

Bushfire Management Plan

South Alkimos

October, 2012

1. Introduction

1.1 *The purpose of this plan*

This Bushfire Management Plan sets out the background, principles and general commitments for bushfire management at the proposed residential and commercial development known as South Alkimos (“the property”) by LandCorp Lend Lease (“the developer”).

The purpose of this plan is to provide supporting information for the approval of the Local Structure Plan for the property.

The plan is prepared by Roger Underwood of York Gum Services, working for Roberts Day (“The Principal Consultant”).

1.2 *General description of the site and its local context*

The land involved comprises 224 hectares known as “South Alkimos” in the City of Wanneroo . The proposal is to subdivide the area into 2,129 lots with separate titles, ranging in size from 800 to 150 square metres. In addition to residential lots there are provision for two schools, a civic complex (including sports oval) and public open space.

Currently the land supports coastal heathland, patches of banksia woodland and occasional tuart trees on undulating coastal landform. This vegetation will be totally cleared before development commences, with the exception of strips of native vegetation retained on high dunes.

On the north eastern side, the property is adjoined by Marmion Avenue, beyond which will be a further residential development and a regional centre.

West of the property is the Indian Ocean. This will be separated from the proposed housing by a foreshore reserve, which is to be vested in the City of Wanneroo, and for which a separate management plan is to be prepared. To the north is a waste water treatment plant operated by the WA Water Corporation, surrounded by a strip of scrubland, approximately 500 metres in width, designated as a buffer zone to the waste water treatment plant.

The general geography of the area is shown in Figure 1.

1.3 Bushfire significance

The native vegetation of the property will be completely cleared before development, with the exception of one area of conservation POS located on the north-western portion of the LSP site.

The climate of the region is conducive to bushfire occurrence and spread every summer. There are strong winds most summer days, especially from the west and south-west in the afternoon. Strong northerly winds occur on occasions during every summer, associated with the inland movement of low pressure troughs.

Bushfires have occurred in the area in the past, lit by lightning, accident or arsonists, and are certain to occur in the future.

Residential and commercial development of this area must be based on the assumption that bushfires will occur on and near the site in the future and that their impact on key values of the property must be minimised.

1.4 The proposed development

A Local Structure Plan has been prepared over the site to facilitate the delivery of approximately 2400 lots, a primary school, two commercial area and POS.

1.5 Existing Approvals

Stage 1 of South Alkimos has an existing subdivision approval (WAPC Ref – 145429). This approval included a condition relating to setbacks and construction requirements for dwellings proposed adjacent to the waste water treatment plant buffer. In light of the above, the application area has been removed from this Bushfire Management Plan.

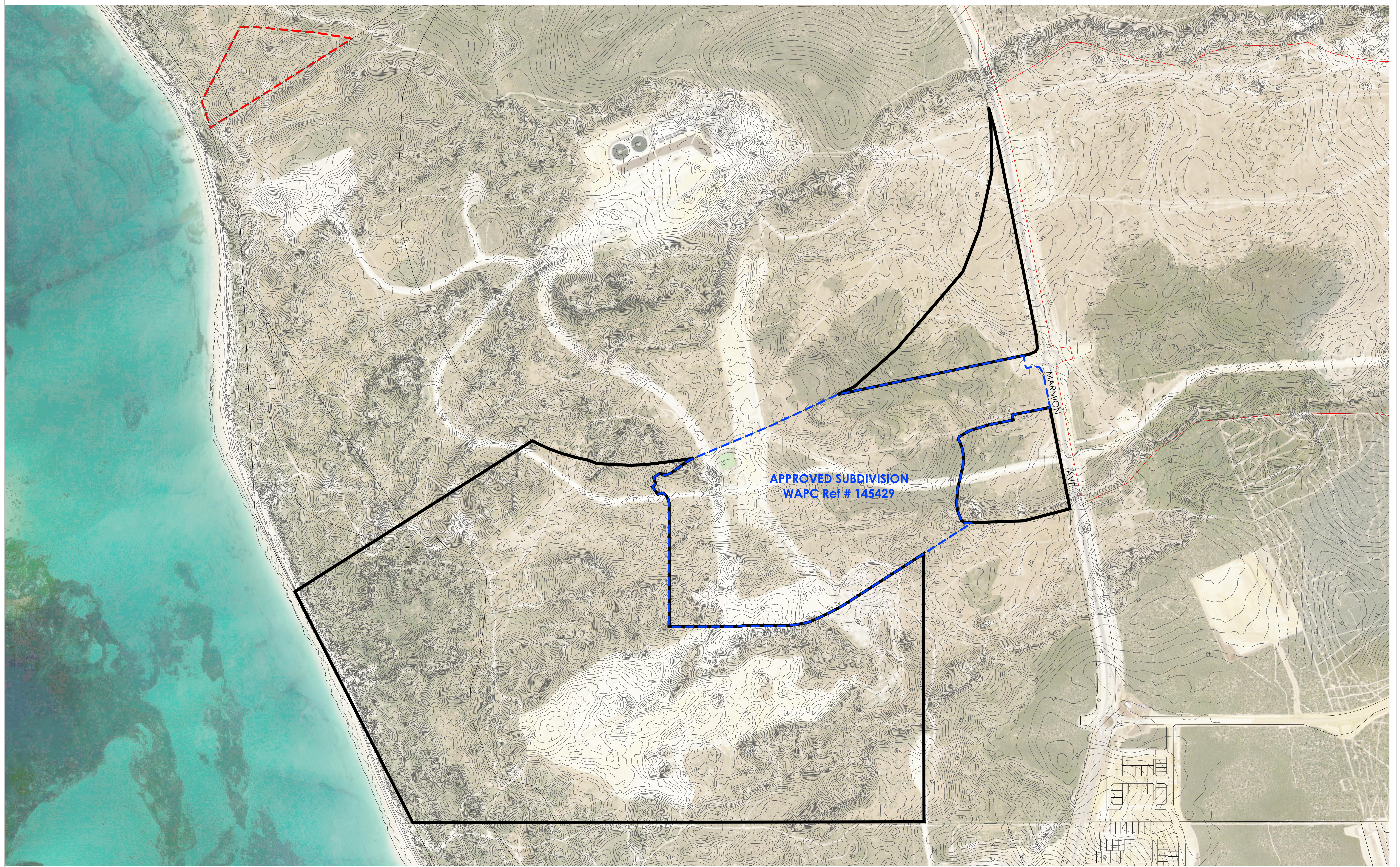
2. Principles underpinning bushfire management at the site

The developer has adopted the following principles to underpin bushfire management at this site:

- Bushfire threats will be identified in advance of development;
- Development planning will be undertaken in the light of an understanding of bushfire threats to human, economic and environmental values.
- A checklist will be provided showing compliance with the requirements set out in *Planning for bushfire protection Guidelines* – see appendix to this Management Plan

The developer recognises that the following values will be potentially threatened by bushfires at this site:

- **Human lives:** Approximately 1200 people could be resident on the site
- **Assets:** The development will contain houses, sheds, equipment, house contents and equipment and commercial premises.
- **Environmental values:** The site will have retained remnant bushland on the sand dunes system running through the property.



3. Bushfire Hazard Assessment

Sections of the property on which development will occur will be fully cleared of native bushland and therefore will have a zero bushfire hazard when the project commences. Adjoining bushland on the Wastewater Treatment Plant buffer is assessed as having an Extreme Bushfire Hazard. This area is vested with the Water Corporation. A separate environmental management plan has been prepared by Water Corporation for this area which, if implemented will minimise the risk of fires starting in the buffer zone and spreading into surrounding development. However, this bushfire management plan for Alkimos is prepared on the assumption that the fire hazard in the waste water buffer will remain high.

The strip of bushland reserved along the coast is assessed as having an Extreme Bushfire Hazard, as does the land to the south and east which will remain as bushland until developed for housing. This land will be a Low Bushfire Hazard once residential development is completed. Once this occurs this land will not represent a bushfire threat and construction requirements imposed in section 6.2 of this report will no longer be required. This issue is further discussed in section 6.2 below.

Conclusion: Following development the bulk of the property will not carry a running fire. Other areas would be vulnerable to ember attack from a high intensity fire in adjoining bushland.

4. Bushfire attack level (BAL)

All lots are assessed according to Table 2.4.3 of AS 3959-2009.

- The vegetation in this area is classified as “scrub”;
- Lots adjoining bushland will be level with or downhill of retained vegetation;
- A BAL of 19 is prescribed for all lots setback from bushland between 13 and 19 metres from retained vegetation;
- A BAL of 12.5 is prescribed for all lots between 19 and 100 metres of retained vegetation.

5. Fire detection and attack capability in the area

Rapid bushfire detection can be expected at this site due to the high resident and neighbouring populations, high vehicular use of Marmion Avenue.

Firefighters will be available from the local Bush Fire Brigade and DEC. It is expected that a uniformed FESA fire brigade will be established in the area following progressive urban development along Marmion Avenue currently underway.

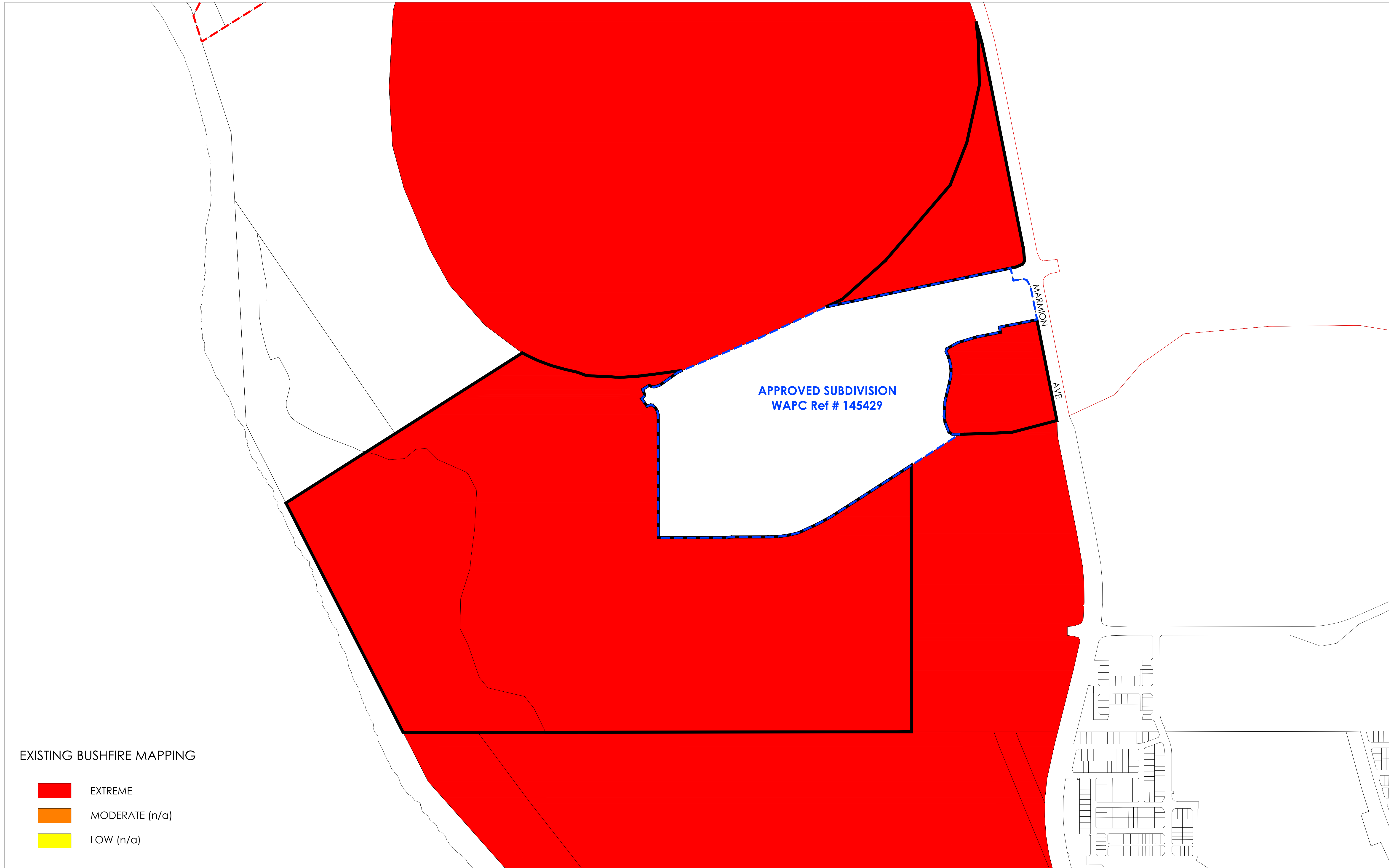
6. Measures to minimise the fire threat at the site

The developer undertakes to consider, and if practical to incorporate the following bushfire management measures at this site.

6.1 Compliance with planning requirements

This Bushfire management plan is based on the City of Wanneroo’s Specification D10 “Bushfire Protection” and Part 3 of the City’s “Bushfire Protection Requirements for Subdivision and Development

6.2 Protection of human lives and property



EXISTING BUSHFIRE MAPPING

- EXTREME
- MODERATE (n/a)
- LOW (n/a)

Subject Area

CADASTRAL INFORMATION
Source: Landgate WA
Date: Nov 2010
Accuracy: +/- 10mm
Projection: PCGS84
NOTE: Modified Nolan
transformed Landgate base data
from MGA50 to PCG94)



A based on DLL ALK RD 1009D
ISSUE DESCRIPTION

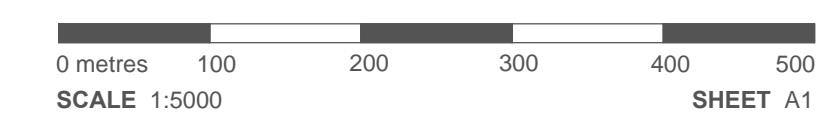
121012 MS DD
YYMMDD DRAWN APPVD

CLIENT
Lend Lease

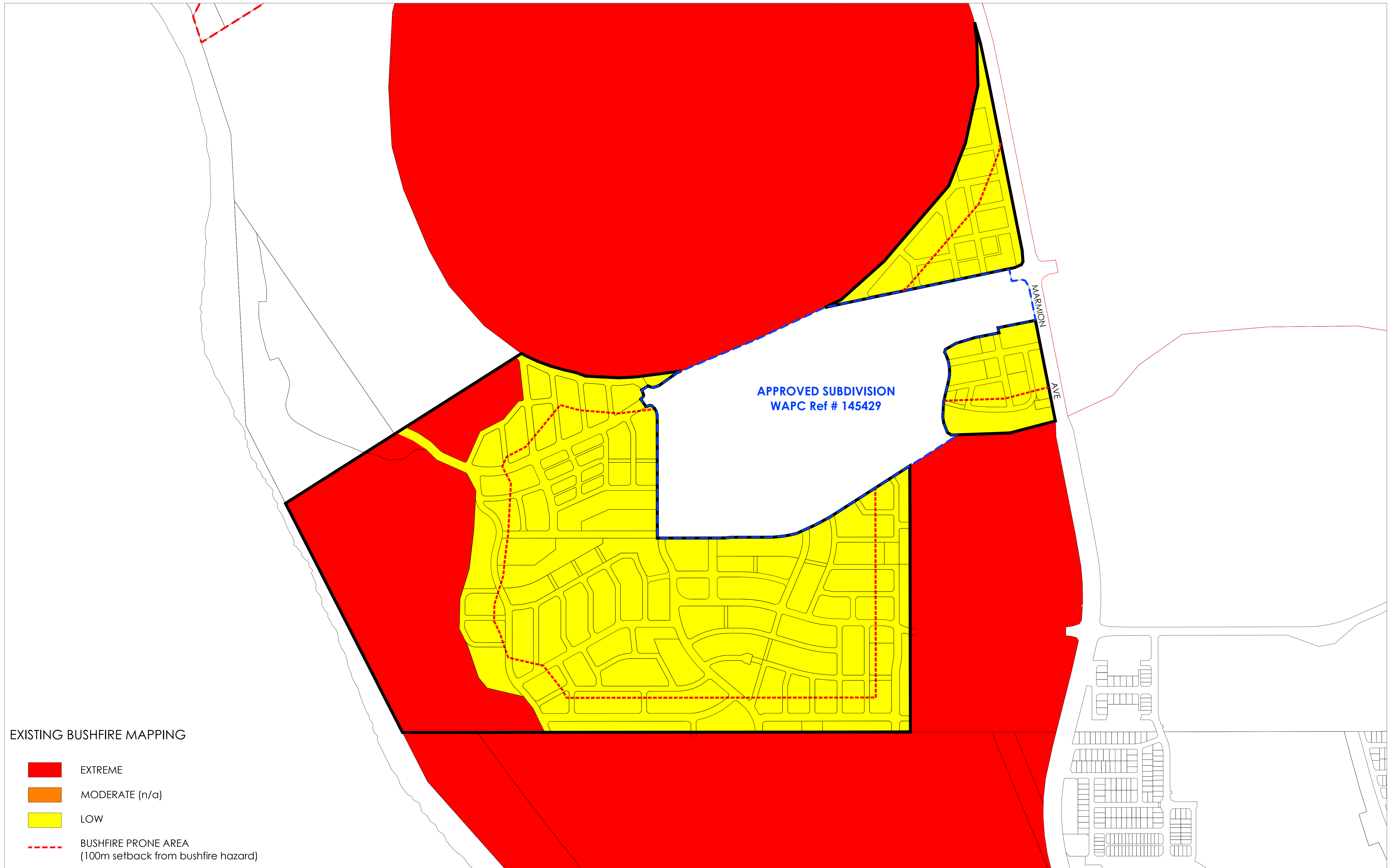
PROJECT
Designed by Lend Lease

DISCLAIMER: ISSUED FOR DESIGN
INTENT ONLY. ALL AREAS AND
DIMENSIONS ARE SUBJECT TO
DETAIL DESIGN AND SURVEY.

**Figure 2. Fire Management Risk Pre - Subdivision
South Alkimos (Pt Lots 9001 & 9002)
City of Wanneroo**



REFERENCE NUMBER	DRAWING NUMBER	ISSUE
DLL ALK	RD1 500	A



EXISTING BUSHFIRE MAPPING

- EXTREME
- MODERATE (n/a)
- LOW
- BUSHFIRE PRONE AREA
(100m setback from bushfire hazard)

APPROVED SUBDIVISION
WAPC Ref # 145429

MARMION
AVE



**Figure 3 - Fire Management Risk Post-Subdivision
South Alkimos (Pt Lots 9001 & 9002)
City of Wanneroo**

The following measures will be adopted to protect, as far as is possible, the lives of residents and their assets from bushfire damage in this development:

(i) **For Lots with a BAL 19**

For all lots identified as having a BAL of 19 (shown in orange on Figure 4), a notification in the form of a section 70A notification, pursuant to the Transfer of Land Act 1893 (as amended) is to be placed on the Certificates of Title.

The notification will advise of the existence of this Bushfire Management Plan and will require:

(i) the dwelling on the lot to be 13 metres from the edge of the vegetation; and (ii) houses constructed on these lots must comply with Section 3 and 6 of Australian Standards AS 3959-2009 (“Construction of Houses in Bushfire-prone Areas”).

(ii) **For lots with a BAL 12.5**

For all lots identified as having a BAL of 12.5 (shown in yellow on Figure 4), a notification in the form of a section 70A notification, pursuant to the Transfer of Land Act 1893 (as amended) is to be placed on the Certificates of Title.

The notification will advise of the existence of this Bushfire Management Plan and will require houses constructed on these lots to comply with Section 3 and 5 of Australian Standards AS 3959-2009 (“Construction of Houses in Bushfire-prone Areas”).

(iii) In addition to the requirements identified in Sections 3, 5 and 6 of AS 3959-2009 the developer will advise all lot owners for lots that are located within 100 metres of the Alkimos Wastewater Treatment Site Buffer, that houses on these lots should have enclosed eaves and no gaps between rafters; that rotary roof ventilators be fitted with metal gauze spark screens with a maximum aperture size of 1.8 mm; and roof-mounted evaporative air conditioners have the openings to the cooling unit fitted with metal gauze spark guards.

(iv) The developer will provide a copy of the Bushfire Management Plan and a copy of the document “Homeowners Bushfire Survival Manual Guidelines” to each initial lot purchaser for the lots adjacent to bushland.

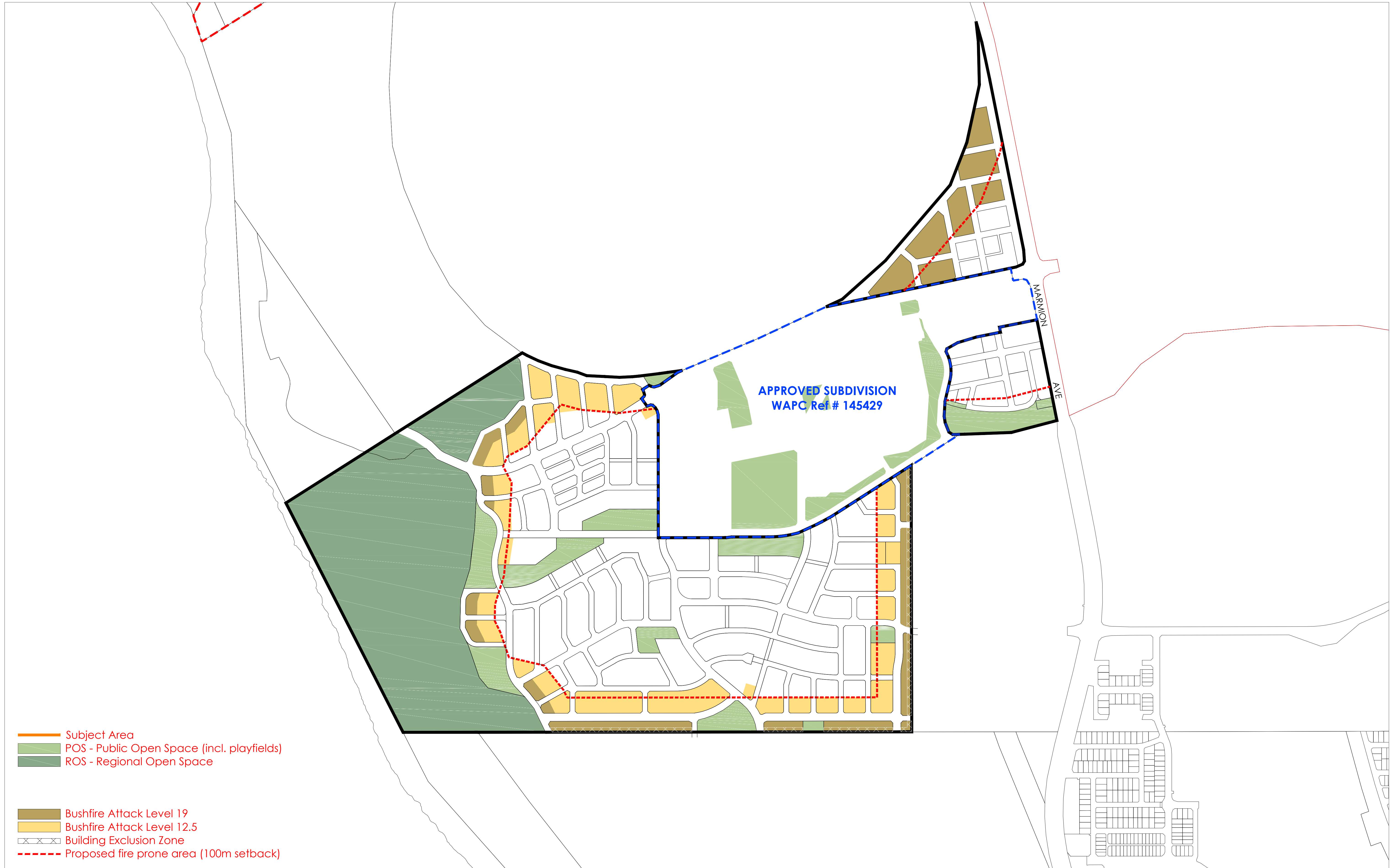
Note: Bushland adjoining Alkimos on the eastern and southern boundaries are also zoned to be developed for residential development and have approved/pending Local Structure Plans over them. If this occurs in advance of the Alkimos development, the fire threat in this area will be minimised. Once this land has been cleared/developed it will be necessary to review this management plan and the construction requirements set out above for lots on the eastern and southern sides of the Alkimos area.

6.3 Hazard management

The developer will fully clear all lots in advance of development, and undertakes to control weeds or regrowth on unsold lots during the development phase.

6.4 Access and egress

There will be high quality access/egress on sealed roads provided to every lot, thus permitting two-way movement of vehicles in an emergency, and rapid ingress for fire appliances. Every lot owner will have egress on sealed roads to Marmion Avenue and to future residential developments to the north and south.



- Subject Area
- POS - Public Open Space (incl. playfields)
- ROS - Regional Open Space

- Bushfire Attack Level 19
- Bushfire Attack Level 12.5
- Building Exclusion Zone
- Proposed fire prone area (100m setback)

Subject Area



Figure 4 - Bushfire Attack Levels
South Alkimos (Pt Lots 9001 & 9002)
City of Wanneroo

6.5 Firebreaks

There will be a sealed road separating lots from retained bushland.

6.6 Water supply

Reticulated scheme water will be available to every lot on the site.

Fire hydrants meeting FESA specifications will be installed every 200 m along the internal road system, and designated by standard markings.

6.7 Power supply

The developer will arrange for all lots to be supplied with electric power. All powerlines within the site will be underground.

6.8 Fire safer area

The developer will designate the primary school football oval (an open irrigated grass area) as a “fire safer area”, and will erect signs to this effect within the development area. Lot owners will be advised that in the event of a large, regional bushfire impacting on the site, they should gather at the fire safer site, where it will be possible to activate the sprinkler system, thus providing a high degree of safety.

Alternatively there will be access through the foreshore reserve to the beach.

6.9 Home Owners Association/Bushfire Ready Group

The developer will recommend to residents that they form, and will assist in the setting up of a “Bushfire Ready Group”. This will comprise residents who will:

- Promote high standards of bushfire preparedness at the site, including implementation of the Bushfire Management Plan; and
- Liaise with the Water Corporation to ensure Water Corporation maintains a responsible program of bushfire management on the bushland of the buffer to the Alkimos Water Treatment Plant.
- Liaise with the City of Wanneroo regarding management of the foreshore reserve, in particular the maintenance of access.

7 Developer Responsibility

The developer accepts responsibility for preparing and implementing this Bushfire Management Plan for the site as part of the development of a subdivision proposal

8. Disclaimer

The Consultant preparing this Preliminary Bushfire Management Plan takes no responsibility for the impacts of a future bushfire on any values at the Alkimos residential subdivision. He has done his best in this strategy to alert residents to the threat of bushfires, and to suggest measures to minimise these threats and potential bushfire damage, but there may occur an unusual combination of events or human actions or lack of actions which could not reasonably have been expected at the time of preparing the Plan. The Consultant takes no responsibility for the standard of bushfire preparedness or damage mitigation undertaken by lot owners in the future.

Appendix

Compliance checklist for performance criteria and acceptable solutions for bushfire management at Alkimos

Based on Appendix 4 from *Planning for Bushfire Protection*

Element 1: Location

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

Yes The land on which houses will be constructed will be fully cleared of vegetation and replaced by houses and urban gardens. A very small proportion of the area will be bushland retained on the dune system running through the property.

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P1 for this area of non-compliance, and attach this explanation to the rear of this checklist.

Element 2: Vehicular access

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

Yes There will be multiple points of access and egress on fully engineered surfaced roads

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P2 for this area of non-compliance, and attach this explanation to the rear of this checklist.

Element 3: Water

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

Yes **The development will be fully serviced with reticulated pressurised water**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P3 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P3 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P3 for this area of non-compliance, and attach this explanation to the rear of this checklist.

Element 4: Siting of development

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

No There will be no dwellings on lots on which the native bushland is retained. Some dwellings will be within 100 m of the bushland on the Water Corporation buffer zone, and appropriate specifications are prescribed for these areas.

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P4 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

As no bushland will be retained on the lots, no building protection zones will be required

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P4 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes BPZ and hazard reduction zones are not required

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P4 for this area of non-compliance, and attach this explanation to the rear of this checklist.

Note: Please indicate the extent of the building protection zone on the plans submitted.

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

Not Applicable.

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P4 for this area of non-compliance, and attach this explanation to the rear of this checklist.

Note: Please indicate the extent of the hazard separation zone on the plans.

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

Yes Not applicable

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P4 for this area of non-compliance, and attach this explanation to the rear of this checklist.

Note: Please provide details of the proposed shielding to be implemented as part of the development.

Element 5: Design of development

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

Yes **The design is compliant with Elements 1-4.**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P5 for this area of non-compliance, and attach this explanation to the rear of this checklist.

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

Yes **Not applicable**

No

If no, please explain in writing how the proposal satisfactorily complies with performance criterion P5 for this area of non-compliance, and attach this explanation to the rear of this checklist.

Applicant Declaration

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

Full name: **Roger John Underwood**

Applicant signature:



Date: October 11 2012