

# **FIRE MANAGEMENT PLAN**

Lot 1, 2, 3 & 17 Thomas Road &  
Portion of Lot 13 Treeby Road

Anketell South Local Structure Plan

City of Kwinana



*FirePlan WA*

January 2014

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**Fire Management Plan** Lot 1, 2, 3 & 17 Thomas Road & Portion of Lot 13 Treeby Road Anketell.  
Anketell South Local Structure Plan

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Disclaimer: The measures contained in this fire management plan are considered to be minimum standards and they do not guarantee that a building will not be damaged in a bush fire. All surveys, forecasts, projections and recommendations made in this report associated with the project are made in good faith on the basis of information available to FirePlan WA at the time; and achievement of the level of implementation of fire precautions will depend among other things on the actions of the landowners or occupiers over which FirePlan WA has no control. Notwithstanding anything contained therein, FirePlan WA will not, except as the law may require, be liable for any loss or other consequences (whether or not due to the negligence of the consultants, their servants or agents) arising out of the services rendered by the consultants.

## 1.0 INTRODUCTION

The purpose of this Fire Management Plan is to detail the fire management methods and requirements that will be implemented for the subdivision of part of Lot 1, 2, 3 & 17 Thomas Road & Portion of Lot 13 Treeby Road Anketell (Anketell South Local Structure Plan) – “Site”. The “Site” is located on Thomas Road north of the intersection of Bombay Road and Thomas Road. Refer Figure 1: Locality Plan.

This *Fire Management Plan* is a revision of the June 2010 *Fire Management Plan* prepared as part of the Local Structure Plan for the Site.

This Fire Management Plan satisfies the requirements of the City of Kwinana and the Western Australian Planning Commission (WAPC) via *Planning for Bush Fire Protection Guidelines* Edition 2 (WAPC and Department of Fire and Emergency Services 2010), referred to in this document as the Guidelines.

This *Fire Management Plan* (FMP) will likewise outline the responsibility and timing for implementing and maintaining the fire protection measures and strategies contained within, allocating these responsibilities between individual land owners, the developers and the City of Kwinana.

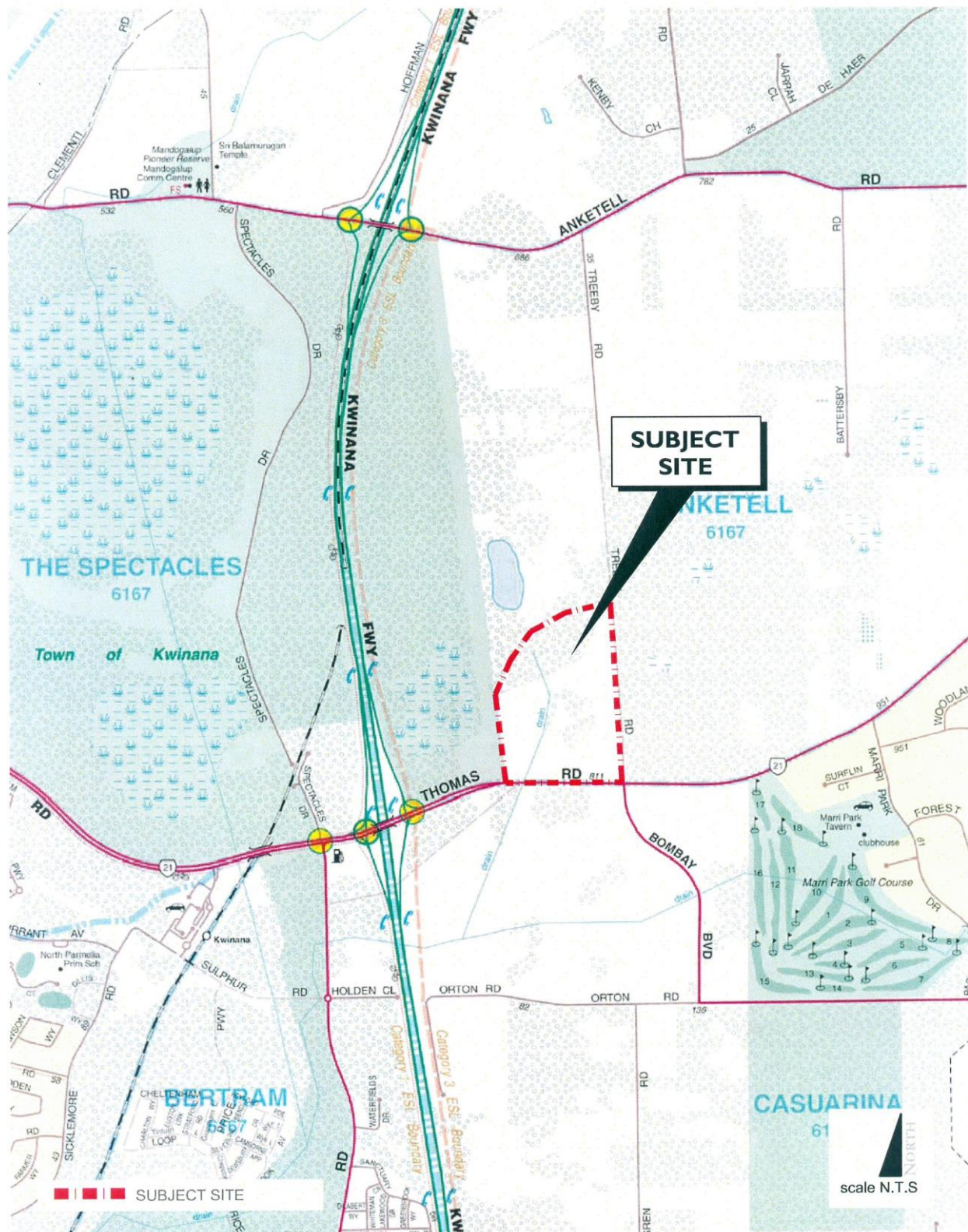
As fire management strategies may require altering to meet changing weather, environment and land use needs, it must be advised that the provisions of the *Bush Fires Act 1954* and *Regulations* may still be enforced, in addition to this FMP.

The City of Kwinana will be responsible for initiating a review of this FMP as it may deem necessary to do so.

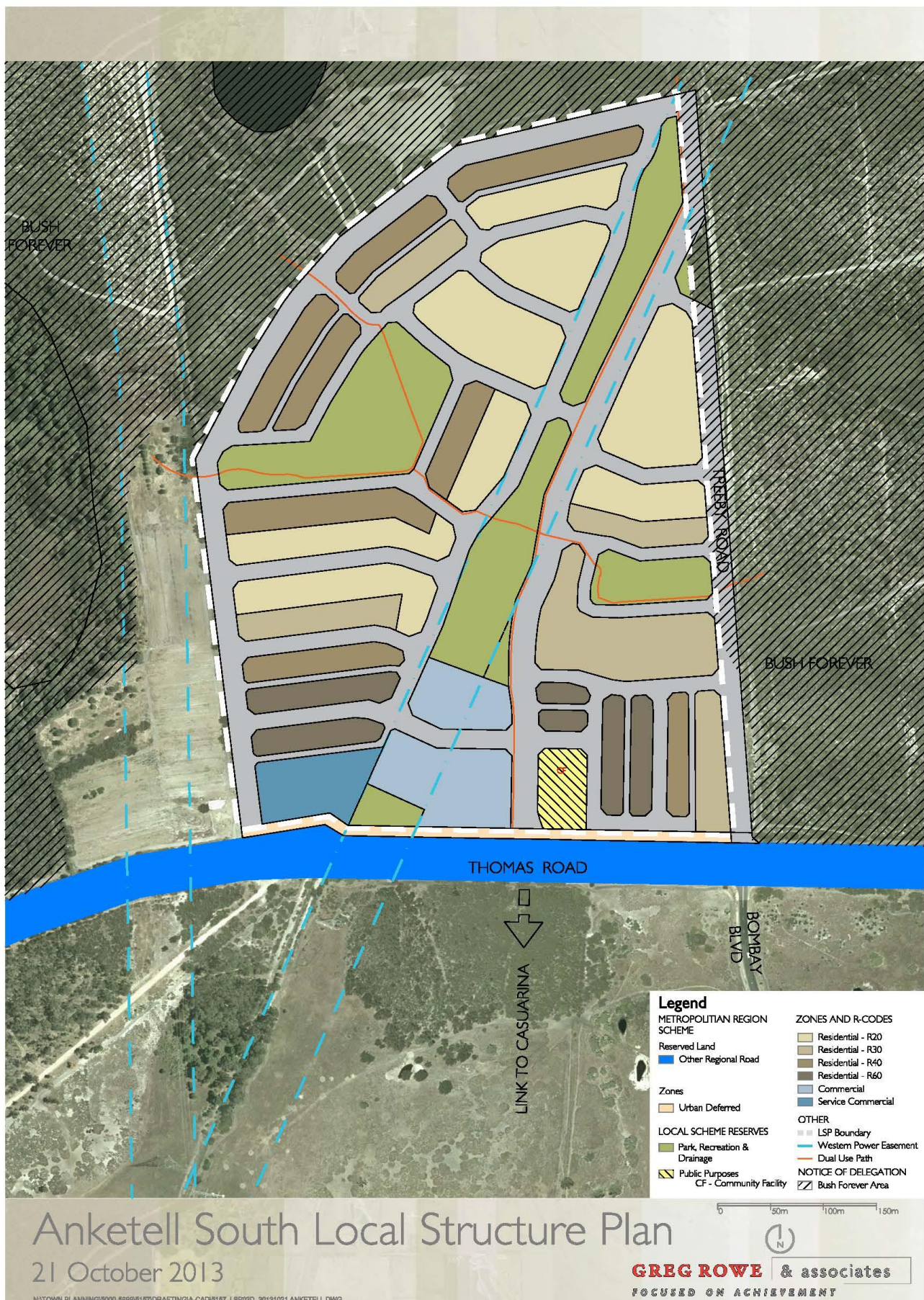
In the event of large bushfires it is essential that landowners understand that fire appliances may not be available to protect each dwelling/building so it is in the Landowners best interest to provide adequate fire protection to their assets, the minimum requirements are detailed in this FMP.

The recommendations made within this Plan relating to the clearing or modification of vegetation to meet setback requirements does not constitute approval or authority to modify or remove vegetation. All such approvals must be undertaken in consultation with the relevant authorities.

Figure 1 Locality Plan





**Figure 2 Anketell South Local Structure Plan.**

## 2.0 AIM

The aim of the Fire Management Plan is to reduce the occurrence of and minimise the impact of bush fires thereby reducing the threat to life, property and the environment.

The Fire Management Plan sets out to reduce this threat by:

- Identifying the objectives of this Fire Management Plan (Section 3)
- Providing a description as to, topography, cultural features and land use (Section 4);
- Identifying the potential bush fire issues within the Site (Section 5); and
- Outlining the fire mitigation strategies for the Site that will reduce the risk of bush fires impacting on the proposed subdivision including the potential threat and impact of bushfire to residents, fire fighters and environmental values, including identifying the parties responsible for undertaking these fire mitigation strategies (Section 6).
- Allow easy access and egress of fire fighters and residents if a fire does occur.

The City of Kwinana has the responsibility and powers under the Town Planning Scheme and the *Bush Fires Act 1954* to ensure that this FMP, City of Kwinana Fire Control Notice and any Special orders issued under the *Bush Fires Act 1954* are complied with.

## 3.0 OBJECTIVES

The objectives of this Fire Management Plan are to:-

- Identify bushfire hazards and propose bush fire prevention measures for the Site;
- Identify access and egress for firefighting operations and residents;
- Identify and respond to bushfire hazards to residential land use of the Site.
- Define the building construction standards where lots interface with vegetation within the Site;
- Identify current and future landowner, developer and City of Kwinana responsibilities for various components of this fire management plan; and
- Document in the Appendices section of this FMP, the acceptable solutions adopted for the subdivision.

## 4.0 DESCRIPTION OF THE AREA

### 4.1 GENERAL

This FMP applies to Lot 1, 2, 3 & 17 Thomas Road & Portion of Lot 13 Treeby Road Anketell which is to be subdivided into urban residential, commercial and service commercial, Public Open Space and Community facilities.

“The Site” is located east of the Kwinana Freeway and bounded by Thomas Road to the south, with the proposed construction of Treeby Road as the eastern boundary.

Part of the site is currently used as a commercial area (south west corner of the “Site”) the power line along the western boundary of the site is generally cleared and parts have been used for vegetable growing.

Bush Forever areas are located to the north and east of the site.

## 4.2 CLIMATE

The Mediterranean climate experienced by the area in which the Site is located is characterized by hot dry summers and mild wet winters with the majority of rain falling in late autumn through to late spring. This rainfall supports substantial vegetation growth which dries off in Summer/Autumn.

In summer the area has strong easterly winds in the morning that ease off around midday and in the afternoon on most days a southwesterly wind occurs in the afternoon reducing the temperature by as much as ten degrees. See Figure 4 for a sample of the summer wind direction as strength that would be similar to this development site. January is typical wind direction and strength for the January to end of March each year.

The bush fire season is generally from October to the following May, but is subject to seasonal changes and drought conditions.

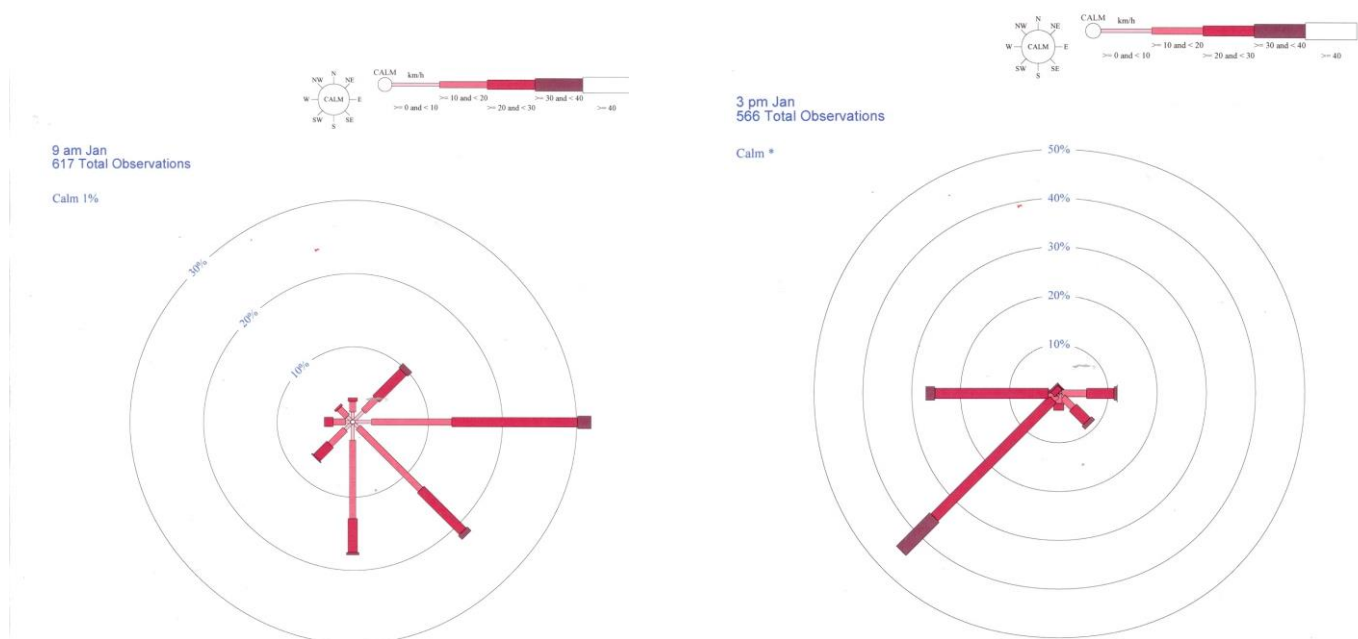
Table 1 Weather Data for Jandakot Airport – 1989-2010 (BOM Website December 2012)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max Temperature (°C)	29.3	29.6	27.6	24.4	20.6	18.1	17.3	17.7	19.2	21.2	24.4	27	
Mean 3pm Temperature (°C)	28.2	28.7	26.7	23.0	19.8	17.5	16.7	17.0	18.3	20.7	23.1	25.9	
Mean 9am Relative Humidity (%)	49	52	55	62	72	79	80	76	68	59	52	49	
Mean 3pm Relative Humidity (%)	37	36	38	45	51	57	58	55	53	48	43	39	
Mean Monthly Rainfall (mm)	14.6	16.8	14.9	43.5	106.3	162.4	174.5	124.6	85.4	47.3	29.0	10.5	

The weather data for Jandakot Airport has been used as it is the nearest weather station with a complete set of data. This set of weather data would be similar to the weather conditions experienced in the development “Site”.



Figure 3 Sample Wind Roses showing Wind direction and Strength for January (1989-2010) Jandakot Airport.



### 4.3 TOPOGRAPHY

The slope of the site is within the 0°-5° range and is from the east to the west. 0°-5° will be used as a factor in determining setbacks of the development from retained vegetation and the construction standard of dwellings in accordance with AS 3959 “Construction of Buildings in Bush Fire Prone Areas” (detailed in Section 7.2).

### 4.4 BUSH FIRE FUELS

The site consists of Scrub (Class D) and Banksia Woodlands (Class B). The power line along the western boundary has been cleared and consists of grasses in some places and regrowth Banksia Woodland (northern section adjoining the Site). There is a wetland area around Sandy Lake which has some scattered Paper Bark trees but is generally located outside the LSP Site. Also a wetland area is located to the west of the power line to the SW of the “Site.” The power line from the north east corner of the Site to the south west corner of the site is mainly Tea Tree shrubland.

An area in the south west corner of “The Site” has been cleared and is used as a commercial area.

Bush fire fuel loads in accordance with Table B2 of AS 3959 Banksia Woodland would vary between 15-25 tonnes/ha and scrub would be 25 tonnes/ha.

Most of the site will be cleared other than Public Open Space (POS) areas under the power line (north east – south west corner of the site) which will be managed as POS by the City of Kwinana.



Figure 4 Vegetation Types.





## Photographs of Various Vegetation Types.



Power Line along western boundary looking west from the current commercial site in the SW corner of the "Site"



Low vegetation under power line



Regrowth Vegetation in northern portion of the power line Class D



Scrub under power line NE-SW within the site Class D



Woodland along northern boundary of current commercial site



Woodland vegetation Class B west of power line NW of Site. Bush Forever Site





Banksia Woodland Class B vegetation east of eastern boundary- Bush Forever east of Power Line



Scrub vegetation along eastern boundary Class D



Scrub Vegetation northern edge of Site Class D



Scrub vegetation adjoining Sandy Lake- Bush Forever Site



Edge of Sandy Lake Bush Forever Site

## 4.5 LAND USE

“The Site” will be developed into Residential, Commercial, Service Commercial, POS/drainage and Community Facilities.

The power line adjoining to the west will remain and Bush Forever is to be retained along the northern and eastern boundaries of the site. The power line running through the site from the NE corner to the SW corner of the site will remain and the land under the power line will be public open space managed by the City of Kwinana



## **4.6 LOCAL ASSETS**

The local assets of the site and adjoining areas are the Bush Forever site, power lines, proposed commercial buildings and associated infrastructure, dwellings in residential areas and POS/drainage areas.

## **4.7 ACCESS**

The Site connects to the following existing Roads:

- Thomas Road – a constructed road bordering on the southern edge of the LSP: and
- Treeby Road - a gazetted Road but unconstructed with a 20 metre wide road reserve on the eastern boundary of the LSP that links with Anketell Road to the north. See Figure 1.

## **4.8 WATER SUPPLIES**

Mains reticulated water will be supplied to the site.

### **4.8.1 Water for Fire Fighting**

Fire hydrants and Road/Pole markings will be installed by the Developer in accordance with the “*Water Corporations No. 63 Water Reticulation Standard.*” Complies with Guidelines Acceptable Solution A3.1.

### **4.8.2 Domestic Water Supply**

Each lot will be supplied with mains reticulated water.

## **4.9 FIRE SERVICES AVAILABLE TO THE SITE**

A volunteer Fire & Rescue Brigade is located in the Kwinana townsite, the Mandogalup Volunteer Bush Fire Brigade is located at the corner of Mandogalup Road and Anketell Road and the Kwinana South Volunteer Bush Fire Brigade is located near the corner of Baker Rd and Mortimer Rd Wellard. Other Brigades from the City of Rockingham, City of Cockburn and Shire of Serpentine Jarrahdale may be dispatched to assist with fire fighting operations when required.

## 5.0 BUSH FIRE ASSESSMENT

### 5.1 BUSH FIRE HISTORY

There was no recorded bush fire history available for the site from the landowners. The area was partially burnt in a Fire around Christmas 2009 and the area is subject to the dumping of car bodies and setting them alight. Illegal off road vehicles frequent the area.

### 5.2 BUSH FIRE RISK

As most bushfires are caused by human activity, either by deliberate actions or carelessness, risk can be aligned with human activity and available fuel sources. The combination of people, property and infrastructure systems (transport, communications etc.) is components of the “risk” for the site. As people cause the majority of wildfires in this area and have the assets in some way, shape or form, the table below rates the risk for the site based on the Department of Fire & Emergency Services (DFES) Rural Urban Bush Fire Threat Analysis tool.

**Table 2 Bush fire Risk Assessment**

#### Hazard Assessment

**Scoring:** High or Yes = 1 Low or No = 0

**Ratings:** Extreme = 6 High = 4 – 5 Medium = 2 – 3 Low = 0 – 1

Hazard Component	High or Yes	Low or No
<i>Likelihood of occurrence (risk of ignition)</i>		0
<i>Fuel load (vegetation) &gt; standard (intensity)</i>	1	
<i>Vegetation assessment area with fire hazard (manageability)</i>	1	
<i>Hazard reduction &lt;80% of assessment zone</i>	1	
<i>High visitor usage in area</i>	1	
<i>Recent or proposed residential and industrial developments</i>	1	

**Total 5 = high bush fire risk**

#### Management Assessment

**Scoring:** High or Yes = 1 Low or No = 0

**Ratings:** Extreme = 4 High = 3 Medium = 2 Low = 1

Management Component	High or Yes	Low or No
<i>Easily accessible (access roads and trails)</i>	1	
<i>Fire agency response time &gt; 30 minutes</i>		0
<i>Inadequate water supply</i>		0
<i>Inadequate resources</i>	1	

**Total 2 = Medium management risk**

Although the site indicates a high bush fire risk, the Fire Management Plan in conjunction with agency and Local Government requirements, aims at reducing this risk through mitigation works and sound response protocols. Once the development of the “Site” commences, the frequency of off road vehicles will reduce as the “Site” will be managed during development. The Bush Forever Land will in due course be fenced and managed thus reducing the potential dumping of cars and the use by off Road Vehicles. With development taking place the “Site” and adjoining Bush Forever land will changed from unmanaged land to managed land thus reducing the potential for fire to start within the area.

The “Site” is surrounded to the west, north and east by Bush Forever land which is a likely source of fire ignition and if a bush fire starts in those areas may pose a risk to the proposed development. Currently these areas are subject to off road vehicles and motor cycles which increase the likelihood of a fire starting. However once the Bush forever areas are managed and off road vehicle are controlled the likelihood of fire ignition from this source will be reduced.

The risk of bush fires in the Bush Forever areas poses a risk to the community and the environmental values within the Bush Forever areas.

### **5.3 BUSH FIRE HAZARD**

In the DFES/WAPC “Guidelines” Appendix 1 the methodology for classifying bush fire hazard ratings is detailed. The methodology rates bush fire hazard using vegetation type. The methodology is also based on the underlying assumption that land in Western Australia is predominantly undulating. The methodology specifies three bush fire hazard levels “Low”, “Moderate” and “Extreme”.

This methodology has been used in this Fire Management Plan.

The assessment of fire risk takes into account existing site conditions determined by an onsite assessment which include:

- Topography with particular reference to ground slopes and accessibility;
- Vegetation cover – both remnant and likely revegetation; and
- Relationship to surrounding development.

The Bush Fire Hazard rating for the “Site” is (Refer to Figure 5)

- The Scrub is rated as “Moderate”
- The Woodland is rated as “Moderate”
- The Grassland is rated as “Low”



**Figure 5 Bush Fire Hazard Rating.**

## 5.4 BUSH FIRE THREAT

The site is identified as one being areas exposed to a higher level of threat and a likelihood of a fire originating (until the site is fully developed) on the development site and from the surrounding properties primarily from the illegal use of off road vehicle and the dumping of car and setting them alight.

Once construction of the development within the “Site” occurs there is a likely reduction in the risk of fires starting within the site and adjoining areas. Improved management of the Bush forever land will also reduce the potential of fires starting and reduce the threat to the adjoining proposed development.



## 5.5 SUMMARY OF BUSH FIRE POTENTIAL ISSUES

The potential bush fire issues that have been identified for the Site and adjoining areas are:-

- Limited fire hazard mitigation within Bush Forever areas adjoining the site;
- Difficulty of vehicular access within Bush Forever areas for fire fighting operations;
- High level of human activity in the area increasing in the summer months.

## 6.0 FIRE MITIGATION

### 6.1 HAZARD MANAGEMENT

Hazard Management on the lots will be controlled by:-

- A minimum 20 metre Building Protection Zones (BPZ) will be installed by the developer separating the proposed development from the retained vegetation;
- Dwelling construction to a standard to align with the designated bush fire attack level (BAL) within the Building Protection Zone as prescribed in this Section.
- Compliance with the annual Fire Control Notice issued by the City of Kwinana under the Act. Under the Bush Fires Act, compliance with a Notice is a landowner/occupier responsibility

### 6.2 BUSH FIRE RISK MANAGEMENT

#### 6.2.1 Total Fire Ban Days

A Total Fire Ban is declared because of the extreme weather conditions or when fires are seriously stretching fire fighting resources. A Total Fire Ban is declared by DFES following consultation with Local Governments.

When a Total Fire Ban is declared it prohibits the lighting of any fires in the open air and any activities that might start a fire. The ban includes all open fires for the purpose of cooking or camping. It also includes the use of incinerators, welding, grinding, soldering and gas cutting equipment.

The Department of Fire and Emergency Services and the City of Kwinana are to continue to educate the public on what a Total Fire Ban means and what actions the public need to take.

#### 6.2.2 Public Education Program

The City of Kwinana is to continue to provide the community with advice on bush fire prevention and preparedness through brochures, newspaper articles, the requirement for compliance with any Firebreak Notice and/or Hazard Reduction Notice issued to any owner or occupier under the Act and have relevant information set out on their web site.

The subdivider is to provide a copy of the current City of Kwinana Firebreak Notice, *The Homeowners Survival Manual* and *Prepare Act Survive* brochure and this Fire Management Plan at the time of sale of a Lot to all new landowners whose Lot has an increased Construction standard in accordance with AS 3959. It is essential that the Real Estate agent handling the sale of lots on behalf of the subdivider advises potential landowners that a Fire Management Plan exists and that the modification of vegetation and on going fuel reduction will be required within this development.

Other Public Safety and Community information on Bush Fires is available on the Department of Fire and Emergency Services web site [www.dfes.wa.gov.au](http://www.dfes.wa.gov.au) and the City of Kwinana website [www.kwinana.wa.gov.au](http://www.kwinana.wa.gov.au)

## 6.3 FUTURE DEVELOPMENT

This Fire Management Plan has been prepared on the basis of the site being subdivided in accordance with the plan layout detailed in Figure 2.

### 6.3.1 Declared Bush Fire Prone Area

Due to the Bush Forever areas adjoining the proposed development on the west, northern and eastern boundaries of the Site and the bush fire hazard rating for the woodland and shrubland vegetation is rated as Moderate the Site is considered to be a Bush Fire Prone Area and as such AS 3959 *Construction of Buildings within a Bush Fire Prone Area* will apply to all habitable buildings within 100 metres of woodland or shrubland vegetation (currently at the time of writing this FMP) as defined in the Building Code of Australia as Class 1 and 10A buildings.

### 6.3.2 Fire Protection Requirements around Stages of Development

The main threat to each stage of development from a wildfire (bushfire) is from a fire originating in the Bush Forever or undeveloped areas.

To provide protection to residents in the various stages, each stage is to contain the following bush fire protection requirements:-

- A fire service access route is to be constructed on the outside of the development on the alignment of the internal road in the next stage. This access is to be to the standard of a fire service access route which will comply with A2.7. It may be necessary in some places (heavy sand) to lay road base to provide access for large fire appliances.
- A 25 metre building protection zone is to be established between the last lots in each stage to be sold and the fire service access described above. The 25 metre Building Protection Zone does not remove the need for dwellings to be constructed to a higher standard in compliance with AS3959. This distance would need to be increased to 100 metres for there not to be a requirement for AS 3959 to apply. The standard of the building protection zone is detailed in this Section
- Fire hydrants are to be installed within each stage in accordance with the *Water Corporations No. 63 Water Reticulation Standard*.

### 6.3.3 Fire Protection in Undeveloped Areas.

Areas that have not been developed must comply with the City of Kwinana Fire Control Notice.

- A Western Power easement exists through the centre of the “Site”, aligned north east to south west through the Site and within the eastern portion of the site also through the Bush Forever area. The annual maintenance of the easement by the City of Kwinana, will provide 'low' fuel zones until this occurs landowners are to comply with the City of Kwinana Fire Control Notice

### 6.3.4 Fire Protection in Public Open Space-Development Interface

Areas of un-reticulated Public Open Space/retained vegetation/ and adjacent Bush Forever sites are to have fire protection measures implemented to adequately protect the adjoining urban development in the event that these areas will at some stage be affected by wildfire.

The fire protection requirements for the Public Open Space (POS)-Development interface areas are as follows.

- The land within the north eastern portion of the Western Power easement and areas of public open space on the eastern and western sides of the “Site” will form part of the Building Protection Zone as denoted in Figure 6 and meet requirements for the management consistent with the *Guidelines*.
- Public Open Space Management Plans will need to consider the management of bush fire fuel loads within the individual areas of public open space. Refer to the *Plant Guide within the Building Protection Zone for the Swan Coastal Plain*, DFES for information in this regard

### 6.3.5 Building Protection Zone

The aim of the Building Protection Zones (BPZ) is to reduce bush fire intensity close to buildings, and to minimise the likelihood of flame contact with buildings.

The Building Protection Zone is a low fuel area immediately surrounding a building complying with Building Protection Zone standards published on the DFES website.

A Building Protection Zone must fulfil the following conditions:

- The minimum width of the BPZ is to be 20 metres measured from any external wall of the building or asset.
- The location of the BPZ is to be within the road reserves surrounding the site and, and in some cases, will include the setback on adjoining lots.
- 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.
- All grasses within the BPZ are to be maintained to a height of a maximum 50mm.
- The crowns of trees within the BPZ should be separated where practical such that there is a clear separation distance between adjoining tree crowns.
- 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.
- 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.
- 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.
- Trees or shrubs in the BPZ are to be cleared of any dead material.
- 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.
- 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.
- Roof gutters should be free of leaves and other combustible material.

- 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.

It is further recommended that property owners, where possible and practical, further extend the width of the defendable space around assets by reducing fuel loads and fire hazards.

NOTE:

- The purpose of the BPZ is to reduce flammable fuel in the immediate vicinity of structures and other assets to reduce the bushfire attack level in accord with Australian Standard AS3959 section 2.
- The requirements for BPZ within Western Australia for new buildings are specified in the Guidelines and on the DFES website.
- Maintained gardens are not classed as flammable.
- Areas such as pathways, drives, lawn, vegetable gardens, pools etc. all serve to reduce fire intensity and will form an integral part of any BPZ. The effectiveness of these in reducing the risk of fire damage to a building is enhanced if these areas are close to the building.

The Building Protection Zone is to be installed as part of road construction/site works within a stage of land release by the Developer (front portion of lot and road reserve) and maintained by the City of Kwinana in perpetuity.

### 6.3.6 Building Construction

Individual dwellings on all lots shall be designed and built to conform with:

- The Building Code of Australia; and
- AS 3959 *Construction of Buildings in a Bushfire Prone Area*;

The minimum distance of 100 metres (from vegetation rated 'Moderate' or 'Extreme') may be reduced in compliance with AS 3959. Under AS 3959 as the distance from the vegetation is reduced, the construction standard must be increased. Table 2.4.3 AS 3959 sets out this relationship and Section 2 of AS 3959 details the methodology of determining the Bushfire Attack Level (BAL).



BAL (Bushfire Attack Level) Determination Using Methodology from Section 2.2.1 of current adopted AS 3959- 2009 and Table 2.4.3 which applies to the proposed Lots:

**Table 3 Summary of Determination of BAL using Fire Danger Index 80**

Vegetation Class	Setback from Vegetation (meters)	Slope	BAL	Construction Standard AS 3959-2009	BPZ (metres)
B Woodland	17-25	0°-5°	29	S 3 & 7	20
B Woodland	25-35	0°-5°	19	S 3 & 6	25
B Woodland	35-100	0°-5°	12.5	S 3 & 5	0
D Scrub	15-22	0°-5°	29	S 3 & 6	20
D Scrub	22-31	0°-5°	19	S 3 & 6	22
D Scrub	31-100	0°-5°	12.5	S 3 & 5	0

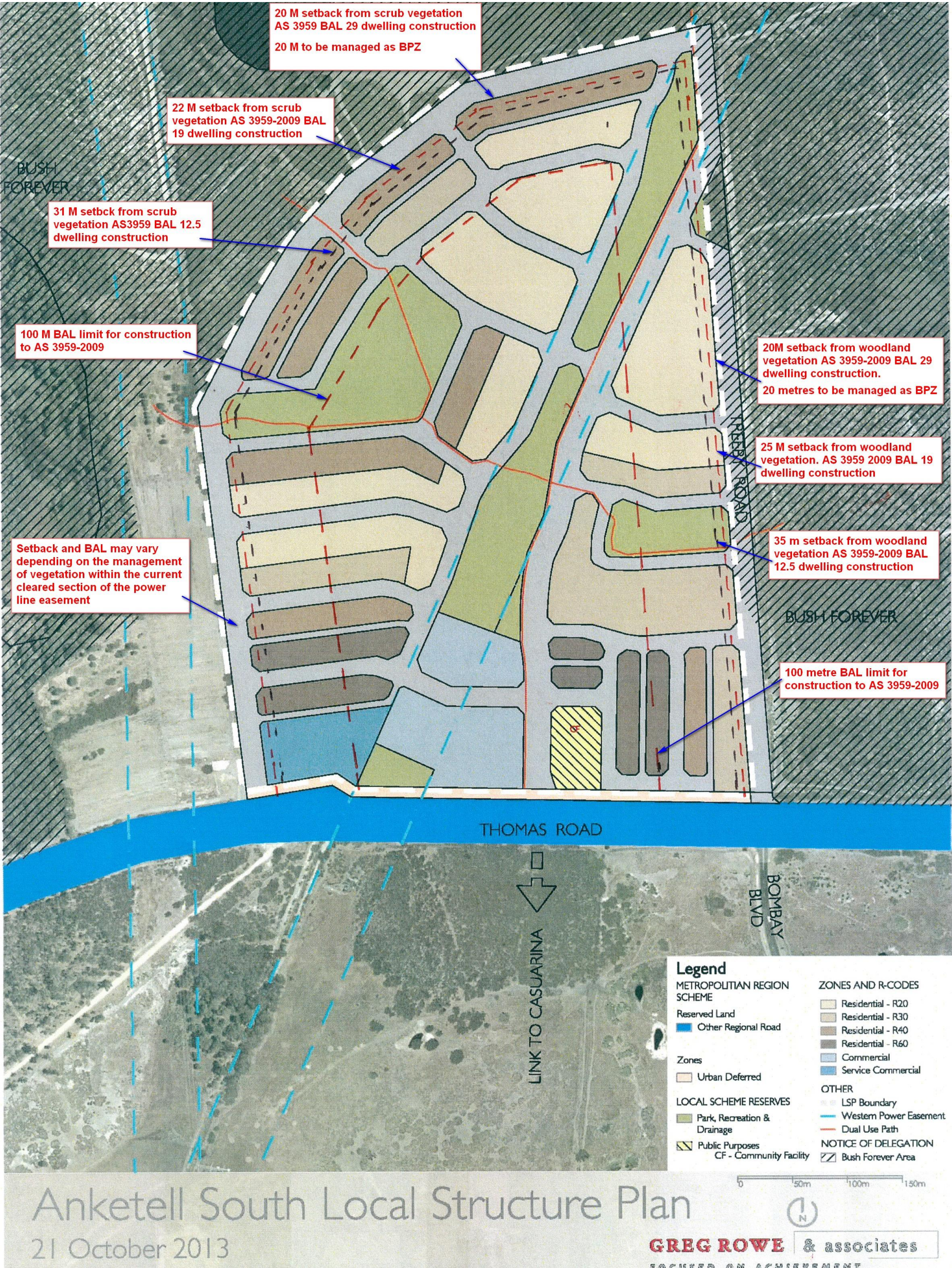
Woodland Class B and Scrub Class D were used to determine the indicative AS 3959-2009 BAL. New dwellings within the site will comply with an indicative AS 3959-2009 as shown in Figure 6. The distance between the walls of the dwelling and the outer edge of the road reserve are to be maintained as a Building Protection Zone.

The Building Protection zone may consist of the road reserve and the front setback within a Lot. Vegetation within the road reserve and the front setback within a Lot will need to be managed to the Building Protection Zone standard detailed in Section 6.3.5 initially by the Developer then by the City of Kwinana and the landowner respectively. The developer will provide the City of Kwinana prior to each stage of land release with a map showing BAL ratings for lots requiring an increase in construction standard and the location of the Building Protection Zone.

As a result of ember attack evaporative air conditioners can be the cause of a fire starting in a building. It is a requirement that the roof unit of an evaporative air conditioner is enclosed in a suitable external ember protection screen. More information is available at [www.dfes.wa.gov.au](http://www.dfes.wa.gov.au) and in AS 3959.



Figure 6 Indicative BAL ratings (Not to Scale)





## **6.4 ACCESS AND FIREBREAKS**

### **6.4.1 Road System**

The internal road system within the site is planned to have three access points to Thomas Road. Treeby Road will also link north to Anketell Road and will be constructed as part of the first Stage of development on Lot 13 in the northern most portion of the structure Plan. Complies with acceptable solution A2.1

Including Treeby Road and Thomas Road, the Site will be separated from abutting land, including the Bush Forever areas and Public Open Space, by constructed roads.

All internal roads will comply as a minimum with acceptable solution A2.2. The construction of Treeby Road from Thomas Road to Anketell Road will provide two different vehicle access routes available to residents and the public at all time and complies with acceptable solution A2.1.

### **6.4.2 Fire Control Notice**

Notwithstanding the provisions of this Fire Management Plan, all lots within the site must comply with the requirements of any Notice issued by the City of Kwinana, and as published in the Government Gazette annually under the provisions of the Bush Fires Act (s.33). Complies with Acceptable Solution A 2.9

## **6.5 FIRE SAFER AREAS**

In the event of a bush fire, the Incident Controller of Fire Fighting Operations will advise if an evacuation is necessary and, in conjunction with the City of Kwinana Emergency Services, direct residents to Safer Refuge Areas.

## **6.6 ASSESSMENT OF FIRE MANAGEMENT STRATEGIES**

All details outlined in this Fire Management Plan meet the requirements of the Act and associated Regulations and the Guidelines and are sound, measurable and practical having been used and proven over time. These recommendations take into account the various costs, alternatives available, benefits for protection of residents and the wider community, the environment and biodiversity protection.

This Fire Management Plan will be implemented as condition of subdivision for the site.

It will be the responsibility of the subdivider to implement the provisions of this Fire Management Plan (detailed in Section 6.7.2) in order to seek clearance of those conditions of subdivision.

Likewise it is the responsibility of the City of Kwinana to ensure that all standards required in this Fire Management Plan are met by the subdivider prior to the City recommending to the WA Planning Commission clearing any conditions of subdivision relating to this Fire Management Plan.

After any major fires that may occur during or once the subdivision of the Site has been completed, the City of Kwinana may conduct a Post Incident Analysis of the fire, which may include identifying and implementing any changes that may be needed to improve the performance of fire prevention strategies.

In the Foreword of AS 3959- 2009 it states that “It should be borne in mind that the measures contained in this standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature and behavior of fire and extreme weather conditions.” This Fire Management Plan has been prepared in accordance with the acceptable solutions detailed in the Guidelines.

## **6.7 IMPLEMENTATION OF THE FIRE MANAGEMENT PLAN.**

This Fire Management Plan becomes operational as a condition of subdivision.

In implementing this Fire Management Plan, the following responsibilities have been determined.

### **6.7.1 Property Owner's Responsibilities**

To maintain the reduced level of risk and threat of fire, the owners/occupiers of all lots created by this proposal will be responsible for undertaking, complying and implementing measures protecting their own assets from the threat and risk of bush fire:

- Maintaining the property in good order to minimize potential bushfire fuels to mitigate the risk of fire on the property;
- Ensuring that the lot complies with any Firebreak Control Notice issued by the City of Kwinana. To be carried out annually;
- Notifying contractors of the location of any nearby fire hydrants and the requirement to keep unobstructed at all times;
- Maintaining Building Protection Zones at the front of the dwelling that interfaces with a Bush Forever site and Public Open Space areas;
- Where a Lot has been identified as requiring an increased construction standard ensure that new dwellings are designed and constructed in compliance with the requirements of the Local Government and to AS 3959-2009 *Construction of Buildings in Bushfire Prone areas*.
- Complying with the Section 70A notification placed on the Certificate of Title for each Lot advising that a Fire Management Plan has been prepared for each lot.
- Complying with the instructions of DFES Fire Services, the City of Kwinana and/or volunteer fire services as may be issued under the Act for the purposes of maintaining the property or during the event of a bushfire;
- Ensuring that in the event an evaporative air conditioner is installed at the property, suitable external ember screens are installed to roof mounted units and that they comply with AS 3959, and that the screens are checked annually;

### **6.7.2 Developer's Responsibilities**

As a condition of subdivision the subdivider shall be required to carry out works described in Section 6 of this Fire Management Plan to the satisfaction of the City of Kwinana and the Western Australian Planning Commission:

- Install internal road system as detailed in Section 6.4 to the specification detailed in Section 7.2
- Implement Fire Protection measures around stages of development (Section 6.3) in undeveloped areas (Section 6.3) Public Open Space – Bush Forever interface (Section 6.3).
- Provide the City of Kwinana prior to each Stage of land release with a map showing BAL ratings for each Lot requiring an increase in construction standard in accordance with AS 3959 and the position of the building Protection Zone. Indicative BAL ratings are shown in Figure 6;

- Making BAL assessment results available to purchasers for consideration at the time of sale;
- Prior to the issue of Land Titles on any lot, carry out fuel reduction on the lot to the limits of the BPZ to the BPZ standard and maintain until Lot is sold as detailed in Section 7.1;
- Each lot is to comply with any Notice issued by the City of Kwinana under the Act and as gazetted/issued annually. Firebreaks are to be maintained by the developer for each lot until each lot is sold;
- Install fire hydrants and road/pole markings in accordance with *Water Corporation No. 63 Water Reticulation standard*.
- Supply a copy of this Fire Management Plan and *The Homeowners Bush Fire Survival Manual, Prepare Act Survive (or similar suitable documentation)* and the annual Fire Control Notice issued by the City of Kwinana to each affected property purchaser requiring an increased building construction standard upon sale of the lot. Consider a requirement to provide a copy of other relevant documents to all purchasers given the proximity and amount of land posing a fire hazard to the “Site”;
- Place a Section 70A notification on the Certificate of Title to each lot within 100 metres of vegetation contained in the Bush Forever Land and Public Open Space, advising landowners of the existence of this Fire Management Plan.

### 6.7.3 City of Kwinana

The responsibility for compliance with the law rests with individual property owners and occupiers and the following conditions are not intended to unnecessarily transfer these responsibilities to the City of Kwinana.

The City of Kwinana shall be responsible for:

- Ensuring that compliance with AS3959, for all dwellings required to be constructed to the standards contained herein;
- Maintain low fuel areas compliant with BPZ standards in Public Open Space areas and road reserves.
- Enforcing any Notice issued by the City of Kwinana under the Bush Fires Act;
- Monitoring bush fire fuel loads in the adjoining lands and liaise with relevant landowners or occupiers (or serve Notices upon owners or occupiers) for the purposes of maintaining bush fire fuel loads to safe levels;
- Providing fire prevention and preparedness advice to landowners upon request; and
- Ensuring compliance with this Fire Management Plan prior to clearance of conditions of subdivision.



## 7.0 APPENDICES

### 7.1 WORKS PROGRAM

The works detailed in Section 6.7.2 in this Fire Management Plan must be implemented by the subdivider as a condition of subdivision approval.

Landowners will be responsible for the annual maintenance required in any Notice issued by the City of Kwinana under the Act, the carrying out of any annual works associated with maintaining BPZ's and HSZ's as detailed in this Fire Management Plan.

#### Prior to issue of Titles and Ongoing Maintenance

Activity	Responsibility	Maintenance	Responsibility
Installation of Roads Standards Section 7.2.	Developer	Checking of quality of Roads	City of Kwinana
Implement fire protection measures as detailed in Sections 6.3	Developer	Annually maintenance required until Lots sold.	Developer
Compliance with Firebreak Notice. Details Section 6.4.	Developer	Compliance with Firebreak Notice annually	Landowner
Installation of Fire Hydrants. Water Corporation Standards	Developer	Water Corporation Standards	Water Corporation
Modify fuels in setbacks to BPZ Section 6.3	Developer	Annually Maintain BPZ in perpetuity	Developer until Lot is sold then landowner within front setback of Lots and road reserve City of Kwinana
Section 70 A notification on Title of each Lot advising FMP applies to each Lot	Developer	Maintain Lot in accordance with Landowners responsibilities	Landowner
Provide a copy of following a sale of Lot:- Fire Management Plan Home Owners Survival Manual Prepare Act Survive Fire Control Notice	Developer	Landowners to familiarise themselves and annually update actions in the event of fire and annual maintenance of the above	Landowner

#### Prior to Building Permit

Activity	Responsibility	Maintenance	Responsibility
A Fire Consultant is to re-assess AS 3959 BAL at each stage of land release, developer to provide City and prospective purchaser a map showing BAL ratings	Developer	Ensure Building design complies with relevant AS 3959 BAL rating	City of Kwinana to approve Building Permit

## **7.2 GUIDELINES SPECIFICATIONS AND MINIMUM STANDARDS**

The following section outlines the required specifications and minimum development standards that are required under this Fire Management Plan.

### **7.2.1 Public Roads A2.2 – Internal Roads, Thomas Road and Treeby Road**

Public roads meet the following minimum requirements:

- minimum trafficable surface: 6 metres
- horizontal clearance: 6 metres
- vertical clearance: 4 metres
- maximum grades: 1 in 8
- maximum grade over <50 metres: 1 in 5
- maximum average grade: 1 in 7
- minimum weight capacity: 15 tonnes
- maximum crossfall: 1 in 33
- curves minimum inner radius: 12 metres

### **7.2.2 Fire Service Access Route A2.7**

Fire services access routes, providing links between public road networks for fire fighting purposes, meet the following minimum requirements:

- surface: all weather
- dead end: not permitted
- minimum trafficable surface: 6 metres
- horizontal clearance: 6 metres
- vertical clearance: 4 metres
- maximum grades: 1 in 7
- maximum grade over <50 metres: 1 in 4
- maximum average grade: 1 in 5
- minimum weight capacity: 15 tonnes
- maximum crossfall: 1 in 33
- curves minimum inner radius: 12 metres
- turn around areas designed to accommodate 3.4 appliances and to enable them to turn around safely: every 500 metres
- erosion control measures and long term maintenance arrangements in place
- access to public road network: every 1000 metres
- allow for two way traffic.

## 7.3 GLOSSARY

### **Acceptable Solution**

A statement describing an acceptable means of complying with the requirements of corresponding performance criteria.

### **Appliance or Fire Appliance**

A fire fighting appliance (vehicle) with structural, grass and bush fire fighting capabilities, with either a 2000 litres water capacity (2.4 appliance) or a 3000 litre water capacity (3.4 appliance) and four (4) wheel drive.

**BAL** – (abb) Bushfire Attack Level.

**Bushfire Attack Level** – an assessed rating of a site's risk to a bushfire, based on vegetation type, slope of the land and its proximity to buildings.

**Building Construction Standard Buffer** - An area 100 metres wide Including a Building Protection Zone in which an increase in building construction standard in accordance with AS3959 will apply.

### **Building Protection Zone (BPZ)**

Low fuel area immediately surrounding buildings as described in Section 7.2.9. Minimum width 20 metres, increasing with slope. Created as part of the development of any habitable building on a lot and where necessary, extending to the lot boundary. Maintained by the landowner in perpetuity.

### **Bush**

Under the Bush Fires Act 1954 the term bush is defined to include trees, bushes, plants, stubble, scrub and undergrowth of a kind whatsoever whether dead or alive and whether standing or not standing.

### **Bush Fire or Wildfire**

A general term used to describe fire in vegetation that is not under control.

### **Bush Fire Hazard.**

The flammability, arrangement and quantity of vegetation, dead or alive, that can be burnt in a bush fire. Development is to be avoided in extreme bush fire hazard designated areas, unless that hazard is reduced.

**Bush fire prone area** - for the purposes of this Fire Management Plan, a bush fire prone area is an area that has been declared as such by the relevant local government responsible for an area. Once an area is declared bush fire prone, then AS 3959 applies to new residential development within it.

### **Bush Fire Risk**

The chance of a bush fire starting that will have harmful consequences on life and property. It is measured in terms of consequences and likelihood and arises from the interaction of hazards, communities and the environment.

### **DPES**

Department of Fire and Emergency Service formally DFES

### **Development Application**

An application for approval to carry out a development under either a local planning scheme or regional planning scheme.

**Dwelling setback** – the horizontal distance between a wall of the dwelling at any point, and an adjacent lot boundary, measured at right angles (90 degrees) to the boundary.

**Emergency Access Way**

Road not normally open but available to the public (using two wheel drive vehicles) for evacuation during a bush fire emergency.

**Fire Break or Firebreak**

Any natural or constructed discontinuity in a fuel bed not less than 3m wide and surrounding a lot or section of land used to segregate, stop and control the spread of a bush fire or to provide a fire line from which to suppress a bush fire and cleared to reduce the risk of bush fire damage.

**FDI- Fire Danger Index**

The chance of a fire starting, its rate of spread, its intensity and the difficulty of its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long and short- term drought effects.

**Fire Protection**

A generic term used to describe the range of services and systems used to mitigate the impact of fire on the community. It encompasses both fire prevention and emergency response.

**Fire Management Plan**

Ongoing, dynamic document that sets out the medium to long term mitigation strategies for fire hazards and risks in particular developments within local government areas.

**Fire Services Access Route**

Accessible by heavy four wheel drive fire fighting vehicles.

**Fuel Reduction also Hazard Reduction**

Removal and modification of bush fire fuel, or increase in building construction standards or a combination of the two.

**Hazard Separation Zone (HSZ)**

The fuel reduction area between an area bush fire hazard and the buildings (and associated building protection zones) of a development.

**Low Fuel Area**

An area of reduced bush fire fuels that is required to surround a Stage of land release and negates the need to increase the standard of dwelling construction on the edge of the Stage of land release. It complies with the Building Protection Zone standards is temporary until the next stage of land is cleared for release.

**Performance Criteria**

Statement which specifies the outcomes required for the protection of life and property from bush fires.

**Structural Fire**

A fire in a building.

## FIRE MANAGEMENT PLAN COMPLIANCE CHECKLIST FOR PERFORMANCE CRITERIA AND ACCEPTABLE SOLUTIONS

PROPERTY DETAILS: Lot 1, 2, 3 & 17 Thomas Road & Portion of Lot 13 Treeby Road Anketell

Local Government: City of Kwinana

### Element 1: Location

Does the proposal comply with the performance criteria by applying acceptable solution A1.1?

Yes ☒ No ☐

### Element 2: Vehicular Access

Does the proposal comply with the performance criteria by applying acceptable solution A2.1?

Yes ☒ No ☐

Does the proposal comply with performance criteria by applying acceptable solution A2.2?

Yes ☒ No ☐

Does the proposal comply with the performance criteria by applying acceptable solution A2.3?

Yes ☐ No ☐

Not applicable

Does the proposal comply with the performance criteria by applying acceptable solution A2.4?

Yes ☐ No ☐

Not Applicable

Does the proposal comply with the performance criteria by applying acceptable solution A2.5?

Yes ☐ No ☐

Not Applicable

Does the proposal comply with the performance criteria by applying acceptable solution A2.6?

Yes ☐ No ☐

Not Applicable

Does the proposal comply with the performance criteria by applying acceptable solution A2.7?

Yes ☒ No ☐

Around stages of land release

Does the proposal comply with the performance criteria by applying acceptable solution A2.8?

Yes ☐ No ☐

Not Applicable

Does the proposal comply with the performance criteria by applying acceptable solution A2.9?

Yes ☒ No ☐

Complying with City of Kwinana Firebreak Control Notice.

Does the proposal comply with the performance criteria by applying acceptable solution A2.10?

Yes ☐ No ☐

Not Applicable

### Element 3: Water

Does the proposal comply with the performance criteria by applying acceptable solution A3.1?

Yes ☒ No ☐

Does the proposal comply with the performance criteria by applying acceptable solution A3.2?

Yes ☐ No ☐

Not Applicable



Does the proposal comply with the performance criteria by applying acceptable solution A3.3?

Not Applicable

Yes

☐

No

☐

**Element 4: Siting of Development**

Does the proposal comply with the performance criteria by applying acceptable solution A4.1?

BPZ and increased dwelling construction

Yes

☒

No

☐

Does the proposal comply with the performance criteria by applying acceptable solution A4.2?

Yes

☒

No

☐

Does the proposal comply with the performance criteria by applying acceptable solution A4.3?

Yes

☒

No

☐

Does the proposal comply with the performance criteria by applying acceptable solution A4.4?

Not Applicable

Yes

☐

No

☐

Does the proposal comply with the performance criteria by applying acceptable solution A4.5?

Not Applicable

Yes

☐

No

☐

**Element 5: Design of Development**

Does the proposal comply with the performance criteria by applying acceptable solution A5.1?

The development uses acceptable solutions as appropriate to meet the requirements under performance criterion P5.

Yes

☒

No

☐

Does the proposal comply with the performance criteria by applying acceptable solution A5.2?

Not Applicable

Yes

☐

No

☐

**Applicant Declaration:**

I declare that the information provided is true and correct to the best of my knowledge.

**Name of Person Preparing the Fire Management Plan:**

Full Name: *B.W. Harris* for FirePlan WA

Date: 14/01/2014

**Developer:**

Full Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**References:**

*Planning for Bush Fire Protection* Edition 2 Guidelines. Western Australian Planning Commission, Department of Planning and Department for Fire and Emergency Services 2010.

Plant Guide within the Building Protection Zone for the Swan Coastal Plain of Western Australia. Department for Fire and Emergency Services 2011