaces where bushfire poses the greatest risks to lives, property and economic values (40).

The concept promotes that the most effective way of accommodating these apparently conflicting objectives is by identifying 'fire management zones' across the landscape with clear objectives for each zone. The zone category should direct the nature and priorities for risk-management action.

This approach can contain the following zones:

An asset protection zone	Designed to protect human life, property and highly valued public assets and values where regular fuel reduction is undertaken. It will allow the use direct suppression strategies and minimise bush fire impacts on undefended assets.
A strategic fuel management zone	Provision of reduced fuel in strategic areas, to reduce the speed and intensity of bushfires and reduce the potential for spot-fire development. It will also aid the containment of wildfires to existing management boundaries.
A land management zone	The primary purpose is to meet the objectives of the relevant land manager where the above measures are not considered to be appropriate. These objectives can be planned fire for fuel reduction, biodiversity conservation or forest regeneration.
Fire exclusion zone	An area where any form of fire is prohibited. This might be due to a specific conservation objective.

This approach is reflected in the management plans for various National Parks and reserves in Western Australia and can be adapted for both private and public land within the Study Area.

7.4.3 Hazard Separation

The provision of a clear separation zone between the vegetation and development areas provides the simplest form of fire management. A hazard separation zone or a strategic fuel management zone slows down a fire as it moves towards dwellings and allows for active fire fighting.

Where dwellings are located more than 100m from the hazard vegetation they are classified as having a low hazard rating and do not require any specific protection or construction measures. However they can still be at risk as embers can travel several hundred metres.

This hazard separation zone principle is shown in Figure 16 (over page).

While the maintenance of the separation zone as a fuel reduction area can play a significant role in reducing fire intensity it is also recognised that as there is a desire for people to live in closer contact with natural landscape. The provision of a wide low fuel zone area which is devoid of trees may not be acceptable.

The promotion of landscape and vegetation protection measures as evident in the Local Planning Strategy and Local Planning Scheme are designed to protect the landscape and environmental values of the Study Area which why people are attracted to the peninsula. Consequently it is necessary to adopt more sophisticated approaches to vegetation and landscape management in relation to subdivision design and fire management.

Given the requirements to limit the size of the building envelopes for the rural residential lots, the vegetation on the balance of the lot is the hazard. Provision of the hazard separation zone as shown in Figure 16 is unlikely to be practical and hence dwellings must incorporate specific construction measures.

40 Ellis, S, Kanowski, P & Whelan, R (2004) op.cit, Page 124.

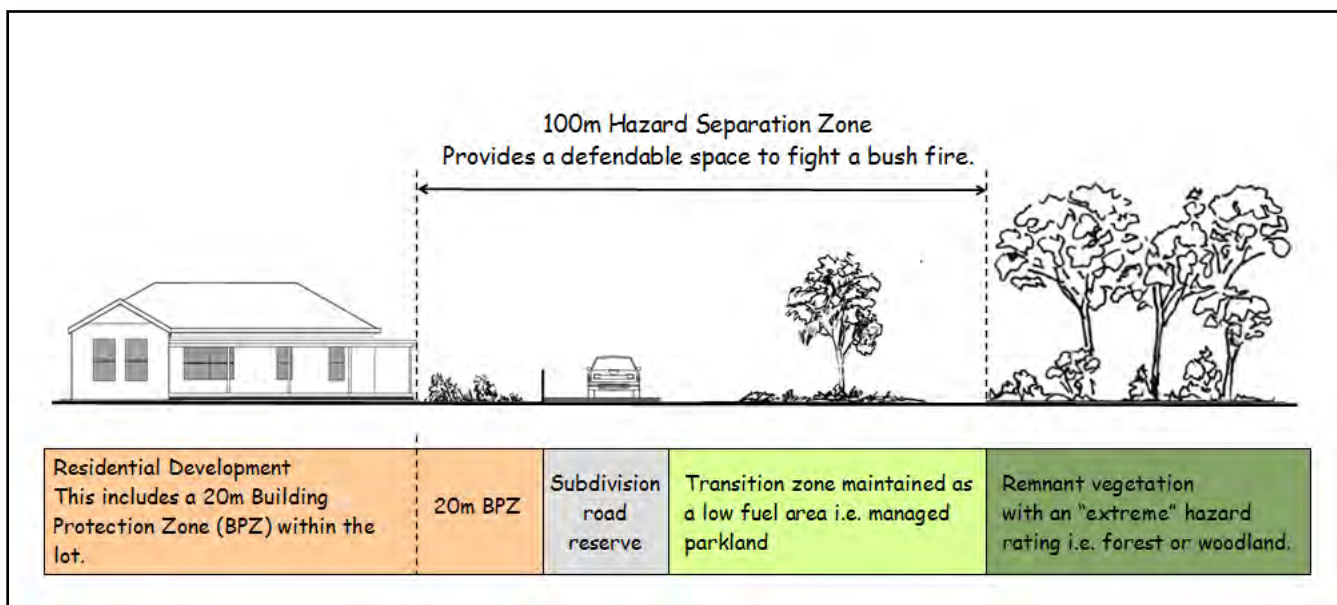


Figure 16 Hazard Separation

Recommendations

10. That Council prepare a management plan for R511 which includes fire management zones and associated measures.
 - a) Consider commissioning a Level 1 flora survey for R511 so as to be able to clearly define plant species and communities for any liaison or approval from DPaW.
 - b) Provide a hazard separation zone along White Trail Road, south of the cemetery and opposite the abalone farm. This should be a minimum width of 30m and preferably wider with fuel loads of less than 8 tonnes per hectare.
 - c) Provide a strategic firebreak across R511 in an east – west direction.
11. That Council regularly monitor and asses fuel loads in all other Council reserves for consideration in the proposed bush fire risk management plan.
 - a) Consider seeking to have Lot 142 (presently UCL) created as a crown reserve and vested to Council.
 - b) Investigate potential fuel reduction in Lot 2195 (R46774) adjacent to the National Park.
 - c) Continue to promote the need for DPaW to undertake fuel reduction works in the Fitzgerald River National Park adjacent to the south western boundary of the Study Area.
 - d) Investigate with DPaW the need for fuel reduction and prevention measures in R3766 (Pt Henry) and R4121 (Pt Gordon).
12. That any strategic fuel reduction measures on private land which may require the approval of DPaW under the clearing regulations should be co-ordinated between landowners.
13. That Council lobby the State Government, WALGA etc to ensure that the management of vegetation for the protection of lives and property has priority over environmental protection legislation.



7.5 Construction Standards

7.5.1 New Dwellings

New dwellings will be required to be constructed in accordance with AS3959. A Bushfire Attack Level (BAL) assessment is used to determine the standard of construction required under AS3959 as documented in Section 4.5.

The steps required to undertake a BAL assessment are as follows:

1 – Determine the vegetation type

This is the predominant vegetation classification on all four sides of the building location extending for a distance of 100m. The vegetation will be classified as either forest; woodland; shrubland; scrub; mallee/mulga or grassland depending upon the height of the vegetation (at maturity) and the percentage of foliage cover. The vegetation classifications are contained in Appendix 8 and a summary of these is also provided in Table 12 below.

Table 12 Vegetation Classifications

Life form/ height class	Foliage Cover (percentage)			
	70 - 100%	30 - 70%	10 - 30%	<10%
Trees >30m	Tall Closed Forest	Tall Open Forest	Tall Woodland	
Trees 10 -30m	Closed Forest	Open Forest	Woodland	Open Woodland
Trees <10m	Low Closed Forest	Low Open Forest	Low Woodland	Low Open Woodland
Shrubs <4m	Closed Scrub	Open Scrub	Tall Shrubland	Open Shrubland
Shrubs <2m	Closed Heath	Open Heath		
Shrubs <1m			Low Shrubland	Low Open Shrubland
Grassland				

FOREST	WOODLAND	SHRUBLAND	SCRUB
MALLEE	RAINFOREST	GRASSLAND	

2 – Determine the distance from the site to the vegetation

This is measured horizontally from the edge of the vegetation canopy (closest to the building site) to the external wall of the proposed building, or for parts of the building that do not have external walls (including car ports, verandas, decks, landings, decks ramps) to the supporting posts or columns.

3 – Determine the slope of the land under the vegetation

The slope is measured in degrees. It is the slope where the vegetation is located and not the slope of the land where the dwelling will be built or the slope of the intervening land. The slope direction is measured from the dwelling i.e.

- Downslope means a slope below the dwelling; and
- Upslope means a slope above the dwelling.

Contour plans for each lot (see the example in Appendix 1) are available on the Council web site.

4 – Determine the BAL

The applicable BAL is then determined by reference to Table 13. This is done on all four sides of the dwelling and the highest classification is then applied. There is a presumption against the use of the highest BALs being BAL- 40 and BAL- FZ.

A draft BAL assessment form is contained in Appendix 9.



It is noted that there is no inherent right to clear vegetation as a condition or part of a BAL assessment. The imposition of a 20m building protection zone will generally allow a BAL29 classification for dwellings from "scrub" vegetation.

Table 13 BAL Table

Vegetation Classification	Bushfire Attack Levels (BALs)				
	BAL - FZ	BAL - 40	BAL - 29	BAL - 19	BAL - 12.5
	Distance (m) of the site from the predominant vegetation class				
All upslopes and flat land					
A Forest	< 16	16 - < 21	21 - < 31	31 - < 42	42 - < 100
B Woodland	< 10	10 - < 14	14 - < 20	20 - < 29	29 - < 100
C Shrubland	< 7	7 - < 9	9 - < 13	13 - < 19	19 - < 100
D Scrub	< 10	10 - < 13	13 - < 19	19 - < 27	27 - < 100
E Mallee/Mulga	< 6	6 - < 8	8 - < 12	12 - < 17	17 - < 100
F Rainforest	< 6	6 - < 9	9 - < 13	13 - < 19	19 - < 100
G Grassland	< 6	6 - < 8	8 - < 12	12 - < 17	17 - < 50
Downslope >0 to 5 degrees					
A Forest	< 20	20 - < 27	27 - < 37	37 - < 50	50 - < 100
B Woodland	< 13	13 - < 17	17 - < 25	25 - < 35	35 - < 100
C Shrubland	< 7	7 - < 10	10 - < 15	15 - < 22	22 - < 100
D Scrub	< 11	11 - < 15	15 - < 22	22 - < 31	31 - < 100
E Mallee/Mulga	< 7	7 - < 9	9 - < 13	13 - < 20	20 - < 100
F Rainforest	< 8	8 - < 11	11 - < 17	17 - < 24	24 - < 100
G Grassland	< 7	7 - < 9	9 - < 14	14 - < 20	20 - < 50
Downslope >5 to 10 degrees					
A Forest	< 26	26 - < 33	33 - < 46	46 - < 61	61 - < 100
B Woodland	< 16	16 - < 22	22 - < 31	31 - < 43	43 - < 100
C Shrubland	< 8	8 - < 11	11 - < 17	17 - < 25	25 - < 100
D Scrub	< 12	12 - < 17	17 - < 24	24 - < 35	35 - < 100
E Mallee/Mulga	< 7	7 - < 10	10 - < 15	15 - < 23	23 - < 100
F Rainforest	< 11	11 - < 15	15 - < 22	22 - < 31	31 - < 100
G Grassland	< 8	8 - < 10	10 - < 16	16 - < 23	23 - < 50
Downslope >10 to 15 degrees					
A Forest	< 33	33 - < 42	42 - < 56	56 - < 73	73 - < 100
B Woodland	< 21	21 - < 28	28 - < 39	39 - < 53	53 - < 100
C Shrubland	< 9	9 - < 13	13 - < 19	19 - < 28	28 - < 100
D Scrub	< 14	14 - < 19	19 - < 28	28 - < 39	39 - < 100
E Mallee/Mulga	< 8	8 - < 11	11 - < 18	18 - < 26	26 - < 100
F Rainforest	< 14	14 - < 19	19 - < 28	28 - < 39	39 - < 100
G Grassland	< 9	9 - < 12	12 - < 18	18 - < 26	26 - < 50
Downslope >15 to 20 degrees					
A Forest	< 42	42 - < 52	52 - < 68	68 - < 87	87 - < 100
B Woodland	< 27	27 - < 35	35 - < 48	48 - < 64	64 - < 100
C Shrubland	< 10	10 - < 15	15 - < 22	22 - < 31	31 - < 100
D Scrub	< 15	15 - < 21	21 - < 31	31 - < 43	43 - < 100
E Mallee/Mulga	< 9	9 - < 13	13 - < 20	20 - < 29	29 - < 100
F Rainforest	< 18	18 - < 23	23 - < 36	36 - < 48	48 - < 100
G Grassland	< 10	10 - < 14	14 - < 21	21 - < 31	31 - < 50

Source: AS3959 Table 2.4.3 (FDI 80)
Note that BAL - 40 and BAL - FZ are not recommended



7.5.2 Existing Dwellings

The AS3959 construction standards do not apply retrospectively to existing dwellings, although they may be applied to new extensions or modifications.

The following measures are promoted by the WA Building Commission (41) as improvements that may be retrofitted to an existing dwelling to improve its fire resistance. These apply up to and including BAL 29 rating:

Flooring

To prevent burning embers entering under the floor space, any raised floors should have the perimeter enclosed with non-combustible material. For example, a timber framed house on stumps should have the area between the floor and the ground covered with material such as masonry, concrete or non-combustible sheeting or timbers that are naturally fire resistant or treated with a fire retardant.

External doors and windows

Burning embers and smoke can enter a house through external doors and windows. The following methods will help prevent this from occurring:

- External side hung doors should be:
 - non-combustible or made of solid timber with a minimum thickness of 35mm;
 - sealed with weather strips or draught seals;
 - protected with metal screens, either mesh or perforated sheet, made of corrosion-resistant steel, bronze or aluminium; and
 - tight fitting with any gaps between the frames and walls sealed.
- Sliding doors should be protected with metal screens, either mesh or perforated sheet, made of corrosion-resistant steel, bronze or aluminium, or fitted with bushfire shutters.
- Windows should be protected with metal screens or bushfire shutters.
- If metal screens or bushfire shutters are not fitted to windows and external doors, glass should be toughened safety glass.
- Frames supporting the mesh screens for both doors and windows should be made of metal or bushfire resisting timber.
- All external hardware for windows and external doors should be made of metal.

External walls

It is recommended that all external walls be constructed of non-combustible material such as masonry or concrete. To improve the resistance of timber or steel framed construction against bushfire attack, it may be possible to retrofit existing framed homes with fire resistant wall cladding or timber that is naturally fire resistant or treated with a fire retardant.

Gutters and downpipes

To help prevent burning embers igniting leaf litter in your gutters, consider installing non-combustible gutter and valley leaf guards. Gutters should be made of non-combustible material and box gutters flashed at the junction with the roof. The standard does not provide for specific construction material requirements for downpipes.

Roofs

Roofs, roofing systems and accessories should be non-combustible and the roof/wall junction should be sealed to prevent gaps. Ember guards made of mesh or perforated sheet, constructed of corrosion resistant steel, bronze or aluminium, should be fitted over roof ventilation points such as gable and roof vents.

Evaporative air conditioners

Install a protective non-combustible ember screen over the air intake to prevent burning embers entering the house.

41 Department of Commerce Building for Better Protection in Bushfire Areas pp 6 – 8.



Recommendations

14. That a BAL assessment is to be part of any application for planning approval for a dwelling which includes proposed clearing of vegetation.
 - a) That Council adopt the draft BAL assessment forms.
 - b) The application is to nominate the extent of proposed clearing, separation between the dwelling and the balance area of the land.
 - c) That in order to provide a balance between landscape objectives and fire management, Council should not automatically approve clearing of more than 30m in order to achieve a lower BAL rating.
 - d) The BAL clearing / setback is to be contained within the boundaries of the lot.

7.6 Building Protection Zones

A building protection zone is a “low fuel zone” located around a dwelling. It is intended to be an area of managed vegetation and reduced fuels load which reduces fire intensity, radiant heat and the likelihood that flames will come into contact with the home.

It is usually 20m wide and is a “defendable space” which allows for active suppression and access by fire fighters. The Victorian Royal Commission noted the importance of having a defendable space around a dwelling as the single most important component of the ‘stay and defend’ policy (42).

Conversely not having a building protection zone significantly increases the likelihood of the dwelling being destroyed as was highlighted in the DFES investigation in to the Perth Hills fire (43).

The 1991 Limited Rural Strategy (page 35) also recognised building protection zones and promoted:

“Clearing within the building envelopes to the Bush Fires Board recommendations (e.g. 20m of fuel reduced area to surround dwellings).”

DFES have upgraded the provisions for the building protection zone as provided for in Acceptable Solution A4.3. The revised provisions are:

- a) The minimum width of the BPZ is to be 20 metres measured from any external wall of the building or asset.
- b) The location of the BPZ is to be within the boundaries of the lot on which the building or asset is situated.
- c) Loose flammable material within the BPZ should be removed to reduce the fuel load to less than 2 tonnes per hectare and this is to be maintained to this level.
- d) All grasses within the BPZ are to be maintained to a height of a maximum 50mm.
- e) The crowns of trees within the BPZ should be separated where practical such that there is a clear separation distance between adjoining tree crowns.
- f) Prune lower branches of trees within the BPZ (up to 2 metres off the ground) to stop a surface fire spreading to the canopy of the trees.
- g) There are to be no tree crowns or branches overhanging the building or asset and a minimum horizontal clearance of 2 metres is required between tree branches and buildings or assets.
- h) Do not clump shrubs close to building. Ensure that there is a gap of at least 3 times the height (at maturity) of the shrub away from the building.
- i) Trees or shrubs in the BPZ are to be cleared of any dead material.
- j) Fences, sheds and structures within the BPZ should be constructed of non-flammable material and be clear of trees and shrubs as per building requirements.

42 Victorian Bushfires Royal Commission (2009) op.cit. Page 198

43 DFES (2011) Final Report on Investigation of the House Losses in the Roleystone / Kelmscott Bushfire 6th February 2011



- k) Gas Cylinders should be isolated from the Flame Zone and should be stored in an area that is clear of all flammable material. Gas vent valves should face away from the building and anything flammable. Gas cylinders should be securely tethered with non-flammable fastenings to prevent toppling over.
- l) Fire wood storage should be at least 20 metres from the building unless contained in sealed nonflammable container.
- m) Driveways and access ways must allow for the safe passage of a fire appliance to all buildings and assets on the land.
- n) Roof gutters should be free of leaves and other combustible material.
- o) Roof mounted evaporative air coolers should be fitted with ember proof screens to the filter media to reduce the possibility of bushfire embers igniting the air cooler.

Some building envelopes may be located in areas of low heath which considered an asset by the community. There may be an option of formulating a local policy for these areas which would allow for the retention of local species but this would still be a “managed” low fuel zone which has regular maintenance.

Areas with approved fire management plans are to comply with the prescribed provisions while any new subdivision needs to determine the proposed house sites so that the building protection zone can be applied in accordance with the Guidelines.

The inclusion of building protection zone provisions in Council fire break notices is now becoming more common and great southern and south western examples include the following municipalities:

- Ravensthorpe;
- Denmark;
- Plantagenet;
- Manjimup;
- Nannup;
- Augusta Margaret River;
- Busselton;
- Capel; and
- Murray.

Recommendations

15. That all dwellings have a minimum 20m wide building protection zone.
16. That where the slope of the site exceeds 10 degrees the planning approval for the dwelling and / or fire management plan shall require the building protection zone to be increased on the downslope from the dwelling as follows:
 - a) 25m for land with slopes between 10° to 15°;
 - b) 30m for land with slopes between 15° - 20°; and
 - c) 40m for land with slopes over 20°.
17. Include the requirement for a building protection zone in the Fire Break Notice so as to emphasise its importance and ensure that it applies to all lots and that there is no conflict with DPaW vegetation clearing regulations.
18. Develop a policy to allow the building protection zone to include heath vegetation which has been trimmed to a nominated height and maintained with reduced fuel loads. Encourage the planting of local native species so that this area becomes a “managed” landscape.



Coastal scrub with a fuel loading of 18 tonnes per hectare which is excessive (44).

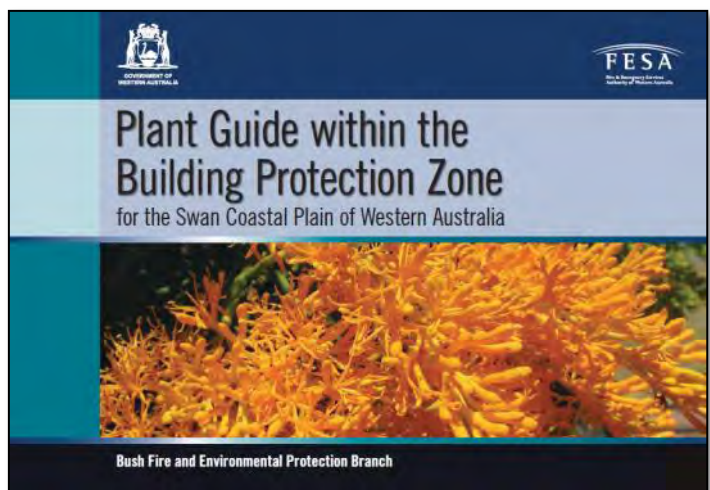


*Perth Hills Fire
No building protection zone*



DFES Planting Guide

Draft for



44 DFES (2010) Visual Fuel Guide for the Esperance Plains page 12.



7.7 Building Envelopes

The building envelope by definition is a designated area of land where a dwelling can be located. The building envelopes are generally required to be a maximum size of 3,000sqm or 10% of the site area, whichever is smaller. While these are shown on the subdivision guide plans they are not dimensioned and so are subject to confirmation when a Planning Approval is issued for a dwelling.

The Scheme provides that the minimum side boundary setback is only 10m. This potentially conflicts with any requirement to provide a 20m wide building protection zone wholly within the lot. As shown in Figure 16 if the dwelling is setback 20m from the property boundary then a portion of the building envelope will not be developable. It can however be used for purposes ancillary to the dwelling including water tanks, on site effluent disposal, car parking etc.

It is also possible to locate the 20m building protection zone within the designated building envelope. However once the area of the dwelling increases beyond 200sqm, the building protection zone is likely to extend past the boundaries of the building envelope.

Where the building protection zone only occupies a portion of the building envelope, then the balance of the building envelope can be maintained as a hazard separation zone as shown in Figure 17.

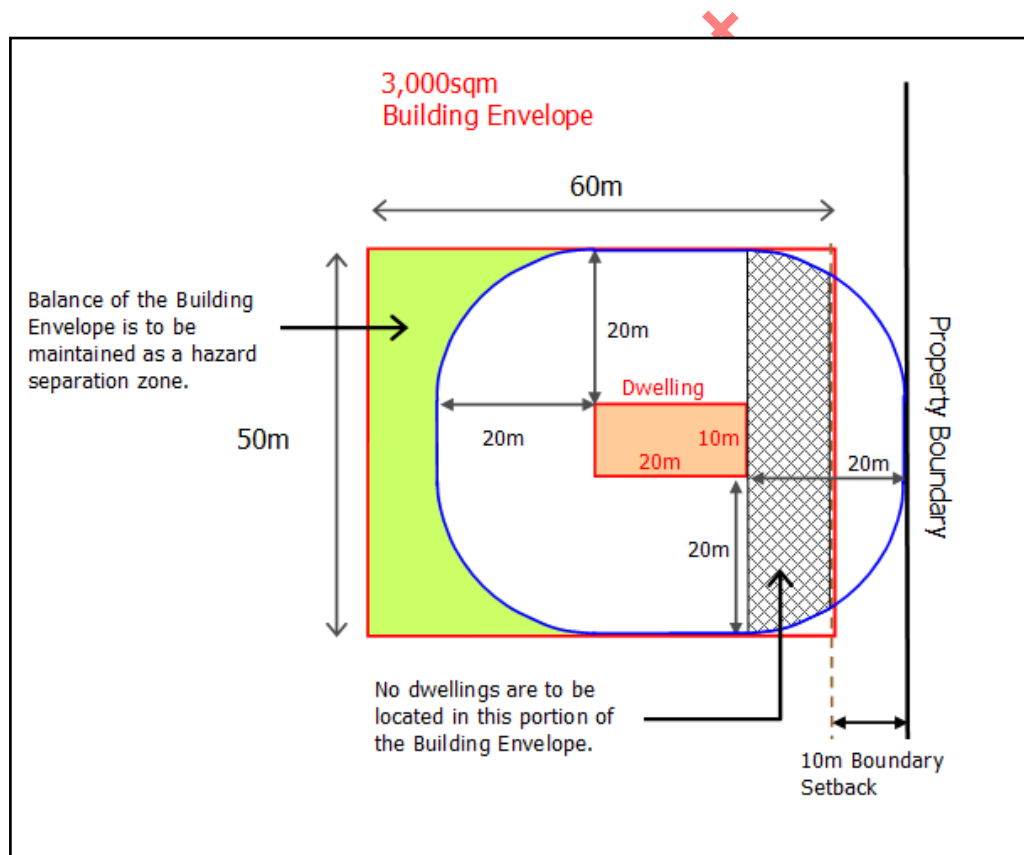


Figure 17 Building Envelope



Recommendations

19. That as part of the planning application for a dwelling, the building envelope is to be redefined and endorsed by Council.
20. That the building protection zone should generally be contained within the defined building envelope.
 - a) The balance of the building envelope is to be maintained as a hazard separation zone.
 - b) Where the building envelope setback is less than 20m from the boundary, the dwelling is still to be setback 20m in order to accommodate the building protection zone. The building envelope plan shall show the area between the boundary setback and the 20m BPZ setback as not being acceptable for the location of the dwelling. This area may have other ancillary development located within it.

7.8 Water Supplies

The provision of and maintenance of reliable water supplies is essential in fire control and a suitable water supply must be readily available and accessible to Fire Appliances at all times.

The Bush Fire Protection Guidelines (Acceptable Solution A3.2) indicate that in non reticulated areas that one 50,000L tank is required per 25 lots. If the final development of the Study Area is assumed to have 270 lots then this is a requirement for 540,000 litres. The existing supply is 190,000 litres with two further 50,000L tanks proposed for the development of Lots 9007 and 89. The development of Lot 9007 also includes provision of additional water supplies at the airport for use by water bombers.

The amount of water required per dwelling for fire fighting varies between different Planning Schemes. While DFES recommends an additional 20,000L per dwelling the existing fire management plans recommend only 10,000L. This figure is more generally accepted and should be prescribed as a minimum size for future dwellings.

Recommendations

21. That Clause 5.25(l) of the Local Planning Scheme be amended to nominate that in addition to the 92,000L domestic water a further 10,000L is required for fire fighting unless otherwise approved in Schedule 11 or a fire management plan.

**IS YOUR DRIVEWAY
WIDE ENOUGH
FOR THIS TRUCK?**





7.9 Property Access

Providing and maintaining suitable access to properties is essential for the protection of dwellings. If a fire truck cannot access the site then it can't protect the dwelling. They need to be a minimum width of 4 metres with gradients less than 20% and preferably only 12%.

Driveways must have a minimum 6m horizontal and 5m vertical clearance to vegetation, and provide a turnaround area for vehicles.

Recommendations

22. That proposed access provisions to a property must be considered as part of the planning application for a dwelling.
23. That Planning Approvals require that the driveway is to:
 - a) Provide a turnaround area for a Heavy Duty fire truck within the vicinity of the dwelling (three point or circular);
 - b) Have a minimum width of 4 metres;
 - c) Have a minimum horizontal clearance to vegetation of 6m;
 - d) Have a vertical clearance of 5m; and
 - e) A maximum grade of 8 degrees.

7.10 Shelters

7.10.1 Community Fire Refuge

A community shelter or refuge means a place that is to be used by the public for short term shelter from a fire front during a bushfire. They are purpose built shelters with specifically designed fire protection measures.

As a refuge from disaster there is an expected high degree of assurance of the survivability of occupants during impact. This high performance standard can only be achieved when refuges or shelters meet building specifications in relation to the particular hazard event (45). The design would have to have regard to the fire hazard; surrounding vegetation; adjacent buildings and structures; car parking; access; and the occupancy limit. Given the conditions in a major fire a community fire refuge would need to have independent power, water, ventilation and effluent disposal capability.

A community fire refuge can have a number of limitations including (46):

- Limited capacity;
- An expectation of being safe but not necessarily guaranteed;
- They do not cater for animals;
- Emergency services may not necessarily be present;
- They may not provide meals or amenities; and
- They may not cater for particular special needs (e.g. infants, elderly, ill or disabled).

The rationale behind community refuges ties their use to bushfire emergencies. As they are likely to only be used occasionally, they may also be designed and function as a multipurpose building. They would meet the relevant fire protection standards and can also be used to fulfil other community needs.

45 Office of the Emergency Services Commissioner (2010) *Fire Refuges Discussion Paper* Page 38

46 Scauble J (2004) *The Australian Bushfire Safety Guide* Page 95



There are no specific provisions in Western Australia in relation to community refuges and the managing agency would have to establish suitable criteria including compliance with AS3959 construction standards.

7.10.2 Neighbourhood Safer Places

People will often instinctively head towards beaches when a bush fire threatens and it is not easy to leave the area. The beach is perceived as a “safer place” which are defined as (47).

“...a nearby place to which people can relocate or evacuate to quickly when threatened by fire, which provides adequate shelter from radiant heat. Shelter may be achieved by distance from fuels/flames, or by a building, or other solid structure. Nearby safer places are informal places, usually identified by residents, although fire agencies may identify and announce nearby safer places at short notice for a particular fire. Nearby safer places may include but are not limited to towns, rivers, creeks, swimming pools, dams, beaches, ploughed or green fields, extensive areas of cropped grass including golf courses, recreation grounds and community parks, and personal shelters.”

A neighbourhood safer place (48) means a place that may, as a last resort, provide shelter for people from the immediate life-threatening effects of a bushfire.

This ‘safe area’ should:

- Have a large low fuel zone around it;
- Be easily accessible to the general community;
- Have good, safe, roads leading to it and ample parking available; and
- Be separate to emergency service operations centres.

However they may not provide shelter from the elements, particularly flying embers.

7.10.3 Private Shelters

Private bushfire shelters (bunkers) are purpose built private structures which are intended to provide temporary shelter for people from a bushfire. They may be above or below ground, but must be separate from a house.

Western Australia has no legislation which regulates the use of or requires maintenance of private bushfire shelters and hence the use of private bushfire shelters is voluntary. The general provisions of the Building Regulations 1989 still apply to shelters as all buildings require a building licence approval from local government.

The Australian Building Codes Board have developed performance standards (49) for Private Bushfire Shelters which have now been incorporated into the Building Code of Australia. These ensure that a private bushfire shelter built in accordance with the Standard provides a measured degree of protection to people with nowhere else to go, such as occupants of dwellings in remote locations.

A private bush fire shelter must not be considered as a panacea solution for fire protection. They should only be considered as a voluntary part of a broader strategy of bushfire protection measures used by landowners.

Recommendations

24. That Council should investigate the opportunities to improve the passive fire protection measures at Blossom’s and Short beaches.

47 Australasian Fire Authorities Council (2012) *Bushfires and Community Safety* Melbourne Page 8

48 The concept of a neighbourhood safer place arose from the 2009 Victorian Bushfires Royal Commission Interim report which noted that people need a range of options to increase their safety. Consequently interim development guidelines were prepared by the Victorian Country Fire Authority.

49 Australian Building Codes Board (2010) *Performance Standard for Private Bushfire Shelters*



25. That the use of “bunkers” is not promoted as an alternative to the other fire management measures in the Strategy. Where a landowner elects to construct a bunker then this will require a building permit and is to comply with the Australian Standard.

7.11 Sprinklers

Bush fire sprinklers can be used to complement other passive fire protection measures for a dwelling.

Sprinkler systems, can add considerable protection to a well-prepared property. A sprinkler system is used to cover the property with water and, at the same time, can be designed to be utilised as a fire fighting resource. Apart from sprinkler heads, hose outlets can be incorporated into the system (if there is enough pump capacity). Hoses can then be attached and used to put out spot fires.

The design of the system needs to provide for radiant heat all above ground piping should be metal or buried 300mm below ground.

AS5414 (2012) Bushfire Water Spray Systems provides details for the design, installation and maintenance of sprinklers. It is noted that AS5414 only recommends the use of sprinklers up to BAL19 and requires a 22,000L water supply.

Recommendations

26. That the use of “sprinklers” not be promoted as an alternative to the other fire management measures in the Strategy. Where a landowner elects to use sprinklers then these should comply with the Australian Standard AS5414 (2012) Bushfire Water Spray Systems.

7.12 Dwelling Design

The structural configuration and design of the dwelling will influence the level of ember accumulation which might occur. Accumulation of burning debris is related to the reduction in wind speed as a result of an obstruction. Local turbulence occurs as a result of wind deflection, particularly at corners of buildings.

The design of the dwelling can influence the level of wind turbulence. The more complex that the dwelling design is, the more likely that embers and wind borne debris will be able to enter a building or accumulate in corners or next to a building causing ignition (50):

Incorporating the following design principles can assist in the protection of dwellings:

- a) Simplify the plan shape of the dwelling and reduce re-entrant corners. A “re-entrant corner” is an internal angle formed between two vertical surfaces. They are susceptible when combustible material is located on the adjacent horizontal surface;
- b) Simplify the roof profile. A continuous line will minimise litter and ember accumulation points;
- c) Minimise the use of external combustible material in the roof cladding;
- d) Minimise litter accumulation in roof gutters;
- e) Eliminate roof junctions and/or changes in the roof pitch between the dwelling and verandas etc; and
- f) Minimise the use of attached structures, such as garages, unless they are included under the profile of the main roof.



Recommendations

27. That Council encourage the inclusion in any future design guidelines of fire management features and simplified design to reduce wind turbulence.

7.13 Holiday Homes

In 2009 the Western Australian Planning Commission released planning guidelines for holiday homes. These recommend that holiday homes be a discretionary use in the planning scheme. The justification for this is to ensure that short stay use of residential homes occurs within appropriate locations to enhance the tourism experience and reduce existing or future land use conflicts such as impacts on residential amenity.

The Guidelines recommend that in all cases, an emergency response plan (i.e. fire escape route maps) is required to be clearly displayed in a conspicuous location within the dwelling, plus:

- each bedroom is to be fitted with a hard wired smoke detector;
- a fire extinguisher, in a clearly visible location, is to be maintained in proper working order;
- outside barbeques are to be gas or electric.

They also recommend that a register of approved holiday homes should be established and maintained by the local government.

It is understood that the Shire of Jerramungup is not proposing to introduce any planning controls for holiday homes. Irrespective of this any owner of a holiday home has a "duty of care" to ensure that:

- Mandatory fire prevention measures such as in Council's fire break notice are complied with;
- The dwelling and the property are prepared for the fire season; and
- That any person renting the house is advised of the potential fire risk and what they should do in an emergency.

Recommendations

28. That owners and property managers must ensure that statutory and additional prevention measures are maintained at holiday homes including the provision of information to guests.
 - a) Persons leasing holiday homes must ensure that all prevention measures and maintenance works are completed before the commencement of the fire season.
 - b) That tenants should be instructed about fire preparedness before occupying the residence, including the use of Emergency Alert phone messages.
 - c) That an information pamphlet should be displayed prominently in the dwelling advising of emergency contact information including ABC radio, television, government websites and information lines.

7.14 Future Development

The extent and nature of any future development within the Study Area must be considered. This is likely to consist of:

- The development of dwellings on the existing lots;
- Additional tourist development, holiday homes, tourist accommodation facilities etc
- Increased visitors to the Study Area especially to the local beaches during summer; and
- Additional subdivision.

The Local Planning Strategy is the key document which will guide what development may occur and in particular what additional subdivision might occur. This incorporates the Point Henry Limited Rural Strategy recommendations.



As shown in Figure 9 the Local Planning Strategy recognises that a number of lots may have potential for further subdivision. There are also several lots which have a current subdivision approval or an endorsed subdivision guide plan.

A preliminary examination of the potential number of lots has been done for undeveloped land as shown in Table 14. This is based upon the Rural Residential classification that allows for a lot density of 4 hectares and the Restricted Rural allows for a lot density of 10 hectares. The actual lot yields may depend upon a number of factors which would be considered in the approval of any amendment or proposed structure plan. The purpose of this is simply to gain an understanding of the possible number of additional lots which may be created.

Table 14 Potential Development

Lot	Description	Area (ha)	Designation	Possible Lots
1	Wellstead Rd	3.8	Rural Residential	1
2	Wellstead Rd	15.8	Rural Residential	3
89 *	Point Henry Rd	69.0	Rural Residential	21
112	Horse Hill Rd	40.5	Part Rural Residential (26ha) Part Restricted Rural (14.5ha)	6 1
113	Horse Hill Rd	40.5	Part Rural Residential (26ha) Part Restricted Rural (14.5ha)	6 1
114	Point Gordon Rd	40.5	Part Rural Residential (26ha) Part Restricted Rural (14.5ha)	6 1
115	West of Point Henry Rd	12.0	Rural Residential	3
115	West of Point Henry Rd	17.2	Rural Residential	4
115	North of Swarbrick Rd	54.3	Recreation Environmental Protection	1
115	South of Swarbrick Rd	36.7	Part Rural Residential (18ha) Part Restricted Rural (18ha)	4 1
400 *	Wellstead Rd	38.0	Rural Residential	9
9007 *	Point Henry Rd	118.0	Recreation Environmental Protection Part Restricted Rural	7
9012	Wellstead Rd	6.6	Rural Residential	1
Total				76

* Existing subdivision approval / subdivision guide plan

It is considered that it is reasonable to recognise that these areas might be developed on the basis of them being recognised in the Limited Rural Strategy and that recognition having been carried forward to the recent approved review of the Local Planning Strategy review.

Even though these lots may not have been rezoned, they effectively constitute infill of an existing developed area.

Notwithstanding the non-compliance due to the single access, any development of these lots should comply with all other Planning for Bushfire performance criteria.

Recommendations

29. That any rezoning or subdivision application on land within the Study Area is to address fire management as an integral part of the design. This includes defining expected BAL setbacks and classifications.
30. That Lots 112, 113 and 114 should be subject to a single structure plan providing for a connecting road network; "clustering" of lots in the western portion of the land and a strategic water supply with an associated reserve.



7.15 Local Planning Scheme Provisions

7.15.1 Bush Fire Prone Areas

Through its adoption in the Building Regulations 2012 the Building Code of Australia (BCA) is the minimum set of technical provisions for the design and construction of buildings and other structures in Western Australia. It requires that new residential buildings, extensions and alterations to existing buildings in designated bush fire prone areas are to be constructed in accordance Australian Standard AS3959 (2009) Construction of Buildings in Bushfire Prone Areas.

The “triggering” of the BCA requirements for construction in bushfire prone areas needs an area to be identified as being subject or likely to be subject to bushfires through a power in legislation (such as planning legislation). The triggering does not rely on a reference to AS3959 or a bushfire attack level being identified at that point.

The State Government is currently preparing state wide mapping of potential bush fire prone areas which will have separate legislative authority specifically for AS3959. However it is still preferred that the Local Planning Scheme make reference to bush fire prone areas in addition to other fire management measures.

This can be done by a general provision or by altering the specific planning provisions within the Study Area.

One option is to introduce a Special Control Area for Bushfire. This would have several benefits to the implementation of this Strategy being:

- The Special Control Area zoning would appear on the Scheme Maps and in any zoning certificate which will make it more obvious to prospective purchasers; and
- The provisions in the Special Control Area would raise the consideration of fire management issues and design in the determination of any planning application irrespective of whether it is a permitted (P) use or not.

Example provisions for a Special Control Area are contained in Appendix 10.

7.15.2 Clause 5.25 Rural Residential Zone

Clause 5.25 contains general provisions for the rural residential zone which need to be modified to provide consistency with existing fire management plans and this Strategy.

Clause 5.25.3 (a)(iii)

Clause 5.25.3 (a)(iii) states that “In order to conserve the rural environment or features of natural beauty all **trees** are to be retained unless their removal is authorised by the local government.” The use of the term “tree” is inconsistent with the use of “vegetation” in other provisions of the Scheme.

Clause 5.25.3 (g)

Clause 5.25.3 (g) states that “Despite any other provision of the Scheme the local government **may grant planning approval** to clear vegetation around buildings as required for Hazard Separation Zones and Building Separation Zones referred to in Commission policy; where vegetation is felled or removed, the surface soil is to be retained to prevent erosion.”

This implies that a planning approval is required for mandatory works prescribed by the approved fire management plans and / or Firebreak Notice.

Clause 5.25.3 (f)

Clause 5.25.3 (f) stipulates that Building envelopes as shown on the Subdivision Guide Plan are to:

- (i) be delineated on-site by owner and approved by the local government **prior to the commencement of any clearing of vegetation** and the local government may require an alternative building envelope if it considers the envelope delineated would be detrimental to the landscape or environment;



(ii) not exceed 10% of the lot area, or 3,000 m² whichever is the lesser.

The current conventions in relation to building envelopes are that:

- They can be cleared although there is no specific authority in Clause 5.25 for this; and
- Prior to a development application for a dwelling an owner may construct a driveway and clear as small area within the envelope i.e. 100sqm.

Both of the above need to be reflected either in the Scheme or a Local Planning Policy

Clause 5.25.3 (l)

Clause 5.25.3 (l) requires that a dwelling is not to be occupied unless water storage tank(s) of minimum total capacity of 92 kilolitres. There is no reference to requiring an additional water supply for fire fighting purposes.

7.15.3 Consideration of Planning Applications

In considering any planning applications the Council is required to have regard to various provisions in the Local Planning Scheme as shown in Figure 18. These reference the Planning for Bush Fire Protection Guidelines and any applicable State Planning Policy.

A single dwelling is a permitted (P) use in the Scheme which normally does not require a planning approval provided it meets the provisions within the Scheme. Clause 5.25.3 refers to all development including a dwelling as requiring planning approval. This means that while the 'use' must be approved the development is discretionary and so one type of dwelling might be acceptable while another isn't.

Similarly the consideration of the application can assess the proposed siting of the dwelling.

The slope or steepness of each lot needs to be taken into account when planning and designing developments in bushfire prone areas. The rate of spread of a fire increases on sloping land as it will accelerate up a hill and burn with greater intensity. The acceleration rate of a fire doubles on slopes greater than 10 degrees (17.6%).

The Study Area contains a variety of slopes associated with the coastal landform units and can generally be classified as being:

Very steep	Greater than 15 degrees (>26 %)
Steep	10 degrees - 15 degrees (18% - 26%)
Moderate (rolling hills)	5 degrees - 10 degrees (13% - 17.6%)
Gentle (undulating)	2 degrees - 5 degrees (5% - 12%)
Flat	0 degrees - 2 degrees (0% - 5%)

The most sought after locations for residential development are often on steep, heavily vegetated slopes that provide high aesthetic attraction, privacy and maximum sunlight for solar efficiency. Unfortunately, these attributes also contribute to a potential high bushfire hazard.

It is not appropriate to defer these matters as a condition of approval requiring the preparation of a fire management plan; because they are fundamental to the consideration of the application.

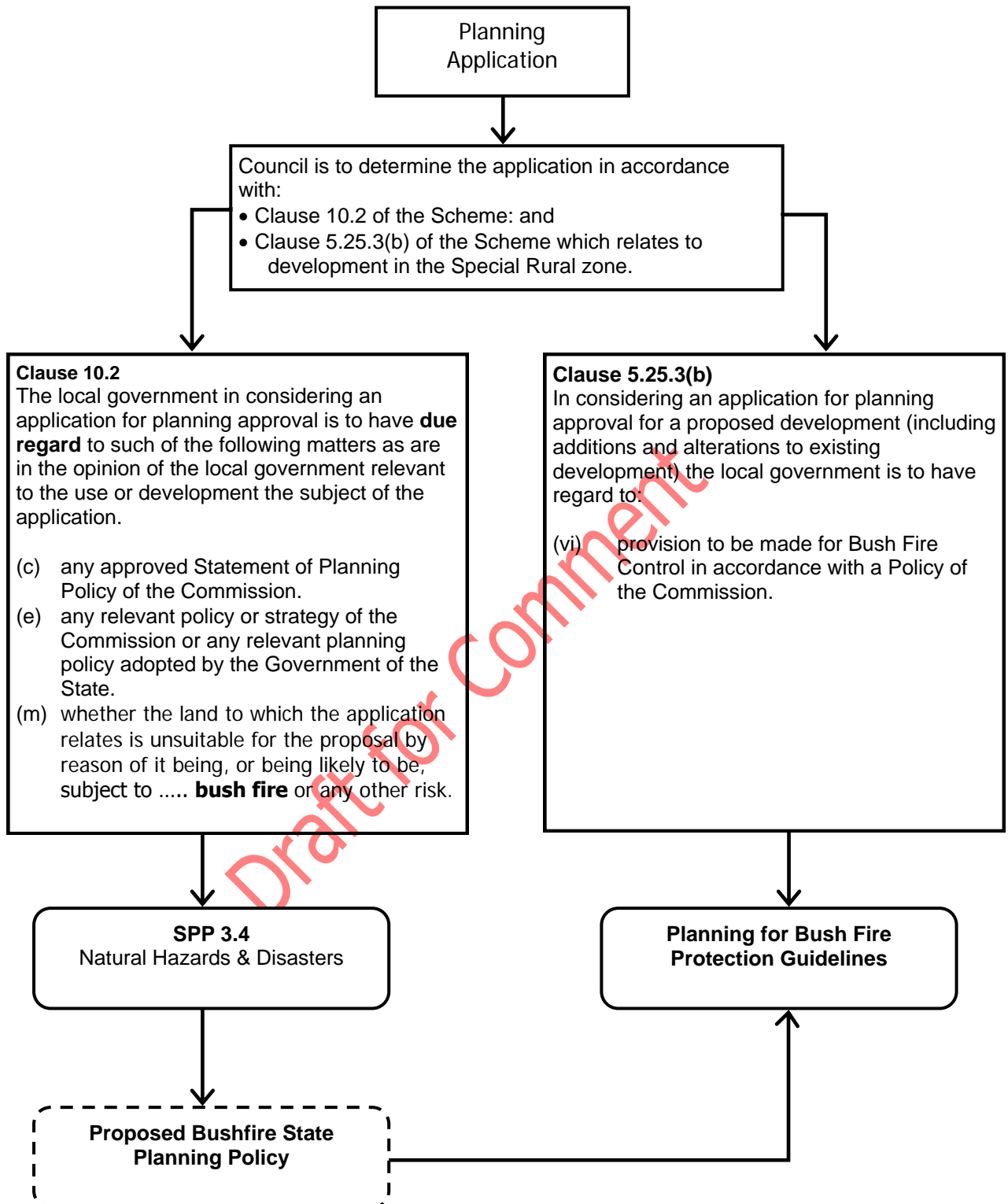


Figure 18 Planning Applications



Recommendations

31. That Council amend the Local Planning Scheme to introduce a general provision relating to bush fire prone land and consider the introduction of a Special Control Area over the Study Area for bushfire management.
32. That Council review Clause 5.25 of the Local Planning Scheme to ensure consistent terminology and to clarify provisions in relation to trees, vegetation and fire management issues.
 - a) Review Clause 5.25.3 (a)(iii) to replace the reference to trees to vegetation as it presently excludes shrubs.
 - b) Delete Clause 5.25.3 (g) which requires Council approval to remove vegetation around buildings as required for Hazard Separation Zones and Building Separation Zones. This also appears to conflict with provisions in Schedule 11 for several rural residential zones.
 - c) Introduce a clause to clarify that maintenance or clearing of vegetation for stipulated fire management measures does not require the further approval of Council under the Scheme. This is to include reference to building protection zones, firebreaks, BAL setbacks, driveways etc.
 - d) Continue to utilise the existing landowner contribution scheme for maintenance of strategic firebreaks and other mitigation measures.
33. That planning applications on land in the Study Area are to include information on proposed bush fire management measures including:
 - a) What BAL rating is intended to be used for the construction of the dwelling as determined by an assessment in accordance with Appendix 9.
 - b) Confirming the average gradient of the slopes under this vegetation on all four sides of the dwelling extending for a distance of 100m;
 - c) Detailing what vegetation is intended to be cleared for the construction of the dwelling and associated fire management of the property;
 - d) Confirm the capacity of the proposed water tanks; and
 - e) Showing the proposed driveway.

7.16 Fire Break Notice

The fire break notice is a formal direction under the Bush Fires Act and generally perceived as having a greater statutory weight than conditions of a planning approval. Compliance with the fire break notice is mandatory unless Council approves a prior variation for an individual property.

The previous sections have referenced a number of instances where the fire break notice should be revised including:

- The introduction of a 20m building protection zone; and
- Extension of the restricted burning period.

Amendment No 5 is also introducing a definition of "strategic fire break" into the Planning Scheme.

Recommendations

34. That Council review the provisions of the firebreak notice for the rural residential zone so as to be consistent with the Planning Scheme and fire management plans.
 - a) Include a requirement for dwellings to have a 20m building protection zone. Where an existing dwelling is located less than 20m from the boundary the building protection zone is only required to extend to that boundary.
 - b) The current reference to approval of fire management plans should only require Council endorsement.
35. That the "restricted burning period" be extended for the Study Area in order to ensure that landowners require a permit and take the necessary precautions.



7.17 Signage and Information

Fostering a permanent culture of fire consciousness and preparedness needs to be continually reinforced to residents and promoted to visitors. Tourists may not be familiar with local conditions and holiday makers are focussed on relaxing. It is therefore surprising that there are no community information or warning signs within the Study Area.

The main purpose of a signs is to communicate, to convey information such that its receiver can make decisions based on the information provided. So even simple reminders are an important component of any awareness strategy for both general information and also for specific elements or features.

The inquiry into the Margaret River bushfire noted (51) that anyone who lives in or has visited the district will be familiar with the constant reminders and road signs pointing to the dangers of fire, especially in the period from November to April every year.

An example of a larger community information sign which should be prominently displayed on Point Henry Road is shown in Figure 19.

There is a huge range of information available to landowners. The key source of this is the Department of Fire and Emergency Services website and as a minimum landowners should be familiar with one or more of the documents shown over the page.



Figure 19 Example Information Sign

Recommendations

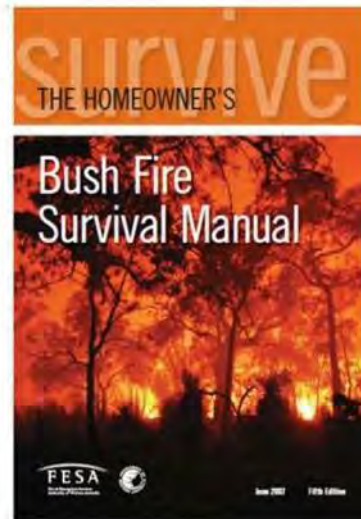
36. That a community information sign display be constructed on Point Henry Road near the southern boundary of Reserve 511.

51 Keilty M (2012) *Appreciating the Risk – Report of the Special Inquiry into the November 2011 Margaret River Bushfire*. Government Printer Perth Page 16



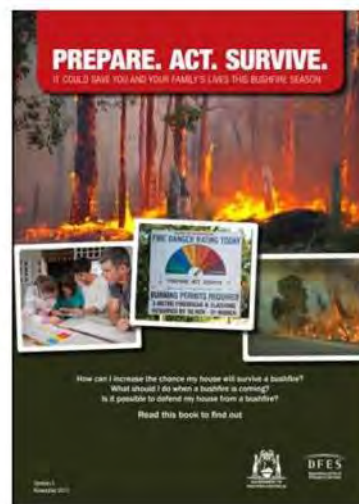
Excellent reference for home owners with easy to access dot-point one liners. Available from the CSIRO online bookshop.

Similar information as Webster's book but in a more concise form.



Details Building Regulation requirements for new dwellings and provides information on how to upgrade existing dwellings.

Principal reference for all landowners. Contains checklists and survival plans.





7.18 Climate Change

The Climate Commission (52) is predicting that there will be hotter and drier conditions particularly in the southern regions of the State. These are likely to cause changes to fire regimes, as the conditions for large and intense fires will be more common.

It is likely that a higher fire weather risk will be more common in spring, summer and autumn resulting in an increased annual fire season. This will also have the added implication of reducing the opportunity for hazard reduction activities and specially prescribed burning (53).

Consequently the incidence of bush fires may increase. While this may not require any additional design measures in the subdivision it may place additional emphasis on the "preparedness" and "response" measures within the community.

Recommendations

37. That all stakeholders recognise that climate change is likely to result in a greater bush fire risk within the Study Area.

7.19 Variations and Other Measures

It is not the function of this Strategy to address every possible fire management measure. There is a large range of other initiatives which may improve fire management prevention, preparation and response. It is hoped that the community will engage in the development and implementation of these. It is not intended that this Strategy must document or consider all such measures.

It is recognised that there will be situations and conditions where the recommendations may need to be varied in response to a proposed development. This should be done as part of the planning application with appropriate justification provided in conjunction with a fire management plan.

Recommendations

38. That where a landowner seeks a variation to the Strategy recommendations, Scheme provisions or the Firebreak Notice, this application shall be supported by a fire management plan for the property indicating how any alternative measures will be proved.
39. That while there may be planning reasons for varying standards and provisions, emergency management responses are based upon uniformity which provides certainty to the volunteers who are potentially risking their lives to defend property.

52 Climate Commission (2011) *The Critical Decade: Western Australia climate change impacts*. Page 10

53 Middelman, M. H. (Editor) (2007) *Natural Hazards in Australia: Identifying Risk Analysis Requirements*. Geoscience Australia, Canberra. Page 104.



8.0 Conclusion and Implementation

The Study Area is more than 2,300 hectares in size and extends southwards from White Trail Road for approximately 8 kms. There are an estimated 207 freehold properties, large Crown reserves, existing businesses and infrastructure within the Study Area.

The beaches within the Study Area are a popular attraction and during the peak summer holiday period there is a dramatic increase in the local population.

Much of the Study Area is heavily vegetated and has an obvious bush fire risk. It is acknowledged that bush fires occur within the area and that a high intensity fire can pose a risk to life and property.

The aim of this Strategy is to manage that risk to be as low as is reasonably practicable in the existing circumstances. It is not possible to make the area "fire safe" and there will always be an inherent risk from bush fires. The priority for reducing this risk to an acceptable level is the protection of life, property and then the environment. The existing single access road in the Study Area increases the level of bush fire risk and this implication cannot be underestimated.

It is highly likely that there will be a bush fire within the Study Area in the foreseeable future. Property damage can be reduced but it is unlikely to be entirely prevented. It is theoretically possible to prevent property damage by bushfire through the total removal of all hazard vegetation. Such a measure is not possible in practical terms and is unacceptable to the community. Therefore a balance must be achieved between measures taken to reduce or avoid loss due to bushfire and the protection of other values.

There are three main ways of modifying the level of bushfire risk:

- Reducing fuel loads;
- Maintaining fire breaks; providing adequate separation distances between buildings and bush fire fuel areas; and
- Ensuring that new buildings are built in accordance with AS3959.

The responsibilities for bush fire management are prescribed in the State Emergency Management Plan Bushfire and are shared between DFES, DPaW and Local Government. These responsibilities are categorised in terms of prevention, preparedness, response and recovery.

Current fire emergency planning promotes that in order to save lives it is paramount to evacuate people as early as possible from the threatened area. However the conditions in the Study Area mean that residents and tourists may not have sufficient warning to leave and must be able to find shelter. Defending a home requires a commitment to implementing and maintaining fire protection measures, personnel equipment and training.

It is not possible or practicable to treat all bush fire risks. It is therefore important to determine what is an acceptable level of risk. Once the risks have been identified and evaluated they must either be accepted or modified / treated.

Resilient communities are aware of the risks and engage in the management of these. Raising community awareness should foster a sense of partnership between residents, neighbours, landowners and managers. Household holders should be provided with knowledge and skills to enable them to prepare themselves and their property adequately to survive a bushfire, and to enable them to decide whether or not they will remain with their property if a bushfire threatens.

Residential properties should:

- Provide a 20m building protection zone around all dwellings. This is considered to be a critical measure to improve the protection of dwellings and is the single most important component of the 'stay and defend' policy;
- Construct new dwellings in accordance with AS395;
- Provide an additional water supply for fire fighting; and
- Ensure that the driveway is kept clear of vegetation and that there is an adequate turn around area.



To address the the fire threat all levels of the community should work towards fostering a permanent culture of fire consciousness and continuous practical fire preparedness. The continuous fire consciousness of residents is an essential ingredient of effective management strategies. The community must not develop the attitude that responsibility lies somewhere else, particularly in government.

The spatial implications of the recommendations from the preceding analysis are shown in Figure 20 and the shared responsibility for managing the bush fire risk in the Study Area is summarised in Table 15.

Recommendations

40. To recognise that fire mitigation measures for the protection of Point Henry and the Bremer Bay townsite have a reciprocal function and that R511 has a greater strategic importance when considered in relation to the townsite.
41. That this Strategy be adopted as a Local Planning Policy under the Local Planning Scheme.
42. That the Strategy be updated following the review of the Bush Fires Act and the introduction of the Bushfire State Planning Policy.

Draft for Comment



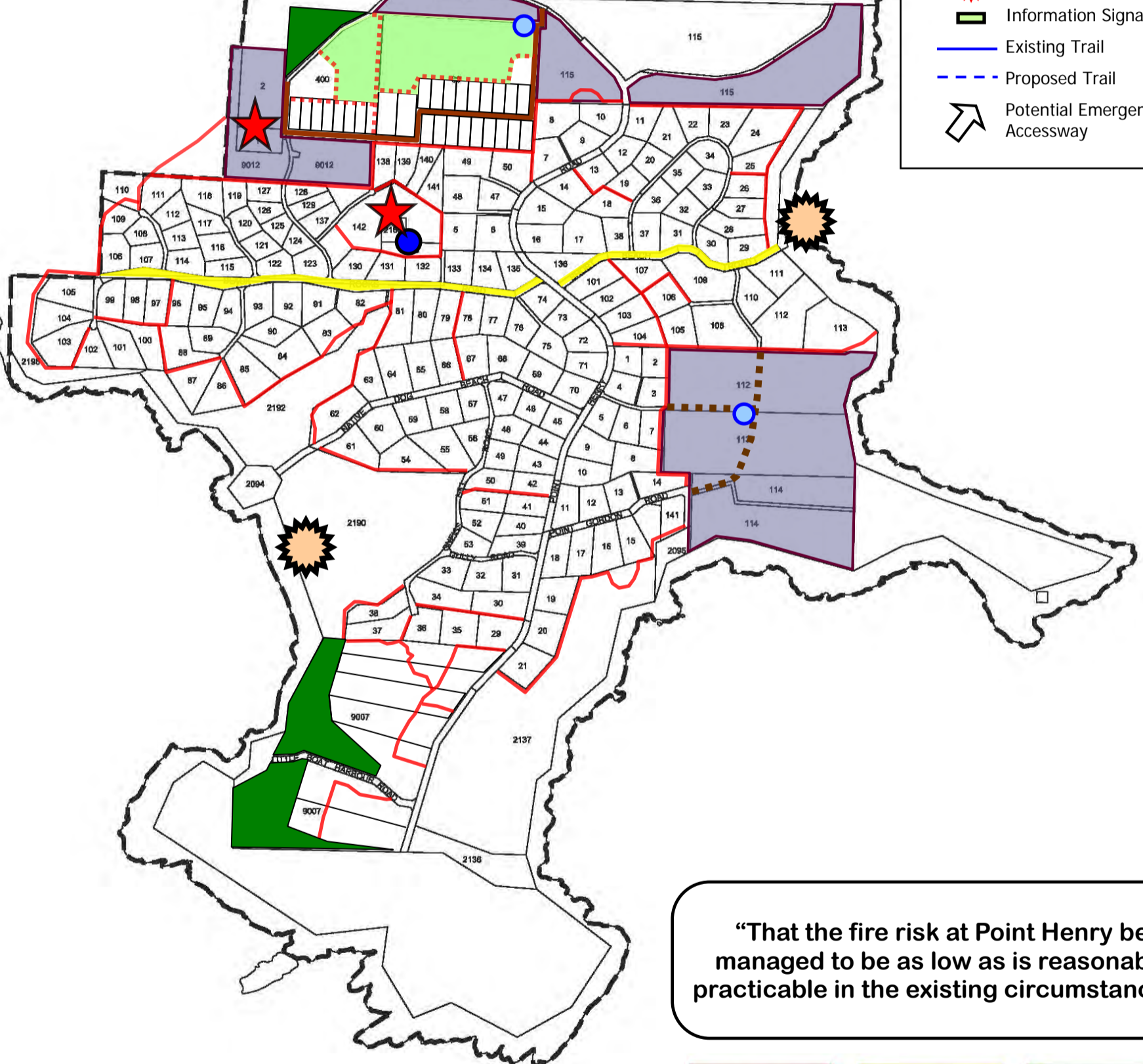
Fitzgerald River National Park

Golf Course

R511

LEGEND

- Study Area
- Future Subdivision
- POS / Conservation Reserve
- Proposed Conservation Lots
- Existing Strategic Firebreak
- Proposed Strategic Firebreak
- Proposed Road
- Indicative future road connection
- Hazard Separation Zone
- Existing Water Supply
- Proposed Water Supply
- Major Asset
- Potential Neighbourhood Safer Place
- Evacuation Centre
- Information Signage
- Existing Trail
- Proposed Trail
- Potential Emergency Accessway



“That the fire risk at Point Henry be managed to be as low as is reasonably practicable in the existing circumstances”



**Figure 20
POINT HENRY
FIRE STRATEGY PLAN**

300m 0 750 1500m

1: 15000 @ A1 or 1: 30000 @ A3
ALL DISTANCES ARE IN METRES

REVISION	DESCRIPTION	DRAFTER	DATE
J			
I			
H			
G			
F			
E			
D			
C			
B			
A			

COPYRIGHT
THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF
THE TOWN PLANNING MANAGEMENT ENGINEERING PTY LTD.
THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR
WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH
THE TERMS OF ENGAGEMENT FOR THE COMMISSION.
UNAUTHORISED USE OF THIS DOCUMENT IN ANY FORM
WHATSOEVER IS PROHIBITED.

ORIGINAL PLANNER:	GL
ORIGINAL DRAFTER:	TDB
CREATED DATE:	31.06.2013
AERIAL DATA:	N/A
CADASTRAL DATA:	MGA
TOPOGRAPHIC DATA:	N/A



11336P-MP-09

THIS PLAN HAS BEEN PREPARED FOR PLANNING PURPOSES.
AREAS, CONTOURS AND DIMENSIONS SHOWN ARE SUBJECT TO SURVEY.

Aim

"That the fire risk at Point Henry be managed to be as low as is reasonably practicable in the existing circumstances"

Objectives

- a) To integrate fire management as a key element of development and subdivision design in balance with environmental, landscape, community and residential objectives;
- b) That all levels of the community work towards fostering a permanent culture of fire consciousness and preparedness;
- c) That the Strategy clarify what landowners, managers and occupiers must do; should do and can do; and
- d) Manage fuel to reduce the rate of spread and intensity of bush fires, while minimising environmental ecological impacts.

RECOMMENDATIONS SUMMARY (Refer to the Report for the full details)

Acceptable Level of Risk

- 1. Recognise that Council has limited resources with which it must manage on a Shire wide basis for fire management and other emergencies.
- 2. Promote that fire management is a shared responsibility between Council, government agencies, landowners and visitors.
- 3. Landowners to be aware that they live in a fire prone environment and need to take the initiative in learning about, preparing for and responding to bushfires.
- 4. That Council promote the bush fire ready and other associated community programs.
- 5. That Council maintain and develop the Point Henry Fire Strategy web page to use to engage with the broader Bremer Bay community.
- 6. That Council Identify opportunities for other community programs especially for absentee owners and holiday makers.

Single Access Road

- 7 Consideration given to increasing management measures including for vegetation (hazard) management on the basis of the single access road increases the overall bush fire risk.
- 8 That the "precautionary principle" be applied to the development of the Study Area especially where variations or other reductions to standards are proposed.
- 9 The "local emergency management arrangements" recognise that there can be multiple emergencies which may be affected by the single access

Hazard Management

- 10 The Council prepare a management plan for R511 which includes fire management zones and associated measures.
- 11 Council monitor and asses fuel loads in Council reserves for consideration in the proposed bush fire risk management plan.
- 12 That any strategic fuel reduction measures on private land which may require the approval of DPaW under the clearing regulations be co-ordinated between landowners.
- 13 That Council lobby the State Government to ensure that the management of vegetation for the protection of lives and property has priority over environmental protection legislation.

Bushfire Attack Levels (BALs)

- 14 That a BAL assessment is to be part of any application for planning approval for a dwelling which includes proposed clearing of vegetation.

Building Protection Zones

- 15 That all dwellings have a minimum 20m wide building protection zone.
- 16 That the building protection zone increase as the downslope from the dwelling increases.
- 17 That requirement for a building protection zone be included in the Fire Break Notice.
- 18 Develop a policy to allow the building protection zone to include heath vegetation which has been trimmed to a nominated height and maintained with reduced fuel loads.

Building Envelopes

- 19 That as part of the application for a dwelling, the building envelope is to be redefined and endorsed by Council.
- 20 The building protection zone should generally be contained within the defined building envelope.

Water Supplies

- 21 That dwellings have a 10,000L water supply specifically for fire fighting.

Property Access

- 22 That proposed access to a property be considered as part of the planning application for a dwelling.
- 23 That Planning Approvals document driveway specifications

Shelters

- 24 That Council investigate the opportunities to improve the passive fire protection measures in these locations Blossom's and Short beaches.
- 25 That the use of "bunkers" is not promoted as an alternative to the other fire management measures in the Strategy.

Sprinklers

- 26 The use of "sprinklers" is not promoted as an alternative to the other fire management measures in the Strategy.

Dwelling Design

- 27 That Council encourage the inclusion of fire management features and simplified design to reduce wind turbulence in any future design guidelines.

Holiday Homes

- 28 That owners and property managers ensure that statutory and additional prevention measures are maintained at holiday homes including the provision of information to guests.

Future Development

- 29 Any rezoning or subdivision application is to address fire management as an integral part of the design.
- 30 That Lots 112, 113 and 114 should be subject to a single structure plan.

Local Planning Scheme Provisions

- 31 That Council amend the Local Planning Scheme to introduce a general provision and/or a Special Control Area relating to bush fire prone land.
- 32 That Council review Clause 5.25 of the Local Planning Scheme.

Consideration of Planning Applications

- 33 That planning applications on land in the Study Area are to include information on bush fire management, a BAL assessment etc.

Fire Break Notice

- 34 The firebreak notice provisions for the rural residential zone be reviewed so as to be consistent with the Planning Scheme and fire management plans.
- 35 That the "restricted burning period" be extended for the Study Area in order to ensure that landowners require a permit for prescribed burning.

Signage

- 36 That a community information sign display be constructed on Pt Henry Road near the southern boundary of Reserve 511.

Climate Change

- 37 That all stakeholders recognise that climate change is likely to result in a greater bush fire risk within the Study Area.

Variations and Other Measures

- 38 Any request to vary provisions, including the firebreak notice, should be done as part of the planning application with appropriate justification provided.
- 39 Emergency management responses are based upon uniformity which provides certainty to the volunteers who are potentially risking their lives to defend property.

Implementation

- 40 Recognise that fire mitigation measures for the protection of Point Henry and the Bremer Bay townsite have a reciprocal function.
- 41 That this Strategy be adopted as a Local Planning Policy under the Local Planning Scheme.
- 42 The Strategy will require updating and refinement following the review of the Bush Fires Act and the introduction of the Bushfire State Planning Policy.

POINT HENRY FIRE STRATEGY PLAN SHEET 2 OF 2



1 : 15000 @ A1 or 1 : 30000 @ A3
ALL DISTANCES ARE IN METRES

J			
I			
H			
G			
F			
E			
D			
C			
B			
A			
REVISION	DESCRIPTION	DRAFTER	DATE

COPYRIGHT
THIS DOCUMENT IS AND SHALL REMAIN THE PROPERTY OF
THE TOWN PLANNING MANAGEMENT ENGINEERING PTY LTD.
THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR
WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH
THE TERMS OF ENGAGEMENT FOR THE COMMISSION.
UNAUTHORISED USE OF THIS DOCUMENT IN ANY FORM
WHATSOEVER IS PROHIBITED.

ORIGINAL PLANNER:	GL
ORIGINAL DRAFTER:	TDB
CREATED DATE:	31.05.2013
AERIAL DATA:	N/A
CADASTRAL DATA:	MGA
TOPOGRAPHIC DATA:	N/A



11336P-MP-09

Table 15 Shared Responsibilities

Private Landowner Responsibilities		
MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
Recognise that fire management is a shared responsibility (R2).	Contain the building protection zone within the defined building envelope (R20).	Plant local native species in the BPZ so that this area becomes a "managed" landscape (R18).
Be aware that they live in a fire prone environment and need to take the initiative in learning about, preparing for and responding to bushfires (R3)	Provide suitable driveway access with vegetation clearing and turning areas (R22).	Retro fit AS3959 construction standards to the dwelling.
Have a 20m building protection zone (R15). Increase the BPZ on steep land (R16)	Provide a 10,000L water tank for fire fighting (R21).	Can install a private bunker in conjunction with other fire measures (R25).
Be responsible for the vegetation within their property.	Have a bushfire survival plan and a survival kit.	Can install sprinklers in conjunction with other fire measures (R26).
Comply with the conditions of any approved fire management plan.	Prepare for no power supply during a fire.	Join the local bush fire brigade and Bushfire Ready Group.
Contribute to the maintenance of strategic firebreaks.	Know what the Fire Danger Ratings mean.	Undertake additional fuel management outside of the building envelope.
Comply with the Firebreak Notice and prepare their property.	Be alert on high fire danger days	Can inform adjoining absentee owners of any issues.
Provide justification for any variation to recommendations or firebreak notice (R38).	Recognise that climate change is likely to result in a greater bush fire risk within the Study Area (R37).	Prepare an individual fire management plan for their lot.
Proposed Dwellings		
Recognise that fire management is a shared responsibility (R2).	Contain the building protection zone within the defined building envelope (R20).	Plant local native species in the BPZ so that this area becomes a "managed" landscape (R18).
Be aware that they live in a fire prone environment and need to take the initiative in learning about, preparing for and responding to bushfires (R3)	Recognise that climate change is likely to result in a greater bush fire risk within the Study Area (R37).	Can install a private bunker in conjunction with other fire measures (R25).
Comply with AS3959 construction standards and submit a BAL assessment as part of the planning application for the dwelling (R14 & R33).	Prepare for no power supply during a fire.	Can install sprinklers in conjunction with other fire measures (R26).
Be responsible for the vegetation within their property.	Know what the Fire Danger Ratings mean.	Simplify the design of dwellings to reduce wind turbulence (R27).
Have a 20m building protection zone (R15) Increase the BPZ on steep land (R16)	Be alert on high fire danger days.	Join the local bush fire brigade and Bushfire Ready Group.
Define the building envelope as part of the planning application for the dwelling (R19).	Have a bushfire survival plan and a survival kit.	Undertake additional fuel management outside of the building envelope.
Provide a 10,000L water tank for fire fighting (R21).		Prepare an individual fire management plan for their lot.
Provide suitable driveway access with vegetation clearing and turning areas (R23).		
Contribute to the maintenance of strategic firebreaks.		
Comply with the Firebreak Notice and prepare their property.		
Provide justification for any variation to recommendations (R38).		
Maintain the vegetation in the separation distance required under AS3959 for the relevant Bushfire Attack Level (BAL) assigned to the dwelling.		

Business Operator Responsibilities (including holiday home rentals)		
MUST DO	SHOULD DO	CAN DO
Ensure the safety of their safety of their staff, customers, clients and guests.	Be aware that they work in a fire prone environment and need to take the initiative in learning about, preparing for and responding to bushfires (R3).	Plant local native species in the BPZ so that this area becomes a "managed" landscape (R18).
Recognise that fire management is a shared responsibility (R2).	Have a bushfire survival plan and documented "triggers" for taking action including closure or evacuation.	Prepare an individual fire management plan for their lot.
Provide additional protection measures for commercial holiday homes (R28).	Know what the Fire Danger Ratings mean.	Retro fit AS3959 construction standards to any existing building.
Contribute to the maintenance of strategic firebreaks.	Be alert on high fire danger days	Join the local bush fire brigade and Bushfire Ready Group
Must comply with the Firebreak Notice and prepare their property.	Provide suitable driveway access with vegetation clearing and turning areas (R21).	Undertake additional fuel management outside of the building envelope.
Comply with AS3959 construction standards and submit a BAL assessment as part of the planning application for the dwelling or building (R14 & R33).	Provide additional water supplies for fire fighting (R20).	
Be responsible for the vegetation within their property.	Know what the Fire Danger Ratings mean.	

Council Responsibilities (including bush fire brigade)		
MUST DO	SHOULD DO	CAN DO
Comply with its responsibilities under Westplan Bushfire.	Promote the bush fire ready and other associated community programs (R4).	Maintain and develop the Strategy web page and include a community forum (R5)
Must prioritise fire mitigation works on a shire wide basis in conjunction with other emergency management (R1).	Consider if the single access road is justification for increased management measures including for vegetation management (R7).	Identify opportunities for other community programs especially for absentee owners and holiday makers (R6)
Recognise that fire management is a shared responsibility (R2).	Apply the "precautionary principle" to the development of the Study Area (R8).	Monitor fuel loads in all Council reserves for consideration in the proposed bush fire risk management plan (R11).
Maintain the strategic firebreaks.	The "local emergency management arrangements" should recognise that there can be multiple emergencies which may be affected by the single access (R9).	Co-ordinate strategic fuel reduction measures on private land (R12).
Be responsible for the vegetation on land which it manages. This included crown reserves and roadside vegetation.	Prepare a management plan for R511 which includes fire management zones and associated measures (R10)	Develop a policy for the maintenance of heath vegetation within the building protection zone (R18).
Develop and maintain fire fighting facilities throughout the Shire.	Lobby the State Government, WALGA etc to ensure that the management of vegetation for the protection of lives and property has priority over the clearing regulations (R13).	Encourage the simplified design of dwellings to reduce wind turbulence (R25).
Ensure compliance with its annual Fire Break Order.	Include the requirement for a building protection zone in the Fire Break Notice (R17).	Require a structure plan over Lots 112, 113 and 114 (R30)
Ensure compliance with planning provisions.	Review building envelopes as part of the planning approval (R19).	Extend the "restricted burning period" specifically for the Study Area (R35).
	Amend Clause 5.25(l) to require water for fighting on all lots.	Install a community information sign on Pt Henry Road (R36).
	Require any rezoning or subdivision to address fire management (R29).	Recognise that the recommendations may need to be varied in response to a proposed development (R38).
	Amend the Planning Scheme to introduce a general provisions relating to bush fire prone land and a Special Control Area (R31).	Update the Strategy following the review of the Bush Fires Act and the introduction of the Bushfire State Planning Policy (R42).
	Review Clause 5.25 of the Planning Scheme to ensure consistent terminology and to clarify provisions (R32).	
	Require all planning applications to include information on bush fire management, a BAL assessment etc (R31).	
	Review the Fire Break Notice provisions for the rural residential zone (R34).	
	Recognise that climate change is likely to result in a greater bush fire risk within the Study Area (R37).	
	Maintain where possible uniform standards and provisions (R39).	
	Recognise that fire mitigation measures for the protection of Point Henry and the Bremer Bay townsite have a reciprocal function (R40).	
	Adopt this Strategy as a Local Planning Policy (R41).	



9.0 Bibliography

- Auditor General for Western Australia (2004) *Responding to Major Bush Fires*
- Auditor General for Western Australia (2009) *Coming Ready or Not: Preparing for Large Scale Emergencies*
- Australian Institute of Criminology (2008) *Understanding bush fire: trends in deliberate vegetation fires in Australia - Western Australia*
- Climate Commission (2011) *The Critical Decade: Western Australia climate change impacts*
- Country Fire Authority of Victoria (2003) *Municipal Fire Prevention Planning Guidelines* Mt Waverley. CFA
- Country Fire Authority of Victoria (2009) *2009/10 Neighbourhood Safer Places – Places of Last Resort During a Bushfire Interim Assessment Guidelines*
- Country Fire Authority of Victoria (2011) *Victorian Fire Risk Register Reference Guide* Melbourne
- Country Fire Authority of Victoria (undated) *Living in the Bush – Bushfire Survival Plan Workbook*
- Department of Transport and Regional Services (2004) *Natural Disasters in Australia* Canberra Commonwealth of Australia
- DFES & DPI (2010) *Planning for Bush Fire Protection*. Perth. Western Australian Planning Commission.
- DFES (1993) *Fire Control Officers Course – Reference Notes*
- DFES (1998) *A Guide to Bush Fire Prevention Planning*. Perth. Fire & Emergency Services Authority of Western Australia.
- DFES (2005) *Western Australian Emergency Risk Management Guide* DFES Perth
- DFES (2007) *Visual Fuel Load Guide*. Perth. Fire & Emergency Services Authority of Western Australia.
- DFES (2010) *Guide to Traffic Management During Emergencies*
- DFES (2011) *Community Engagement Framework*
- DFES (undated) *Homeowner's Bush Fire Survival Manual*.
- Ellis, S, Kanowski, P & Whelan, R (2004) *National Inquiry on Bushfire Mitigation and Management*, Canberra. Council of Australian Governments.
- Emergency Management Australia (2001) *Manual No 6 Implementing Emergency Risk Management* Commonwealth Attorney General's Department
- Emergency Management Australia (2002) *Manual No 7 Planning Safer Communities – Land Use Planning for Natural Hazards* Commonwealth Attorney General's Department
- Emergency Management Australia (2004) *Manual No 1 Emergency Management in Australia – Concepts and Principles* Commonwealth Attorney General's Department
- Emergency Management Australia (2004) *Manual No 43 Emergency Planning* Canberra Commonwealth Attorney General's Department
- Emergency Management Australia (2010) *Manual No 45 Guidelines for the Development of Community Education, Awareness & Engagement Programs* Canberra; Commonwealth Attorney General's Department
- Gould JS, McCaw WL, Cheney NP, Ellis, PF, Matthews S (2007) *Field Guide – Fuel Assessment and fire behaviour prediction in dry eucalypt forest*. Ensis – CSIRO, Canberra, ACT and Department of Conservation and Environment, Perth WA
- Handmer J. & Haynes K. (Eds).(2008). *Community Bushfire Safety*. Collingwood CSIRO Publishing.
- Keelty M (2011) *A Shared Responsibility – The Report of the Perth Hills Bushfire February 2011 Review* Government Printer Perth
- Keelty M (2012) *Appreciating the Risk – Report of the Special Inquiry into the November 2011 Margaret*



River Bushfire. Government Printer Perth

Land Planning Consultants (1991) *Point Henry Limited Rural Strategy*

Leading Emergency Services (2011) *Major Incident Review, Lake Clifton, Roleystone and Red Hills Fires*

Middelmann, M. H. (Editor) (2007) *Natural Hazards in Australia: Identifying Risk Analysis Requirements.* Geoscience Australia, Canberra

Ramsay C. & Rudolph L. (2006) *Landscape and Building Design for Bushfire Areas.* Collingwood CSIRO Publishing.

Ramsay, GC & Dawkins D (1993) *SAA HB36-1993 Buildings in Bushfire Prone Areas – Information and Advice.* Sydney. Standards Australia International Ltd.

Schauble J. (2004) *The Australian Bushfire Safety Guide.* Harper Collins. Sydney

Shire of Jerramungup (2013) *Local Planning Strategy Review*

Shire of Jerramungup *Local Emergency Arrangements*

Webster J (2012) *Essential Bushfire Safety Tips* Collingwood CSIRO

Standards Australia (2004) *AS/NZS 4360 Risk Management.* Sydney. Standards Australia International Ltd.

Standards Australia (2005) *DR 05060 Construction of buildings in bushfire-prone areas (Revision of AS 3959-1999).* Sydney. Standards Australia International Ltd.

Standards Australia (2009) *AS 3959 – Construction of Buildings in Bush Fire Prone Areas.* Sydney. Standards Australia International Ltd.

State Emergency Management Committee (2005) *Westplan – State Bushfire Emergency Management Plan.* DFES Perth

State Emergency Management Committee (2012) *Emergency Preparedness Report 2012* DFES Perth

Victorian Bushfires Royal Commission (2009) *Interim Report* Government Printer Melbourne

Victorian Bushfires Royal Commission (2010) *Final Report* Government Printer Melbourne

WAPC (2006) *Statement of Planning Policy 3.4 – Natural Hazards and Disasters*

Weston AS (1990) *Native Vegetation and Significant Flora on the Point Henry Peninsula*

Draft for Comment

Appendices

Appendix 1	Example Aerial and Contour Plan
Appendix 2	Weather Charts
Appendix 3	Contour Mapping
Appendix 4	Slope Gradients
Appendix 5	Firebreak Agreement
Appendix 6	BAL Summary
Appendix 7	DPaW Fact Sheet 20
Appendix 8	Vegetation Classification Table
Appendix 9	BAL Assessment Sheets

Draft for Comment





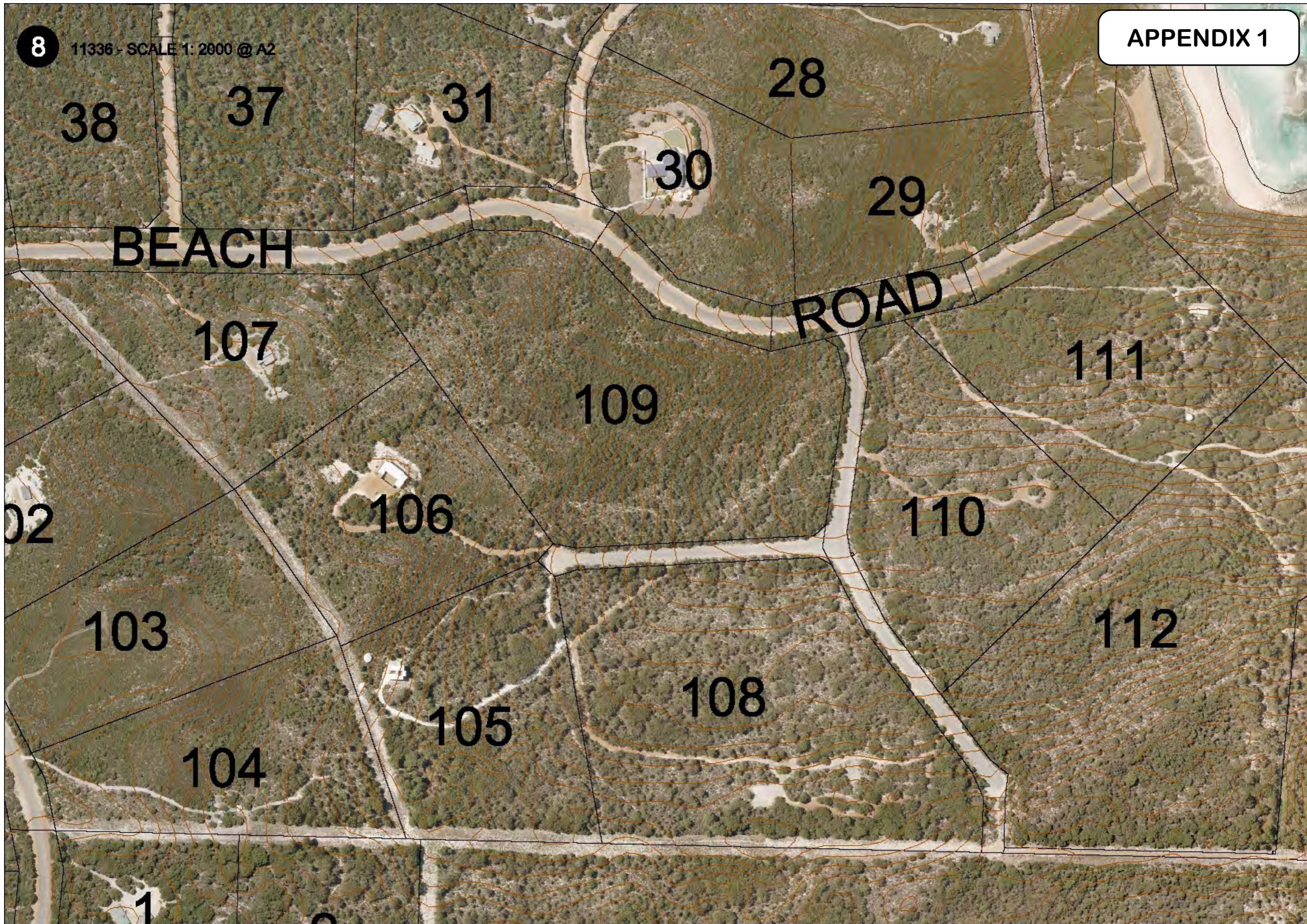
APPENDICES

- Appendix 1 Example Aerial and Contour Plan
- Appendix 2 Weather Charts
- Appendix 3 Contour Mapping
- Appendix 4 Slope Gradients
- Appendix 5 Firebreak Agreement
- Appendix 6 BAL Summary
- Appendix 7 DPaW Fact Sheet 20
- Appendix 8 Vegetation Classification Table
- Appendix 9 BAL Assessment Sheets
- Appendix 10 Draft Special Control Area Provisions

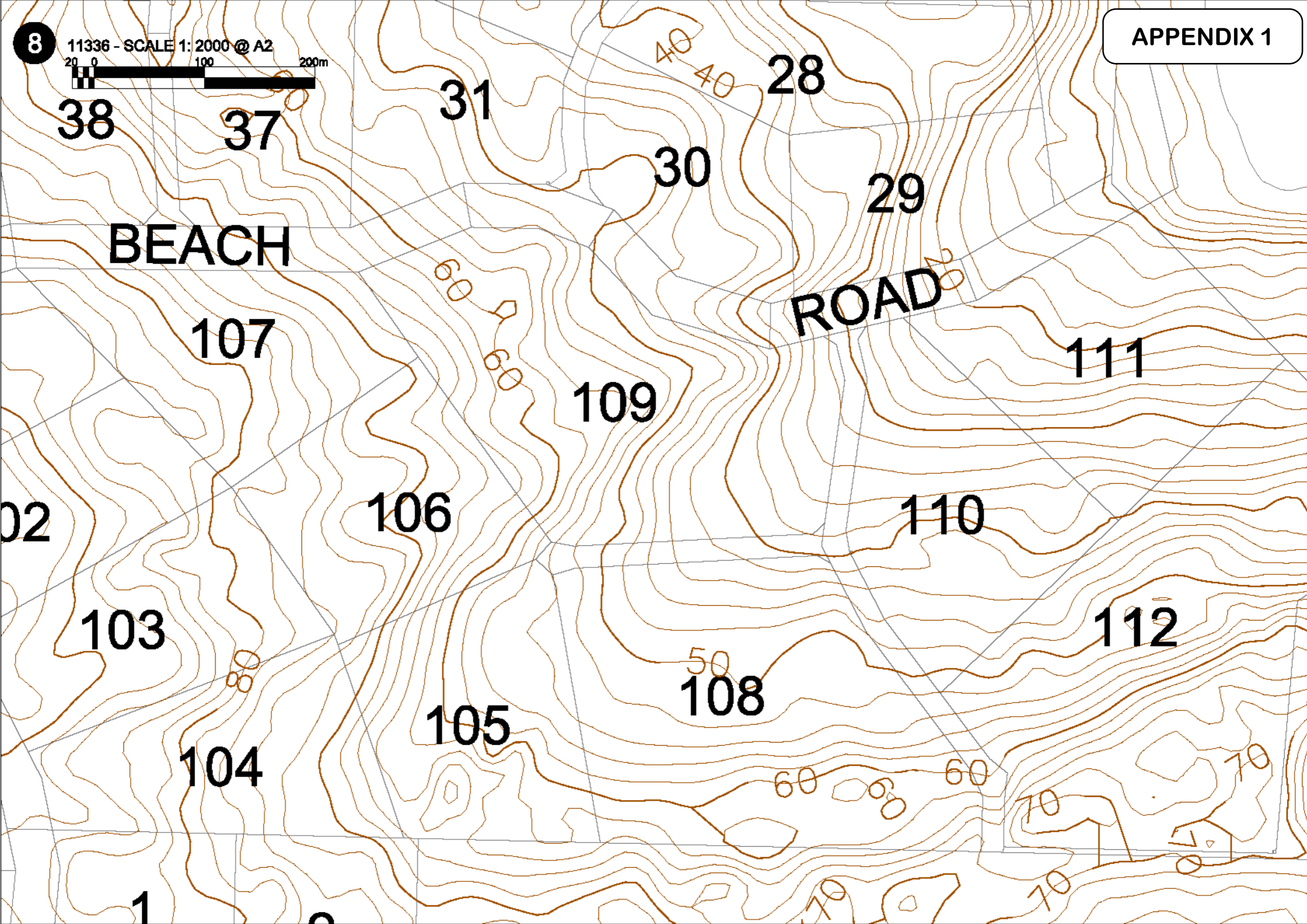
8

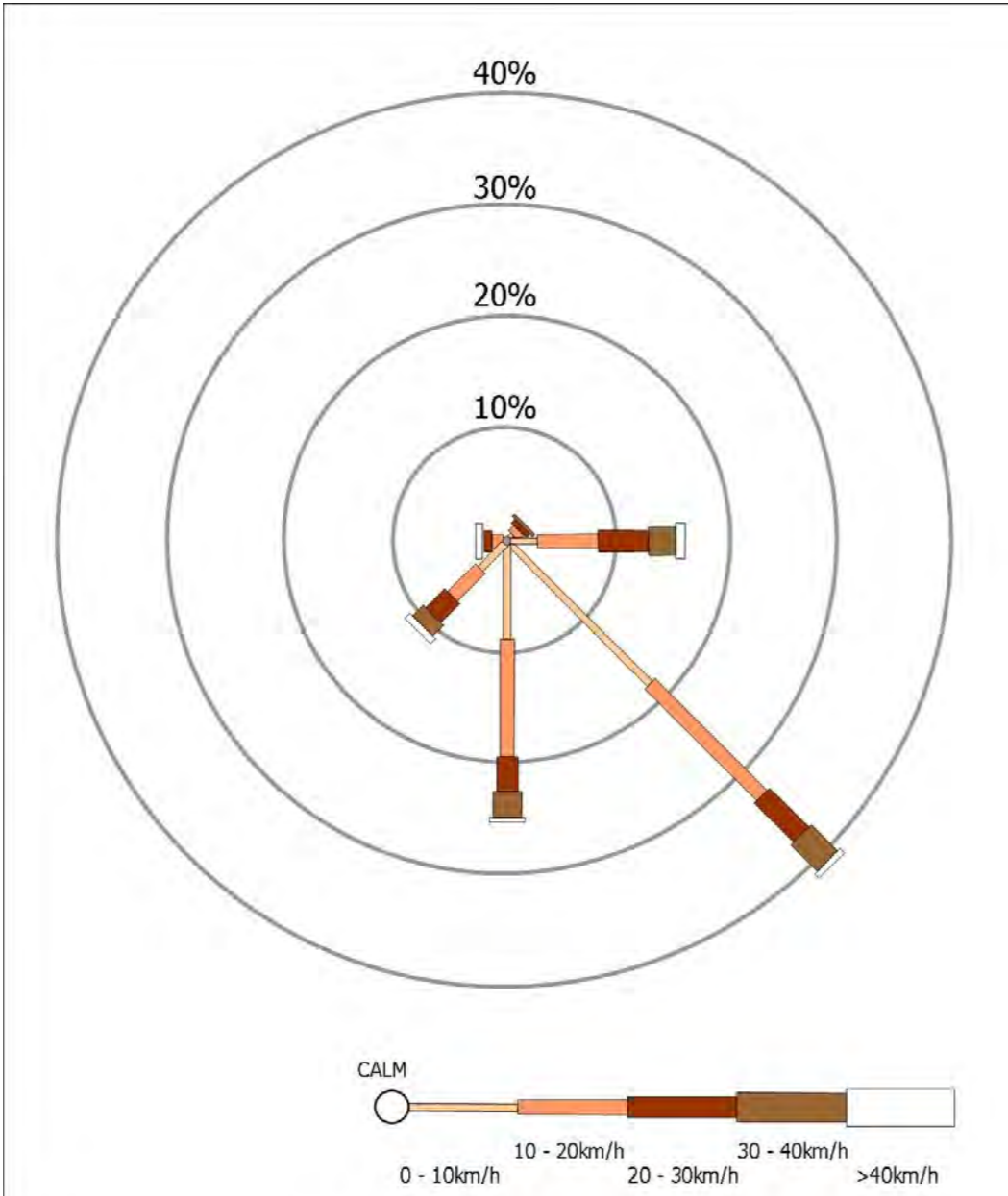
11336 - SCALE 1:2000 @ A2

APPENDIX 1

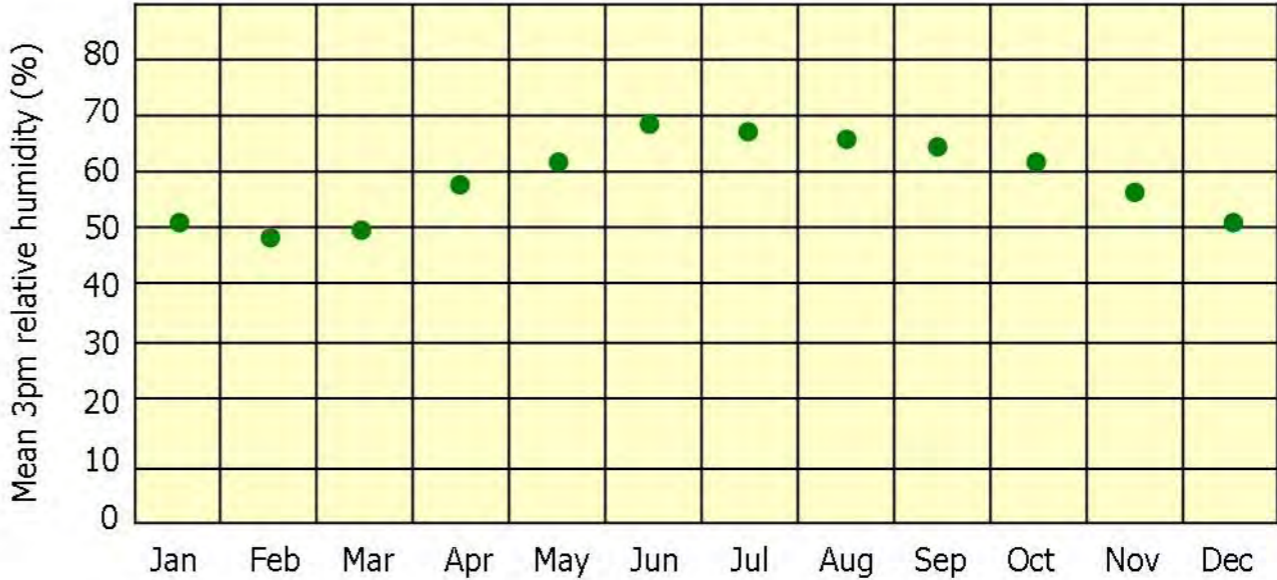


8 11336 - SCALE 1:2000 @ A2
20 0 100 200m

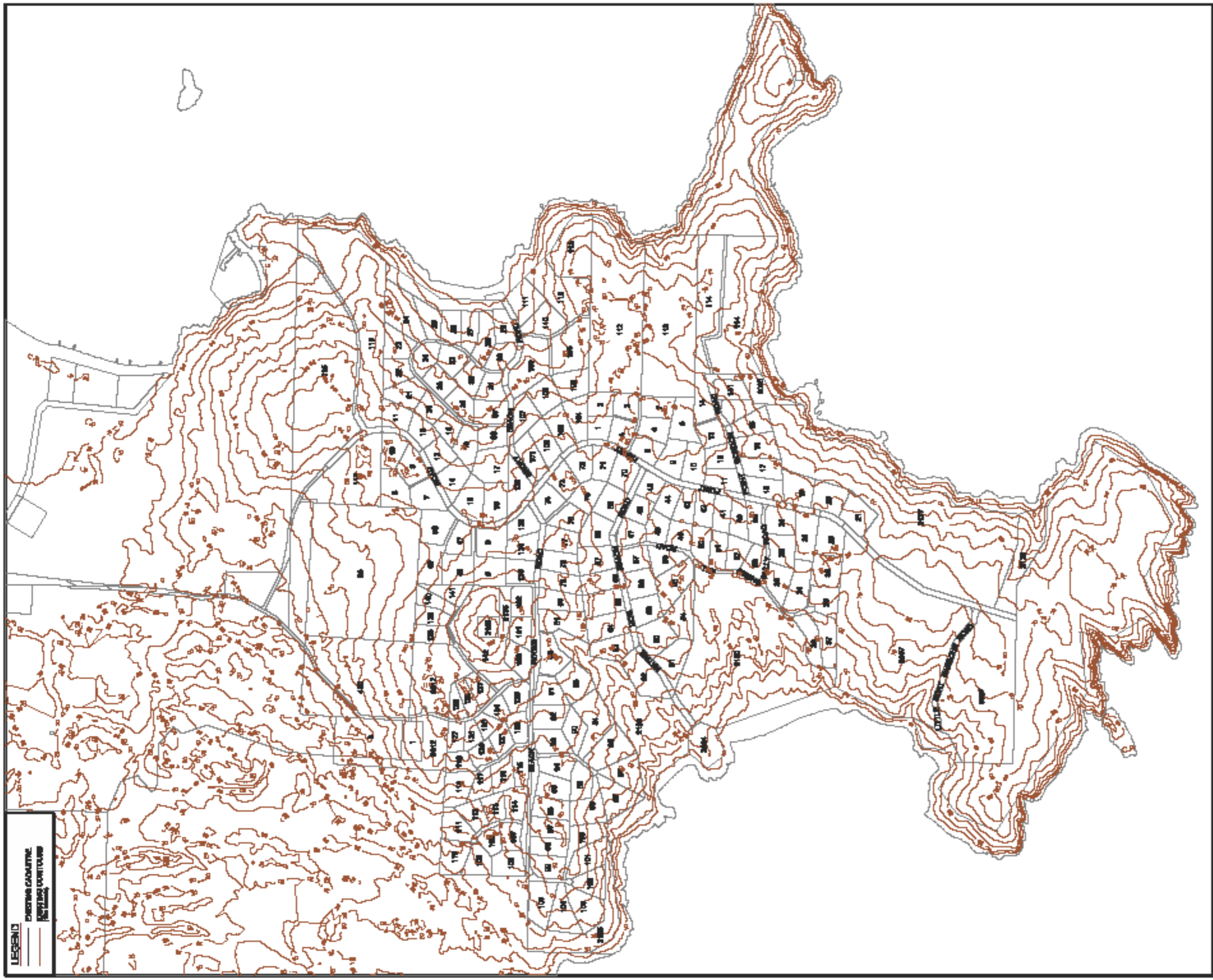




3:00 pm January - Wind Speed & Direction



Source: Bureau of Meteorology



LEGEND
 ——— EXISTING CONTOUR
 ——— EXISTING DRAINAGE

**OVERALL CONTOUR PLAN
 POINT HENRY, BREMER BAY
 SHIRE OF JERRAMUNGUP**



NO.	DESCRIPTION	DATE	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			



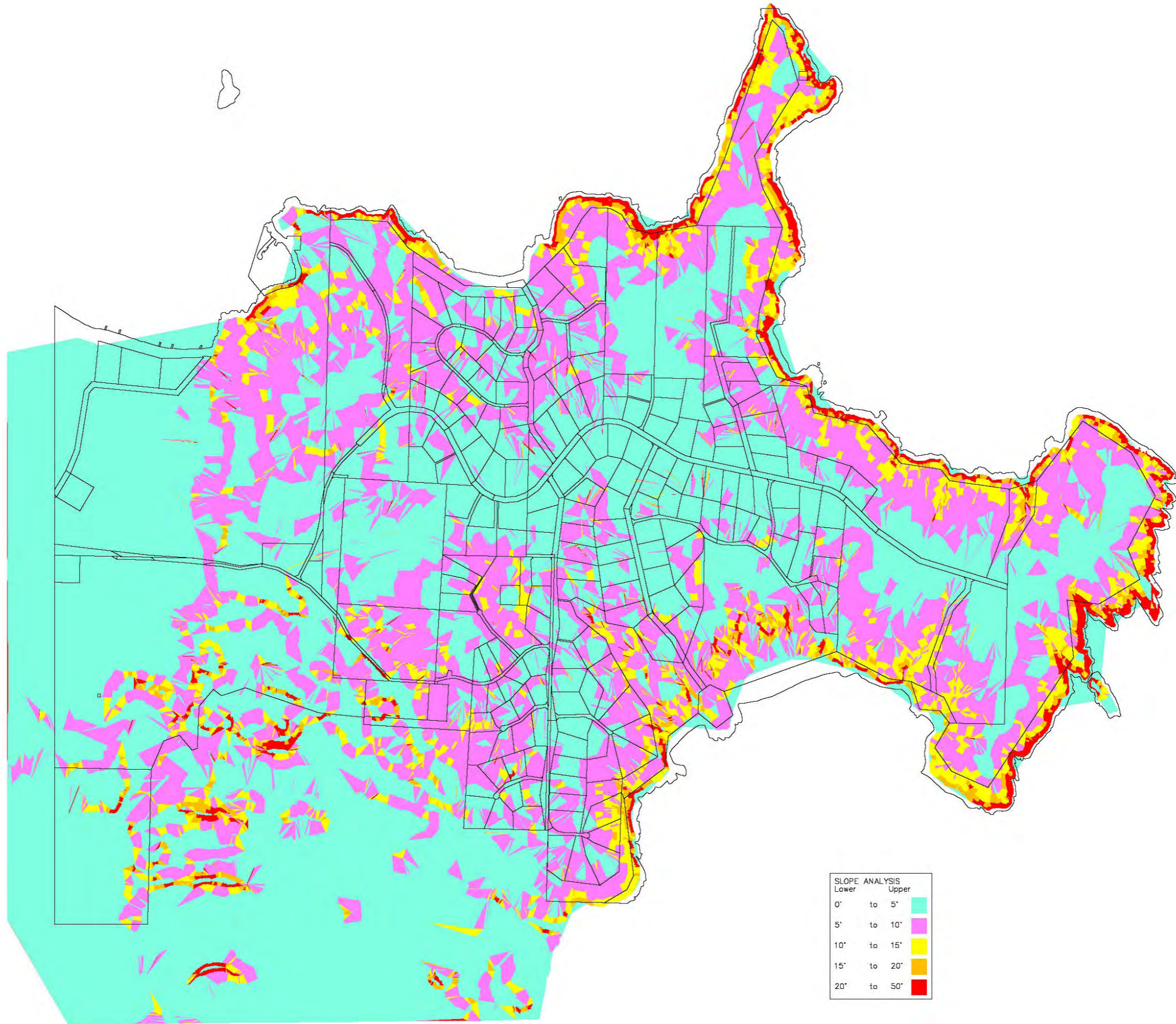
NO.	DESCRIPTION	DATE	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			



11336P-MP-



APPENDIX 4



SHIRE OF JERRAMUNGUP

AND

The Person(s) listed in Item 1 of the Schedule

**Licence Agreement
for the Construction, Maintenance and
Use of Strategic Firebreaks**

McLeods
Barristers & Solicitors



220-222 Stirling Highway | CLAREMONT WA 6010
Tel: (08) 9383 3133 | Fax: (08) 9383 4935
Email: mcleods@mcleods.com.au
REF: TF: JERR:23850

THIS DEED is made the

day of

2009

Shire of Augusta Margaret River Information Sheet

AS3959 - 2009 Building in Bush Fire Prone Areas

SUMMARY ONLY – all of the detail of the standard is too complex to be included here. This is a guide only and proponents will need to refer to the full version of the current edition of AS 3959 – 2009 Building in Bush Fire Prone Areas. Section 3 of the standard is applicable to all construction

Bushfire Attack Level (BAL)	BAL 12.5 Section 3 & 5	BAL 19 Section 3 & 6	BAL 29 Section 3 & 7	BAL 40 Section 3 & 8	BAL FZ Section 3 & 9
Construction level	NA	NA	Enclosed by walls or mesh with a 2mm aperture made of steel or bronze OR non combustible	Enclosed by walls or mesh with a 2mm aperture made of steel or bronze OR non combustible	Enclosed by walls, or unenclosed to have an FRL 30/-/30
SUB FLOOR SUPPORTS	NA	NA	As above, or unenclosed floors < 400 above ground shall be non combustible, or protected. Ply or particle sheet flooring to be sarked	Unenclosed floors to be non combustible, or protected with non combustible sheeting.	Unenclosed floors to have FRL 30/30/30 or meet AS1530 or
FLOORS	Walls within 400mm of the ground, and decks or verandahs, require protection; ie non combustible	Walls within 400mm of the ground, and decks or verandahs, require protection ie non combustible	All walls to be non combustible (masonry), or framed, sarked and clad with non combustible material.	All walls to be non combustible (masonry), or framed, sarked and clad with non combustible material.	Non combustible or FRL 30/30/30
EXTERNAL WALLS	Windows & doors (including vehicle access doors) within 400mm of the ground, deck or verandah, require protection. - Operable part to be screened. All screens to be corrosion resistant steel, bronze, or aluminum < 2.0mm.	Windows & doors (including vehicle access doors) within 400mm of the ground, deck or verandah, require protection. Glazing within 400mm of deck or verandah to be toughened 5mm. Unprotected doors to be toughened 5mm glass. Operable part to be screened. All screens to be corrosion resistant steel, bronze, or aluminum < 2.0mm.	Protected with non combustible shutters; or, Metal frame or bush fire resisting timber with toughened Glass min 5mm	Protected with non combustible shutters, or, Metal frame with toughened Glass min 5mm	Non combustible shutters or operable part to be screened. All screens to be corrosion resistant steel, or bronze < 2.0mm; AND, window system to have FRL -/30/-, or pass AS1530.8.2 when tested from the outside.
EXTERNAL GLAZING ASSEMBLIES and DOORS	Operable part to be screened. All screens to be corrosion resistant steel, bronze, or aluminum < 2.0mm.	Operable part to be screened. All screens to be corrosion resistant steel, bronze, or aluminum < 2.0mm.	Operable AND fixed parts to be screened. All screens to be corrosion resistant steel, or bronze < 2.0mm. Vehicle access doors to be non combustible	Operable AND fixed parts to be screened. All screens to be corrosion resistant steel, or bronze < 2.0mm. Vehicle access doors to be non combustible	Roofs to have FRL 30/30/30
ROOFS	Fully sarked and sealed Verandahs and carports to be non - combustible Vent pipes can be PVC	Fully sarked and sealed Verandahs and carports to be non-combustible.	Fully sarked and sealed Verandahs and carports to be non-combustible. Eaves linings, fascias and gables to be non combustible	Fully sarked and sealed Verandahs and carports to be non-combustible. Eaves linings, fascias and gables to be non combustible	Verandahs - non combustible. Eaves linings, fascias and gables to be non combustible. Metal pipes and conduits
VERANDAHS and DECKS	NA	NA	Deck to be non combustible. Unenclosed sub floors to be non combustible.	Deck to be non combustible. Unenclosed sub floors to be non combustible.	Deck to be non combustible. Unenclosed sub floors to be non combustible.
SERVICE PIPES	Decking within 300 of glazed elements to be non combustible or hardwood (table E1) or protected	Decking within 300 of glazed elements to be non combustible or hardwood (table E1) or protected	All above ground water and gas pipes to be metal	All above ground water and gas pipes to be metal	All above ground water and gas pipes to be metal



Clearing for fire protection (Building Protection Zones)

Environmental Protection Act 1986

The Premier of Western Australia, Hon Colin Barnett MLA, issued Circular 2012/02 entitled Building Protection Zones (BPZs) on 3 September 2012. This document encouraged a shared responsibility of reducing bushfire risk in Western Australia by implementing or improving BPZs.

The Department of Fire and Emergency Services (DFES) describes a Building Protection Zone (BPZ) as an area for "managing and reducing fuel loads for a minimum of 20 metres around a building [to] increase its likely survival from a bushfire". Further information is available in an information note available at <http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/Pages/BushfireProtectionZones.aspx>

Bush fire prevention on private property is primarily the responsibility of local governments under the *Bush Fires Act 1954*. The Office of Bushfire Risk Management and local governments participate in and contribute to the implementation and approval of Bushfire Risk Management Plans that incorporate bushfire prevention and mitigation strategies.

It is common for local governments to issue a written notice under this legislation requiring an owner or occupier of land to clear firebreaks and the area within 20 metres of a building. This notice is sometimes known as a Firebreak Order. This legal requirement provides an exemption from the requirement for a permit for clearing native vegetation.

While the law in relation to BPZs is administered by DFES and local governments, the *Environmental Protection Act 1986* (EP Act) also recognises the need to clear vegetation for fire protection purposes. There is currently an exemption under Regulation 5, Item 15 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 from the requirement to obtain a permit to clear previously cleared native vegetation within 20 metres of a building, which applies except in environmentally sensitive areas. The Government recognises the need to remove any unnecessary restrictions to protect buildings and other assets, and it intends to amend the legislation to provide for this.

Until these legislative amendments are in place, DEC will exercise its discretion in the public interest in relation to enforcement action for clearing:

- for bush fire protection within 20 metres of a building to create or maintain a BPZ; and

- to implement the requirements of approved Bushfire Risk Management Plans.

Please be aware that this does not absolve landowners from all other statutory responsibilities under local, state and federal law.

More information

DEC provides a range of information at www.dec.wa.gov/nvp

Fact sheets provide basic information to cover the most common questions DEC receives about the EP Act clearing provisions

Application forms include guidance on what information is required to submit a valid application

Guides provide additional detail to what is covered in the facts sheets or forms

Environmentally sensitive areas can be viewed from the Native Vegetation Map Viewer at www.dec.wa.gov.au/nvp in the 'Data' section

Be clear before you clear – if you require assistance please contact DEC's **Native Vegetation Conservation Branch** on 6467 5020 or email nvp@dec.wa.gov.au

If your clearing relates to **mining or petroleum** please contact the **Department of Mines and Petroleum (DMP)** Native Vegetation Assessment Branch for assistance on 9222 3333 or visit: www.dmp.wa.gov.au/nvabinfo

See information sheets from Department of Fire and Emergency Services at www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireInfoNotesPublications/infonote_What_is_a_building_protection_zone.pdf

Please note.....

The above information provides a general guide to the clearing provisions of the *Environmental Protection Act 1986* (available at www.slp.wa.gov.au). DEC has endeavored to ensure the accuracy of the contents of this document, it accepts no responsibility for any inaccuracies and persons relying on this document do so at their own risk.



AS3959 – Table 2.3 Vegetation Classification

Vegetation Class	Vegetation Type	No	Description	
A Forest	Tall open forest Tall woodland	01 02	Trees over 30 metres high with 30-70% foliage cover (may include understorey ranging from rainforest and tree ferns to low trees and tall shrubs). Found in areas of high reliable rainfall. Typically dominated by Eucalypts.	
	Open forest Low open forest	03 04	Trees 10-30 metres high with 30-70% foliage cover (may include understorey of sclerophyllous low trees and tall scrubs or grass). Typically dominated by Eucalypts.	
	Pine plantation	NA	Trees 10-30 metres in height at maturity, generally comprising <i>Pinus</i> species or other softwood species planted as a single species for the production of timber.	
B Woodland	Woodland Open woodland	05 06	Trees 10-30 metres high with 10-30% foliage cover dominated by Eucalypts and an understorey of low trees to tall shrubs typically dominated by <i>Acacia</i> , <i>Callitris</i> or <i>Casuarina</i> .	
	Low woodland Low open woodland Open shrubland	07 08 09	Low trees and shrubs 2-10 metres high with foliage cover less than 10%. Dominated by Eucalypts and Acacias. Often have a grassy or low shrub understorey. <i>Acacia</i> and <i>Casuarina</i> woodlands grade to <i>Atriplex</i> shrublands in the arid and semi-arid zones.	
	Closed heath Open heath	10 11	Found in wet areas that are affected by poor soil fertility or shallow soils. Contains shrubs 1-2 metres high often comprising <i>Banksia</i> , <i>Acacia</i> , <i>Hakea</i> and <i>Grevillea</i> . Wet heaths occur in sands adjoining dunes of the littoral (shore) zone. Montane heaths occur on shallow or water-logged soils.	
C Shrubland	Low shrubland	12	Shrubs less than 2 metres high with greater than 30% foliage cover. Understoreys can contain grasses. <i>Acacia</i> and <i>Casuarina</i> often dominant in the arid and semi arid zones.	
	Closed scrub	13	Found in areas wet enough to support Eucalyptus trees affected by poor soil fertility or shallow soils. Greater than 30% foliage cover. Dry heaths occur in rocky areas. Shrubs 1-2 metres high. Often coastal wetlands.	
D Scrub	Open scrub	14	Trees greater than 2 metres high with 10-30% foliage cover. Dominated by Eucalypts or co-dominant <i>Melaleuca</i> and <i>Myoporum</i> with a mixed understorey.	
E Mallee / Mulga	Tall shrubland	15	Vegetation dominated by shrubs (especially Eucalypts and Acacias) with a multi-stemmed habit, usually greater than 2 metres in height with less than 30% foliage cover. Understorey of widespread to dense low shrubs (<i>Acacia</i>) or sparse grasses	
F Rainforest	Tall closed forest Closed forest Low closed forest	16 17 18	Trees 10-40 metres in height with greater than 90% foliage cover. Understorey may contain a large number of species with a variety of heights.	
	G Grassland (see Note 1)	Low open shrubland	19	All forms including situations with shrubs and trees if overstorey foliage cover is less than 10%.
		Hummock grassland	20	
Closed tussock grassland		21		
Tussock grassland		22		
Open tussock		23		
Sparse open tussock		24		
Dense sown pasture		25		
Sown pasture	26			
Open herbfield	27			
Sparse open herbfield	28			
Notes	<p>1 Grassland managed in a minimal fuel condition is regarded as low threat vegetation for the purpose of Clause 2.2.3.2</p> <p>2 Overstoreys of open woodland, low open woodland, tall open shrubland and low open shrubland should be classified to the vegetation type on the basis of their understoreys, others may be classified on the basis of their overstoreys.</p> <p>3 Vegetation height is the average height of the top of the overstorey.</p>			

BUSHFIRE ATTACK LEVEL ASSESSMENT FORM

Lot _____ DP _____ Street _____ Owner _____

CLASSIFIED VEGETATION

Refer to Figure 2.3 of AS3949 (attached)

Where there is a mix of vegetation types, the vegetation with higher hazard rating is to be used.
The minimum mapping unit for the vegetation classification is 2,500sqm i.e. 50m X 50m

NORTH	SOUTH	EAST	WEST
<input type="checkbox"/> A Forest	<input type="checkbox"/> A Forest	<input type="checkbox"/> A Forest	<input type="checkbox"/> A Forest
<input type="checkbox"/> B Woodland	<input type="checkbox"/> B Woodland	<input type="checkbox"/> B Woodland	<input type="checkbox"/> B Woodland
<input type="checkbox"/> C Shrubland	<input type="checkbox"/> C Shrubland	<input type="checkbox"/> C Shrubland	<input type="checkbox"/> C Shrubland
<input type="checkbox"/> D Scrub	<input type="checkbox"/> D Scrub	<input type="checkbox"/> D Scrub	<input type="checkbox"/> D Scrub
<input type="checkbox"/> E Mallee/Mulga	<input type="checkbox"/> E Mallee/Mulga	<input type="checkbox"/> E Mallee/Mulga	<input type="checkbox"/> E Mallee/Mulga
<input type="checkbox"/> F Rainforest	<input type="checkbox"/> F Rainforest	<input type="checkbox"/> F Rainforest	<input type="checkbox"/> F Rainforest
<input type="checkbox"/> G Grassland	<input type="checkbox"/> G Grassland	<input type="checkbox"/> G Grassland	<input type="checkbox"/> G Grassland

SLOPE - Measured under the classified vegetation - over 100m

NORTH	SOUTH	EAST	WEST
<input type="checkbox"/> flat/upslope	<input type="checkbox"/> flat/upslope	<input type="checkbox"/> flat/upslope	<input type="checkbox"/> flat/upslope
<input type="checkbox"/> >0 - 5	<input type="checkbox"/> >0 - 5	<input type="checkbox"/> >0 - 5	<input type="checkbox"/> >0 - 5
<input type="checkbox"/> >5 - 10	<input type="checkbox"/> >5 - 10	<input type="checkbox"/> >5 - 10	<input type="checkbox"/> >5 - 10
<input type="checkbox"/> >10 - 15	<input type="checkbox"/> >10 - 15	<input type="checkbox"/> >10 - 15	<input type="checkbox"/> >10 - 15
<input type="checkbox"/> >15 - 20	<input type="checkbox"/> >15 - 20	<input type="checkbox"/> >15 - 20	<input type="checkbox"/> >15 - 20

Distance from the dwelling to the classified vegetation

<input type="checkbox"/> NORTH	<input type="checkbox"/> SOUTH	<input type="checkbox"/> EAST	<input type="checkbox"/> WEST
--------------------------------	--------------------------------	-------------------------------	-------------------------------

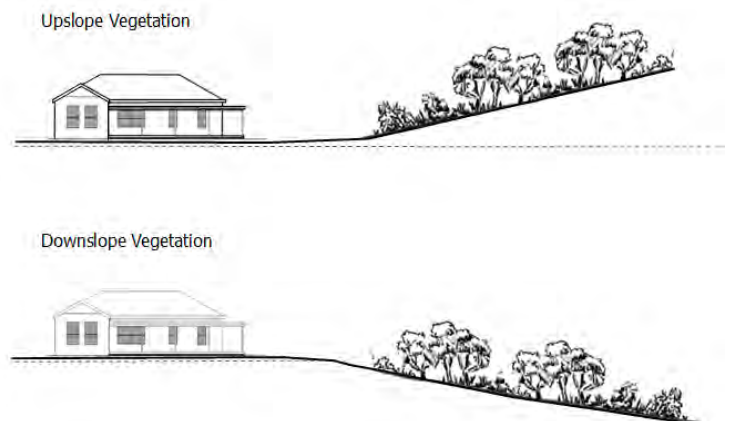
BUSHFIRE ATTACK LEVEL (BAL)

NORTH	SOUTH	EAST	WEST
<input type="checkbox"/> Low	<input type="checkbox"/> Low	<input type="checkbox"/> Low	<input type="checkbox"/> Low
<input type="checkbox"/> 12.5	<input type="checkbox"/> 12.5	<input type="checkbox"/> 12.5	<input type="checkbox"/> 12.5
<input type="checkbox"/> 19	<input type="checkbox"/> 19	<input type="checkbox"/> 19	<input type="checkbox"/> 19
<input type="checkbox"/> 29	<input type="checkbox"/> 29	<input type="checkbox"/> 29	<input type="checkbox"/> 29
<input type="checkbox"/> 40	<input type="checkbox"/> 40	<input type="checkbox"/> 40	<input type="checkbox"/> 40
<input type="checkbox"/> FZ	<input type="checkbox"/> FZ	<input type="checkbox"/> FZ	<input type="checkbox"/> FZ

BAL rating for to the site/dwelling (highest BAL indicated above)

The slope direction is measured from the dwelling as shown opposite and applies under the classified vegetation.

Percentage	Degrees	Percentage	Degrees
0.0	0.00	20.0	11.31
5.0	2.86	22.5	12.65
7.0	4.00	25.0	14.04
10.0	5.71	27.5	15.38
12.5	7.13	30.0	16.70
15.0	8.53	32.5	18.00
17.5	9.93	35.0	19.29

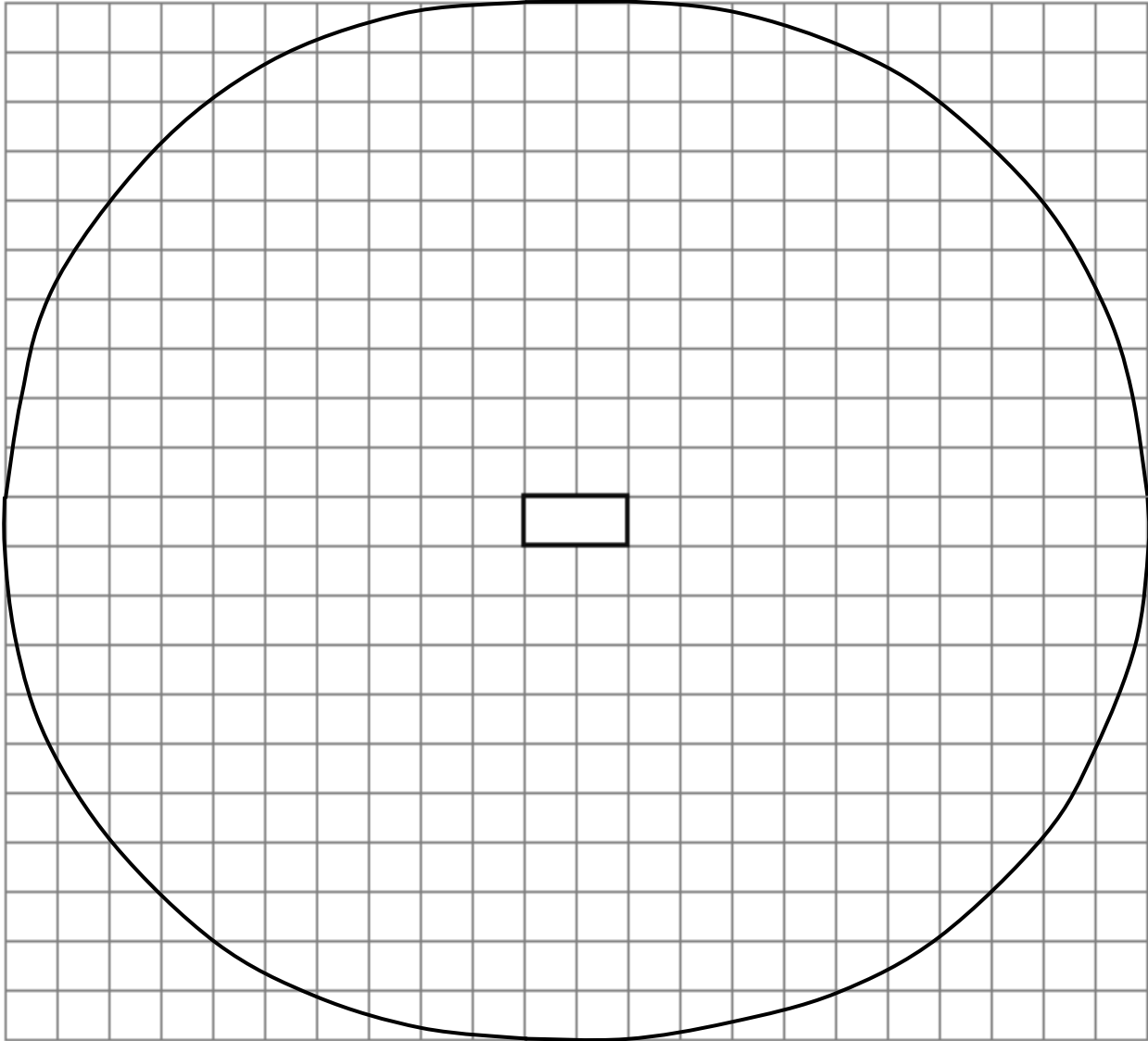


SITE PLAN

N

W

E



S

Each square is 10m X 10m
measured from the proposed
building site

Any property boundary which is
less than 100m from the dwelling
must be shown.

Prepared by _____

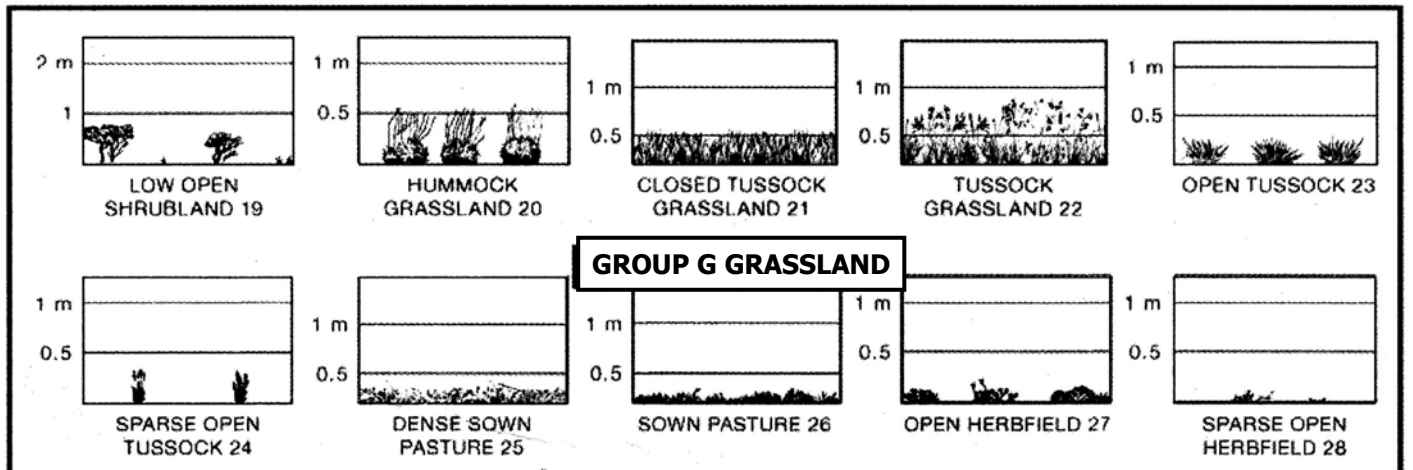
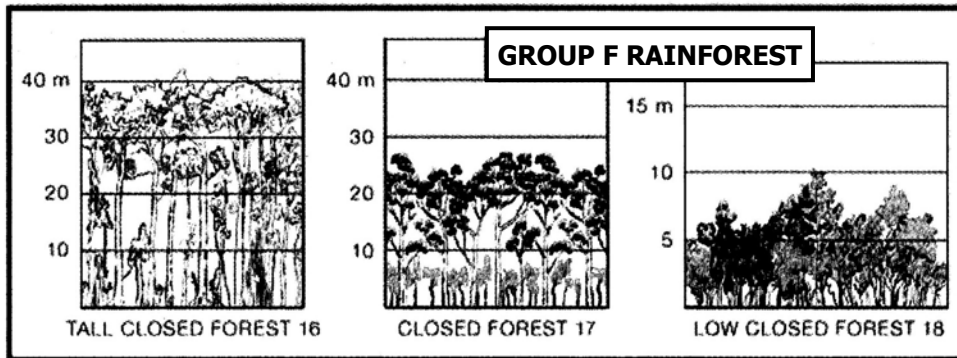
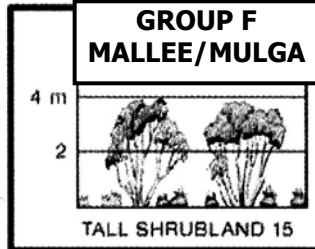
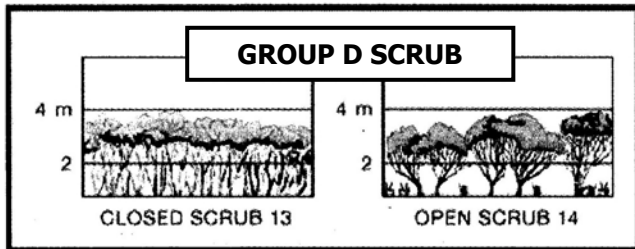
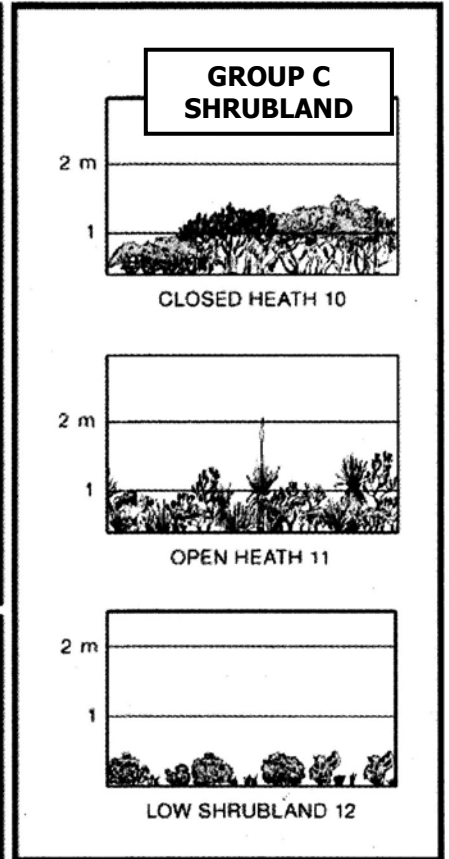
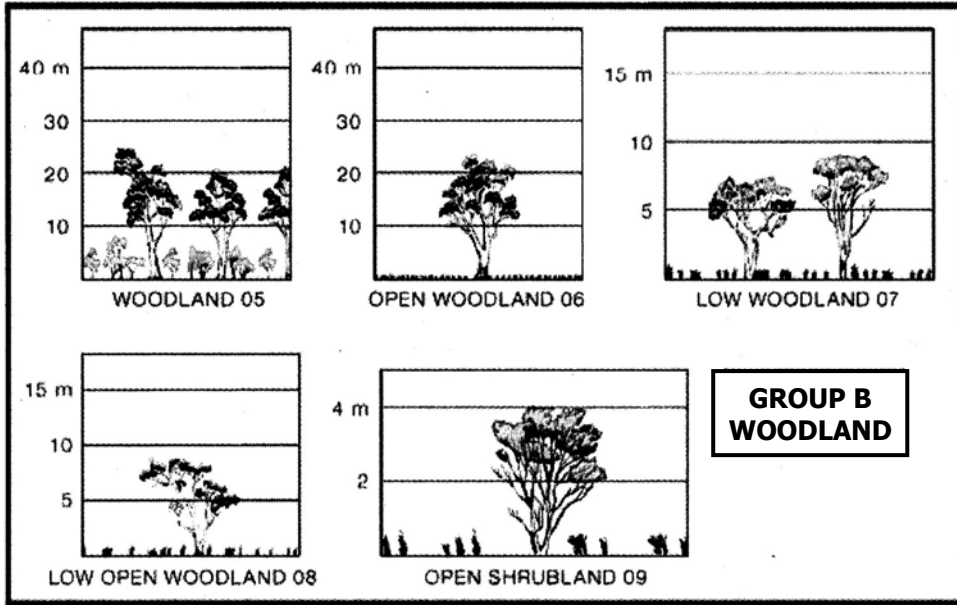
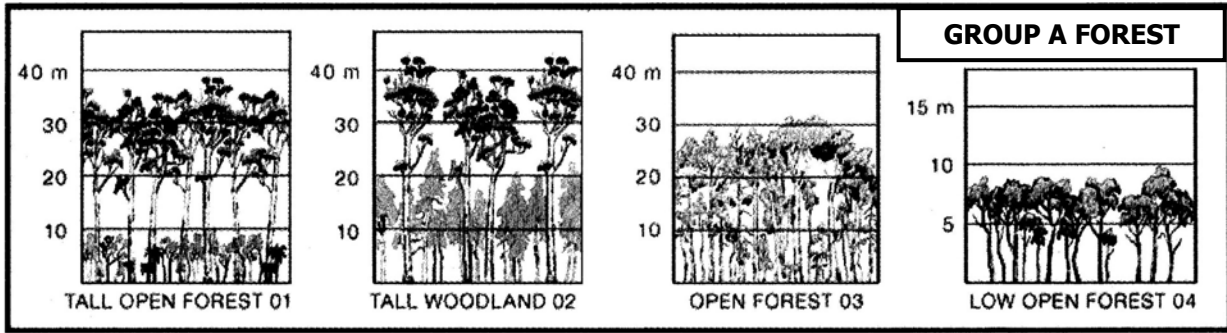
Approved by _____

Signature _____

Signature _____

Date _____

Date _____



Draft Bushfire Special Control Area Provisions

In clause 6.1.1 add

- Bushfire Special Control Area

Add clause 6.4 as follows:

6.4 BUSHFIRE SPECIAL CONTROL AREA

6.4.1 Purpose of the bushfire hazard special control area

6.4.1.1 The purpose of the bushfire special control area is to:

- a) implement *State Planning Policy xx: Bushfire Planning* (WAPC 2014) and the accompanying *Bushfire Planning Guidelines* (WAPC 2014);
- b) identify land that is subject, or likely to be subject, to a bushfire hazard;
- c) ensure a Bushfire Attack Level assessment is carried out on land that is subject, or likely to be subject, to bushfire hazard; and
- d) ensure that development effectively addresses the level of bushfire hazard applying to the land.

6.4.1.2 Land subject of this special control area is considered bushfire-prone for the purpose of implementing Australian Standard 3959: Construction of buildings in bushfire-prone areas (Building Code of Australia 2009, as amended).

6.4.2 Development in the bushfire special control area

6.4.2.1 Should a structure plan be prepared resulting in the introduction or intensification of development, prior to the adoption or amendment of a structure plan, or approval of a subdivision or development application within a bushfire-prone area, a Bushfire Attack Level assessment satisfactorily addressing the level of bushfire hazard applying to the land is to be submitted and approved by Council.

6.4.2.2 In addition to development which otherwise requires approval under the scheme, planning approval is required for any development:

- a) within the bushfire-prone area that does not comply with an approved bushfire hazard assessment undertaken as part of the structure planning or subdivision of an area;
- b) that is inconsistent with Appendix xx of *State Planning Policy xx: Bushfire Planning* (WAPC 2014);
- c) that is a single dwelling or addition that would require planning approval under the provisions in Schedule One of *State Planning Policy xx: Bushfire Planning* (WAPC 2014); and/or
- d) proposes a vulnerable or high risk use.

6.4.2.3 In determining an application to carry out development in the bushfire-prone area, the local government may refuse the application, or impose conditions on any planning approval as to the:

- Provision of a fire fighting water supply;

- Provision of fire services access;
- Preparation of a fire management plan in accordance with the Bushfire Planning Guidelines (WAPC 2014) and implementation of specific fire protection measures set out in the plan;
- Implementation of measures to ensure that prospective purchasers are aware of the relevant scheme provisions, fire management plan and publications addressing fire safety; and
- Requirement for financial contributions for ongoing fire equipment where a strategy that has been adopted by the local government and which clearly identifies the locations, estimated costs, required timeframes, and detail on the equitable apportionment of the costs of providing the fire equipment.

6.4.3 Additional information requirements

- 6.4.3.1 An application for development approval within the bushfire special control area must be accompanied by:
- a) a Bushfire Attack Level assessment carried out in accordance with the methodology contained in the Planning for Bushfire Guidelines (WAPC 2014); and
 - b) a statement or report that demonstrates that all relevant bushfire protection acceptable solutions, or alternatively all relevant performance criteria, contained in Appendix xx of State Planning Policy xx: Bushfire Planning (WAPC 2014) have been considered and complied with, and effectively address the level of bushfire hazard applying to the land.

6.4.4 Referral of applications

- 6.4.4.1 The Local Government may refer any application to the Department of Fire and Emergency Services or to Department of Parks and Wildlife for advice prior to a decision being made.

6.4.5 Planning requirements

- 6.4.5.1 In considering proposals in the bushfire special control area, Council is to have regard to:
- a) *State Planning Policy xx: Bushfire Planning* (WAPC 2014);
 - b) *Bushfire Planning Guidelines* (WAPC 2014);
 - c) Any advice obtained from DFES or DPaW; and
 - d) Any other planning considerations Council considers relevant