

Bushfire Attack Level (BAL) Assessment Report for Stages 3A and 3B Apsley Estate, Mandogalup

Site Details

Address: Stages 3A and 3B Apsley Estate: (Lots 101-135, 137-153, 154-159 and 161)

Suburb: Mandogalup, 6167 **State:** Western Australia

Local Government Area: City of Kwinana

Description of building works: Residential development, future buildings

Report details

| | | | |
|---------------------------|-----------------------------------|------------------------|--|
| Report/Job number: | 20PER-16783 | Report version: | v2 |
| Assessment date: | 1/10/2020 | Report date: | 17/11/2020 |
| Author: | Stephen Moore and Daniel Panickar | Review: | Daniel Panickar (BPAD Level 3 – 37802) |



SITE ASSESSMENT AND SITE PLAN

The assessment of the 58 subject lots was undertaken on 1 October 2020 for the purpose of determining the Bushfire Attack Level (BAL) in accordance with *Australian Standard AS 3959-2018 Construction of Buildings in Bushfire Prone Areas (SA 2018) Simplified Procedure (Method 1)*. An overview of the site is presented in Figure 1.

VEGETATION CLASSIFICATION

All vegetation within 100 m of the 58 subject lots was classified in accordance with Clause 2.2.3 of AS 3959-2018. Each distinguishable vegetation class with the potential to determine the BAL is identified below and presented in Figure 1.

It is currently assumed that areas of landscaped vegetation within the site and assessment area will be managed and maintained by QUBE Property Group (the developer) until replaced by residential dwellings and associated infrastructure or handed over to the City of Kwinana in the future.

The Western power easement adjacent to the subject site has been cleared and is being maintained by the developer. The entire Western Power Easement will be cleared and landscaped following the

development, approval and implementation of a landscaping plan. The intent of this landscaping plan is to maintain the entire easement adjacent to the subject site as low threat vegetation.

Plot 1 Classification or Exclusion Clause Class A Forest

Photo Point 1

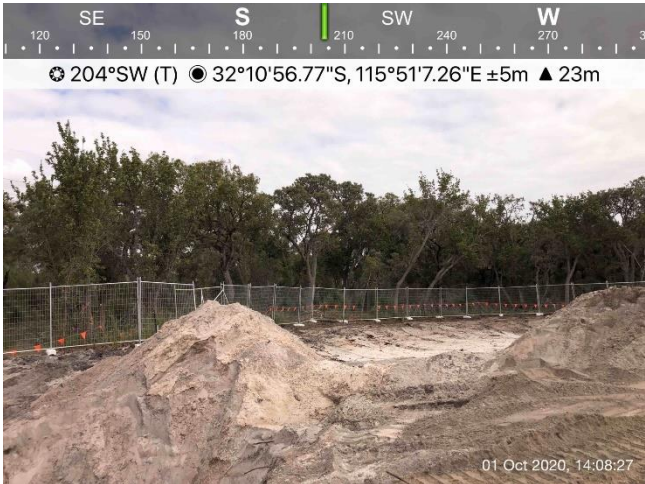
Classified vegetation within this plot is comprised of trees to 30 m tall with approximately 30 to 70% foliage cover in a wetland setting within a conservation reserve.
Slope under the vegetation has been assessed as upslope/flat land.



Plot 2 Classification or Exclusion Clause Class D Scrub

Photo Point 2

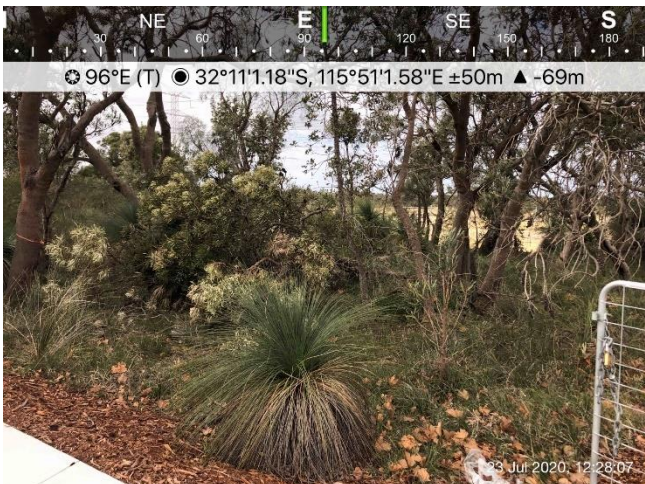
Classified vegetation within this plot is comprised of shrubs >2 m high with greater than 30% foliage cover. Vegetation represents banksia woodlands in a scrub structure.
Slope under the vegetation has been assessed as upslope/flat land.



Plot 2 Classification or Exclusion Clause Class D Scrub

Photo Point 3

Classified vegetation within this plot is comprised of shrubs >2 m high with greater than 30% foliage cover. Vegetation represents banksia woodlands in a scrub structure within a conservation reserve.
Slope under the vegetation has been assessed as upslope/flat land.



Plot 2 Classification or Exclusion Clause Class D Scrub

Photo Point 4

Classified vegetation within this plot is comprised of shrubs >2 m high with greater than 30% foliage cover. Vegetation represents regrowing shrubs within a Western Power easement.

Slope under the vegetation has been assessed as upslope/flat land.



Plot 3 Classification or Exclusion Clause Excluded – clause 2.2.3.2 (c)

Photo Point 5

This plot has been excluded under Clause 2.2.3.2 (c) of AS 3959-2018. This photo depicts land within the Planning Control Area that contains pockets of vegetation <0.25 ha in size and ≥20 m from each other and the site.



Plot 4 Classification or Exclusion Clause Excluded – clause 2.2.3.2 (e) & (f)

Photo Point 6 (Indicative only)

This plot represents vegetation that is yet to be planted within drainage basins. The mature state of the plantings will be managed plantings (refer to Appendix B).



Plot 4 Classification or Exclusion Clause Excluded – clause 2.2.3.2 (e) & (f)

Photo Point 7

This plot has been excluded under Clause 2.2.3.2 (e) & (f) of AS 3959-2018. This photo depicts managed landscaping and footpaths adjacent to Apsley Estate.



Plot 4 Classification or Exclusion Clause Excluded – clause 2.2.3.2 (e) & (f)

Photo Point 8

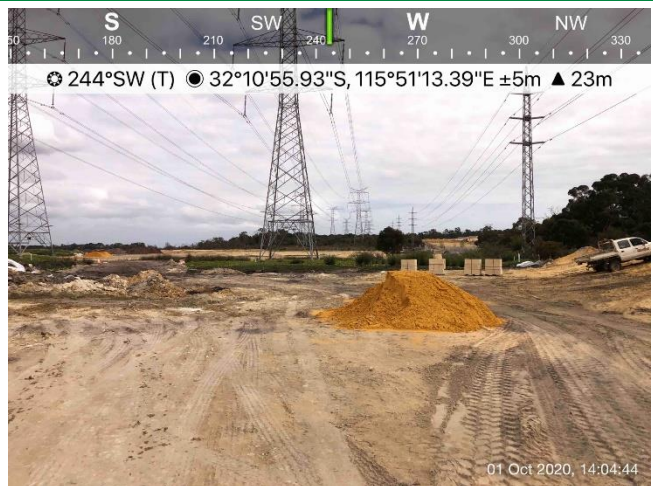
This plot has been excluded under Clause 2.2.3.2 (e) & (f) of AS 3959-2018. This photo depicts managed landscaping and a fire access track within Apsley Estate.



Plot 4 Classification or Exclusion Clause Excluded – clause 2.2.3.2 (e) & (f)

Photo Point 9

This plot has been excluded under Clause 2.2.3.2 (e) & (f) of AS 3959-2018. This photo depicts land that has been cleared for landscaping and construction works within a Western Power easement.



RELEVANT FIRE DANGER INDEX

The Fire Danger Index (FDI) for this site has been determined in accordance with Table 2.1 of AS 3959-2018. The FDI for WA is FDI 80.

POTENTIAL BUSHFIRE IMPACTS

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below, Table 1 and Figure 2.

Table 1: BAL Analysis AS 3959-2018

| Plot and vegetation classification | Effective slope | Hazard separation distance | BAL rating | Comment |
|--|-----------------|----------------------------|------------|--------------------------------------|
| Plot 1 Class A Forest | Upslope/flat | <16 | BAL-FZ | No development proposed in this area |
| | | 16-<21 | BAL-40 | No development proposed in this area |
| | | 21-<31 | BAL-29 | No development proposed in this area |
| | | 31-<42 | BAL-19 | No development proposed in this area |
| | | 42-<100 | BAL-12.5 | Development proposed in this area |
| Plot 2 Class D Scrub | Upslope/flat | <10 | BAL-FZ | No development proposed in this area |
| | | 10-<13 | BAL-40 | No development proposed in this area |
| | | 13-<19 | BAL-29 | No development proposed in this area |
| | | 19-<27 | BAL-19 | Development proposed in this area |
| | | 27-<100 | BAL-12.5 | Development proposed in this area |
| Plot 3 Excluded as per clause 2.2.3.2 (c) of AS3959- 2009 | | N/A | | |
| Plot 4 Excluded as per clause 2.2.3.2 (e) and (f) of AS3959- 2009 | | N/A | | |

DETERMINED BUSHFIRE ATTACK LEVEL (BAL)

The determined Bushfire Attack Level (highest BAL) for the proposed works has been determined in accordance with Clause 2.2.6 of AS 3959-2018 relevant data from the BAL assessment shown in Figure 2 and Table 2. Information regarding potential to reduce BAL ratings for certain lots is provided below:

- Lot 125 is currently rated as BAL-FZ, however provided a future dwelling is located 13 m from the eastern boundary of the lot, it will be subject to BAL-29;
- Lot 142 is currently rated as BAL-19, however provided a future dwelling is located 3.5 m from the southern boundary of the lot, it will be subject to BAL-12.5;
- Lot 143 is currently rated as BAL-19, however provided a future dwelling is located 6 m from the southern boundary of the lot, it will be subject to BAL-12.5;
- Lot 118 is currently rated as BAL-12.5, however provided a future dwelling is located 0.1 m from the eastern boundary of the lot, it will be subject to BAL-LOW; and
- Lot 108 is currently rated as BAL-12.5, however provided a future dwelling is located 1.1 m from the southern boundary of the lot, it will be subject to BAL-LOW.

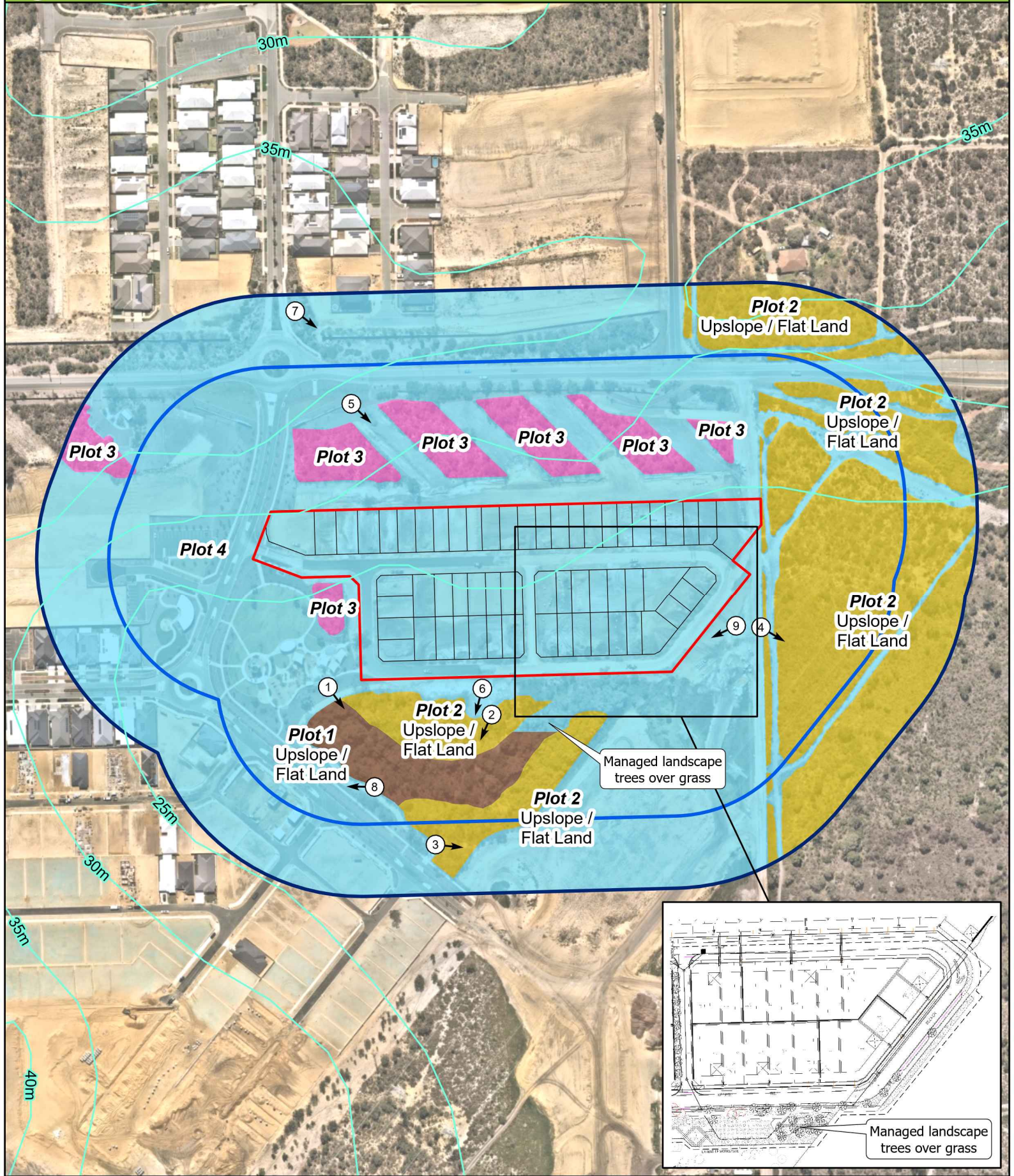
Table 2: BAL Assessment summary

| BAL | Affected lots | Construction sections to be consulted in AS 3959-2018 |
|----------|--|---|
| BAL-FZ | Lot 125* | N/A |
| BAL-40 | Nil | N/A |
| BAL-29 | Nil | N/A |
| BAL-19 | Lots 142* and 143*. | 3 and 6 |
| BAL-12.5 | Determined Bushfire Attack Level for: Lots 102*, 103*, 104*, 105*, 106*, 107*, 108*, 118*, 119, 120, 121, 122, 123, 124, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 137*, 140*, 141*, 138, 139, 144, 145, 146, 147, 148, 149, 150, 151, 152, 154, 155, 156, 157, 158, 159 and 161. | 3 and 5 |
| BAL-LOW | Determined Bushfire Attack Level for: Lots 101, 109,110, 111, 112, 113, 114, 115, 116 and 117. | 3 and 4 |

* INDICATES THAT A SETBACK MAY BE ABLE TO REDUCE THE BAL RATING FOR A FUTURE DWELLING.

This BAL rating is based on the information current at the date of this document and is valid for 12 months.

Figure 1: Vegetation Classification



- Legend**
- Subject site
 - 100m site assessment
 - 150m site assessment
 - Lot boundary
 - Photo location

- Vegetation classification**
- Class A forest
 - Class D scrub
 - Excluded as per clause 2.2.3.2 (c)
 - Excluded as per clause 2.2.3.2 (e) and (f)
- Contour (5m)

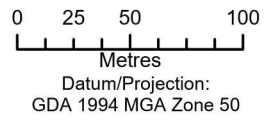
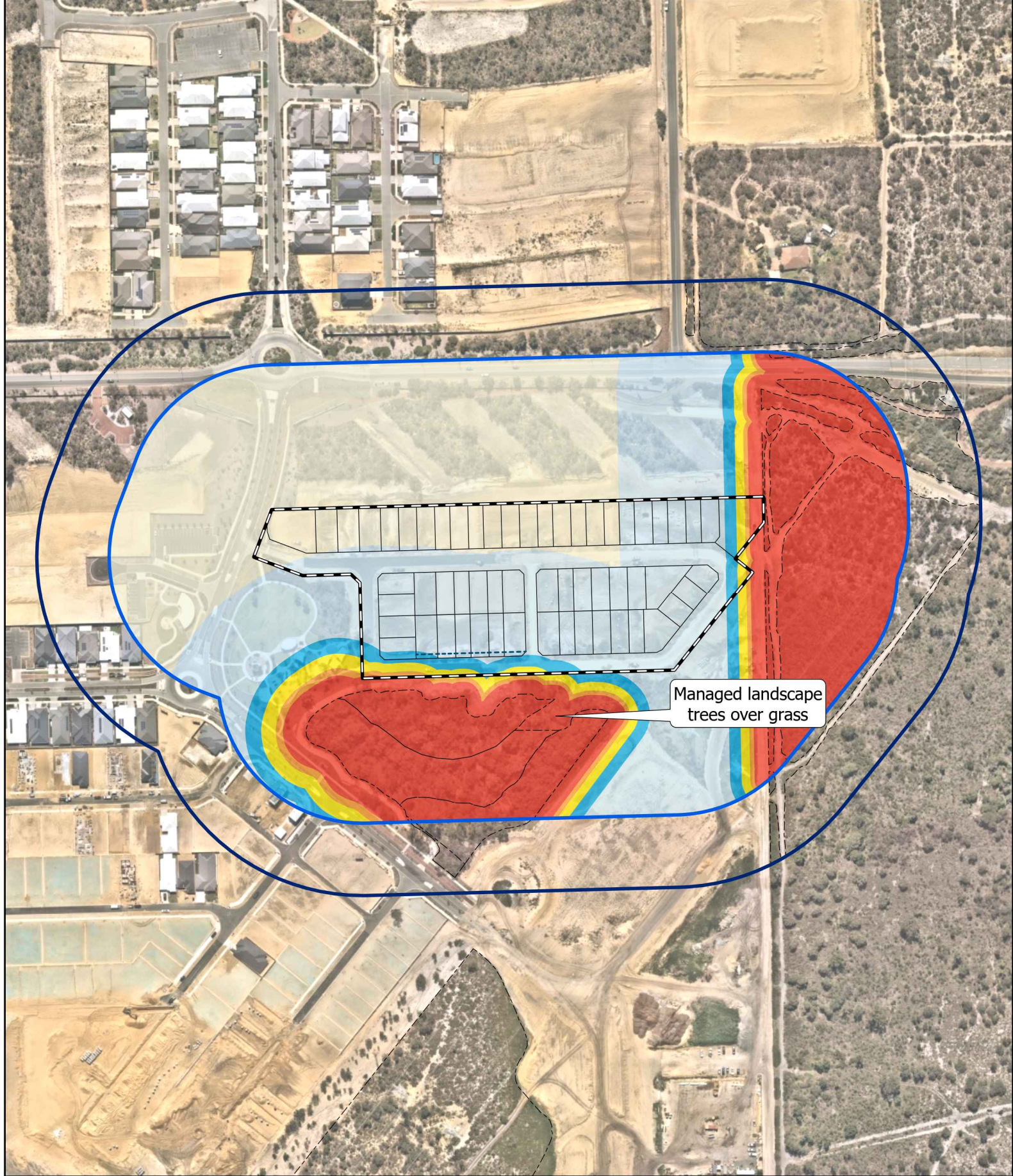


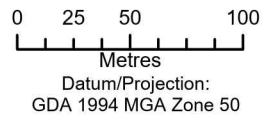
Figure 2: Bushfire Attack Level (BAL) contour map



Managed landscape trees over grass

- Legend**
- Subject site
 - 100m site assessment
 - 150m site assessment
 - Lot boundary
 - Lot Setback (3m)
 - Bushfire Hazard Interface

| Bushfire Attack Level (BAL) | |
|-----------------------------|------------|
| | BAL - FZ |
| | BAL - 40 |
| | BAL - 29 |
| | BAL - 19 |
| | BAL - 12.5 |
| | BAL - LOW |



Appendix A – Additional Information / Advisory Notes

Bushfire Attack Level (BAL) as set out in the Australian Standard 3959 Construction of Buildings in Bushfire-Prone Areas (AS 3959), as referenced in the Building Code of Australia.

| Bushfire Attack Level (BAL) | Classified vegetation within 100 m of the site and radiant heat flux exposure thresholds | Description of predicted bush fire attack and levels of exposure | Construction Section as per AS 3959 |
|-----------------------------|--|--|-------------------------------------|
| BAL-LOW | | There is insufficient risk to warrant specific construction requirements. | 4 |
| BAL-12.5 | $\leq 12.5 \text{ kW/m}^2$ | Ember attack | 3 and 5 |
| BAL-19 | $> 12.5 \text{ kW/m}^2 \leq 19 \text{ kW/m}^2$ | Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux. | 3 and 6 |
| BAL-29 | $> 19 \text{ kW/m}^2 \leq 29 \text{ kW/m}^2$ | Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux | 3 and 7 |
| BAL-40 | $> 29 \text{ kW/m}^2 \leq 40 \text{ kW/m}^2$ | Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux with the increased likelihood of exposure to flames. | 3 and 8 |
| BAL-FZ | $> 40 \text{ kW/m}^2$ | Direct exposure to flames from fire front in addition to radiant heat flux and ember attack | 3 and 9 |

Source: “AS 3959 - 2018 Construction of buildings in bushfire-prone areas” published by Standards Australia, Sydney

Appendix B – Managed planting advice

Hi Matt,

I can confirm that classifying the drainage basin as *Maintained Public Reserves and/or Parkland* is supported by the City as the City will be actively maintaining this portion of POS in the same way POSA is maintained.

Kind regards,

Dana Eidsvold

Landscape Architect



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The City of Kwinana acknowledges the Traditional Custodians of the land in which we live, work and play, the Nyoongar people, and we pay our respect to Elders past and present.

From: Matthew Dunstan <mdunstan@plane.com.au>

Sent: Friday, 13 November 2020 12:25 PM

To: Dana Eidsvold <Dana.Eidsvold@kwinana.wa.gov.au>

Cc: Nele Johnson <Nele.Johnson@kwinana.wa.gov.au>; 'Kris Tilaka' <Kris@qubeproperty.com.au>; 'Panickar, Daniel' <DanielP@ecoaus.com.au>

Subject: 1403315: Apsley - Stage 3 - Landscape and Bushfire Requirements

Importance: High

Hi Dana,

We have progressed documentation for Apsley Stage 3 and will be issuing for council approval in the next week or so.

We have this week received final review comments from the project's bushfire consultant (EcoAus), which require CoK consideration as ultimately some BAL management requirements will become the responsibility of the City.

The requirements relate to the drainage basin and batters within the POS.