LUSH FIRE & PLANNING
3 Paterson Road
Pinjarra WA 6208
ABN 74 232 678 543

Bushfire Attack Level (BAL) Assessment Report
Stage 1A & 1B Albero Estate, Treeby Road

Report Details

Job No	Report Version	Assessment Date	Report Date
21-037	C	31 July 2021 12 November 2021	15 November 2021

Property Details

Street No	Lot No's	Plan	Street Name
	15, 16 17, 18, 30, 31 32 - 35 36, 37, 40, 41 42 - 45 46, 47	422503 422536 422503 422536 422503 422536	Albina Ave. Albina Ave Halbert Rise Selina Street Halbert Rise Goran Street

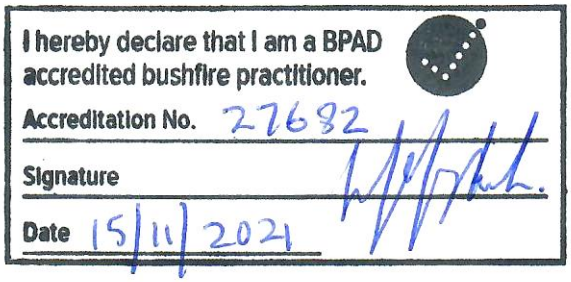
Locality	Anketell	**State**	WA	**Postcode**	6167
Local Government Area	Kwinana				
Description of the building or works	Residential Lots				

Accredited Practitioner Details

Name
Geoffrey Lush

Company Details

3 Paterson Rd
Pinjarra WA 6208
0418954873
geoffrey@lushfire.com.au



Authorised Practitioner Stamp

Reliance on the assessment and determination of the Bushfire Attack Level contained in this report should not extend beyond a period of 12 months from the date of issue of the report. If this report was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated report issued.

1.0 Background

This Bushfire Attack Level (BAL) Assessment is prepared for Stage 1A and 1B of the Albero Estate, Treeby Road, Anketell. Stage 1A relates to lots on DP422503 while Stage 1B relates to DP422536.

The subdivision was approved by the Western Australian Planning Commission on the 22 June 2016 (Ref 153429).

The subdivision survey plans are shown in Figures 1 and 2. DP422503 contains ten (10) lots varying in size from 356m^2 to 428m^2. DP422536 contains six (6) lots varying in size from 405m^2 to 452m^2.

All of the subject land is bushfire prone and this designation triggers:

- The application of Australian Standard AS3959 Construction of Buildings in Bushfire Prone Areas under the Building Code of Australia; and
- The provisions of the Planning and Development (Local Planning Schemes) Regulations 2015.

2.0 Site Assessment

The assessment of this site / development was undertaken by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 - 2018 Simplified Procedure (Method 1). The vegetation has been classified in accordance with:

- Clause 2.2.3 of Australian Standard AS3959 Construction of Buildings in Bushfire Prone Areas;
- The Visual Guide for Bushfire Risk Assessment in Western Australia; and
- Applicable Fire Protection Australia BPAD Practice Notes.

The site assessment and vegetation plots are shown in Figure 3 and the location of the vegetation photographs is shown in Figure 4. Each vegetation plot within 150m of the subject land is described below in Table 1.

Table 1 Vegetation Summary

Plot	Vegetation Class	Description
1	Excludable – Clause 2.2.3.2(f) Low Threat Vegetation	Existing residential lots with managed gardens and land where subdivision construction works are occurring.
2	Class A - Forest	Mixed Eucalypt and Banksia forest to 15m height with shrub and grass understorey.
3	Class A - Forest	Eucalyptus forest to 20m height mixed understorey.
4	Class G Grassland	Unmanaged grassland being former market garden in the adjacent Lot 31. Includes some small groupings of trees windbreaks.
5	Class G Grassland	Unmanaged grassland on adjacent property.
6	Excludable – Clause 2.2.3.2(f)	Existing residential dwelling, yard and sheds.

DEPOSITED PLAN 422503

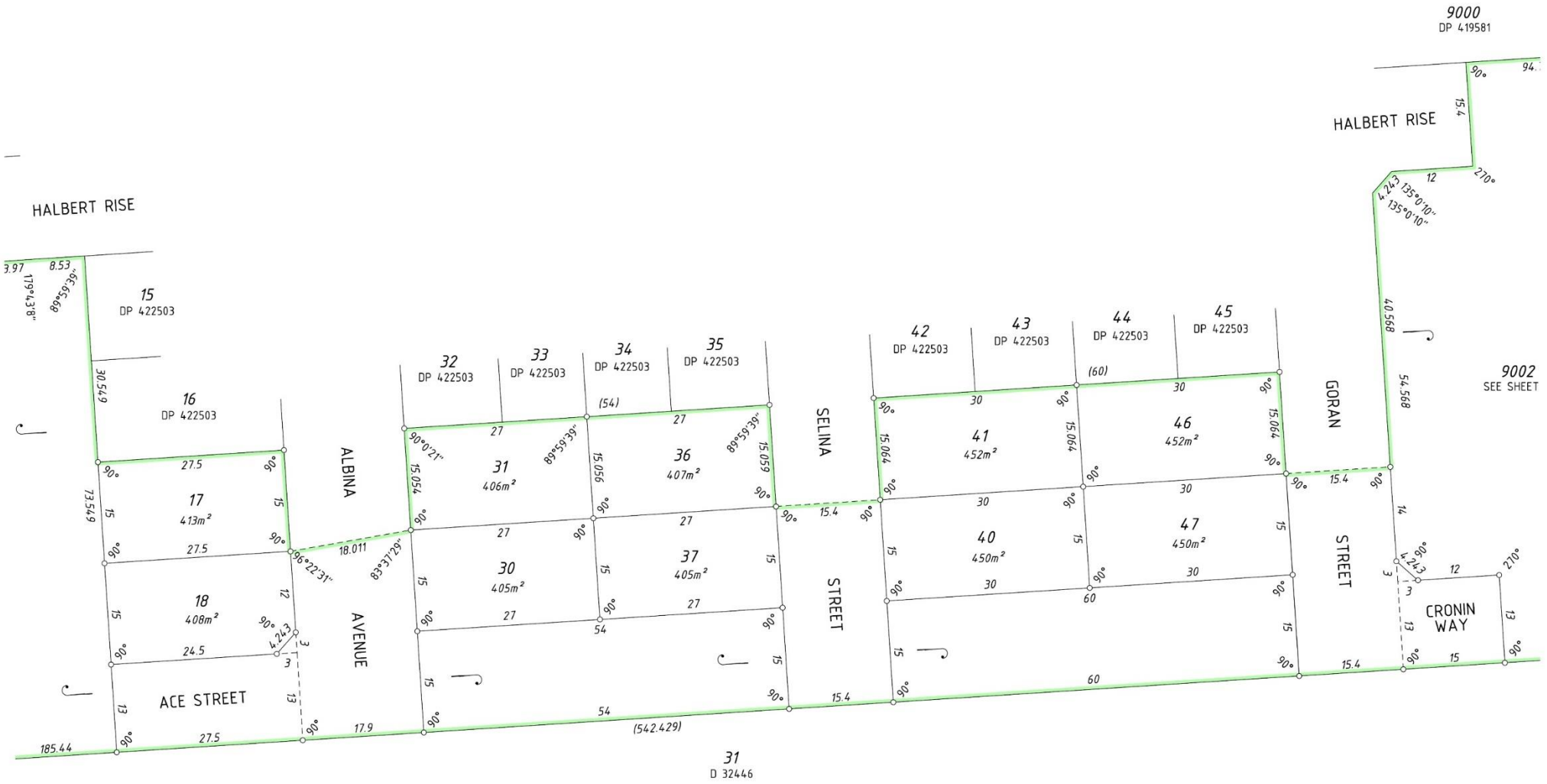
FIGURE 1 SURVEY PLAN STAGE 1A

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

Job No 21-038

Rev	Description	Date
A	Preliminary	04/08/2021
B	Stage 1B	13/11/2021

LUSHfire and planning
geoffrey@lushfire.com.au
0418 954873



DEPOSITED PLAN 422536

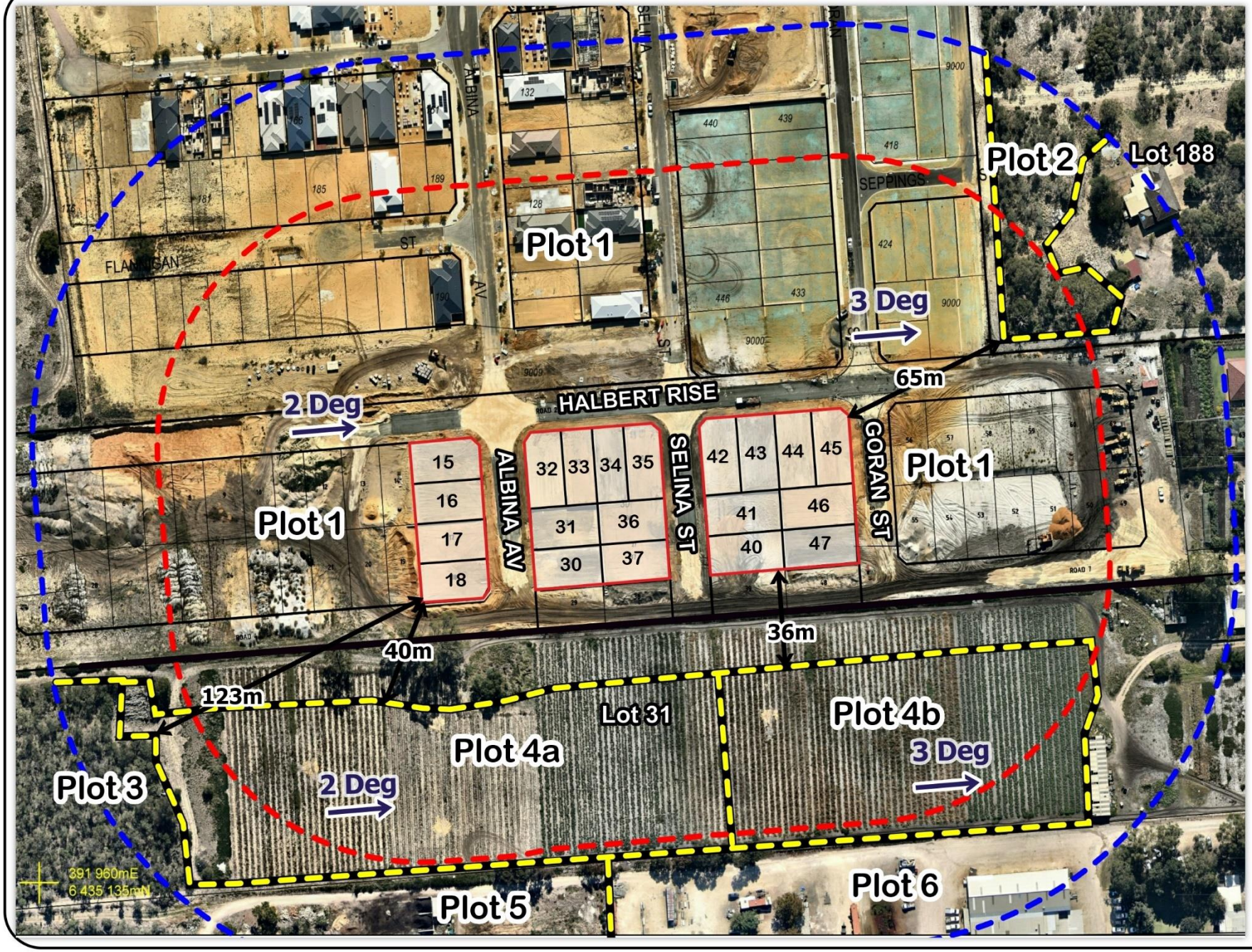
FIGURE 2 SURVEY PLAN STAGE 1B

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

Job No 21-038

Rev	Description	Date
A	Preliminary	04/08/2021
B	Stage 1B	13/11/2021

LUSHfire and planning
geoffrey@lushfire.com.au
0418 954873



LEGEND

DEVELOPMENT SITES

100m BUFFER

150m BUFFER

UPSLOPE

VEGETATION PLOTS

PLOT 1 EXCLUDED CL 2.2.3.2
(e) Non Vegetated
(f) Low Threat Vegetation

PLOT 2 CLASS A FOREST

PLOT 3 CLASS A FOREST

PLOT 4 CLASS G GRASSLAND

PLOT 5 CLASS G GRASSLAND

PLOT 6 EXCLUDED

The assessment of this site/development was undertaken on the 31 July and 12 November 2021 for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 2018 Simplified Procedure

DATE OF PHOTO - APRIL 2021

0m 100m

FIGURE 3 SITE ASSESSMENT
ALBERO ESTATE STAGES 1A & 1B

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

N

Job No 21-038

Rev	Description	Date
A	Preliminary	04/08/2021
B	Stage 1B	13/11/2021

LUSHfire and planning
geoffrey@lushfire.com.au
0418 954873

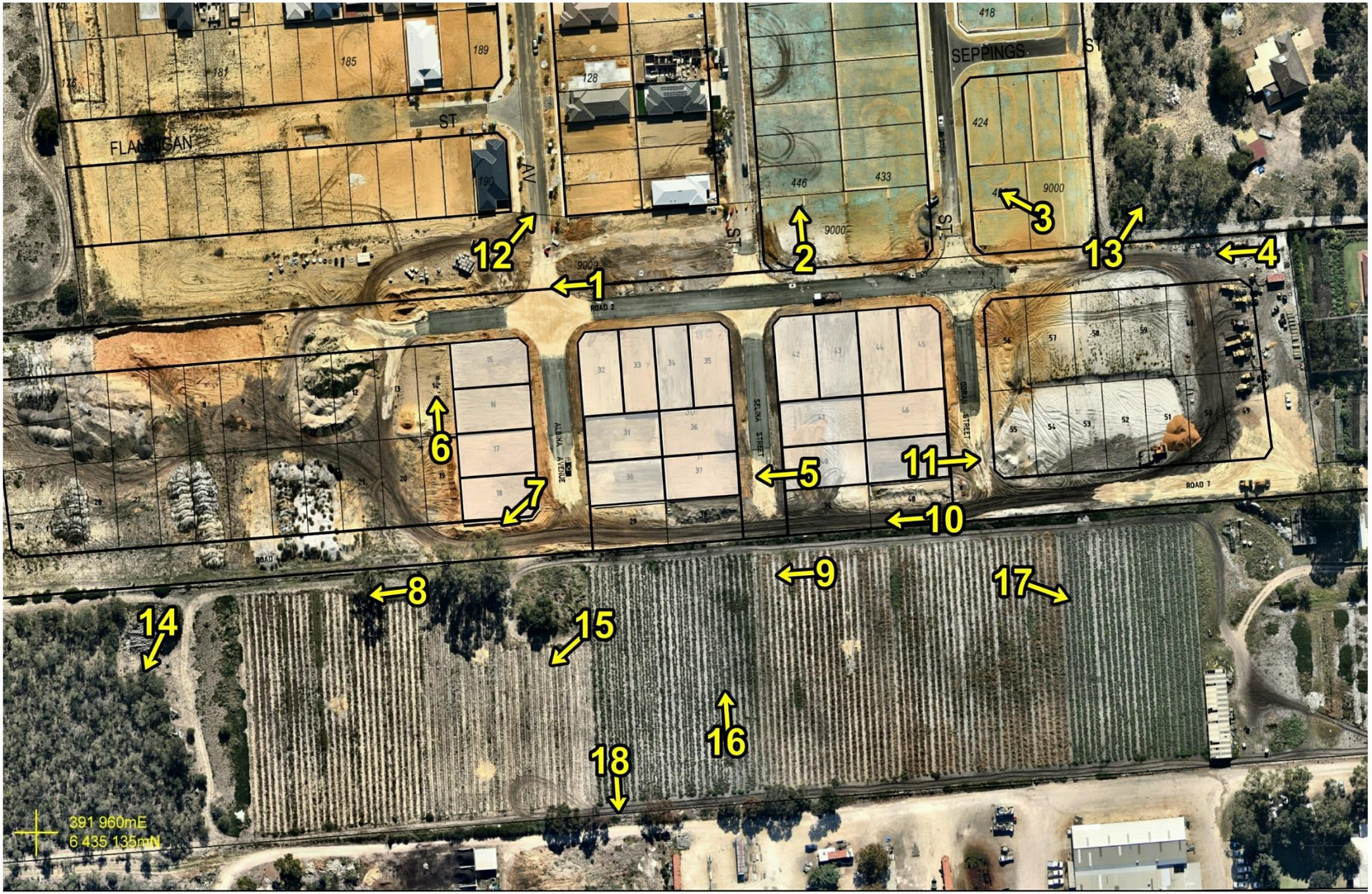


FIGURE 4 PHOTOGRAPH LOCATIONS

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

N

Job No 21-038

Rev	Description	Date
A	Preliminary	04/08/2021
B	Stage 1B	13/11/2021

LUSHfire and planning
geoffrey@lushfire.com.au
0418 954873

Photo No 1 **Plot No 1**

Vegetation Classification

Excludable - 2.2.3.2(f) Low Threat Vegetation

Description

Existing residential lots with managed gardens, vacant lots and land where subdivision construction works are occurring.

Photo No 2 **Plot No 1**

Vegetation Classification

Excludable - 2.2.3.2(f) Low Threat Vegetation

Description

Existing residential lots with managed gardens, vacant lots and land where subdivision construction works are occurring.

Photo No 3 **Plot No 1**

Vegetation Classification

Excludable - 2.2.3.2(f) Low Threat Vegetation

Description

Existing residential lots with managed gardens, vacant lots and land where subdivision construction works are occurring.

Photo No 4 **Plot No 1**

Vegetation Classification
Excludable - 2.2.3.2(f) Low Threat Vegetation

Description
Existing vacant residential lots and land where subdivision construction works are occurring.

Photo No 5 **Plot No 1**

Vegetation Classification
Excludable - 2.2.3.2(f) Low Threat Vegetation

Description
Existing vacant residential lots and land where subdivision construction works are occurring.

Photo No 6 **Plot No 1**

Vegetation Classification
Excludable - 2.2.3.2(f) Low Threat Vegetation

Description
Existing vacant residential lots and land where subdivision construction works are occurring.

Photo No 7 **Plot No 1**

Vegetation Classification
Excludable - 2.2.3.2(f) Low Threat Vegetation

Description
Existing vacant residential lots and land where subdivision construction works are occurring.

Photo No 8 **Plot No 1**

Vegetation Classification
Excludable - 2.2.3.2(f) Low Threat Vegetation

Description
Subdivision construction works, bare ground. Additional earthworks extending onto adjacent lot.

Photo No 9 **Plot No 1**

Vegetation Classification
Excludable - 2.2.3.2(f) Low Threat Vegetation

Description
Subdivision construction works, bare ground. Additional earthworks extending onto adjacent lot.

Photo No 10 **Plot No 1**

Vegetation Classification
Excludable - 2.2.3.2(f) Low Threat Vegetation

Description
Subdivision construction works, bare ground. Additional earthworks extending onto adjacent lot.

Photo No 11 **Plot No 1**

Vegetation Classification
Excludable - 2.2.3.2(f) Low Threat Vegetation

Description
Subdivision construction works, bare ground. Additional earthworks extending onto adjacent lot.

Photo No 12 **Plot No 1**

Vegetation Classification
Excludable - 2.2.3.2(f) Low Threat Vegetation

Description
Existing residential lots with managed gardens, vacant lots and land where subdivision construction works are occurring.

Photo No 13 **Plot No 2**

Vegetation Classification
Class A Forest - Open forest A-03

Description
Mixed Eucalypt and Banksia forest to 15m height with more than 30% foliage coverage. Shrub and grass understorey with moderate to heavy near surface fuel loads.

Photo No 14 **Plot No 3**

Vegetation Classification
Class A Forest - Open forest A-03

Description
Eucalyptus forest to 20m height with more than 40% foliage coverage. Mixed understorey with heavy to very near surface fuel loads.

Photo No 15 **Plot No 4**

Vegetation Classification
Class G Grassland – Tussock grassland G-22

Description
Unmanaged grassland in the adjacent Lot 31. Irrigated market garden but no current crops. Includes some small groupings of tree windbreaks.

Photo No 16 **Plot No 4**

Vegetation Classification
Class G Grassland – Tussock grassland G-22

Description
Unmanaged grassland in the adjacent Lot 31. Irrigated market garden but no current crops. Includes some small groupings of tree windbreaks.

Photo No 17 **Plot No 4**

Vegetation Classification
Class G Grassland – Tussock grassland G-22

Description
Unmanaged grassland in the adjacent Lot 31. Irrigated market garden but no currently no crops. Includes some small groupings of tree windbreaks. Plot 6 sheds in the background.

Photo No 18 **Plot No 4**

Vegetation Classification
Class G Grassland – Tussock grassland G-22

Description
Unmanaged grassland in the adjacent property.

3.0 BAL Assessment

The Bushfire Attack Level (BAL) Assessment measures the severity of a building's potential exposure ember attack, radiant heat and direct flame contact in a bushfire event.

The BAL rating is determined through the identification and assessment of the following parameters:

- Fire Danger Index rating of FDI – 80 for Western Australia determined in accordance with AS3959 Table 2.1;
- All classified vegetation within 150m of the subject building;
- Separation distance between the building and the classified vegetation source/s;
- Slope of the land under the classified vegetation; and
- The Determined Bushfire Attack Level (highest BAL) for the site / proposed development has been determined in accordance with clause 2.2.6 of AS 3959-2018.

AS3959:2018 has six (6) levels of BAL, based on the radiant heat flux exposure to the building, and also identifies the relevant sections for building construction as detailed in Table 2.

Table 2 BAL Ratings

Bushfire Attack Level (BAL)	Classified vegetation within 100m of the site and heat flux exposure thresholds	Description of predicted bushfire attack and levels of exposure
BAL-LOW	See clause 2.2.3.2	There is insufficient risk to warrant any specific construction requirements.
BAL-12.5	≤ 12.5kW/m^2	Ember attack
BAL-19	> 12.5kW/m^2 to ≤ 19kW/m^2	Increasing levels of ember attack and burning debris ignited by wind borne embers together with increasing heat flux.
BAL-29	> 19kW/m^2 to ≤ 29kW/m^2	Increasing levels of ember attack and burning debris ignited by wind borne embers together with increasing heat flux.
BAL-40	> 29kW/m^2 to ≤ 40kW/m^2	Increasing levels of ember attack and burning debris ignited by wind borne embers together with increasing heat flux with the increased likelihood of exposure to flames.
BAL-FZ	> 40kW/m^2	Direct exposure to flames from fire front in addition to heat flux and ember attack.

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified in Table 3 over the page. The Determined Bushfire Attack Level (highest BAL) for the site / proposed development has been determined in accordance with clause 2.2.6 of AS 3959-2009 using the above analysis.

Table 3 BAL Analysis

Lot No	Plan	Street	Veg Plot (1)	Vegetation Classification	Slope	Separation Distance (2)	BAL Rating
15	422503	Albina	4a	Class G Grassland	2 Deg	85m	BAL – LOW
16	422503	Albina	4a	Class G Grassland	2 Deg	70m	BAL – LOW
17	422536	Albina	4a	Class G Grassland	2 Deg	55m	BAL – LOW
18	422536	Albina	4a	Class G Grassland	2 Deg	40m	BAL – 12.5
30	422536	Albina	4a	Class G Grassland	2 Deg	36m	BAL – 12.5
31	422536	Albina	4a	Class G Grassland	2 Deg	51m	BAL – LOW
32	422503	Halbert	4a	Class G Grassland	2 Deg	66m	BAL – LOW
33	422503	Halbert	4a	Class G Grassland	2 Deg	66m	BAL – LOW
34	422503	Halbert	4a	Class G Grassland	2 Deg	66m	BAL – LOW
35	422503	Halbert	4a	Class G Grassland	2 Deg	66m	BAL – LOW
36	422536	Selina	4a	Class G Grassland	2 Deg	51m	BAL – LOW
37	422536	Selina	4a	Class G Grassland	2 Deg	36m	BAL – 12.5
40	422536	Selina	4b	Class G Grassland	Upslope	36m	BAL – 12.5
41	422536	Selina	4b	Class G Grassland	Upslope	51m	BAL – LOW
42	422503	Halbert	2	Class A - Forest	Upslope	110m	BAL – LOW
43	422503	Halbert	2	Class A - Forest	Upslope	95m	BAL – 12.5
44	422503	Halbert	2	Class A - Forest	Upslope	80m	BAL – 12.5
45	422503	Halbert	2	Class A - Forest	Upslope	65m	BAL – 12.5
46	422536	Goran	2	Class A - Forest	Upslope	82m	BAL – 12.5
47	422536	Goran	2	Class A - Forest	Upslope	93m	BAL – 12.5

Notes
(1) The selected vegetation plot is the plot with the highest BAL rating.
(2) The separation distance is measured to the nearest point on the lot boundary.

4.0 Limitations

1. Reliance on the assessment and determination of the Bushfire Attack Level contained in this report should not extend beyond a period of 12 months from the date of the report.
2. The land within the prescribed BAL Setback is to be maintained as an Asset Protection Zone in accordance with Schedule 1 of Appendix 4 of the Guidelines for Planning in Bushfire Prone Areas (Version 1.3 December 2017) as follows:
   - 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.
   - 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 5m2 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.
3. The altering of any site conditions, including the planting of vegetation or poor maintenance of the asset protection zone may change the determined Bushfire Attack Level rating.
4. The applicable BAL construction measures do not 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 behaviour of fire and extreme weather conditions. The construction standards are only part of an overall approach to bushfire protection that landowners should be aware of. Other measures include having a suitable water supply, access and a bushfire survival plan.
5. All information and recommendations made in this report are made in good faith based on information and accepted methodology used at that time. All plans are subject to survey and are not to be used for calculations. Notwithstanding anything contained therein, Lushfire & Planning will not, except as the law may require, be liable for any loss claim, damage, loss or injury to any property and any person caused by fire or by errors or omissions in this report.