



Smith Bushfire Consultants Pty Ltd

BUSHFIRE MANAGEMENT PLAN

Stage 1, Lot 9000 (No 99) Reef Break Drive, Two Rocks

City of Wanneroo



Prepared by Ralph Smith
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Site visited 1 March 2022; Report completed 20 April 2022

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address:

Site visit: Yes No

Date of site visit (if applicable): Day Month Year

Report author:

WA BPAD accreditation level (please circle):

Not accredited Level 1 BAL assessor Level 2 practitioner Level 3 practitioner

If accredited please provide the following.

BPAD accreditation number: Accreditation expiry: Month Year

Bushfire management plan version number:

Bushfire management plan date: Day Month Year

Client/business name:

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?		<input checked="" type="checkbox"/>
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?		<input checked="" type="checkbox"/>

	Yes	No
Is the proposal any of the following (see SPP 3.7 for definitions)?		
Unavoidable development (in BAL-40 or BAL-FZ)		<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)		<input checked="" type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)		<input checked="" type="checkbox"/>
High risk land-use		<input checked="" type="checkbox"/>
Vulnerable land-use		<input checked="" type="checkbox"/>

None of the above

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications [E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.]?

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author

Date

NOTE

This Bushfire Management Plan has been developed by Smith Bushfire Consultants Pty Ltd for the exclusive use of the client, The Reef Two Rocks Pty Ltd, via Macbrusa Pty Ltd and Shane MacDermott and their agents.

The plan has been compiled using the standard methodologies required by Western Australian government departments and agencies. It is based on the following:

- *State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)*, December 2015
- *Guidelines for Planning in Bushfire Prone Areas V1.4*, December 2021
- *Australian Standard 3959 – Construction of buildings in bushfire-prone areas (incorporating amendments 1, and 2)*, November 2018

The techniques described in the above publications have been applied in the appropriate areas and circumstances for the development of this document.

Where there was no public access the interpretation is based on photographic and satellite imagery, and a laser distance meter was used to measure distances and effective slope.

It is recommended that this Bushfire Management Plan be revised every five years to ensure that it remains relevant and in-line with current requirements. This will optimise protection. It is proposed that the property owners undertake the review.

DISCLAIMER

This Bushfire Management Plan has been prepared in good faith. It is derived from sources believed to be reliable and accurate at the time of publication. Nevertheless, this plan is distributed on the terms and understanding that the author is not responsible for results of any actions taken based on information in this publication or for any error or omission from this publication.

Smith Bushfire Consultants Pty Ltd has exercised due and customary care in the preparation of this Bushfire Management Plan and has not, unless specifically stated, independently verified information provided by others.

Any recommendations, opinions or findings stated in this report are based on circumstances and facts as they existed at the time Smith Bushfire Consultants Pty Ltd performed the work. Any changes in such circumstances and facts upon which this document is based may adversely affect any recommendations, opinions or findings contained in this plan.

Document control

Report Version	Purpose	Author/reviewer and accreditation details	Date Submitted
1	Supporting document for the subdivision	Ralph Smith	21 March 2022
1.1	Revised development boundary	Ralph Smith	8 April 2022
1.2	Revised development boundary	Ralph Smith	20 April 2022

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Section 1: Proposal Details

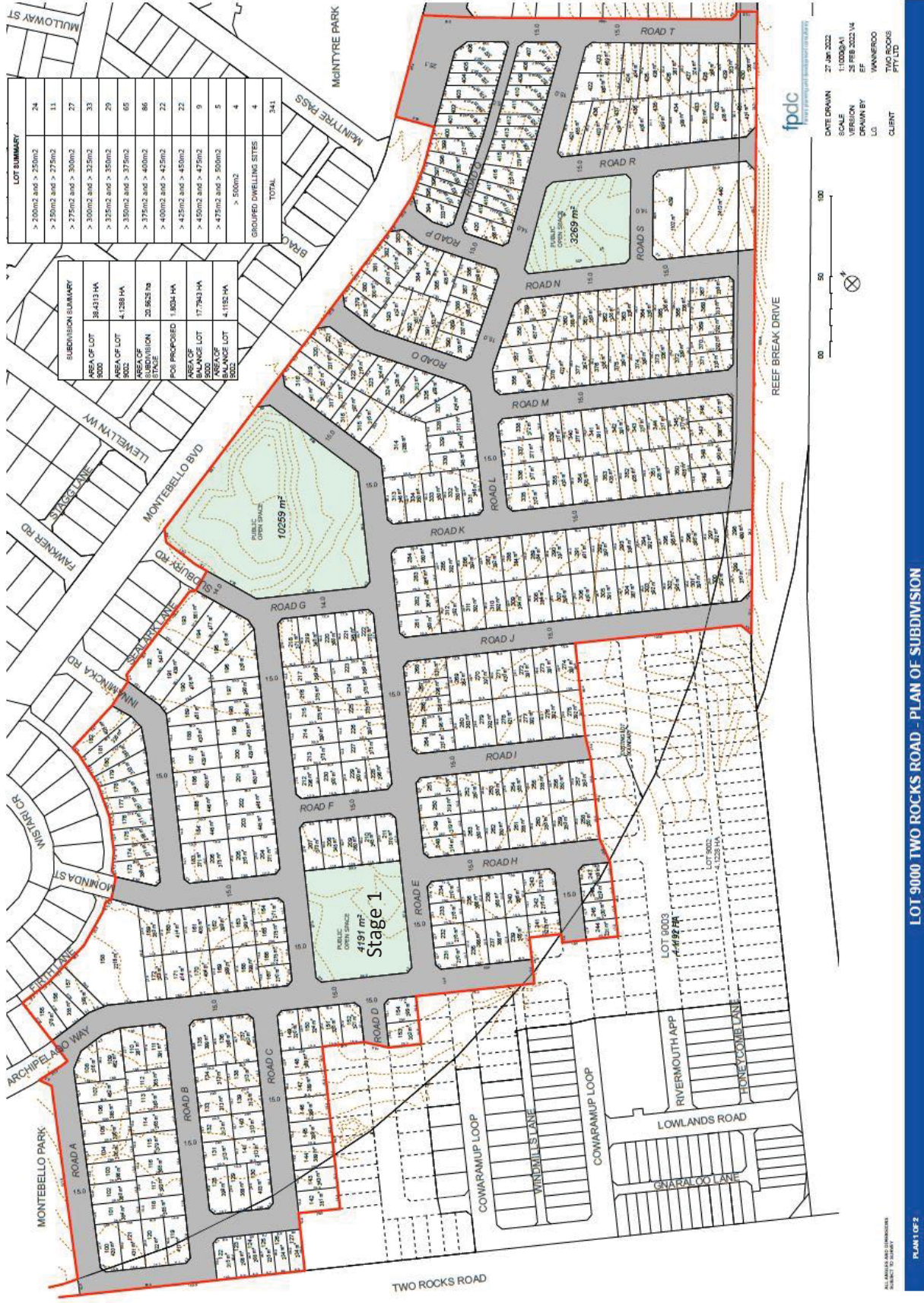


Figure 1. The site plan as provided with the development application.

The proposal is to create Stage 1 of a new subdivision, which has been expanded in area through a land exchange. This subdivision is located very close to other recently subdivided areas. The area is primarily designated as bushfire prone. The subdivision site is not entirely cleared, but does have large areas cleared and appears to have been utilised in the past for raw material extraction. The vegetation on the development site is primarily shrubland, that is, vegetation which is less than two metres tall. There are forest areas that were planted in the 1980s.

The subdivision has now been expanded to include an area on the southern boundary of the original development area, in the Windmills Lane area.

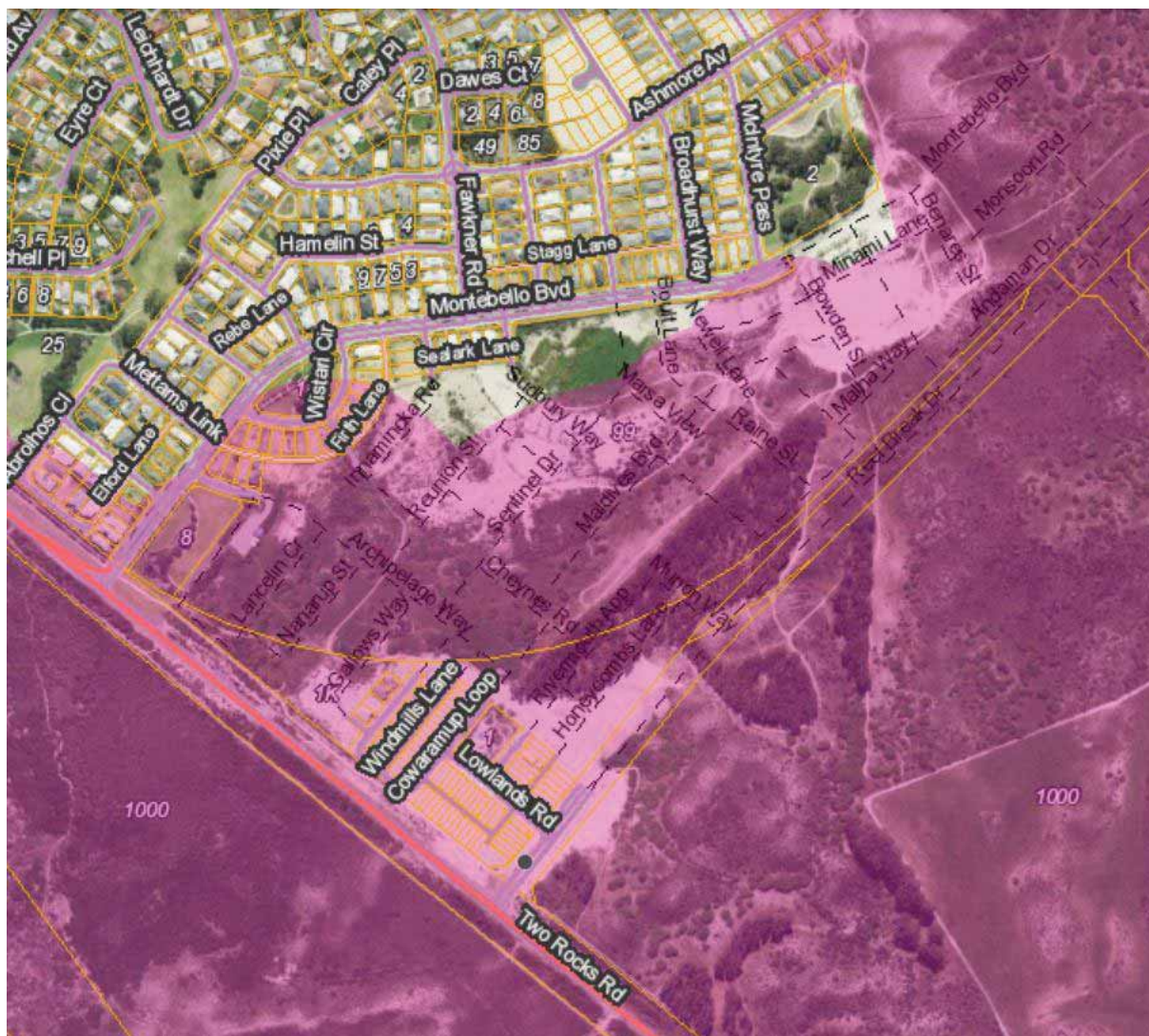


Figure 2. Aerial photo of the bushfire prone area for the subject site.

The entire Stage 1 area is not declared as bushfire prone and therefore AS 3959 construction standards are not triggered and do not apply in the area not declared as bushfire prone.

Section 2: Environmental Considerations

This site is a mixture of being entirely cleared and other areas being shrubland, with some pockets of planted eucalypts. The roads and other infrastructure need to be constructed.

The State Planning Policy 3.7 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values. A desktop search has identified that the following are not registered for the development site or immediately surrounding area:

- Threatened and priority flora;
- Threatened and priority fauna;
- Contaminated site registration;
- Clearing Regulation – Environmental Sensitive Areas;
- Black Cockatoo breeding sites, buffered; and
- Carnaby Cockatoo confirmed roost sites.

Subsection 2.1: Native Vegetation – modification and clearing

There is a need for clearing of native vegetation associated with this subdivision. The previous sixteen lot subdivision to the south of this development has been included into the Stage 1 development and includes the appropriate vegetation classification and BAL Contour Map to accurately reflect the potential bushfire threat to the dwellings that will be constructed within the Stage 1 development.

Subsection 2.2: Re-vegetation/Landscape Plans

There are no specific revegetation plans associated with this subdivision at this stage, although public open spaces have been identified and assumed to be developed to align to the 'low threat vegetation' criteria within AS 3959.

Section 3: Bushfire assessment results

Subsection 3.1: Assessment Inputs

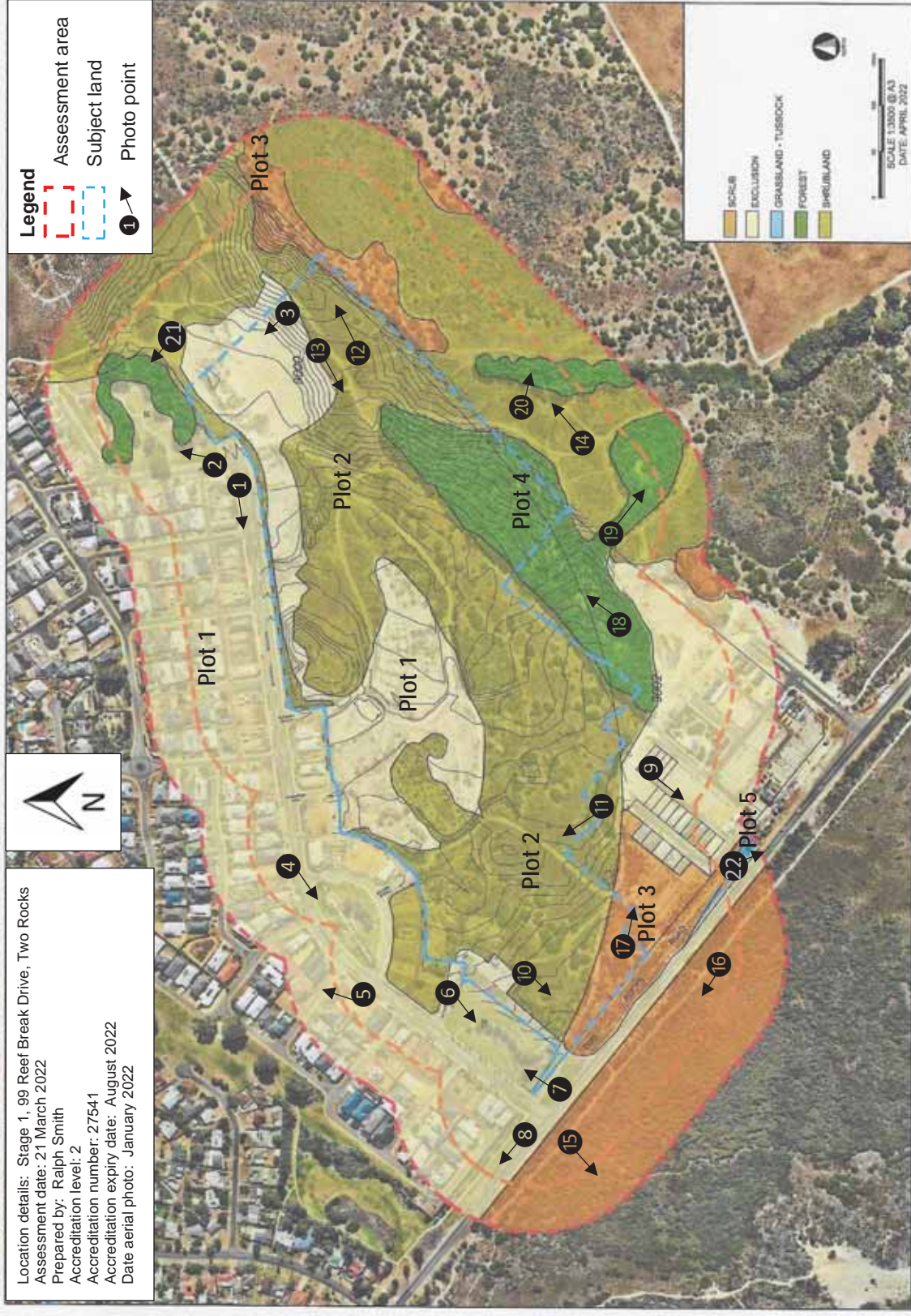


Figure 3. Pre-development vegetation classification map.

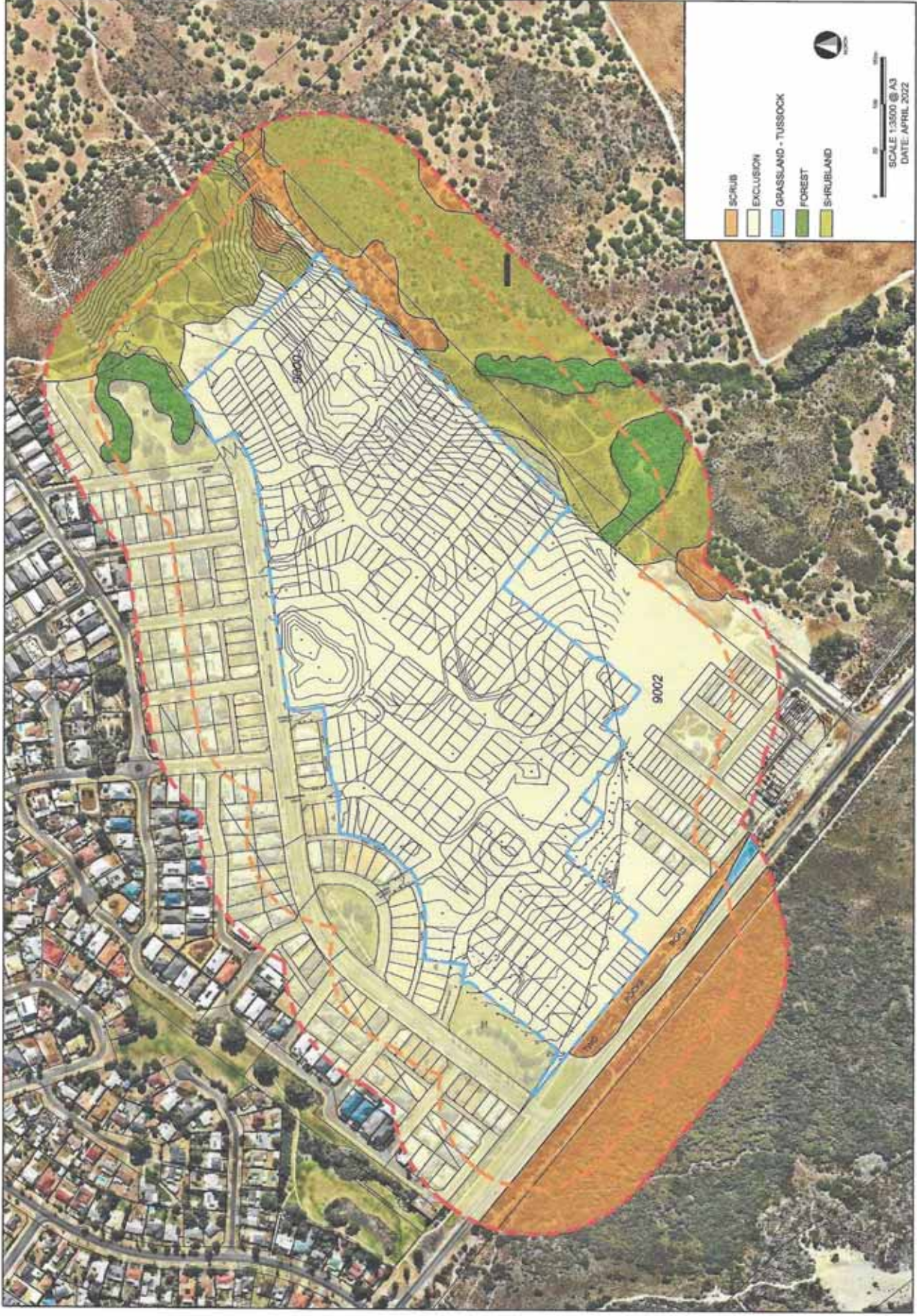
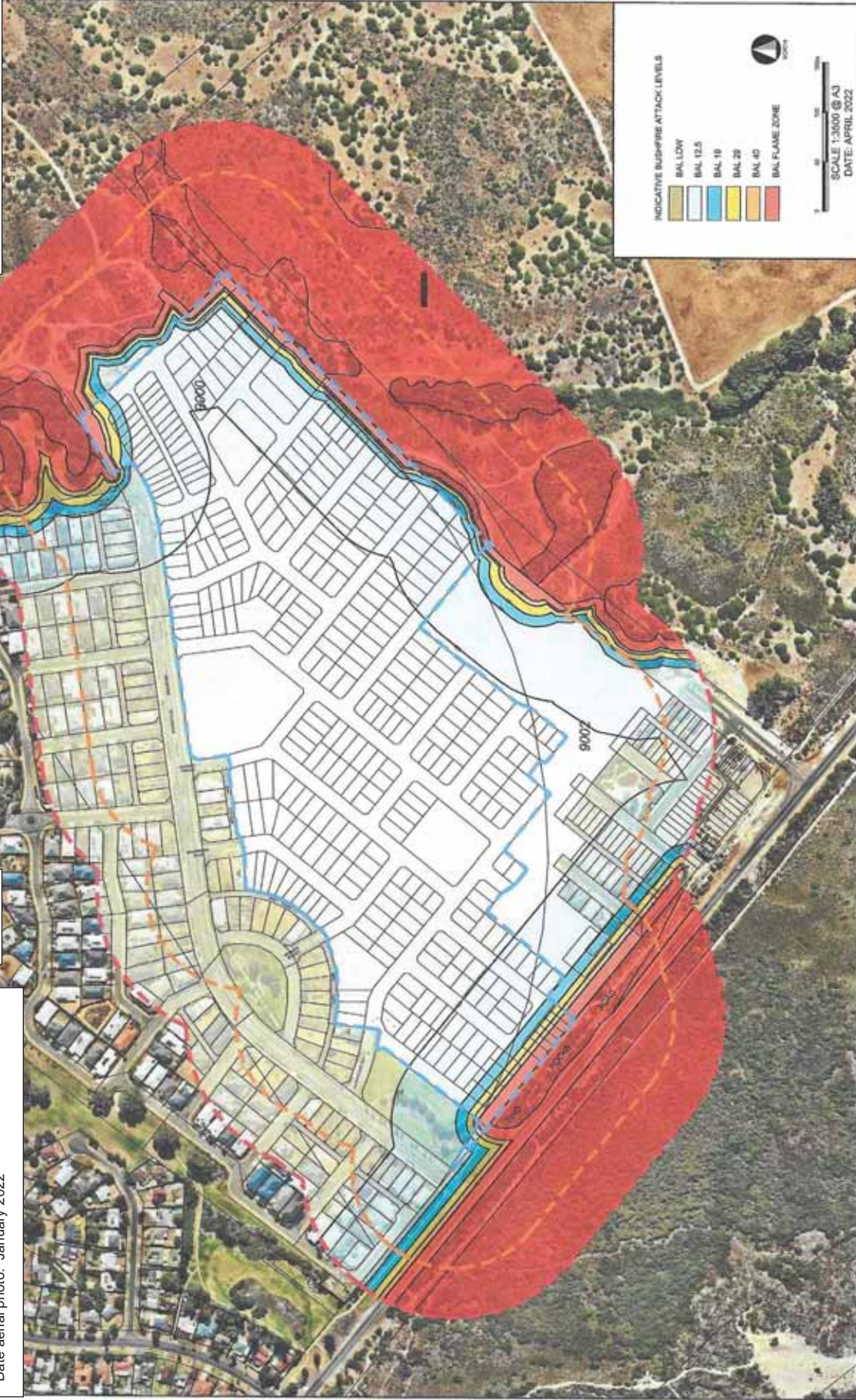


Figure 4. Post-development vegetation classification map.

Location details: Stage 1, 99 Reef Break Drive, Two Rocks
 Assessment date: 21 March 2022
 Prepared by: Ralph Smith
 Accreditation level: 2
 Accreditation number: 27541
 Accreditation expiry date: August 2022
 Date aerial photo: January 2022



Legend
 Assessment area (dashed red line)
 Subject land (dashed blue line)



INDICATIVE BUSHFIRE ATTACK LEVELS
 BAL LOW
 BAL 12.5
 BAL 19
 BAL 29
 BAL 40
 BAL FLAME ZONE

SCALE 1:3000 @ A3
 DATE: APRIL 2022

Figure 5. BAL contour map.

Plot 1
Exclusion
Clause 2.2.3.3 (e) and (f)



Photo ID: Photo 1 The established suburb north of the development site.



Photo ID: Photo 2 The established POS in the suburb.



Photo ID: Photo 3 The cleared land on the development site.



Photo ID: Photo 4 The POS managed grassland and low threat area adjacent to Montebello Blvd.



Photo ID: Photo 5 The established suburb adjacent to the development site.



Photo ID: Photo 6 The POS north of the development site.



Photo ID: Photo 7 The POS managed vegetation.



Photo ID: Photo 8 The managed vegetation in the POS and road reserve, with scrub on the left of the photo.



Photo ID: Photo 9 The exclusion area south of the development site.

Plot 2

Class C – Shrubland (AS 3959 vegetation classification C – 10)



Photo ID: Photo 10 The shrubland vegetation.



Photo ID: Photo 11 The shrubland vegetation on the development site.



Photo ID: Photo 12 The shrubland vegetation on the development site.



Photo ID: Photo 13 The shrubland vegetation, cleared land and forest in the background.



Photo ID: Photo 14 The shrubland vegetation south of the development site.

Plot 4

Class D – Scrub (AS 3959 vegetation classification D – 13)



Photo ID: Photo 15 The scrub vegetation west of the development site.



Photo ID: Photo 16 The scrub vegetation west of the development site.



Photo ID: Photo 17 The scrub vegetation south of the development site.

Plot 3

Class A – Forest (AS 3959 vegetation classification A – 03)



Photo ID: Photo 18 The forest vegetation east of the development site.



Photo ID: Photo 19 The forest vegetation.



Photo ID: Photo 20 The forest vegetation east of the shrubland and development site.

Plot 5

Class G – Grassland (AS 3959 vegetation classification G – 21)



Photo ID: Photo 21 The grassland vegetation between the subdivision site and Two Rocks Road.

Slope

The orange lines on the slope aerial shows the surface slope.



Figure 7. Contour map of the subdivision site and surrounding area.

Subsection 3.2: Assessment outputs

Method 1 BAL Determination				
Vegetation Area/Plot	Applied Vegetation Classification	Effective Slope Under the Classified Vegetation (degrees)	Separation Distance to the Classified Vegetation (metres)	Bushfire Attack Level
1	Exclusion	Not applicable	Not applicable	LOW
2	Scrub	Level and upslope	52	12.5
3	Shrubland	Upslope	12	29
4	Forest (plantation)	Level and upslope	12	FZ
5	Grassland	Downslope	>50	LOW
Determined Bushfire Attack Level				

Note

The slope and distance in the above table are to the closest vegetation from the development site boundary.

Section 4: Identification of bushfire hazard issues

The most significant bushfire hazard to this development is the scrub vegetation to the south-west. This large tract of vegetation and land is separated from the development by Two Rocks Road and an earlier development to the east of Two Rocks Road. The prevailing summer winds for the area are westerly winds.

The old eucalypt plantation with grass surface vegetation poses a similar bushfire threat as the mixed grass and low shrubland areas, instead of the more complex multi-tiered scrub understorey normally found in a forest vegetation area.

By constructing to the appropriate construction standard as described in AS 3959 will ensure the optimum level of protection from a bushfire.

Section 5: Assessment against the Bushfire Protection Criteria

Subsection 5.1: Compliance

Bushfire protection criteria	Method of Compliance	Proposed bushfire management strategies
	Acceptable solutions	
Element 1: Location	A1.1 Development location	This development will be developed in such a manner that on completion it will be in the main at BAL-29 or less. Lots that are rated above BAL-29 will not be offered for sale until the BAL rating is reduced. This will occur when other stages of the development occur. There will not be any APZ required on these lots.
Element 2: Siting and design	A2.1 Asset Protection Zone (APZ)	
Element 3: Vehicular access	A3.1 Two access routes.	There are multiple access options that facilitate movement to a range of alternative locations and directions of travel. There will be a substantial through road network as a component of this development.
	A3.2 Public road	All public roads will be constructed to the appropriate standards as required in the Guidelines.
	A3.3 Cul-de-sac (including a dead-end-road)	There will be no dead-end roads in the subdivision that exceed the requirements in the Guidelines.
	A3.4 Battle-axe	Not applicable.
Element 4: Water	A3.5 Private driveway longer than 50m	Not applicable.
	A3.6 Emergency access way	Not applicable.
	A3.7 Fire service access routes (perimeter roads)	Not applicable.
	A3.8 Firebreak width	Firebreaks will be established and maintained in accordance with the City's firebreak and fuel load notice.
	A4.1 Reticulated areas	The site will be serviced with reticulated mains water in accordance with the State Government requirements.
	A4.2 Non-reticulated areas	Not applicable.
	A4.3 Individual lots within non-reticulated areas (Only for use if creating 1 additional lot and cannot be applied cumulatively)	Not applicable.

Subsection 5.2: Additional management strategies



Legend

- 1. Subject land ---
- 2. Cadastre ---

Notes

1. AS 3959 construction standards apply to most of the development area. Not all of the site is declared bushfire prone.
2. The site will have reticulated mains water supply.
3. Scrub and shrubland are a significant vegetation that provide an ongoing bushfire threat.
4. The forest plots have a grass surface vegetation.
5. Forest vegetation to be removed.
6. Scrub vegetation to be removed as a component of this subdivision.

Location details: Stage 1, Reef Break Drive, Two Rocks
 Local government area: City of Wanneroo
 Assessment date: 21 March 2022
 Prepared by: Ralph Smith
 Accreditation level: 2
 Accreditation number: 27541
 Accreditation Expiry Date: August 2021
 Date of Aerial photo: January 2022
 Version No: 1.2

Figure 8. Spatial representation of the bushfire management strategies.

Section 6: Responsibilities for Implementation and Management of the Bushfire Measures

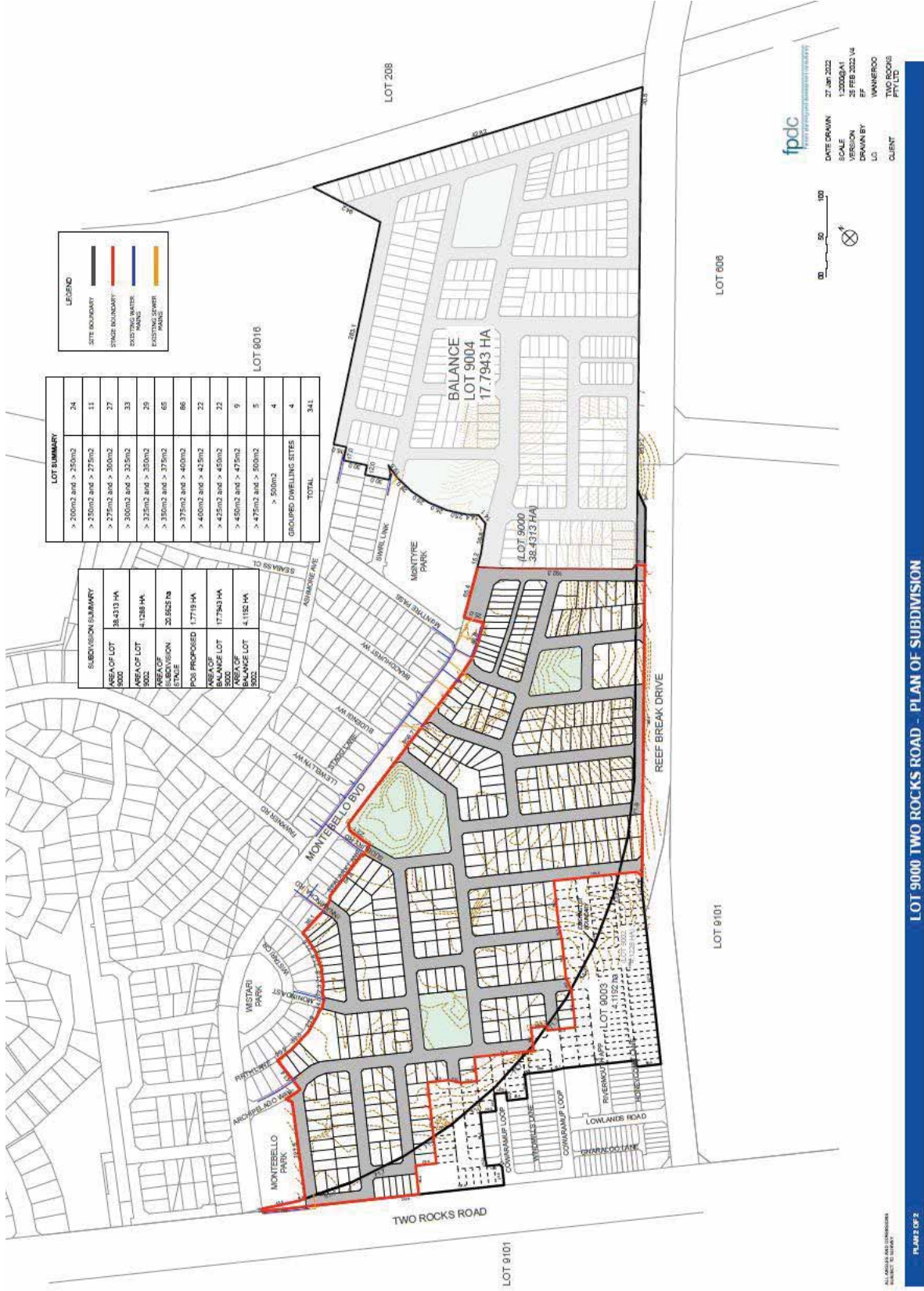
DEVELOPER/LANDOWNER – PRIOR TO SALE OR OCCUPANCY	
No.	Implementation Action
1	Install the access ways, and associated signs to the City's standards.
2	Install the required water supply that meets the State Government's specifications.
3	All dwellings in the declared bushfire prone area are to be constructed to the appropriate AS 3959 standards.
4	<p>A notification pursuant to Section 165 of the <i>Planning and Development Act 2005</i>, is to be placed on the certificate(s) of title of the proposed lot(s) with a Bushfire Attack Level (BAL) rating of 12.5 or above, advising the existence of a hazard or other factor.</p> <p>Notice of this notification is to be included in the diagram or plan of survey (deposited plan).</p> <p>The notification is to state as follows:</p> <p><i>"This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and is subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land"</i> (Western Australian Planning Commission).</p>
5	The developer is to provide a copy of the BMP to future lot purchasers in the area declared as bushfire prone.
6	Develop the POS as 'low threat vegetation' as defined in AS 3959.

LANDOWNER/OCCUPIER – ONGOING MANAGEMENT	
No.	Management Action
1	Comply with the relevant local government annual firebreak and fuel load notice issued under s33 of the Bush Fires Act 1954.
2	Maintain the dwelling to ensure that it complies with the AS 3959 standards.

CITY OF WANNEROO – ONGOING	
No.	Management Action
1	Publish and enforce the annual firebreak notice issued under s33 of the Bush Fires Act 1954.
2	Maintain the POS areas as 'low threat vegetation' as defined in AS 3959.
3	Maintain the public roads to the required standard.

Appendix 1

Showing the bitumen roads that provides multiple entry and exit options and destinations associated with Stage 1.



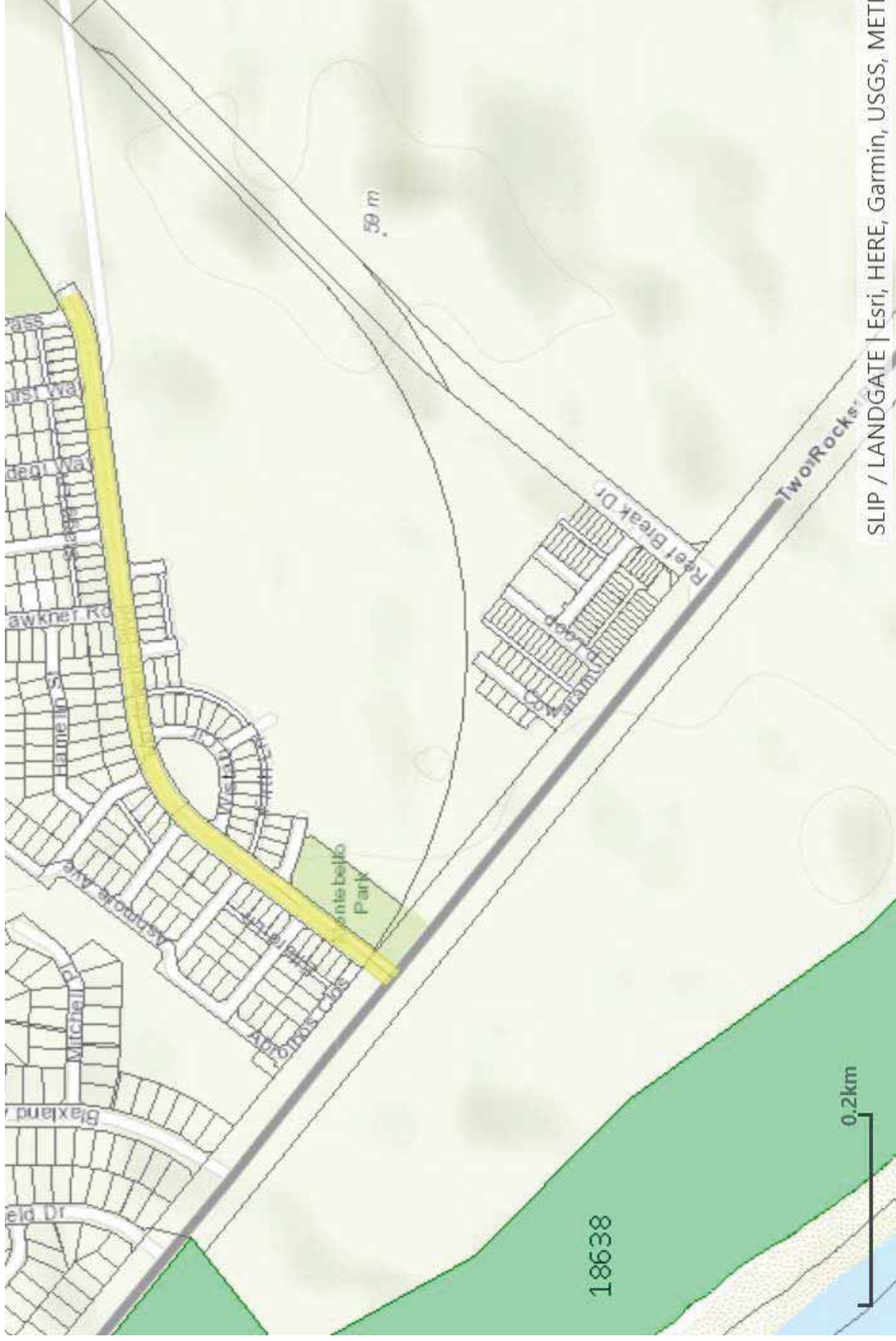
Appendix 2

Map of the current fire hydrants which are north and south-west of the Stage 1 development site.



Appendix 3

Map showing the Clearing Regulations: environmentally sensitive areas. Note the environmentally sensitive areas are well separated from the development site.



References

Australian Building Codes Board, (2019). *Building Code of Australia*. Australian Building Codes Board, Sydney

Near map from <http://maps.au.nearmap.com/>

Slope percentage to degrees conversion from <https://www.calcunation.com/calculator/slope-percent-conversion.php>

Landgate (Slip), (2022). *Map of Bushfire Prone Areas*.

Retrieved 21 March 2022 from <https://maps.slip.wa.gov.au/landgate/bushfireprone/>

Standards Australia. (2018). *Australian Standard 3959 – Construction of buildings in bushfire-prone areas*. Standards Australia, Sydney, NSW.

Western Australian Planning Commission. (2015). *State Planning Policy 3.7 – Planning in Bushfire Prone Areas*. Western Australian Planning Commission, Perth, WA.

Western Australian Planning Commission. (2021). *Guidelines for Planning in Bushfire Prone Areas*. Western Australian Planning Commission, Perth, WA. December 2021

Hydrant, environmental and conservation values from <https://espatial.dplh.wa.gov.au/PlanWA/Index.html?viewer=PlanWA>