

LOCAL STRUCTURE PLAN

east two rocks

PART THREE
TECHNICAL APPENDICES
NOVEMBER 2011



Modified in accordance with City of Wanneroo resolution of August 2011, and the Western Australian Planning Commission resolution of May 2012.

APPENDIX 8

Bush Fire Management Strategy

Fireplan WA

FIRE MANAGEMENT STRATEGY

Lot 204 Breakwater Drive

Two Rocks

City of Wanneroo



FirePlan WA

November 2010

1.0 PURPOSE OF THE FIRE MANAGEMENT STRATEGY

The purpose of this Bushfire Management Strategy is to detail the Fire Management methods and requirements that will be implemented within the proposed subdivision of Lot 204 Breakwater Drive Two Rocks in support of a Development Concept as part of a Local Structure Plan. A DETAILED Fire Management Plan will be prepared in the next stage of the Planning Process.

2.0 SUBDIVISION LOCATION AND DETAILS

The proposed development is located 3 kilometers northeast of the Two Rock townsite on the north side of Breakwater Drive. The proposed development consists of Public Open Space (POS), Residential, Neighbourhood Centre and Primary Schools. The site adjoins National Park on the eastern and northern boundary. (Diagram 1)

3.0 SITE DETAILS

The site is typical for this location within the Swan Coastal Plain which forms a low-lying belt parallel with the coast. Generally scrub and heath vegetation to 1-2 metres high are found on the ridges of the dune system while in the swale heath and scrub vegetation is 2-4 metres.

Slopes are undulating and vary up to 5-10 degrees.

Some areas within the site have been cleared and were used for stock grazing but this has now ceased.

Breakwater Drive links the townsite of Two Rocks with Wanneroo Road.
(Diagram1)

4.0 BUSH FIRE HAZARD ASSESSMENT

The assessment of fire risk takes into account existing site conditions 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 Assessment is '*Extreme*' in the very dense coastal shrub vegetation areas (2-4 metres) and '*Moderate*' in low heath land (1-2 metres). (Diagram 3)

The Mediterranean climate experienced by this area is such that the majority of rain falls in late autumn through to early spring. This rainfall supports substantial vegetation growth which dries off in Summer/Autumn.

Diagram 1 - Locality of Proposed Subdivision – Not to Scale

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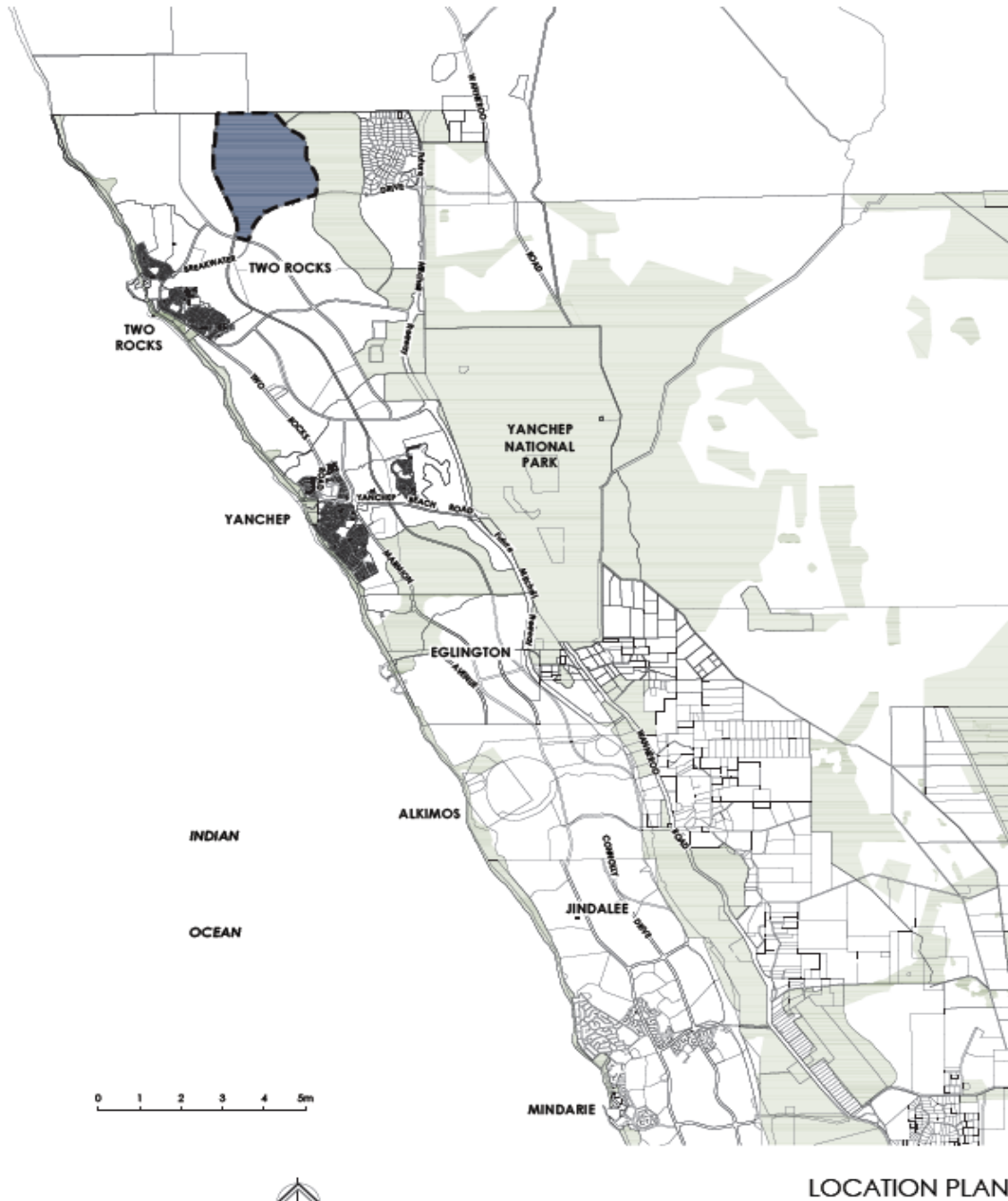


Diagram 2 Aerial Photograph of Locality



Aerial Photograph taken 8th February 2009

Diagram 3 – Proposed Development Concept

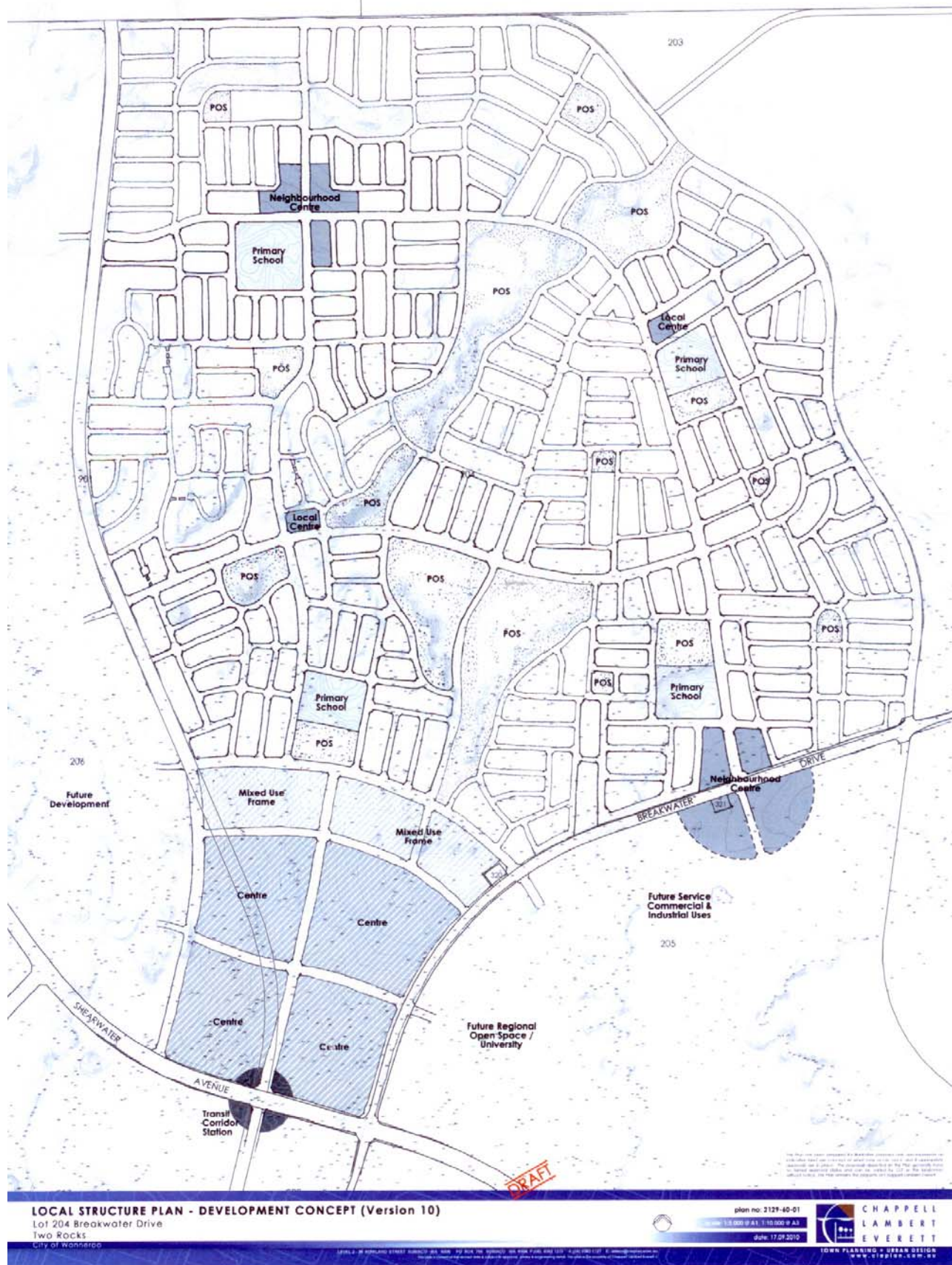


Diagram 4 Aerial Photograph with Development Concept overlayed



5.0 FIRE MANAGEMENT STRATEGY

The aim of the Fire Management Strategy is to reduce the threat to residents and fire fighters in the event of bush fire within or near the site.

The Fire Management Strategy has been developed to incorporate the following fire management methods:-

- Road system;
- Strategic Fire Access systems;
- Fire protection adjoining areas of Public Open Space and Reserves;
- Fire protection around each stage of development; and
- Building Protection Zones.

5.1 Road System

The road system will have multiple links with future developments to the west, the main access road to the development being Breakwater Drive. In all areas an internal road separates areas of areas of vegetation retention and Reserves from residential development

5.2 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 public open space or undeveloped areas.

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

- A Strategic Fire Access is to be constructed on the outside of the development on the alignment of the internal road in the next stage. This firebreak is to be to the standard of a Strategic Fire Access as detailed in Section 5.5. It may be necessary in some places (heavy sand) to lay road base to provide access for large fire appliances.
- A 30 metre building protection zone is to be established between the last lots in each stage to be sold and the Strategic Fire Access described above. The standard of the building protection zone is detailed in Section 5.7.
- Fire hydrants are to be installed within each stage at 200 metre intervals in residential areas with hydrants marked as detailed in Appendix A.
- In addition to the above, a Strategic Fire Access cleared to 8-10 metre wide with a 6 metre wide trafficable hard surface is required on the northern and eastern boundaries of the development to enable a significant access/egress track for fire fighting and to separate the National Park and the proposed Development area. The

Strategic Fire Access will allow fire appliances to pass unimpeded, without the need for passing bays and provide an area for fire-fighting suppression and prevention activities.

These firebreaks are to be constructed with a trafficable hard surface such as limestone and may form part of road reserves on those boundaries of the development. (All other Strategic Fire Access within the development is to be constructed as detailed in Section 5.5). A Strategic Fire Access to the same standard is required to be installed on the western boundary of the site in the proposed road alignment.

5.3 Fire Protection in Undeveloped Areas.

Areas that have not been developed must comply with the City of Wanneroo Firebreak Notice.

5.4 Fire Protection in Public Open Space and National Park - Development Interface

Areas of National Park/Areas of Retained Vegetation 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 /National Park/Areas of Retained vegetation - Development interface areas are as follows.

- A road is to be constructed around the outside of the housing area to separate the housing development from the bush areas.
- A 30metre Building Protection Zone (BPZ) is to be established between the housing area and Areas of Retained Vegetation/Reserves to consist of, road reserve/access way, footpaths and setback at front or rear of houses adjacent the Areas of Retained Vegetation/Reserve. See Section 5.7 for Building Protection Zone Standards. Where the 30 metre BPZ is installed the Dwelling construction for houses interfacing on Areas of Retained Vegetation/Reserves is to be BAL-12.5.

OR

A 20metre Building Protection Zone (BPZ) is to be established between the housing area and Areas of Retained Vegetation/Reserve to consist of, road reserve/access way, footpaths and setback at front or rear of houses adjacent the Areas of Retained Vegetation/Reserve. See Section 5.7 for Building Protection Zone Standards. Where the 20 metre BPZ is installed the Dwelling construction for houses interfacing on Areas of Vegetation/Reserves is to be BAL- 19.

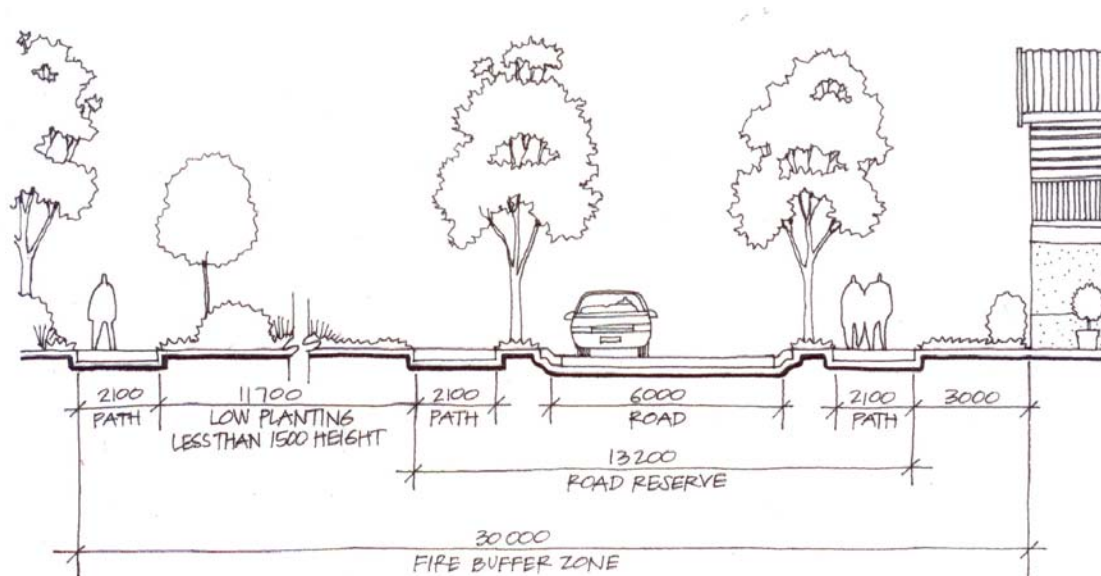
These construction standards will depend on the slopes and fuel classification which would be detailed as part of a detailed Fire Management Plan. See Section 5.6 for more detail of Construction Standards of dwellings.

- Individual Public Open Space Management Plans containing Retained Vegetation will need to include a Section on the management of fire where Building Protection Zones are contained within the Public Open Space. Where any portion of the Building Protection Zone is located within Public open space the City of Wanneroo will be responsible for ongoing maintenance.
- Fire hydrants are to be installed every 200 metres apart in roads that interface with Public Open Space.

Public Open Space Management Plan

A Public Open Space management plan is to be prepared by the developer, incorporating the fire management methods contained within in the detailed Fire Management Plan and detailing which areas of POS will be managed with reticulated lawns and which will be managed with retained vegetation.

Diagram 4 - Schematic Diagram of Setback Adjoining Public Open Space.



Example of Wildfire Buffer Zone

5.5 Strategic Fire Access System Standards

Strategic Fire Access is to provide access for fire-fighting appliances. These must be 6 metres wide, 4 metre vertical clearance and have a 4 metre trafficable surface. In some places road base material will be required due to heavy sand conditions as large fire trucks may use these firebreaks. Passing bays, 6 metres wide, are required every 200 metres and turn around areas every 500 metres.

5.6 Dwelling Construction Standards

Individual new dwellings on each Lot adjoining areas of bush land and retained vegetation shall be designed and built to conform with:

- The City of Wanneroo Specification and Requirements
- AS 3959 – 2009 *Construction of Buildings in a Bushfire Prone Area*.

As detailed in Section 5.4 Building Protection Zones must be an established between dwellings and retained vegetation to protect dwellings from the flames, radiant heat and ember attack from wildfires.

As you increase the setback between retained vegetation you decrease the building Construction standard. Conversely as you decrease the setback the Building construction standard must be increased. As you increase the construction standards of dwelling the cost of construction is also increased. Increase costs for dwellings may not be able to be absorbed by potential new landowners.

So a compromise between setback distances and dwelling construction standards must be achieved while at the same time complying with AS 3959-2009 Table 2.4.4 which determines the Bushfire Attack Level – BAL, then in Table 3.1 of AS 3959-2009 the construction Standards are determined.

5.7 Building Protection Zone Standards

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

The building protection zone is a low fuel area immediately surrounding a building.

Non flammable features within the front setback with each lot roads, footpaths, lawn, or landscaped gardens (including deciduous trees) should form part of building protection zones. Isolated trees and shrubs may be retained within building protection zones. A building protection zone is required for properties adjacent National Park and areas of retained vegetation (See Diagram 4). It must fulfil the following conditions:

- Bush Fire fuels to be maintained at or below 2 tonnes per hectare and dry grass must be maintained below a height of 50mm;
- The first 5m around all buildings is to be cleared of all flammable material. Reticulated gardens may be located in this zone;
- The spacing of trees should be 15-20 metres apart to provide for a separation of 10 metres between crowns;
- Trees are to be under/low pruned, to a height of 2 metres;
- No tall shrub or tree is to be planted within 2 metres of a building including windows;
- There are no tree crowns over hanging the building;
- Shrubs within the building protection zone have no dead material within the plant;

- Trees in the Building protection zone have no dead material within the plant's crown or on the bole (tree trunk)
- Fences and sheds within the Building Protection Zone are to be constructed using non combustible materials (e.g. colourbond iron, brick, limestone);
- Branches, must be removed at least 2 metres back from the eaves of all buildings;
- All leaves, twigs, logs, branches must be removed from within the building protection zone. Annual falls of leaf litter must be raked up and removed or burnt.

6.0 FIRE FACILITIES.

6.1 Water for Firefighting

The site is to have mains water supply and fire hydrants are to be installed in accordance with the *Water Corporation's No 63 Water Reticulation Standard* and are to be identified by standard pole and/or road markings by the Developer.

6.2 Fire Service

The development is currently within the 'turn out' area for the Two Rocks Volunteer Bush Fire Brigades with a Fire and Rescue Service located in Hester Avenue, Butler. Provision for additional fire service for the area can be addressed under the Fire and Emergency Services Authority (FESA), 'Risk to Resources' modeling in consultation with the City of Wanneroo.

It may be necessary to relocate the current fire station to a more suitable site within this development and a piece of land for Emergency Service Use may need to be provided by the developer and vested in the City of Wanneroo. An area of between 2000-4000 sq metres would be required.

7.0 IMPLEMENTATION RESPONSIBILITIES

7.1 Developer's Responsibility

Prior to the issuing of Titles the developer shall be required to carry out works described in Section 5 and 6 of this Fire Management Strategy to the satisfaction of the City of Wanneroo and the Western Australian Planning Commission.

7.2 City of Wanneroo Responsibilities

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

The City of Wanneroo shall be responsible for:

- Developing and maintaining District Fire Fighting Facilities under its control.
- Maintaining in good order the condition equipment and apparatus for fire fighting purposes.
- Manage Public Open Space in accordance with the Fire Management Strategy.
- Monitor bush fuel loads in POS/Reserve sites and liaise with relevant stakeholders to maintain at safe levels and ensure compliance with the City of Wanneroo Firebreak Regulations.

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Disclaimer: The measures contained in this Fire Management Strategy 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.