

Bushfire Attack Level (BAL) Assessment Report for Stage 12B (Lots 1201-1204 Paparone Road, Lots 1205-1209 and 1222-1223 Karst Road, Lots 1210-1221 and 1224-1236 Barool Street) Baldivis Parks, Baldivis

Site Details

Address: Stage 12B (Lots 1201-1204 Paparone Road, Lots 1205-1209 and 1222-1223 Karst Road, Lots 1210-1221 and 1224-1236 Barool Street) Baldivis Parks, Baldivis

Suburb: Baldivis, 6171 **State:** Western Australia

Local Government Area: City of Rockingham

Description of building works: Residential development (36 lots)

Report details

Report/Job number:	22PER2999	Report version:	v3
Assessment date:	18/07/2023	Report date:	13/09/2023
Author:	Maitland Ely	Review:	Eva Cronin (BPAD Level 2 – 45482)



SITE ASSESSMENT AND SITE PLAN

The assessment of the 36 subject lots was undertaken on 18 July 2023 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 36 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.

Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 1

This plot relates to the Baldyvis Tramway.
Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with varying foliage cover. Understory is comprised of short grasses with isolated juvenile trees.

Vegetation within the Baldyvis Tramway has historically been classified as Class B Woodland under AS 3959-2009. Subsequent consultation with the City of Rockingham in 2023 identified that no revegetation involving tree planting is planned with the Tramway (Appendix B). Thus, the Class B Woodland classification is still deemed appropriate for this area, particularly given the narrow, linear nature of the Tramway containing paths, areas of low fuel etc.

Slope under this vegetation was assessed as upslope/flat land.



Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 2

This plot relates to the Baldyvis Tramway.
Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with varying foliage cover. Understory is comprised of short grasses with isolated juvenile trees.

Vegetation within the Baldyvis Tramway has historically been classified as Class B Woodland under AS 3959-2009. Subsequent consultation with the City of Rockingham in 2023 identified that no revegetation involving tree planting is planned with the Tramway (Appendix B). Thus, the Class B Woodland classification is still deemed appropriate for this area, particularly given the narrow, linear nature of the Tramway containing paths, areas of low fuel etc.

Slope under this vegetation was assessed as upslope/flat land.



Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 3

This plot relates to the Baldyvis Tramway.
Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with varying foliage cover. Understory is comprised of short grasses with isolated juvenile trees.

Vegetation within the Baldyvis Tramway has historically been classified as Class B Woodland under AS 3959-2009. Subsequent consultation with the City of Rockingham in 2023 identified that no revegetation involving tree planting is planned with the Tramway (Appendix B). Thus, the Class B Woodland classification is still deemed appropriate for this area, particularly given the narrow, linear nature of the Tramway containing paths, areas of low fuel etc.

Slope under this vegetation was assessed as upslope/flat land.



Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 4

This plot relates to the Baldivis Tramway.
Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with varying foliage cover. Understory is comprised of short grasses with isolated juvenile trees.

Vegetation within the Baldivis Tramway has historically been classified as Class B Woodland under AS 3959-2009. Subsequent consultation with the City of Rockingham in 2023 identified that no revegetation involving tree planting is planned with the Tramway (Appendix B). Thus, the Class B Woodland classification is still deemed appropriate for this area, particularly given the narrow, linear nature of the Tramway containing paths, areas of low fuel etc.

Slope under this vegetation was assessed as upslope/flat land.



Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 5

This plot relates to the Baldivis Tramway.
Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with varying foliage cover. Understory is comprised of short grasses with isolated juvenile trees.

Vegetation within the Baldivis Tramway has historically been classified as Class B Woodland under AS 3959-2009. Subsequent consultation with the City of Rockingham in 2023 identified that no revegetation involving tree planting is planned with the Tramway (Appendix B). Thus, the Class B Woodland classification is still deemed appropriate for this area, particularly given the narrow, linear nature of the Tramway containing paths, areas of low fuel etc.

Slope under this vegetation was assessed as upslope/flat land.



Plot 1 Classification or Exclusion Clause Class B Woodland

Photo Point 6

This plot relates to the Baldivis Tramway.
Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with varying foliage cover. Understory is comprised of short grasses with isolated juvenile trees.

Vegetation within the Baldivis Tramway has historically been classified as Class B Woodland under AS 3959-2009. Subsequent consultation with the City of Rockingham in 2023 identified that no revegetation involving tree planting is planned with the Tramway (Appendix B). Thus, the Class B Woodland classification is still deemed appropriate for this area, particularly given the narrow, linear nature of the Tramway containing paths, areas of low fuel etc.

Slope under this vegetation was assessed as upslope/flat land.



Plot 2 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 7

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of non-vegetated areas such as footpaths and a playground as well as low threat vegetation (managed parkland and landscaping).



Plot 2 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 8

Vegetation present is regarded as low threat due to factor such as flammability, moisture content or fuel load (managed grass – sporting oval).



Plot 2 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 9

Vegetation present is regarded as low threat due to factors such as flammability, moisture content or fuel load (managed landscaping).



Plot 2 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e)

Photo Point 10

Non-vegetated area that has been excluded under 2.2.3.2 (e) of AS 3959: 2018. The area comprises of cleared areas for future residential development.

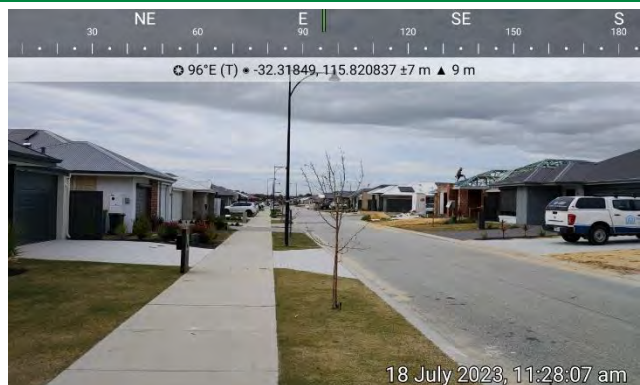


Plot 2 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 11

This area has been excluded under 2.2.3.2 (e) and (f) of the AS 3959: 2018. The area comprises of non-vegetated areas such as roads, footpaths and residential houses as well as low threat vegetation that is comprised of gardens and landscaping.



Plot 2 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e)

Photo Point 12

Non-vegetated area that has been excluded under 2.2.3.2 (e) of AS 3959: 2018. The area comprises of cleared areas for future residential development.



Plot 2 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 13

This area has been excluded under 2.2.3.2 (e) and (f) of the AS 3959: 2018. The area comprises of non-vegetated areas such as roads, footpaths and residential houses as well as low threat vegetation that is comprised of landscaping.



Plot 2 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 14

Vegetation present is regarded as low threat due to factors such as flammability, moisture content or fuel load (managed landscaping).



Plot 2 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 15

Vegetation present is regarded as low threat due to factors such as flammability, moisture content or fuel load (managed parkland).



RELEVANT FIRE DANGER INDEX

The fire danger index for this site has been determined in accordance with Table 2.1 of AS 3959: 2018.

Relevant Fire Danger Index			
FDI 40 <input type="checkbox"/>	FDI 50 <input type="checkbox"/>	FDI 80 <input checked="" type="checkbox"/>	FDI 100 <input type="checkbox"/>
<i>Table 2.4.5</i>	<i>Table 2.4.4</i>	<i>Table 2.4.3</i>	<i>Table 2.4.2</i>

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 1.

Table 1: BAL Analysis AS 3959: 2018

Plot	Vegetation Classification	Effective Slope	Separation distances required				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class B Woodland	All upslopes and flat land (0 degrees)	<10	10-<14	14-<20	20-<29	29-<100
2	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)	-	No separation distances required – BAL-LOW				

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 site assessment shown in Table 2 and Figure 2.

Table 2: BAL Assessment summary

Lot	BAL rating (highest BAL) No lot setbacks	BAL rating (lowest BAL) Lot setbacks present	Minimum set back required to achieve BAL-19 for a future dwelling on lot
1201	BAL-19	BAL-19	N/A
1202	BAL-12.5	BAL-12.5	N/A
1203	BAL-12.5	BAL-12.5	N/A
1204	BAL-12.5	BAL-12.5	N/A
1205	BAL-29	BAL-19	4.1 m
1206	BAL-29	BAL-19	3.4 m
1207	BAL-29	BAL-19	1.9 m
1208	BAL-29	BAL-19	3.5 m
1209	BAL-29	BAL-19	3.5 m
1210	BAL-12.5	BAL-12.5	N/A
1211	BAL-12.5	BAL-12.5	N/A
1212	BAL-12.5	BAL-12.5	N/A
1213	BAL-12.5	BAL-12.5	N/A
1214	BAL-12.5	BAL-12.5	N/A
1215	BAL-LOW	BAL-LOW	N/A
1216	BAL-LOW	BAL-LOW	N/A
1217	BAL-LOW	BAL-LOW	N/A
1218	BAL-LOW	BAL-LOW	N/A
1219	BAL-LOW	BAL-LOW	N/A
1220	BAL-LOW	BAL-LOW	N/A
1221	BAL-LOW	BAL-LOW	N/A
1222	BAL-29	BAL-19	3.5 m
1223	BAL-29	BAL-19	0.9 m
1224	BAL-12.5	BAL-12.5	N/A
1225	BAL-12.5	BAL-12.5	N/A
1226	BAL-12.5	BAL-12.5	N/A
1227	BAL-12.5	BAL-12.5	N/A
1228	BAL-12.5	BAL-12.5	N/A
1229	BAL-LOW	BAL-LOW	N/A
1230	BAL-LOW	BAL-LOW	N/A

Lot	BAL rating (highest BAL) No lot setbacks	BAL rating (lowest BAL) Lot setbacks present	Minimum set back required to achieve BAL-19 for a future dwelling on lot
1231	BAL-LOW	BAL-LOW	N/A
1232	BAL-LOW	BAL-LOW	N/A
1233	BAL-LOW	BAL-LOW	N/A
1234	BAL-LOW	BAL-LOW	N/A
1235	BAL-LOW	BAL-LOW	N/A
1236	BAL-LOW	BAL-LOW	N/A

Future dwellings on proposed lots 1205-1209 and 1222-1223 can achieve a rating of BAL-19 with minimum setbacks (as detailed in Table 2 above) from the western boundary of the lot.

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

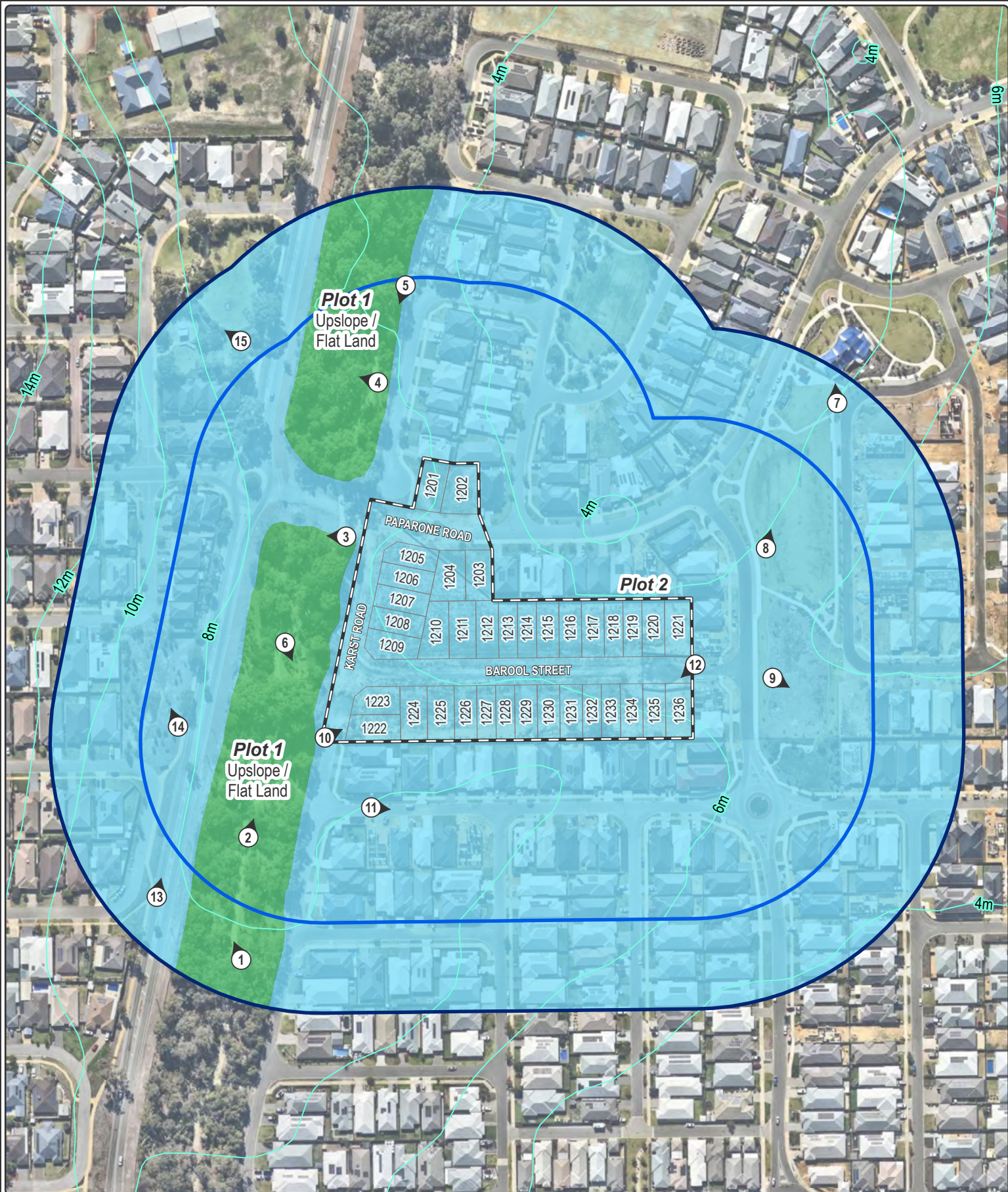








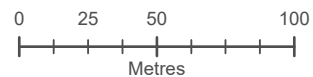


Figure 1: Vegetation Classification

-  Subject site
-  100m site assessment
-  150m site assessment
-  Lot boundary
-  Photo location
-  Contour (2m)

- Vegetation classification**
-  Class B Woodland
 -  Excluded as per clause 2.2.3.2 (e) and (f)



Datum/Projection:
GDA 1994 MGA Zone 50
22PER2999-SM Date: 12/09/2023



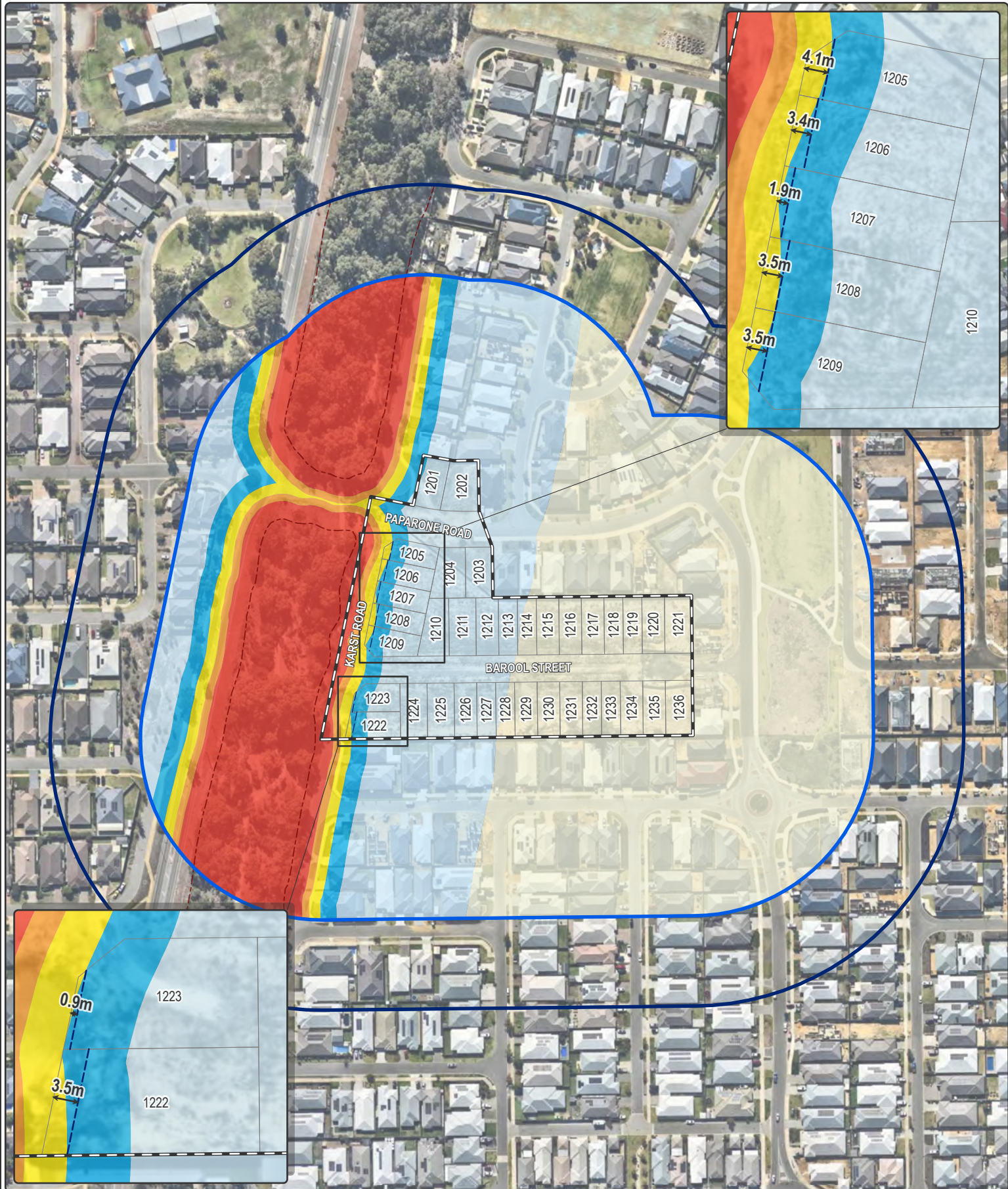
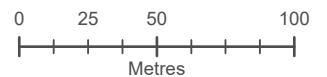


Figure 2: Bushfire Attack Level (BAL) Contours

- Subject site
- 100m site assessment
- 150m site assessment
- Lot boundary
- Bushfire hazard interface
- Lot setback

Bushfire Attack Level (BAL)

- BAL - FZ
- BAL - 40
- BAL - 29
- BAL - 19
- BAL - 12.5
- BAL - LOW



Datum/Projection:
GDA 1994 MGA Zone 50
22PER2999-SM Date: 12/09/2023



Appendix A – Additional Information / Advisory Notes

This assessment was undertaken as per AS 3959: 2018. It is important that the current version of AS 3959, is consulted for construction purposes.

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

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 – Baldvis Tramway Vegetation

From: Brett Ashby <Brett.Ashby@rockingham.wa.gov.au>
Sent: Thursday, 16 March 2023 10:46 AM
To: Wayne Burns <Wayne.burns@frasersproperty.com.au>
Cc: David Waller <David.Waller@rockingham.wa.gov.au>; James Henson <James.Henson@rockingham.wa.gov.au>; Luke Rogers <Luke.Rogers@rockingham.wa.gov.au>; Cyril Sharrock <Cyril.Sharrock@rockingham.wa.gov.au>
Subject: RE: Baldivis Parks Stage 18 BAL Assessment

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Good morning Wayne,

Further to our conversation, I've been out on-site and discussed with relevant staff within the City. It's agreed that there isn't further revegetation required in that area of the Tramway, particularly with shrubs or trees, however, there may be some areas requiring limited planting of ground covers.

I do note that the City will not be seeking to maintain a specific classification over the tramway, and in this regard will not be removing any trees or shrubs that naturally regenerate in the area.

Regards

Brett



Brett Ashby - Manager Strategic Planning and Environment

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From: Wayne Burns <Wayne.burns@frasersproperty.com.au>
Sent: Wednesday, 1 March 2023 1:15 PM
To: James Henson <James.Henson@rockingham.wa.gov.au>
Cc: Daniel Panickar (danielp@ecoaus.com.au) <danielp@ecoaus.com.au>
Subject: Baldvis Parks Stage 18 BAL Assessment

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Hi James,

As discussed, what we are seeking and what our bushfire consultant requires to maintain a Class B Woodland classification over the Baldvis Tramway within their BAL assessment, is confirmation from the City that it will not be undertaking revegetation within areas of the Tramway adjacent to the Baldvis Parks project, specifically with the planting of shrubs or additional trees?

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