



Smith Bushfire Consultants Pty Ltd

BUSHFIRE MANAGEMENT PLAN

**Lot 28 (No 157) Barfield Road, Hammond
Park**

City of Cockburn



Prepared by Ralph Smith
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Site visited 2 December 2021; Report completed 30 November 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)?	☐	☒
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)?	☐	☒

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

	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)	☐	☒
Strategic planning proposal (including rezoning applications)	☐	☒
Minor development (in BAL-40 or BAL-FZ)	☐	☒
High risk land-use	☐	☒
Vulnerable land-use	☐	☒

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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Document control

Report Version	Purpose	Author/reviewer and accreditation details	Date Submitted
1	Support the Structure Plan application	Ralph Smith	14 December 2021
1.1	Text and plan modifications	Ralph Smith	19 December 2021
1.2	Text modifications following City of Cockburn comments	Ralph Smith	21 March 2022
1.3	Text and map revision	Ralph Smith	29 November 2022
1.4	Map revision	Ralph Smith	30 November 2022

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.

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Section 1: Proposal Details

Under the City of Cockburn's Town Planning Scheme No. 3 (TPS No.3) Lot 28 Barfield Road is partly zoned Development and partly Special Use due to the existence of a Western Power easement which accommodates high voltage electrical supply infrastructure above the eastern part of the property adjacent the Kinana Freeway. The project is at the Structure Plan stage. The site is referenced as Structure Plan for Lot 28 Barfield Road, Hammond Park.

The site is also subject to the requirements of the City's "Southern Suburbs District Structure Plan – Stage 3 (SSDSP3)" which shows the broad allocation and location of land use activities and will form the basis of assessing detailed proposals for individual properties. The District Structure Plan is a "guiding document" adopted by the Council, and is not a structure plan adopted pursuant to section 6.2.9, of the City's TPS No. 3. Therefore land uses and zones are not given the full effect as though they are part TPS No.3.

To progress the subdivision and development of a land holding it is necessary for landowners or groups of small landowners to prepare and submit a detailed Structure Plan (previous nomenclature being Local Structure Plan or LSP), and supporting reports for their proposal. Each Structure Plan should be generally in accordance with the SSDSP3, and should show detail including the proposed road and lot layout, detail areas of POS, R-Codes and other information set in the Development Area provisions of TPS No. 3.

Any significant departures from the SSDSP3 would need to be identified and justified. While the SSDSP3 indicates an area of POS within the portion of Lot 28 zoned Development, the location and indicative size of an area of POS within the DSP, other developers within the DSP have negotiated with the City and WAPC alternative locations and sizes to consolidate their POS through the Structure Plan process. The possible location of the POS within the Western Power easement has been the subject of preliminary discussions with Western Power, City of Cockburn and the Department of Planning, Lands and Heritage (DPLH) and is expected to be resolved through the Structure Plan process.

All Structure Plans are to be adopted by Council and endorsed by the WAPC in accordance with the Development Area provisions of the Scheme.

The entire site is declared as bushfire prone and therefore AS 3959 construction standards for the future dwellings do apply for all dwellings.

The Environmental Assessment Report (EAR) and revegetation plan developed by Coterra Environment are referenced in this Bushfire Management Plan (Plan) and a number of items, such as the revegetation area map have been copied into the Plan, but the EAR should be considered when considering environmental issues.

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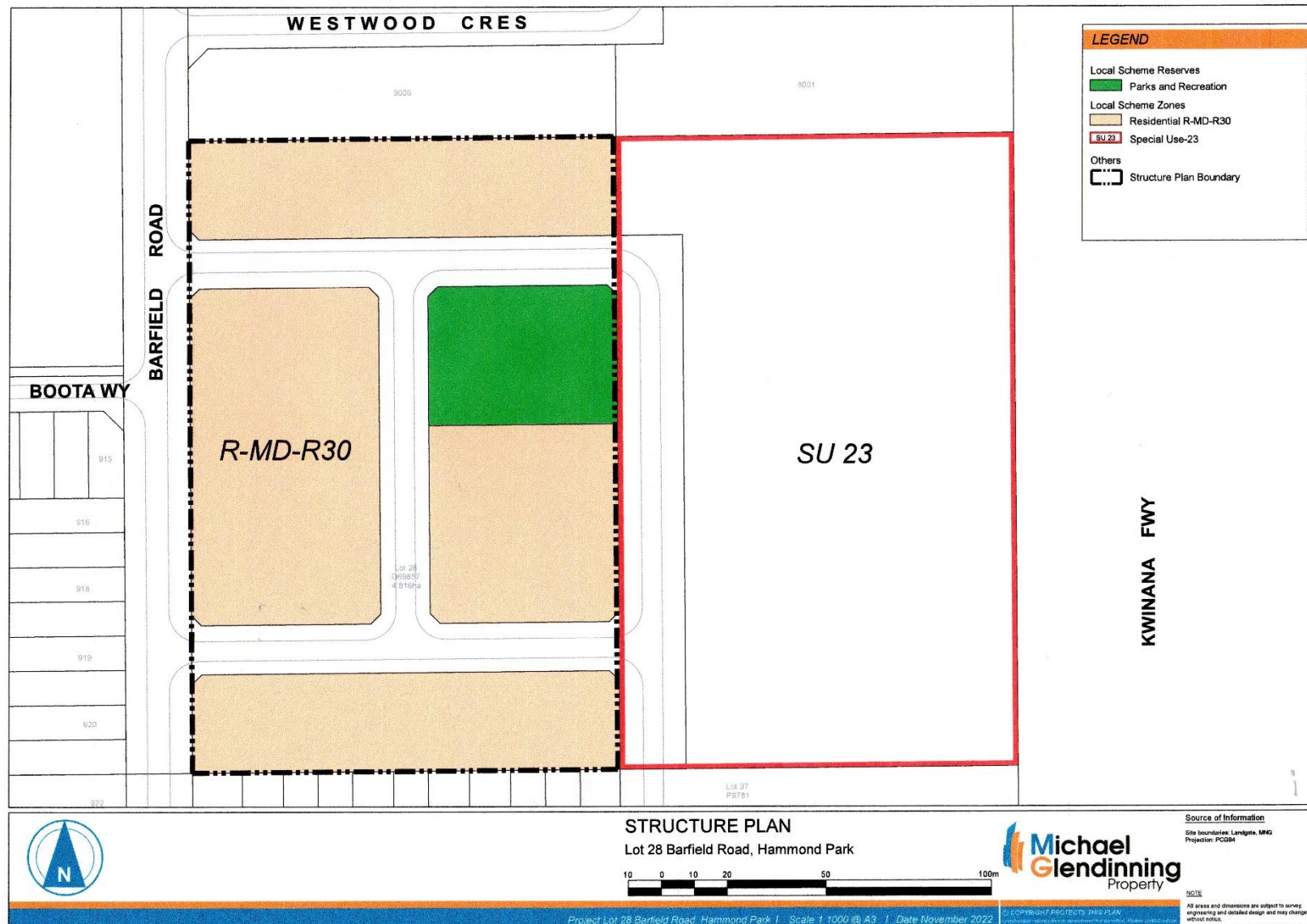


Figure 1. The copy of the site plan as provided with the structure plan showing local Scheme Zones.

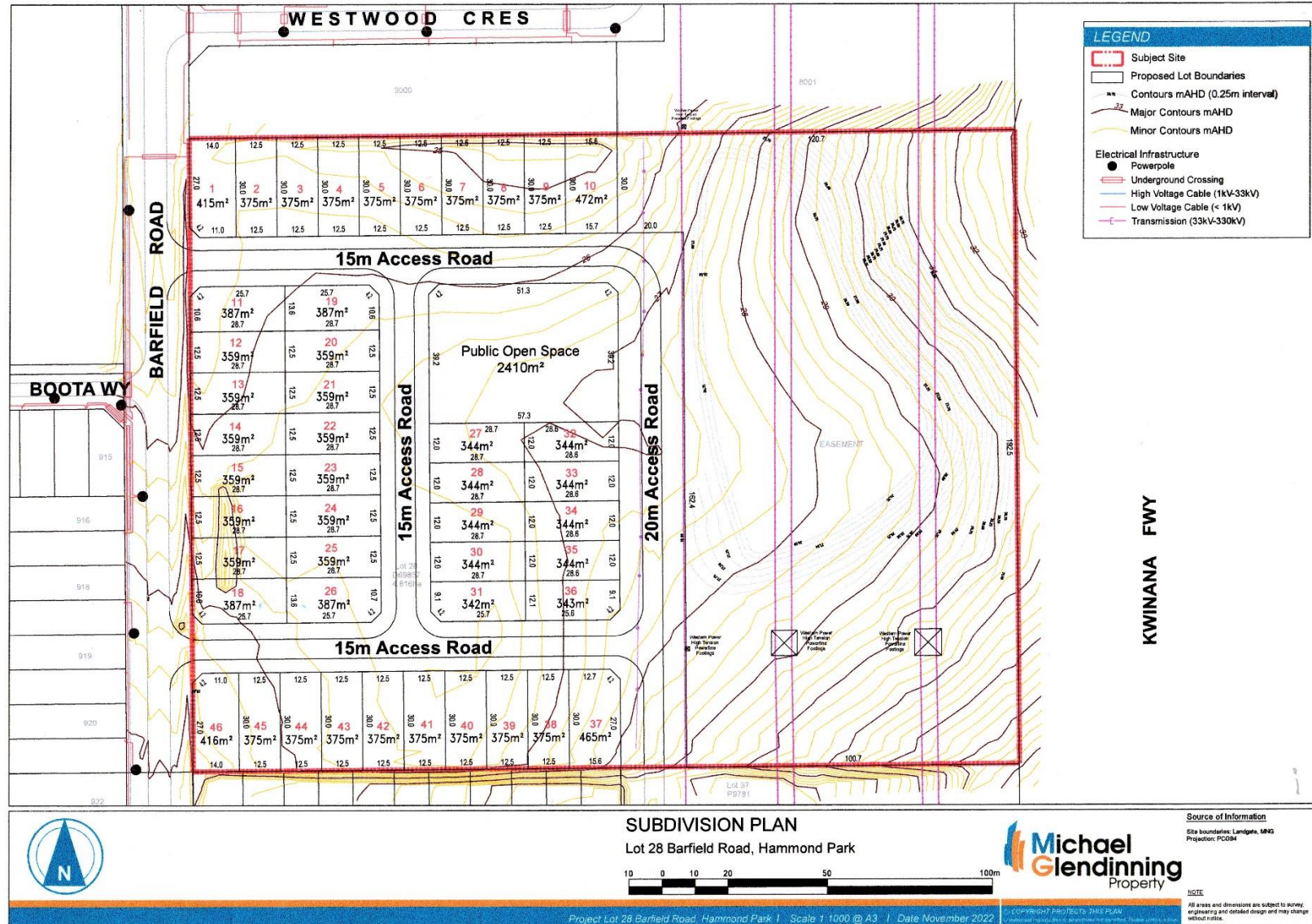


Figure 2. The copy of the subdivision plan.

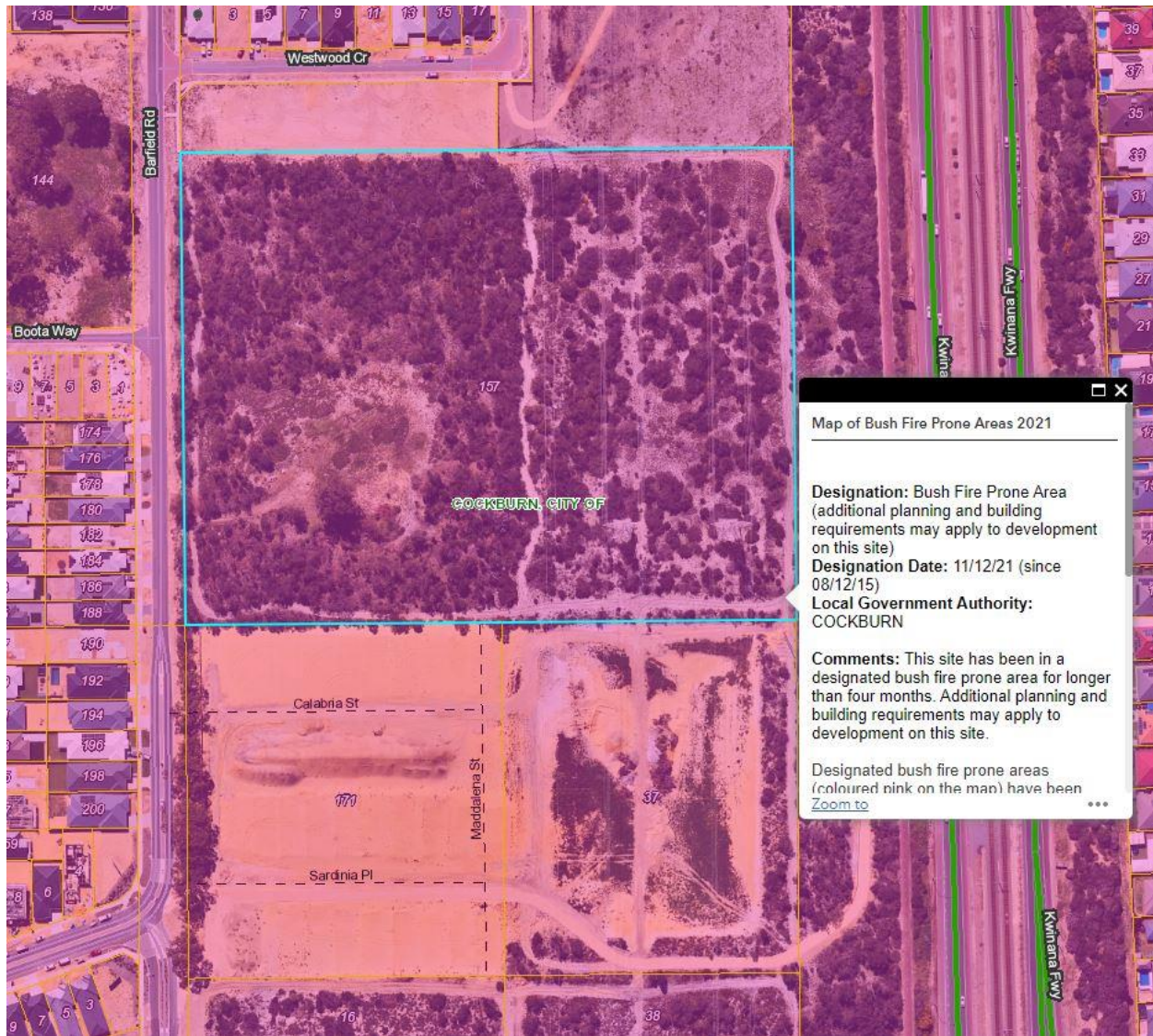


Figure 3. Screen shot of map of bushfire prone areas for the subject site.

Section 2: Environmental Considerations

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; and
- Carnaby Cockatoo Confirmed roost sites.

The desktop search also identified that the following cultural issues are not registered for the development site or immediately surrounding area:

- Aboriginal heritage site; or
- Heritage council site.

Subsection 2.1: Native Vegetation – modification and clearing

There is a need to clear areas of native vegetation as a component of this development and comply with the protection requirements as required for the Western Power easement. The proposed clearing was referred to the Federal Government's Department of Agriculture, Water and the Environment in November 2021 and was approved as "not a controlled action" on 1 December 2021, as identified in the EAR, paving the way for the lodgement of the proposed Structure Plan.

Subsection 2.2: Re-vegetation/Landscape Plans

There is a comprehensive revegetation plan that has been developed after wide consultation with the Government instrumentalities, e.g. Western Power and the local government. This will result in retention of natural vegetation, creation of shrubland areas, and the establishment of public amenity and recreation areas. Additionally there may be cultivated gardens developed once people move into the dwellings, but this is not a component of a site revegetation plan.

Section 3: Bushfire Assessment Results

Any dwellings located on the new lots have all been assessed as being with BAL rating of BAL-29 or less (it is anticipated that most of the lots will be BAL-12.5 or BAL-LOW). These BAL ratings align with the State Government criteria of not having dwellings located in areas above BAL-29.

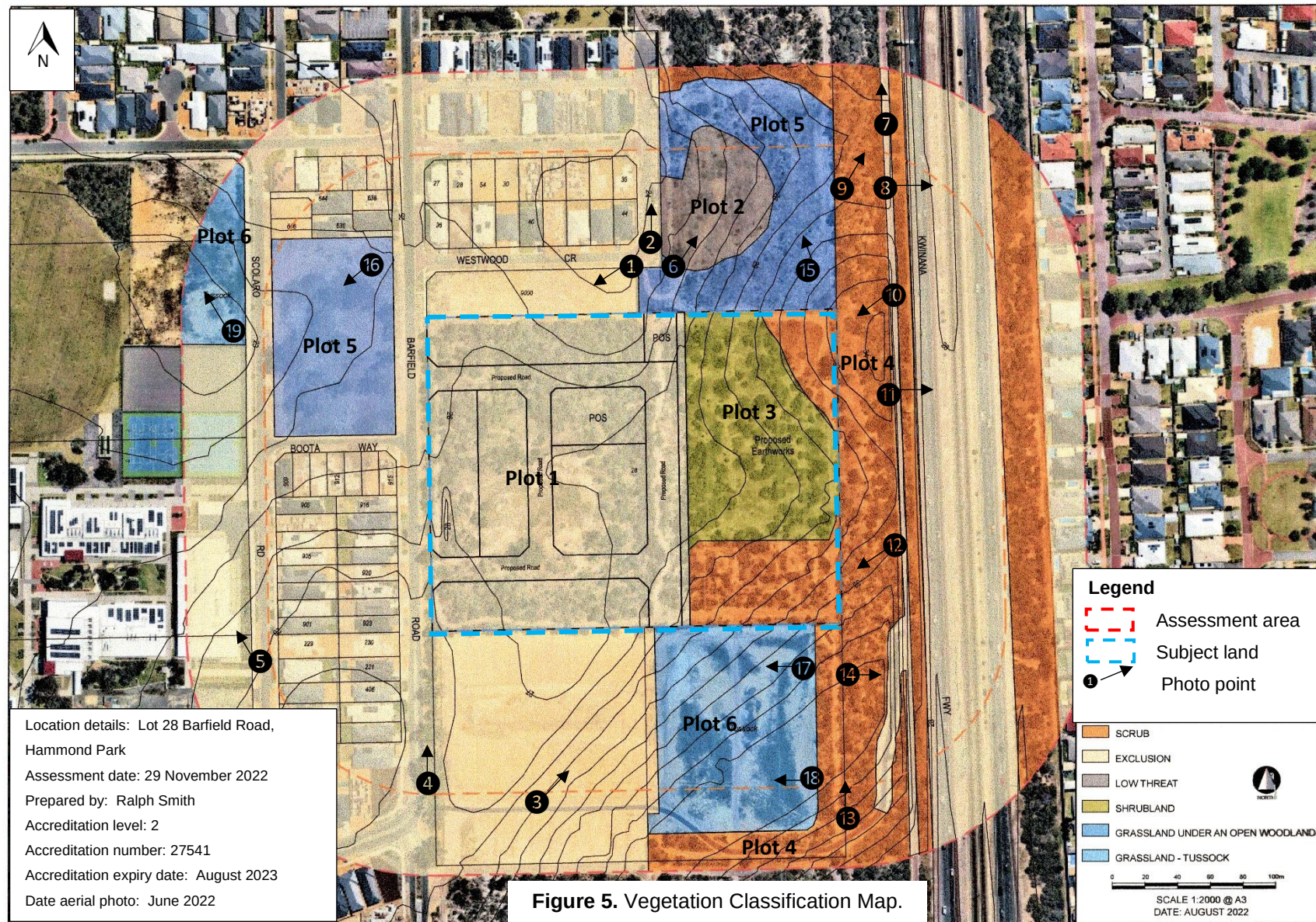
All new dwellings will need to be constructed to the appropriate BAL rating as shown on the BAL contour plan within the BMP.

Subsection 3.1: Assessment Inputs

The assessment inputs are shown in the forthcoming pages and are supported by a vegetation assessment, photographic evidence and text to support the vegetation assessment and a BHL assessment map.

Site Assessment

The assessment of the proposed subdivision was undertaken on 2 December 2021 for the purpose of determining the vegetation classification and the BAL Contour Map in accordance with AS 3959 (Method 1).



Vegetation Classification

All vegetation within 150 metres of the proposed subdivision 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 between vegetation and the building for grassland.

Plot 1

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



Photo ID: Photo 1 Looking at the cleared neighbouring lot and the dwellings being built.



Photo ID: Photo 2 Looking at the developed neighbouring lots and road infrastructure.



Photo ID: Photo 3 Looking at the cleared land south of the development site.



Photo ID: Photo 4 Looking at the single row of windbreak trees, road and dwellings with gardens.



2/12/2021 9:34:44 AM (+8.0 hrs) Dir=NW Lat=-32.17439 Lon=115.85221 Alt=0m MSL WGS 1984
Photo ID: Photo 5 Looking at the low threat vegetation and the school buildings

Plot 2

Exclusion – Low threat vegetation
 Clause 2.2.3.2 (f)

There is currently only one area of low threat vegetation which is located on the land to the north.



2/12/2021 9:01:30 AM (+8.0 hrs) Dir=NE Lat=-32.17216 Lon=115.85479 Alt=0m MSL WGS 1984
Photo ID: Photo 6 Looking at the low threat vegetation on the land to the north of the development site.

Plot 3

Class C – Shrubland (AS 3959 classification – C – 12).

There are no photographs of the shrubland as this is a component of the post development revegetation beneath the powerlines.

Plot 4

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



Photo ID: Photo 7 Looking at the scrub, path and freeway.



Photo ID: Photo 8 Looking at the scrub across the freeway and railway line.



Photo ID: Photo 9 Looking at the scrub vegetation.



Photo ID: Photo 10 Looking at the scrub vegetation east of the development site.



Photo ID: Photo 11 Looking at the scrub east of the freeway and railway line.



Photo ID: Photo 12 Looking at the scrub south-east of the development site.



2/12/2021 9:17:42 AM (+8.0 hrs) Dir=N Lat=-32.17509 Lon=115.85618 Alt=0m MSL WGS 1984
Photo ID: Photo 13 Looking at the scrub south of the development site.



2/12/2021 9:19:28 AM (+8.0 hrs) Dir=E Lat=-32.1749 Lon=115.85598 Alt=0m MSL WGS 1984
Photo ID: Photo 14 Looking at the scrub vegetation.

Plot 5

Class G – Grassland under an open woodland (AS 3959 classification – B – 06).



2/12/2021 9:05:17 AM (+8.0 hrs) Dir=NNW Lat=-32.17204 Lon=115.8559 Alt=0m MSL WGS 1984
Photo ID: Photo 15 Looking at the reticulated grass under an open woodland north of the development site.



2/12/2021 9:47:31 AM (+8.0 hrs) Dir=SW Lat=-32.17239 Lon=115.85286 Alt=0m MSL WGS 1984
Photo ID: Photo 16 Looking at the grassland under an open woodland west of the development site.

Plot 6

Tussock Grassland (AS 3959 classification – G – 22)



2/12/2021 9:20:31 AM (+8.0 hrs) Dir=W Lat=-32.1744 Lon=115.85596 Alt=0m MSL WGS 1984
Photo ID: Photo 17 Looking at the tussock grassland south of the development site.



2/12/2021 9:18:09 AM (+8.0 hrs) Dir=W Lat=-32.1751 Lon=115.85594 Alt=0m MSL WGS 1984
Photo ID: Photo 18 Looking at the tussock grassland south of the development site.



2/12/2021 9:39:33 AM (+8.0 hrs) Dir=NW Lat=-32.17238 Lon=115.85216 Alt=0m MSL WGS 1984
Photo ID: Photo 19 Looking at the tussock grassland west 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 established suburban houses and gardens, vacant lots, school, roads and the housing and infrastructure component of the development site. There is a single row of trees on a neighbouring development which appear to have been retained as a windbreak.

2. Plot 2

Exclusion – Low threat vegetation
Clause 2.2.3.2 (f)

This plot comprises the area of low threat vegetation on the lot to the north of the development site.

3. Plot 3

Class C – Shrubland (AS 3959 classification – C – 12).

This plot comprises the small area of shrubland that is on the proposed development site and associated with the powerline easement. This revegetation will be undertaken as a component of the development and complies with Western Power requirements regarding vegetation height.

4. Plot 4

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

The scrub plot is the largest vegetation classification by areas within the land to the west, and both north and south of the development site and includes the freeway road reserve. It has been classified as a scrub on the basis of the vegetation species, being primarily *Banksia spp.* and the changes associated with AS 3959:20018.

5. Plot 5

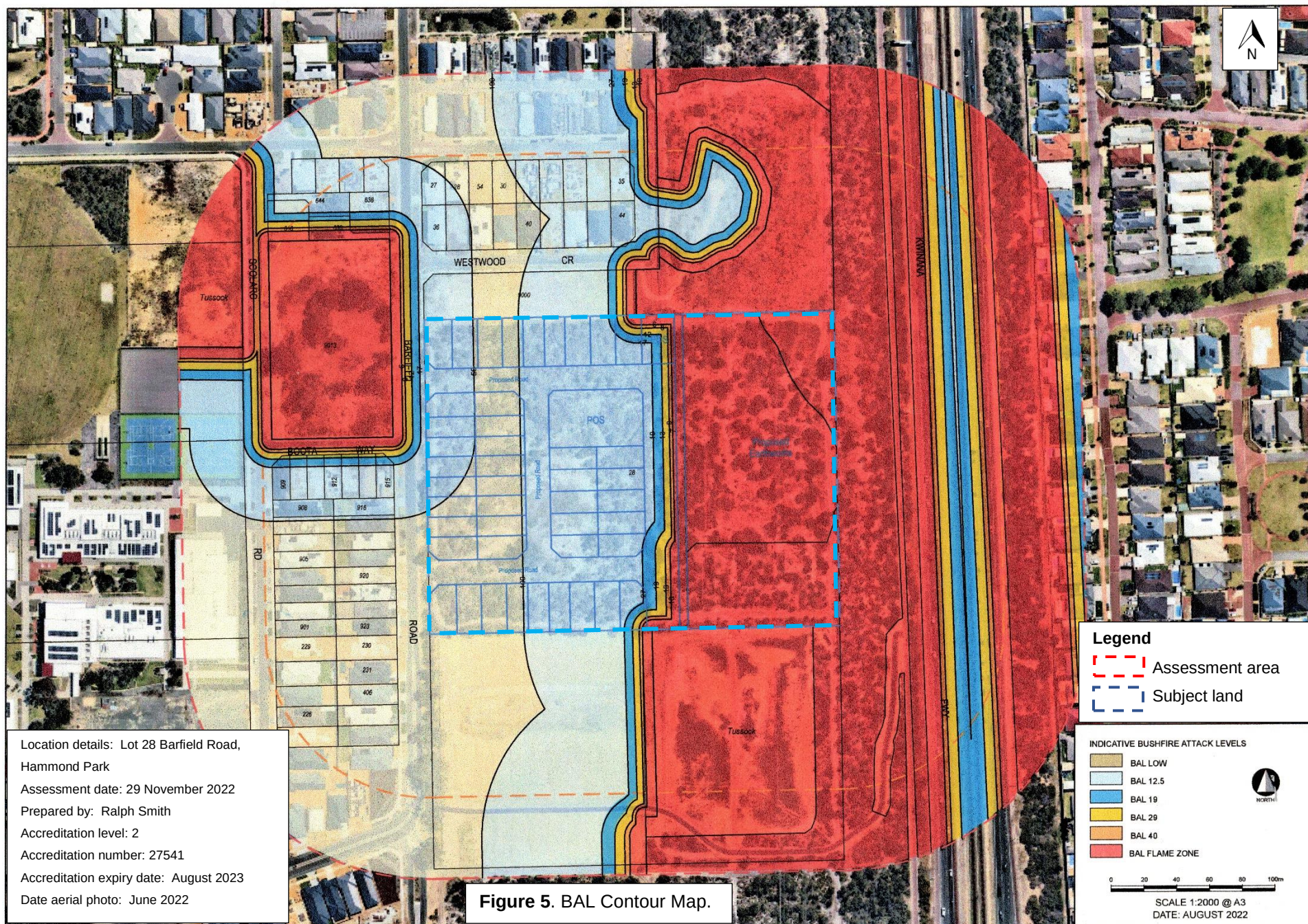
Class G – Grassland under an open woodland (AS 3959 classification – B – 06).

This plot comprises the grass under an open woodland across Barfield Road from the development site and the revegetation on the neighbouring lot to the north. The vast majority of this vegetation west of the development site is contained between dwellings to the north and south, section of the school facilities to the west and then tussock grassland. The grassland to the north of the development site has trees planted in the grassland, but does not appear to be establishing well.

6. Plot 6

Tussock Grassland (AS 3959 classification – G – 22)

This plot comprises the tussock grass west of the grassland under an open woodland and south of the development site. The grassland appears to be sand stabilisation from previous development site works on the neighbouring lands.



Slope

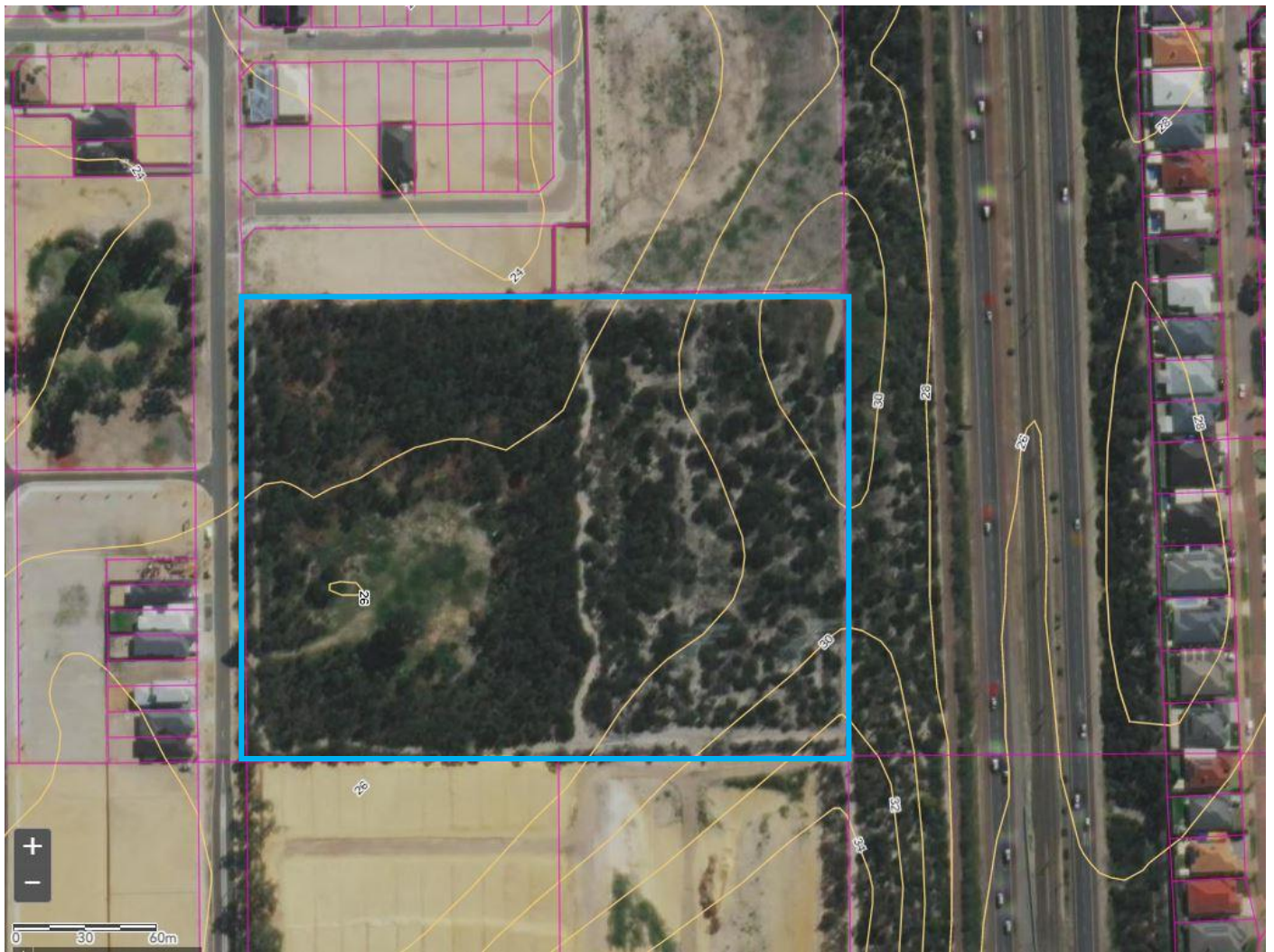


Figure 6. Two-metre contour lines (pre-development).

Subsection 3.2: Assessment outputs

Plot	Applied Vegetation Classification	Effective Slope Under the Classified Vegetation (degrees)	Separation Distance to the Classified Vegetation (metres)	BAL Contour
1	Exclusion – Low threat vegetation and non-vegetated areas Clause 2.2.3.2 (e) & (f)	Not applicable	Not applicable	LOW
2	Exclusion – Low threat vegetation Clause 2.2.3.2 (f)	Not applicable	Not applicable	LOW
3	Class C – Shrubland	Upslope	34	12.5
4	Class D – Scrub	Upslope	20	12.5
5	Class G – Grassland under an open woodland	Level	22	12.5
6	Tussock Grassland	Level	23	12.5

Note: Plot 2 and Plot 4 will only be in place after the development and the revegetation has occurred on the development site.

Section 4: Identification of bushfire hazard issues

The most significant bushfire hazard is the extensive native vegetation associated with the Banksia scrub on the development lot and the land neighbouring the development site, including the vegetation in the Freeway road reserve. The slope on the development site is a potential bushfire hazard reduction as the vegetation is upslope of the proposed lots and the south-west wind is the most common wind in the afternoon in summer. The native vegetation will be sufficiently separated from any future dwelling, and the potential bushfire, and the protection to the dwelling will be enhanced by constructing to the appropriate standard.

Section 5: Assessment against the Bushfire Protection Criteria

Subsection 5.1: Compliance Table

Bushfire protection criteria	Method of Compliance	Proposed bushfire management strategies
	Acceptable solutions	
Element 1: Location	A1.1 Development location	The potential future dwellings will be located in an area that is restricted to the BAL rating BAL-29 or less.
Element 2: Siting and design	A2.1 Asset Protection Zone (APZ)	There is no requirement for an APZ associated with any new dwellings within the development.
Element 3: Vehicular Access	A3.1 Two access routes	Barfield Road provides multiple access options for the proposed new lots, and links to a substantial road network.
	A3.2 Public road	New roads associated with the development will be built to comply with the Guidelines.
	A3.3 Cul-de-sac (including a dead-end-road)	All roads will be constructed to comply with the State's Guidelines.
	A3.4 Battle-axe	All roads will be constructed to comply with the State's Guidelines.
	A3.5 Private driveway longer than 50 m. A private driveway is to meet detailed requirements contained within the Guidelines.	It is anticipated that there will not be any driveways longer than 50 m constructed with this development. If there are they, will be compliant with the Guidelines.
	A3.6 Emergency access way	Nil will be constructed with this development.
	A3.7 Fire service access routes (perimeter roads)	Nil will be constructed with this development. Firebreaks and fuel loads will continue to be maintained in accordance with the Shire's firebreak order.
	A3.8 Firebreak width	During establishment, and after subdivision, firebreaks will be maintained so as to comply with the City's firebreak and fuel order.
Element 4: Water	A4.1 Reticulated areas	A reticulated scheme water system developed to comply with the State's requirements will be connected as a component of this development. This includes fire hydrants.
	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.



LEGEND

Subject land 

Sealed roads 

REQUIREMENTS

1. The site will be serviced by a reticulated scheme water system developed to comply with the State's requirements. It will be connected as a component of this development. This includes fire hydrants.
2. This is the principal hazard vegetation being the Banksia scrub.
3. Principal access road for access and egress.
4. Grassland revegetation on the neighbouring lot to the north. This is reticulated, but appears to be unmanaged.
5. Land cleared and being developed.
6. Grassland under an open woodland (<10% overstorey cover).

Location details: Lot 28 Barfield Road, Hammond Park

Assessment date: 29 November 2022

Prepared by: Ralph Smith

Accreditation level: 2

Accreditation number: 27541

Accreditation expiry date: August 2023

Date aerial photo: June 2022

Version No: 1.3

Figure 7. Spatial representation of bushfire management strategies.

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

This section is to set out the responsibilities of the developer/s, landowner/s and local government with regards to the initial implementation and ongoing maintenance of the required actions.

DEVELOPER – PRIOR TO ISSUE OF TITLES		
No.	Implementation Action	Subdivision Clearance
1	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. Notice of this notification is to be included in the diagram or plan of survey (deposited plan). The notification is to state as follows: <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).	
2	Comply with the relevant local government annual firebreak notice issued under s33 of the Bush Fires Act 1954.	
3	The developer will be responsible for extending the reticulated scheme water network into the development that is compliant with the State’s requirements.	
4	The developer is responsible for construction of roads within the development.	

LANDOWNER/OCCUPIER – ONGOING	
No.	Management Action
1	Comply with the relevant local government annual firebreak notice issued under s33 of the Bush Fires Act 1954.

CITY OF COCKBURN – 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 area as an ‘Exclusion’ as defined in AS 3959, section 2.2.3.2.
3	Maintain the public roads to the required standard.

Appendix 1

The following is an extract from the City of Cockburn “Firebreak & Fire Hazard Notice 2022/2023.”

Firebreaks and Fire Hazards

Fire Hazards

Properties under 4047m² - All flammable materials such as dry grass and weeds must be slashed, mowed or trimmed down to a maximum height of 50mm across the entire property and all dead vegetation must be removed. This must be put in place by 1 November each year and maintained to 15 April.

Firebreak requirements

Properties over 4047m² - A firebreak is an area where flammable material (such as wood, leaves and grass) has been cleared to provide vehicle access and help minimise the spread of a fire.

Firebreaks must be put in place by 1 November each year and maintained up until 15 April the following year. Extensions will not be granted.

Property inspections by the City

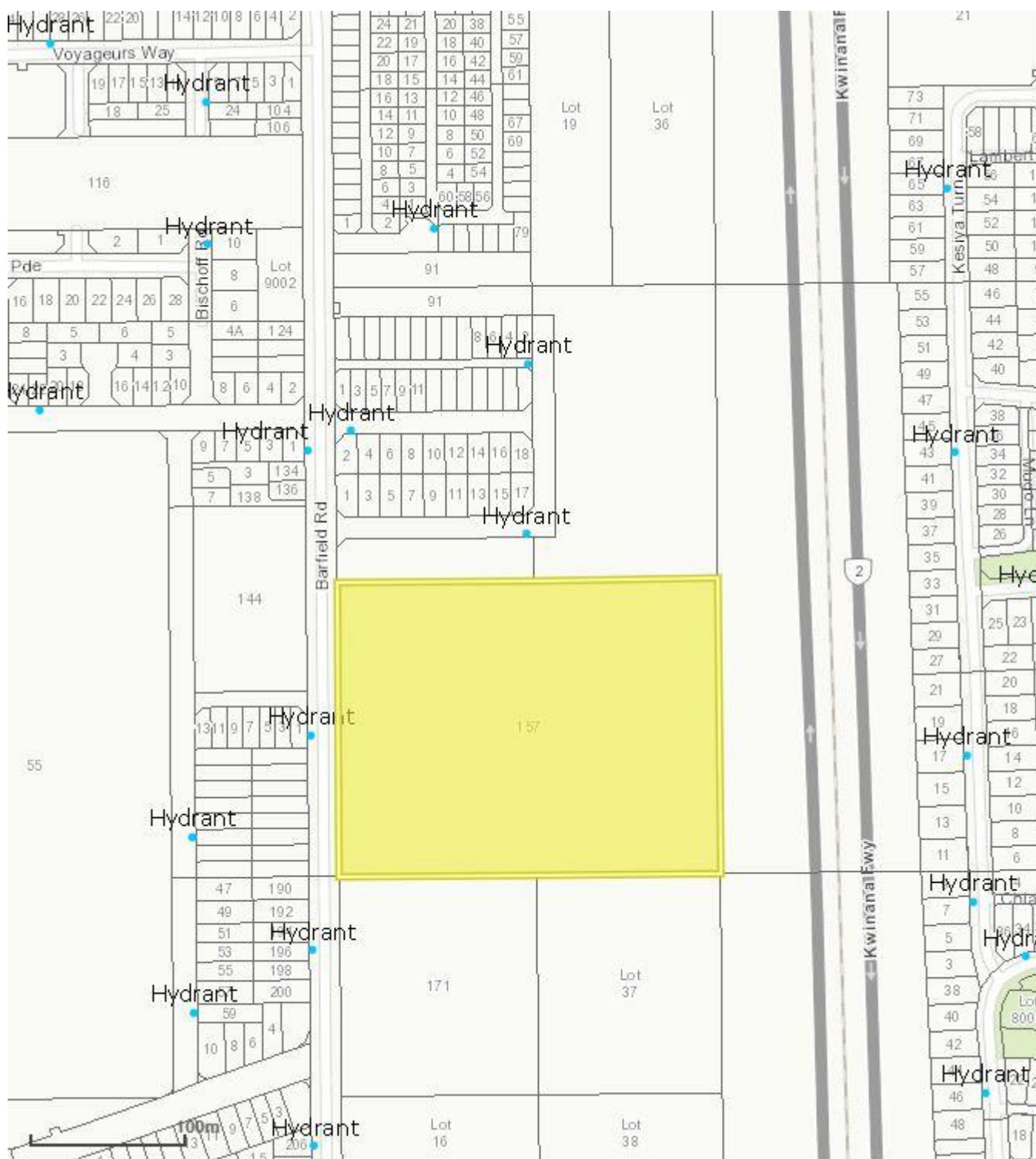
Inspections of private property commence in November and are ongoing until April each year. We have had high levels of compliance within the rural areas, which shows strong community understanding of the impending dangers from bushfires through summer.

Important note: If you receive a letter from the City outlining works you need to undertake to reduce fire risks, you must comply with the advice before the due date or a contractor will be appointed by the City and all associated costs will be charged to you.

Need help with your firebreaks or slashing? Visit the [Yellow Pages](#) for contractors.

Please refer to the City's [Fire Control Order](#) for more information on how to make your property compliant.

Location of the current fire hydrants (blue dots) in the general area of the development and compliant with the Water Corporation standards. The site will be serviced by the reticulated scheme water system which includes the provision of fire hydrants and will be compliant with the State's requirements.



Appendix 3

Copy of the landscape plan.



The POS will be developed into two areas, being:

- Retained vegetation - retained natural bushland where the area will be managed but little other intervention will occur. The area meets the requirements under AS 3959 section 2.2.3.2 (c) Exclusion – Low threat vegetation criteria and therefore does not impact the BAL ratings of the neighbouring lots. The City will decide how to manage the bushfire fuel load so that it meets their objectives and requirements. This area will have the current overstorey, near surface vegetation and surface vegetation retained. Public access into this area will be limited and may require some low-visual impact fencing. This will be an area of around half the POS.
- Cleared vegetation - the cleared area, which will be the next largest component of the POS. The development options for this area will be refined and developed in partnership with the City. The development will consider the surrounding area recreation facilities and may have a basic children play facility and a BBQ area. The development and any revegetation will meet the requirements under AS 3959 section 2.2.3.2 (c) Exclusion – Low threat vegetation and non-vegetated areas criteria and therefore will not impact the BAL ratings of the neighbouring lots
- There will be a concrete path that is 1.5 -2 metres wide supported by 6 metres of cleared land on the four sides of the POS. There will also be a rustic, possible limestone, path 1 metre wide supported by 2 metres of clearing along the edge of the boundary between the retained and cleared vegetation and then through a small portion of the retained vegetation. These paths will provide community access to the POS and limit the potential dieback introduction of spread.

References

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

City of Cockburn, (2022). *Firebreak & Fuel Hazard Reduction Notice 2022/23*. Retrieved 29 November 2022 from <https://www.cockburn.wa.gov.au/Health-Safety-and-Rangers/Fire-and-Emergency-Management/Firebreaks-and-Burning-Permits>

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 29 November 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 2017

Hydrant and water meter locations from <https://espatial.dplh.wa.gov.au/PlanWA/Index.html?viewer=PlanWA>

Rea C. & Choo K., 2021, *Environmental Assessment Report Lot 28 (157) Barfield Road, Hammond Park*, Coterra Environment, Perth, WA.