

APPENDIX 4

# BUSHFIRE MANAGEMENT PLAN

(SMITH CONSULTING)

# **SMITH CONSULTING**

## **Bushfire Consultants**

# **BUSHFIRE MANAGEMENT PLAN**

**Lot 23 (No 198) Mary Street, Wanneroo**

City of Wanneroo



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Site visited 22 July 2019; Report completed 26 August 2019

## NOTE

This Bushfire Management Plan has been developed by Smith Consulting for the exclusive use of the client, Charles Johnson, Context Planning.

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*, December 2017
- Australian Standard 3959 – Construction of buildings in bushfire-prone areas, November 2018
- Standard fuel load field data collection methods and conversion to a fuel load applicable for the appropriate fire spread models.

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 the effective slope has been determined through Near Maps.

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 Consulting 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 Consulting 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	Support the application for a change in land use	R Smith	31/07/2019
1.1	Addition of the revised layout and Environmental Report information	R Smith	26/08/2019

## 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 type="checkbox"/>	<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 type="checkbox"/>	<input checked="" type="checkbox"/>

Is the proposal any of the following (see [SPP 3.7 for definitions](#))?

	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

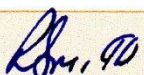
None of the above

**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

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## Section 1: Proposal Details

The current zoning of the Bridgeleigh Reception Centre is Rural Resources under the City of Wanneroo Town Planning Scheme No 2 (TPS 2) resulting in a very limited range of permitted or discretionary uses and these relate to agricultural pursuits.

The operation of a Reception Centre is not a permitted use and the current activity has a *non-conforming use class status* allowing the ongoing operation of the facilities with limited expansion rights. In order to allow for other uses to occur on the site ahead of the eventual rezoning of the locality to urban purposes it will be necessary to seek an amendment to TPS 2. The simplest and most acceptable way of doing this is to request that the City amend Schedule 2 of TPS 2 by adding one or two additional uses. TPS 2 provides through Clause 3.20 that;

*Notwithstanding anything contained in Table 1, the land specified in Section 1 of Schedule 2 may be used for the specific use or uses that are listed in addition to any uses permissible in the zone in which the land is situated subject to the conditions set out in Schedule 2 with respect to that land.*

It is proposed that the City be requested to initiate an amendment to TPS 2 which adds the Retirement Village as an additional use along with the Reception Centre. This would allow for some form of retirement housing to be developed on the site with supporting facilities. The Centre could continue to offer some limited publicly accessible community-orientated function facilities.

East Wanneroo has now been designated *Urban Deferred* in the Metropolitan Region Scheme (MRS) and the next stage in the planning process is the release of a *Draft District Structure Plan (DPS)* for public comment. It is believed that this occurred in March 2019 and that it was proposed that the overall area would be released for urban development in stages through the lifting of urban deferred in a logical sequence as services are provided based on agreed *Local Structure Plans and Developer Contribution Schemes*. It is expected that the process of land development will take place over a 20–30 year period with the first stages most likely starting in the north near to the Wanneroo Town Centre. It is considered that the processing of an amendment to TPS No 2 for Bridgeleigh should not be in any way connected to this overall planning process as it is not dependent on it. An amendment to TPS No 2 is a completely separate matter and can be justified on its own merits. The repurposing of the site is however considered to be entirely consistent with the future urban development of the general locality.

The Environmental Report undertaken by Bowman & Partners has identified that the lot in *its original condition the native vegetation would have consisted of Banksia Woodland (likely FCT 28), however its removal from the majority of the site by clearing for the reception centre facilities and extensive manicured gardens (sic), and the significant degradation of understorey vegetation and tree loss which has occurred over time and as a result of fuel reduction for fire control in the balance of the land, enables the remnant areas of native tree over-storey to be mapped as degraded, this means that remanet vegetation is not captured by patch and condition criteria set down in Commonwealth technical advice in regard to the Threatened Ecological Community type “Banksia Woodlands of the Swan Coastal Plain. On the basis of these findings, it may be concluded that there are no environmental constraints to development of the land as proposed.”*

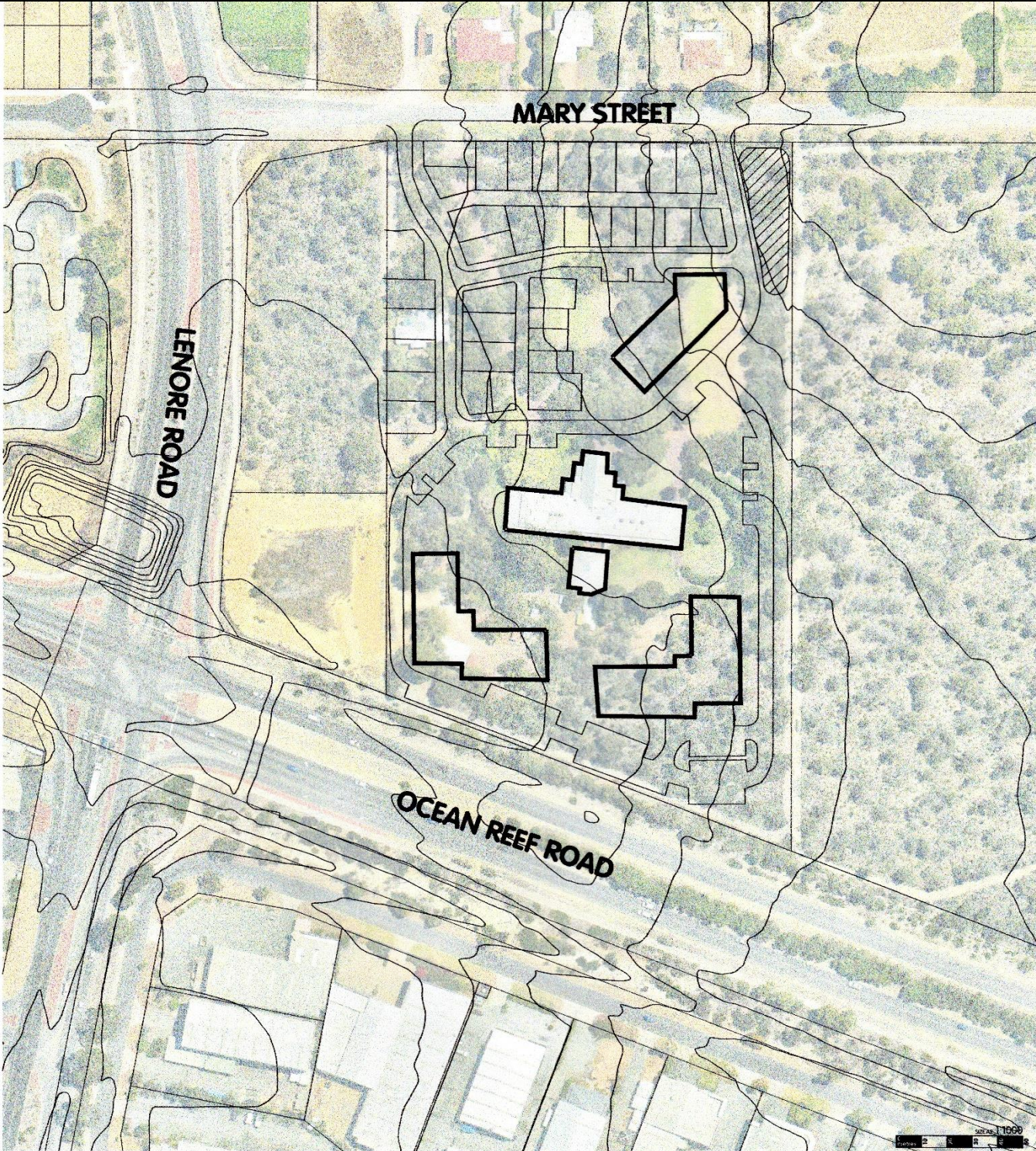


Figure 1: Copy of preliminary strategic planning proposal.

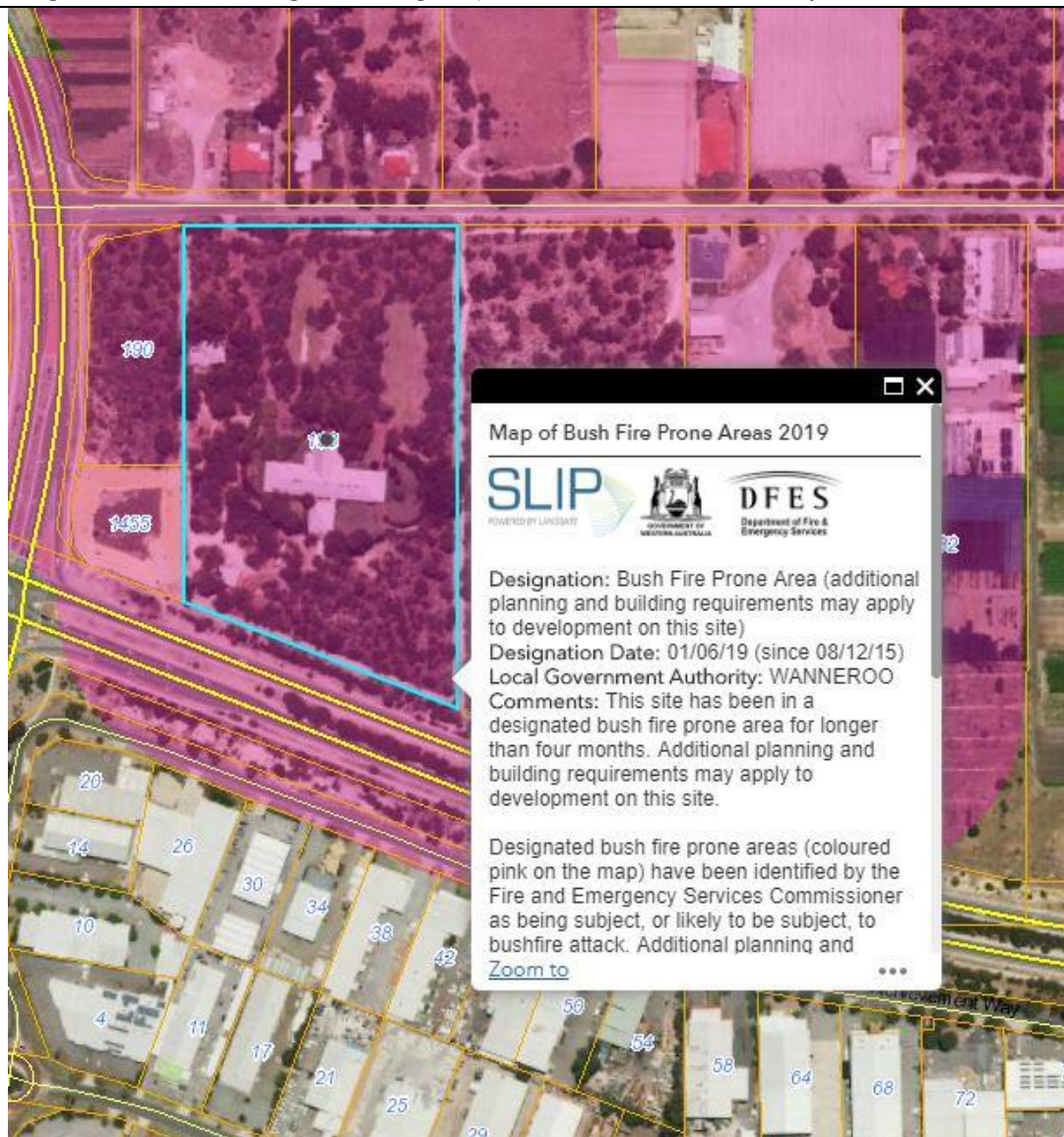


Figure 2: Map of Bushfire Prone Areas for subject site.

## Section 2: Environmental Considerations

The development site contains significantly modified vegetation and a number of buildings. The development site has areas of reticulated lawns and gardens. Some of the reticulated lawns are used as parking for the event participants and are linked to the bitumen driveway. The site's Banksia woodland area has recently been burnt, which reduces the potential fire behaviour if a bushfire was to occur.

### Subsection 2.1: Native Vegetation – modification and clearing

The development site will basically require clearing to facilitate the development, and additionally, so that it meets the State's Guidelines to provide an appropriate level of bushfire protection to any future buildings.

### Subsection 2.2: Revegetation/Landscape Plans

It is proposed to only revegetate any portion of the site requiring revegetation with 'low threat vegetation' such as reticulated and managed gardens and lawn. Any revegetation that is undertaken on the site will not increase the BAL rating on the buildings.



**Section 3: Bushfire Assessment Results**

**Subsection 3.1: Assessment inputs**

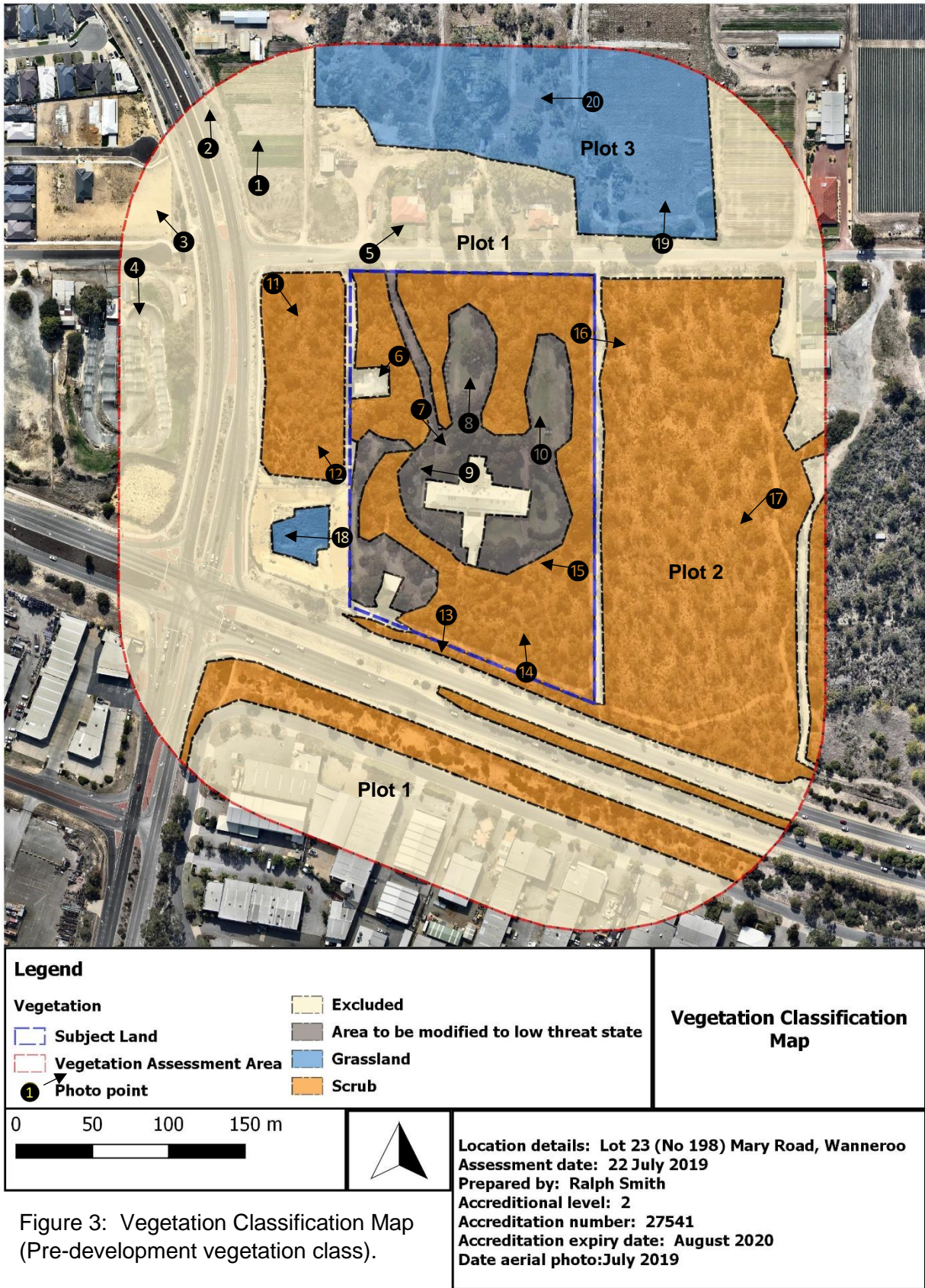


Figure 3: Vegetation Classification Map (Pre-development vegetation class).

## Vegetation Classification

All vegetation within 150 metres of the proposed development as indicated on the site assessment plan was classified in accordance with the Western Australian Government criteria and Clause 2.2.3 of AS 3959 was applied. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below. AS 3959 only requires consideration of 100 metres between vegetation and the building and 50 metres for grassland.

### Plot 1

Exclusion – Low threat vegetation and non-vegetated areas, and includes modified to low threat state vegetation required by the City’s firebreak order Clause 2.2.3.2 (e) and (f)



Photo ID: Photo 1 Looking north towards the market garden.



Photo ID: Photo 2 Looking north along Leonore Road at road and houses.



Photo ID: Photo 3 Looking at the housing west of Leonore Road.



Photo ID: Photo 4 Looking at the BMX facility west of Leonore Road.



Photo ID: Photo 5 Looking at the house and yards on Mary Street.



Photo ID: Photo 6 Looking at the dwelling on the lot and the associated 'managed low threat vegetation'.



Photo ID: Photo 7 Looking towards the reception building and managed to low threat vegetation.



Photo ID: Photo 8 Looking at the reticulated lawn and paved area.



Photo ID: Photo 9 Looking at the 'managed to low threat vegetation'.



Photo ID: Photo 10 Looking at the reticulated grassland and paved path and building.

**Plot 2**

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



**Photo ID: Photo 11** Looking at the scrub vegetation to the west of the development site.



**Photo ID: Photo 12** Looking at the scrub vegetation.



**Photo ID: Photo 13** Looking at the scrub vegetation south of Ocean Reef Road.



**Photo ID: Photo 14** Looking at the scrub which has been recently burnt, and is south of the reception building



**Photo ID: Photo 15** Looking at the scrub vegetation.



**Photo ID: Photo 16** Looking at the scrub vegetation east of development site.



**Photo ID: Photo 17** Looking at the scrub vegetation on the neighbouring property to the east.

**Plot 3**  
Class G – Grassland (AS 3959 classification G – 21)



**Photo ID: Photo 18** Looking at the grassland in the base of the water sump west of the development site.



**Photo ID: Photo 19** Looking at the grassland north of the development site



**Photo ID: Photo 20** Looking at the grassland north of the development site.

## Notes to Accompany Vegetation Classification

### 1. Plot 1

Exclusion – Low threat vegetation and non-vegetated areas  
 Clause 2.2.3.2 (e) and (f)

This plot comprises the houses, sheds, gardens and infrastructure surrounding the proposed ‘change of land use’ site. The site is within a well established suburb with all of the normal amenities such as roads, mains reticulated water, and other associated infrastructure. There are also many isolated pockets of vegetation that are cultivated and managed, such as the market gardens. The areas required to be managed in the APZ and other areas that are required to be compliant with the City’s firebreak order.

### 2. Plot 2

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

This plot comprises the *Banksia spp.* that is within, and on the west, south and east of the lot. This scrub is a large contiguous area that is extensive to the east. It should be noted that AS 3959 now classifies *Banksia* woodland as scrub, and as such is in conflict with the Commonwealth technical advice in regard to the Threatened Ecological Community type “*Banksia* Woodlands of the Swan Coastal Plain” which classifies it as a woodland.

### 3. Plot 3

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

This plot comprises the grassland west and north east of the ‘change of land use’ site. This plot of grassland in the north-east is a large contiguous plot. It is separated from the ‘change of land use’ site by an exclusion area of 19 metres which also includes Mary Road.

Plot	Vegetation Classification	Effective Slope Degrees	Bushfire Hazard Level
1	Exclusion	0	Low
2	Scrub	0	Extreme
3	Grassland	0	Moderate

## Slope

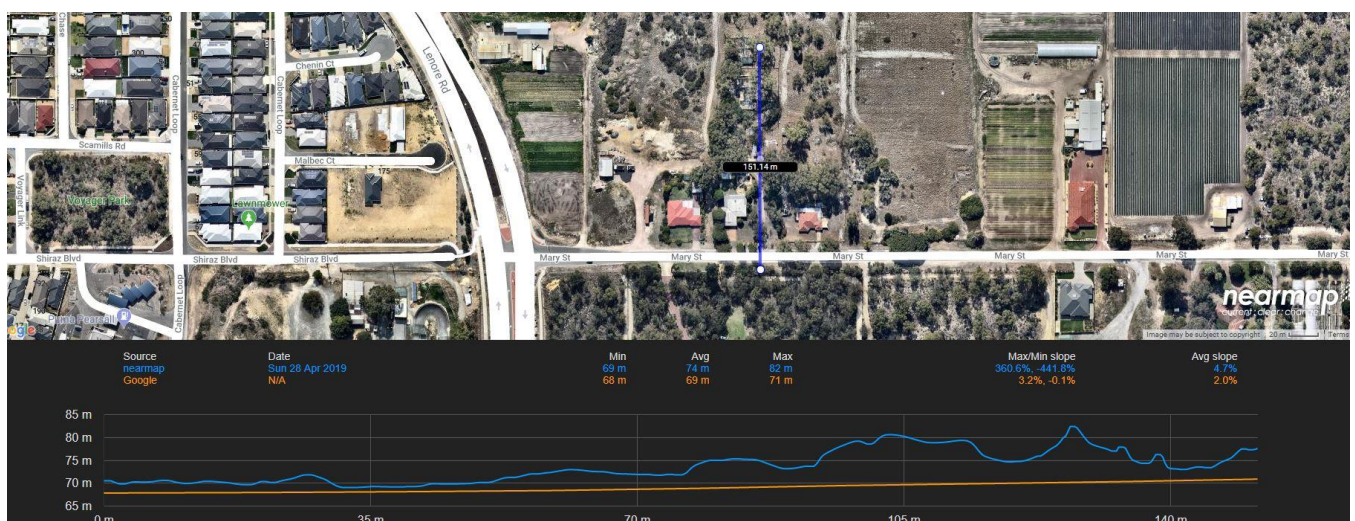


Figure 4: Slope under vegetation to the north (upslope 1.15°).

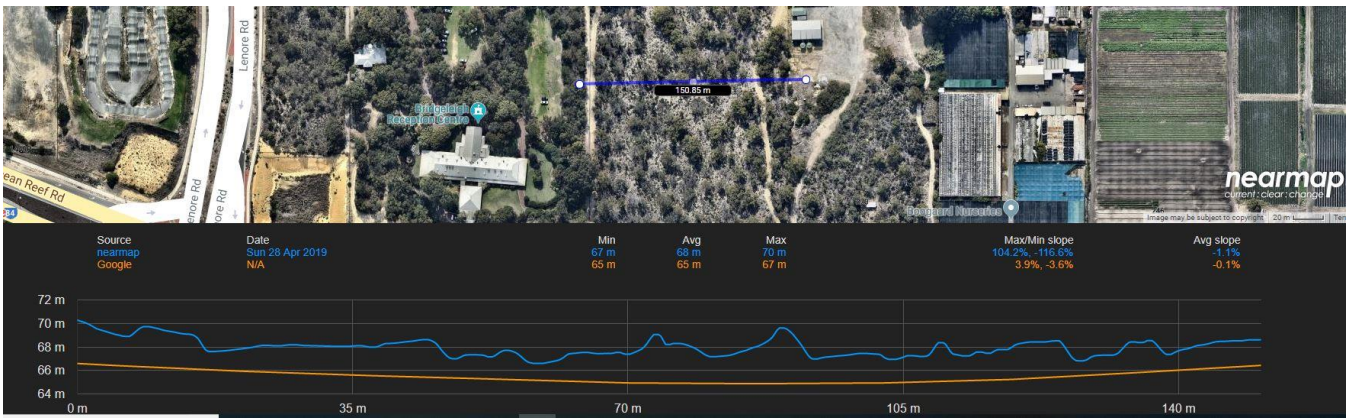


Figure 5: Slope under vegetation to the east (0.06°).

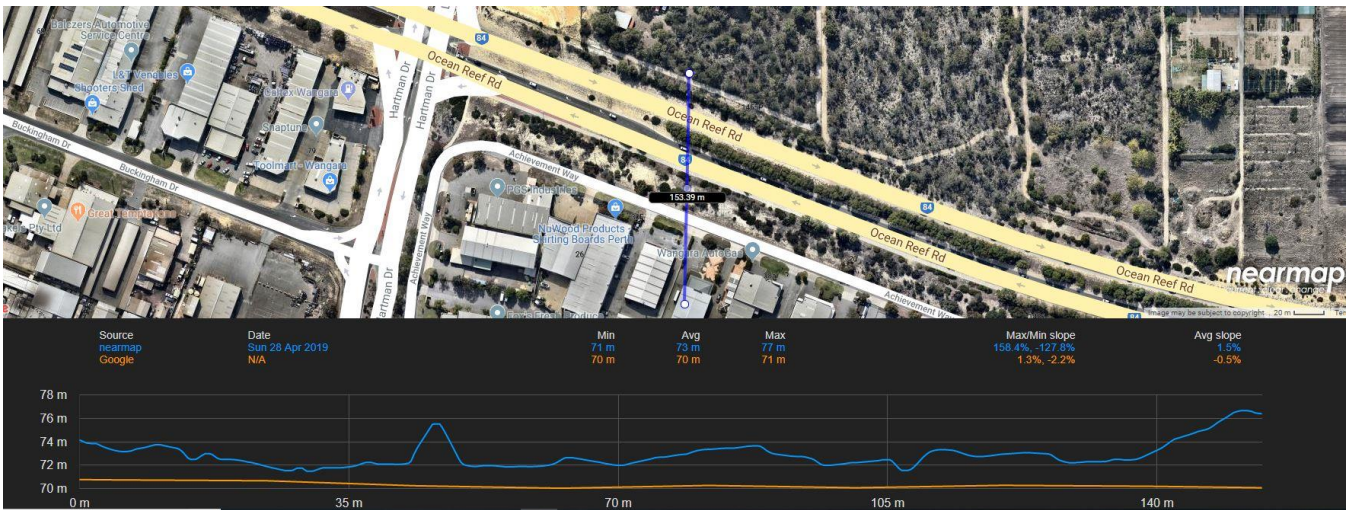


Figure 6: Slope under vegetation to the south (0.29°).

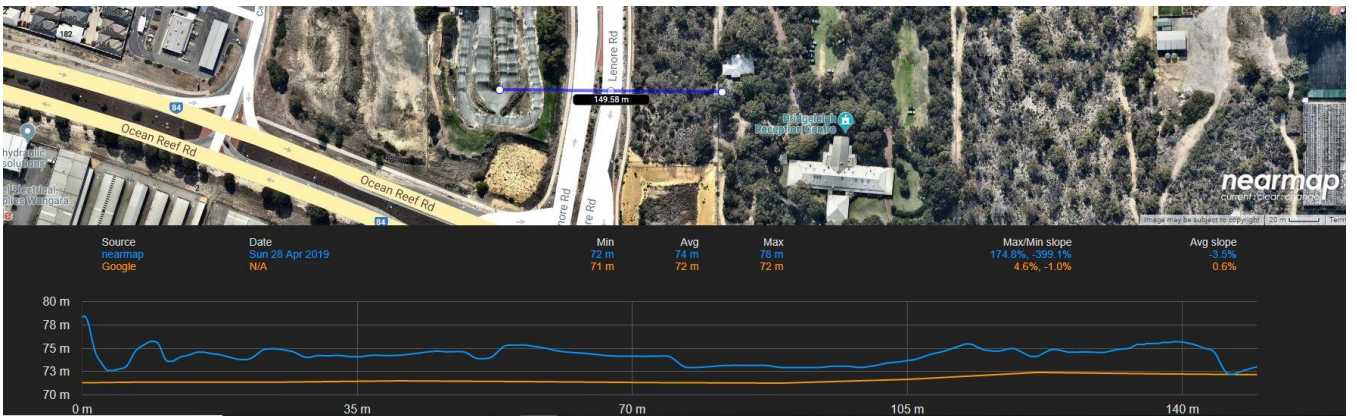


Figure 7: Slope under vegetation to the west (0.34°).

The slope under the vegetation is effectively flat.

**Subsection 3.2: Assessment outputs**



Figure 8: Pre-development BHL assessment.



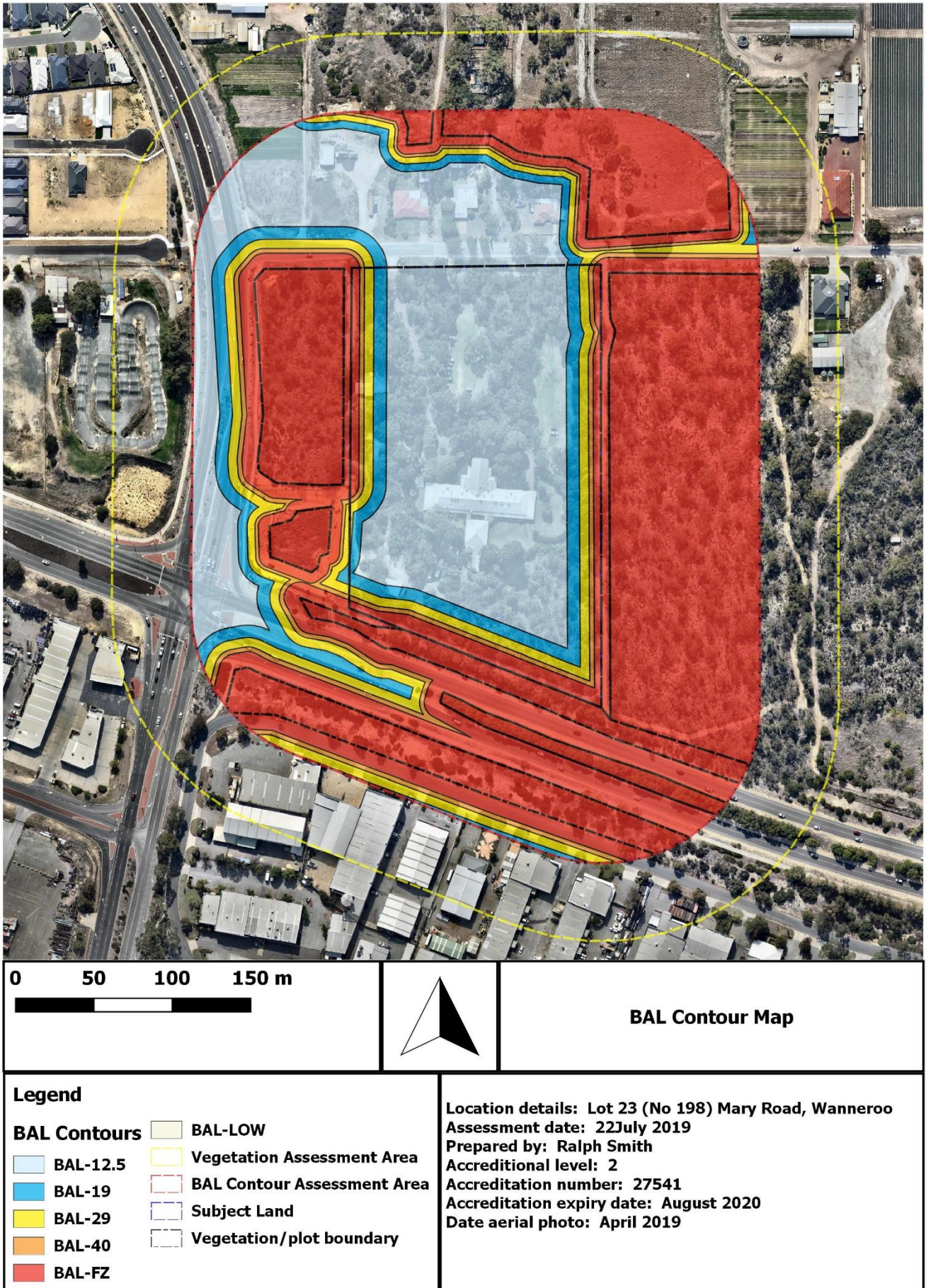


Figure 9: Post-development BAL Contour Map.

**Section 4: Identification of bushfire hazard issues**



**Legend**

- Subject Land
- 150 m assessment area
- Sealed road
- Development / Hazard Interface
- Vegetation to be modified
- Extreme bushfire hazard area Extreme bushfire hazard area
- Access from Mary Road, onto Leonore Road, and Ocean Reef Road

Figure 10: Issues Plan.

**Section 5: Assessment against the bushfire protection criteria**

Bushfire protection criteria	Method of Compliance	Proposed bushfire management strategies
	Acceptable solutions	
<b>Element 1: Location</b>	A1.1 Development location	The proposed relocated building envelope will be developed in such a manner that on completion it will be at a maximum of BAL-29.
<b>Element 2: Siting and design</b>	A2.1 Asset Protection Zone (APZ)	There is no formal requirement that a 20 metre APZ is required surrounding the building envelope.
<b>Element 3: Vehicular access</b>	A3.1 Two access routes.	Mary Street provides multiple access options that facilitate movement to a range of alternative locations and directions of travel.
	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)	Not applicable.
	A3.4 Battle-axe	Not applicable.
	A3.5 Private driveway longer than 50 m	Not applicable.
	A3.6 Emergency access way	Not applicable.
	A3.7 Fire service access routes (perimeter roads)	Not applicable. However, there will be firebreaks maintained as required in the City's firebreak and fuel load notice.
	A3.8 Firebreak width	Firebreaks will be established and maintained in accordance with the City's firebreak and fuel load notice.
<b>Element 4: Water</b>	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

### Section 5.2: Additional management strategies

Internal firebreaks will be maintained in accordance with the City’s firebreak order. There will be roads constructed between the neighbouring vegetation and the buildings where practicable to create an increased separation, and potential heat flux onto the buildings. The vegetation within the site will be managed so that it complies with the AS 3959 – 2018 definition of low threat vegetation. All buildings will be located on the site so that the BAL rating is a maximum of BAL-29 or less.

### Section 6: Responsibilities for Implementation & 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 standards stated in the Guidelines.
2	Establish the water reticulation system and associated infrastructure, including hydrants at the prescribed standard
3	Ensure that any Class 1, 2 or 3 buildings that are built on the property are designed and constructed in full compliance with the requirements of the City of Wanneroo and as detailed in <i>Australian Standard 3959 – Construction of buildings in bushfire-prone areas</i>
4	Develop any future public open space as ‘low threat vegetation’.
5	Place a notification on title pursuant to <i>section 165A of the Planning and Development Act 2005</i> on lots affected by a BAL rating of 12.5 or higher that advises that the lot is within a bushfire prone area and that particular planning and building requirements related to bushfire risk may apply to development on the land.

LANDOWNER/OCCUPIER – ONGOING MANAGEMENT	
No.	Management Action
1	Comply with the relevant local government annual firebreak notice issued under s33 of the Bush Fires Act 1954.
2	Maintain the buildings in good order and condition so that they comply with the appropriate construction standards.

**Section 6.1: Spatial representation of the bushfire management strategies (post-development BHL assessment)**



Figure 11: Spatial representation of the bushfire management strategies (post-development BHL assessment).

## Appendix 1

The following are extracted from the Guidelines and provide guidance for the standards for constructing roads and driveways.

Table 6: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5

\*Refer to E3.2 Public roads: Trafficable surface

### ELEMENT 3: VEHICULAR ACCESS

#### PERFORMANCE PRINCIPLE

#### ACCEPTABLE SOLUTIONS

##### A3.5 Private driveway longer than 50 metres

A private driveway is to meet all of the following requirements:

- Requirements in Table 6, Column 3;
- Required where a house site is more than 50 metres from a public road;
- Passing bays: every 200 metres with a minimum length of 20 metres and a minimum width of two metres (i.e. the combined width of the passing bay and constructed private driveway to be a minimum six metres);
- Turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres) and within 50 metres of a house; and
- Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes.
- All-weather surface (i.e. compacted gravel, limestone or sealed).

## Appendix 2

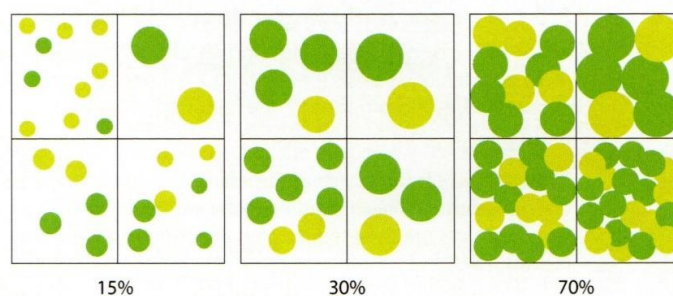
The following asset protection zone criteria is extracted from the Guidelines and provide guidance for constructing and maintaining the APZ.

### ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

#### SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

- **Fences:** within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.
- **Objects:** within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.
- **Fine Fuel load:** combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.
- **Trees (> 5 metres in height):** trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy.

Figure 16: Tree canopy cover – ranging from 15 to 70 per cent at maturity



- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m<sup>2</sup> in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.
- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.
- **Grass:** should be managed to maintain a height of 100 millimetres or less.