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Eglinton District Centre, Activity Centre Structure Plan

Bushfire Management Plan

Prepared for
Eglinton Estates Pty Ltd
by Strategen

March 2019

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

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Eglinton District Centre, Activity Centre Structure Plan

Bushfire Management Plan

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March 2019

Limitations

Scope of services

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Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

Document control

Client: Eglinton Estates Pty Ltd

Report Version	Revision No.	Purpose	Strategen author	Reviewed by	Submitted to Client	
					Form	Date
Draft Report	Rev A	For client review	Louisa Robertson (BPAD36748)	Zac Cockerill (BPAD37803)	Electronic (email)	31/01/2019
Final Report	**Rev 0**	**For submission**	**Louisa Robertson (BPAD36748)**	**Zac Cockerill (BPAD37803)**	**Electronic (email)**	**08/03/2019**

Filename: WMA18456_01 R001 Rev 0 - 8 March 2019

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1. Proposal details

1.1 Background

Urbis on behalf of Eglinton Hill is seeking to lodge an Activity Centre Structure Plan application to guide future development of the Eglington Activity Centre as a District Centre. The Eglinton District Centre (the project area) is located in the municipality of the City of Wanneroo and encompasses Lot 800 and Part Lot 803. The Activity Centre Structure Plan (ACSP; Figure 1) identifies:

- R30 to R80 residential zones
- Commercial zones
- Service commercial zones
- Education zone
- Railway reserve (for future rail infrastructure) and railway station
- Station square
- Park and ride facilities
- Transfer station
- Public road network
- Temporary access road between Pipidinny Road and Carphin Drive
- Public Open Space (POS) and drainage.

1.2 Site description

The project area comprises approximately 55 ha within Lot 800 and part Lot 803 and is bound by (see Figure 2):

- Pipidinny Road to the north
- Lot 801 to the south
- part Lot 803 to the east
- Marmion Avenue to the west.

The project area is centrally bisected by Lot 802, which is the future rail corridor extending in a north-south direction that is located partially within the bounds of the project area.

The entirety of the project area is designated as being bushfire prone on the *Map of Bush Fire Prone Areas* (DFES 2018).

1.3 Purpose

This Bushfire Management Plan (BMP) has been prepared to address requirements under Policy Measure 6.3 of *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (SPP 3.7; WAPC 2015) and *Guidelines for Planning in Bushfire-Prone Areas* (the Guidelines; WAPC 2017).

1.4 Other plans/reports

A previous BMP was prepared by Strategen in 2016 to guide future development of the Eglinton Local Structure Plan No. 82, which includes the project area (Strategen, 2016).

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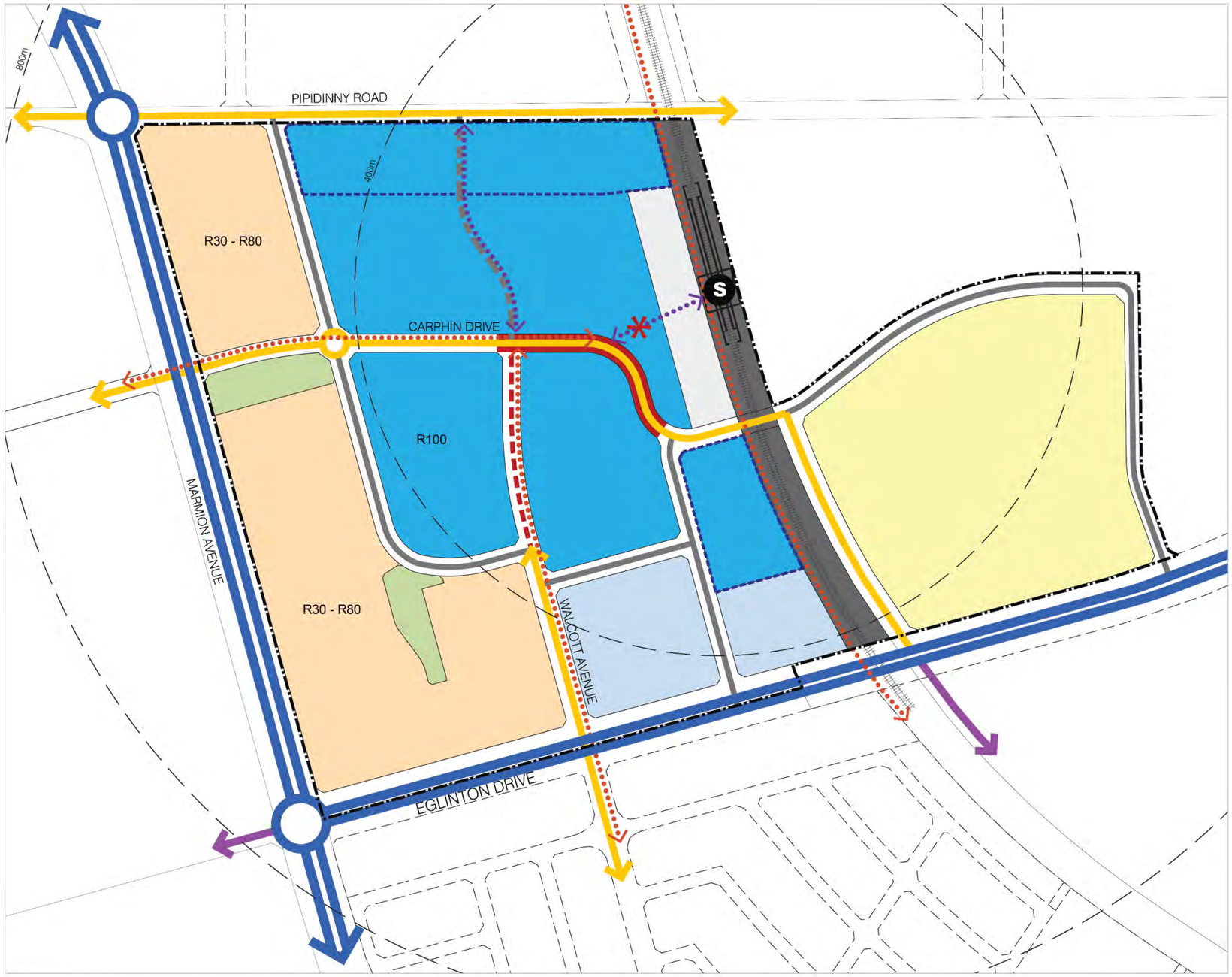

LEGEND

- APPLICATION AREA

ZONES

- RESIDENTIAL
- COMMERCIAL
- SERVICE COMMERCIAL
- EDUCATION

RESERVES

- PUBLIC OPEN SPACE AND DRAINAGE
- INTEGRATOR ROAD A
- INTEGRATOR ROAD A
- NEIGHBOURHOOD CONNECTOR ROAD
- MAJOR ACCESS ROAD
- RAILWAY RESERVE
- TRANSFER STATION

OTHER

- RAILWAY STATION
- WALKABLE CATCHMENT 400/800M
- TEMPORARY ACCESS ROAD
- MAIN STREET
- SHARED STREET
- SHARED PATH
- KEY PEDESTRIAN LINKAGES
- STATION SQUARE
- PARK AND RIDE FACILITIES

URBIS

Eglinton District Centre
Activity Centre Structure Plan

Level 14, The Quadrant, 1 William Street | Perth WA 6000 Australia | +61 8 9346 0500 | URBIS Pty Ltd | ABN 50 105 256 228

DATA SOURCE
Landgate & MNG

PROJECTION
MGA Zone 50

CLIENT
Woodsome

1:2,000 @ A1
1:4,000 @ A3
0 10 20 50 100m

PROJECT NO.
PA1523

DRAWING NO.
02

DATE
18.12.18

REVISION
B

Source: Urbis 18/12/2018

Figure 1: Activity Centre Local Structure Plan

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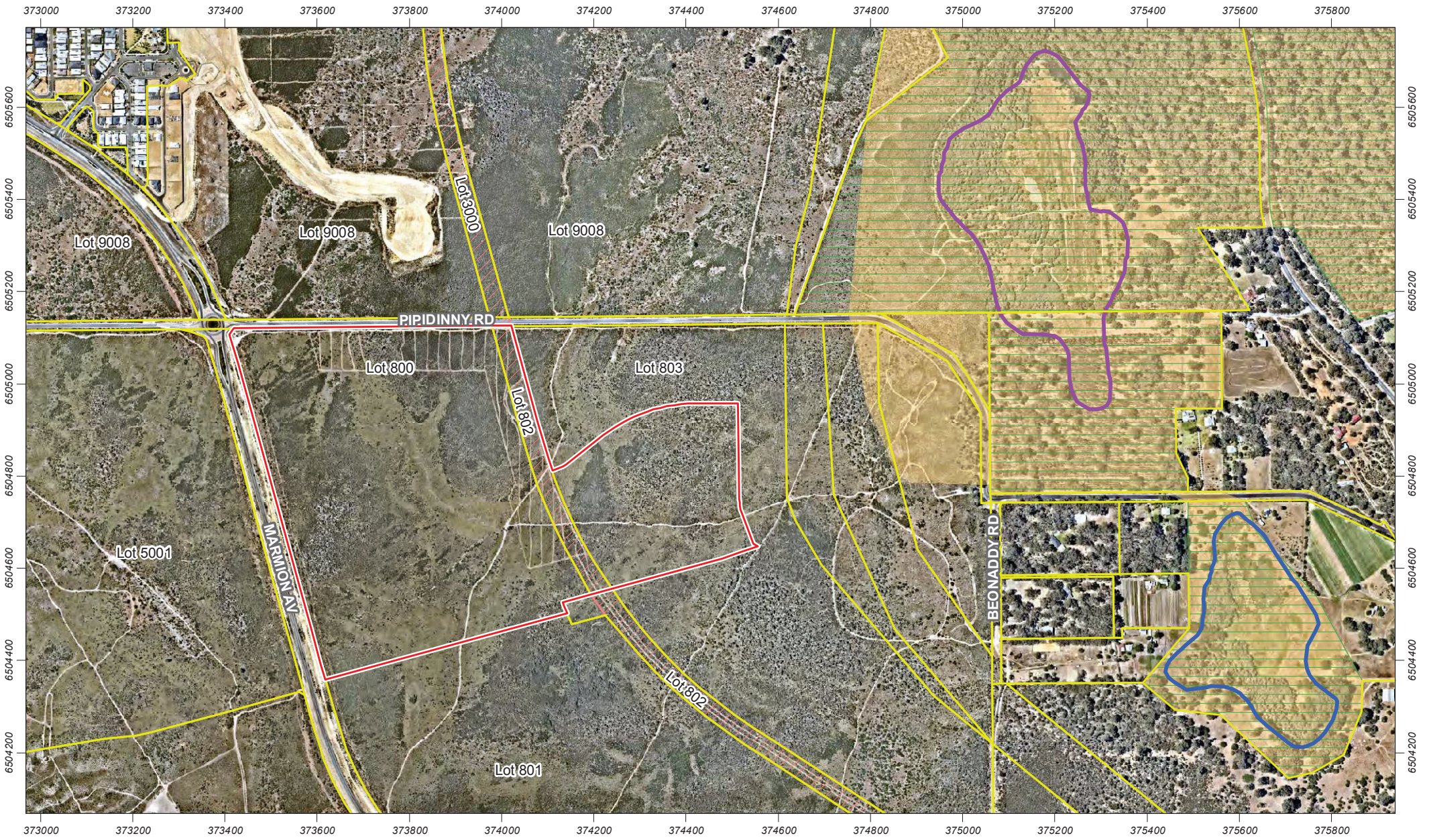

Figure 2: Site overview

N

Scale 1:11,000 at A4

0 100 200 m

Coordinate System: GDA 1994 MGA Zone 50

Date: 17/01/2019

Legend

- Project area
- Cadastre
- Future rail corridor

Wetland category

- Conservation
- Resource Enhancement

- Yanchep National Park
- Bush Forever Site 288

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Data source: Nearmap: Aerial image, flown 11/2018. Landgate: Cadastre, 07/2018. DBCA: National Park/Wetlands, 2018. Client: Woodsome Management Pty Ltd, Development layout, 01/2019. Created by: jcrute

2. Environmental considerations

2.1 Native vegetation – modification and clearing

The majority of the project area contains remnant shrubland/scrub vegetation that will be cleared as part of the proposal. Table 1 provides a summary of a search of publicly available environmental data with significance to the project area.

Environmental impacts resulting from implementation of the proposal will need to be addressed under standard State and Federal environmental assessment and referral requirements under the *Environmental Protection Act 1986* and *Environment Protection and Biodiversity Conservation Act 1999*.

Table 1: Summary of environmental values

Environmental value	Present within or adjacent to project area	Description
Environmentally Sensitive Area	Within and adjacent	The project area and a large proportion of land within the City of Wanneroo is located within an Environmentally Sensitive Area.
Swan Bioplan Regionally Significant Natural Area	No	N/A.
Wetlands	Adjacent	A Conservation Category Wetland and a Resource Enhancement Wetland are located within 1 km east of the project area.
Waterways	No	There are no known waterways within or adjacent to the project area.
Threatened Ecological Communities listed under the EPBC Act	Within	The endangered banksia woodlands of the swan coastal plain TEC is mapped as having potential to occur within the project area.
Threatened and priority flora	No	No threatened and priority flora are mapped as occurring within the project area.
Fauna habitat listed under the EPBC Act	Within	The project area is mapped as being a confirmed Carnaby's Black Cockatoo breeding area and confirmed roosting area. A portion of the project area is mapped as being a potential feeding area. The project area is mapped as containing potential Quenda habitat.
Threatened and priority fauna	Within	The project area is mapped as containing confirmed records of Endangered and Priority fauna species.
Bush Forever Site	Adjacent	Bush Forever Site 288 is located within 1 km east of the project area.
DBCA managed lands and lands and waters (includes legislated lands and waters and lands of interest)	Adjacent	Yanchep National Park is located within 1 km east of the project area (within Bush Forever Site 288).
Conservation covenants	No	No conservation covenants are known to occur over the project area.

2.2 Revegetation / Landscape Plans

The full extent of native vegetation to be retained within the project area will be determined at future planning stages through final allocation of POS and the development of a Landscape Plan. The ACSP (Figure 1) includes a conceptual plan for POS areas which are expected to comprise low threat landscaping in accordance with *AS 3959—2009 Construction of Buildings in Bushfire-Prone Areas* (AS 3959; SA 2009) Clause 2.2.3.2 (f).

3. Bushfire assessment results

3.1 Assessment inputs

3.1.1 Effective slope

Strategen assessed effective slope under classified vegetation through on-ground verification on 10 August 2018 in accordance with AS 3959. Results were cross-referenced with DAFWA 2 m contour data and are depicted in Table 2, Table 3 and Figure 3.

Site observations indicate that slope within the project area and adjacent 150 m assessment area is undulating, with effective slopes ranging from between >0 to 15° downslope.

3.1.2 Vegetation classification

Strategen assessed effective slope and classified vegetation and exclusions within 150 m of the project area through on-ground verification on 14 September 2018 in accordance with AS 3959 and the *Visual Guide for Bushfire Risk Assessment in Western Australia* (DoP, 2016). Georeferenced site photos and a description of the vegetation classifications and exclusions are contained in Appendix 2.

3.1.3 Pre-development inputs

A summary of the assessed pre-development classified vegetation, exclusions and effective slope within the assessment area are listed in Table 2 and illustrated in Figure 3.

Table 2: Pre-development vegetation classifications/exclusions and effective slope

Vegetation plot	Vegetation classification/ exclusion	Effective slope under classified vegetation	Comments
1	Class D Scrub	Downslope >0-5°	Scrub vegetation north of Pipidinny Road.
2	Class D Scrub	Downslope >0-5°	Scrub and shrubland vegetation between northern project area boundary and constructed surface of Pipidinny Road.
3	Class D Scrub	Downslope >0-5°	Scrub vegetation east and south of project area.
4	Class C Shrubland	Downslope >0-5°	Shrubland vegetation east and south of project area.
5	Class D Scrub	Downslope >0-5°	Unmanaged/revegetating vegetation within eastern Marmion Avenue Road reserve (Class D Scrub = worst case classification).
6	Class C Shrubland	Downslope >0-5°	Shrubland vegetation west of Marmion Avenue.
7	Class D Scrub	Downslope >0-5°	Scrub vegetation west of Marmion Avenue.
8	Exclusions 2.2.3.2 (e) and (f)	N/A	Existing public road network and associated landscaping.
9	Class D Scrub	Downslope >0-5°	Scrub vegetation within project area.
10	Class C Shrubland	Downslope >0-5°	Shrubland vegetation within project area.
11	Class C Shrubland	Downslope >0-5°	Vegetation within future rail corridor (north, south and within project area).

3.1.4 Post-development inputs

A summary of the potential post-development classified vegetation, exclusions and effective slope within the assessment area are listed in Table 3 and illustrated in Figure 4.

The post-development vegetation classifications are based on the project area being fully cleared to accommodate future development as well as clearing within the rail corridor both external (north and south) or the project area and within the project area. This has been based on advice that the portion of rail corridor within the 150 m wide assessment area will be constructed and operational by 2021, prior to development of Stage 1, which is expected to occur prior to, or at the same time as the rail corridor is developed.

If further external vegetation is altered prior to future planning stages, the change in vegetation condition is to be captured through a future BHL assessment or BAL contour map assessment.

Table 3: Post-development vegetation classifications/exclusions and effective slope

Vegetation Plot	Vegetation classification/ exclusion	Effective slope under the classified vegetation (degrees)	Comments
1	Class D Scrub	Downslope >0-5°	Scrub vegetation north of Pipidinny Road.
2	Exclusions 2.2.3.2 (e) and (f)	N/A	Scrub/shrubland vegetation within Pipidinny Road reserve removed as part of future construction/development.
3	Class D Scrub	Downslope >0-5°	Scrub vegetation east and south of project area.
4	Class C Shrubland	Downslope >0-5°	Shrubland vegetation east and south of project area.
5	Class D Scrub	Downslope >0-5°	Unmanaged/revegetating vegetation within eastern Marmion Avenue Road reserve (Class D Scrub = worst case classification).
6	Exclusions 2.2.3.2 (e) and (f)	N/A	Marmion Avenue will be widened to four lanes as part of future development which will remove vegetation within the eastern portion of the road reserve.
7	Class D Scrub	Downslope >0-5°	Scrub vegetation west of Marmion Avenue.
8	Exclusions 2.2.3.2 (e) and (f)	N/A	Existing public road network and associated landscaping.
9	Exclusions 2.2.3.2 (e) and (f)	N/A	Scrub vegetation cleared to accommodate future development within project area.
10	Exclusions 2.2.3.2 (e) and (f)	N/A	Shrubland vegetation cleared to accommodate future development (including Eglington Drive extension).
11	Exclusions 2.2.3.2 (e) and (f)	N/A	Scrub vegetation cleared to accommodate development of rail corridor (north, south and within project area).

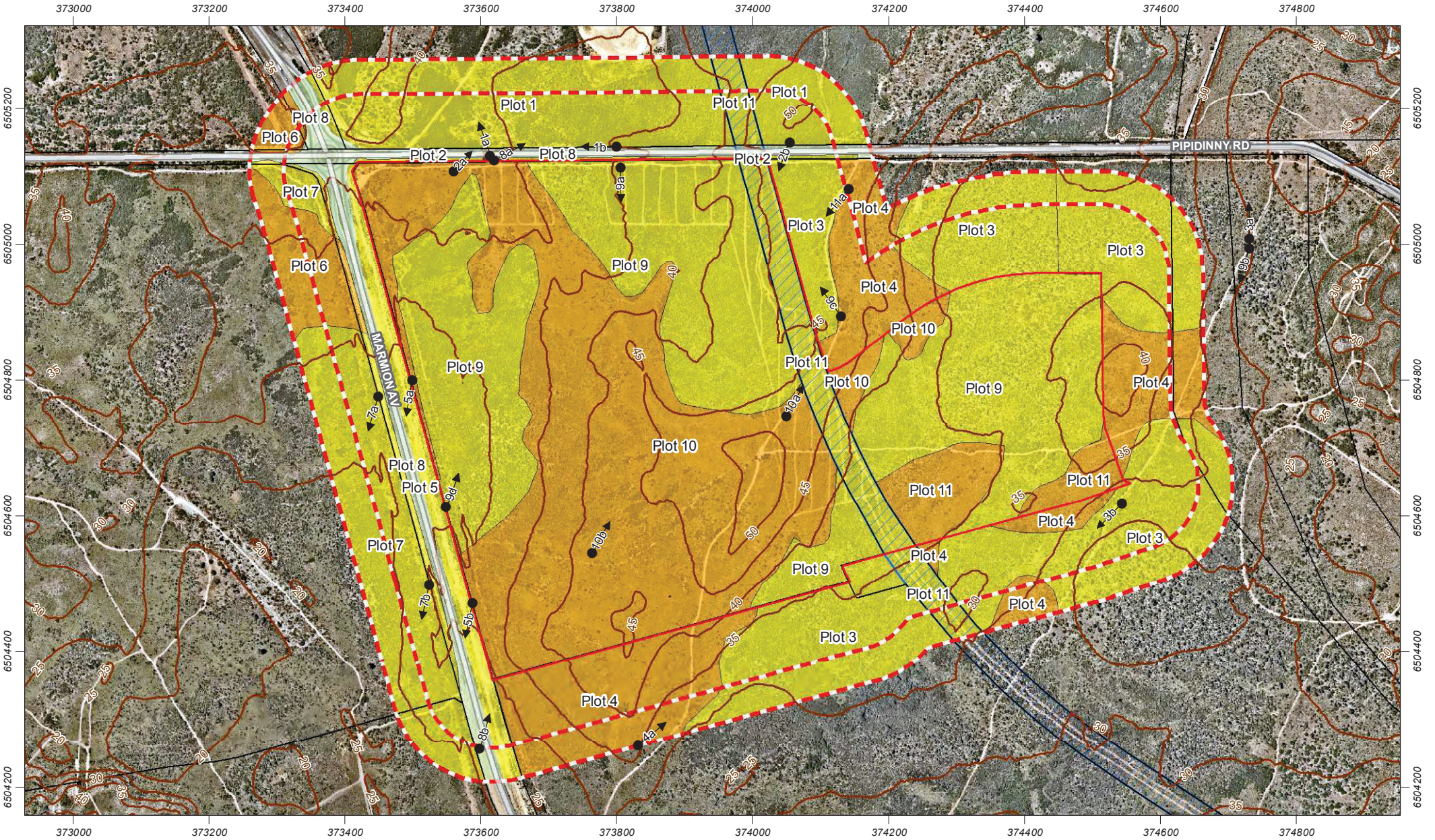

Figure 3: Pre-development vegetation classification and effective slope

N

Scale 1:7,500 at A4

0 100 200 m

Coordinate System: GDA 1994 MGA Zone 50

Date: 30/01/2019

Legend

- Photo point and direction
- Roads
- Project area
- Surface elevation (mAHD)
- 100m assessment area
- 150m assessment area
- Cadastre
- Future rail corridor

Vegetation class

- Class C Shrubland
- Class D Scrub
- Excluded under Clauses 2.2.3.2. (e) and (f)

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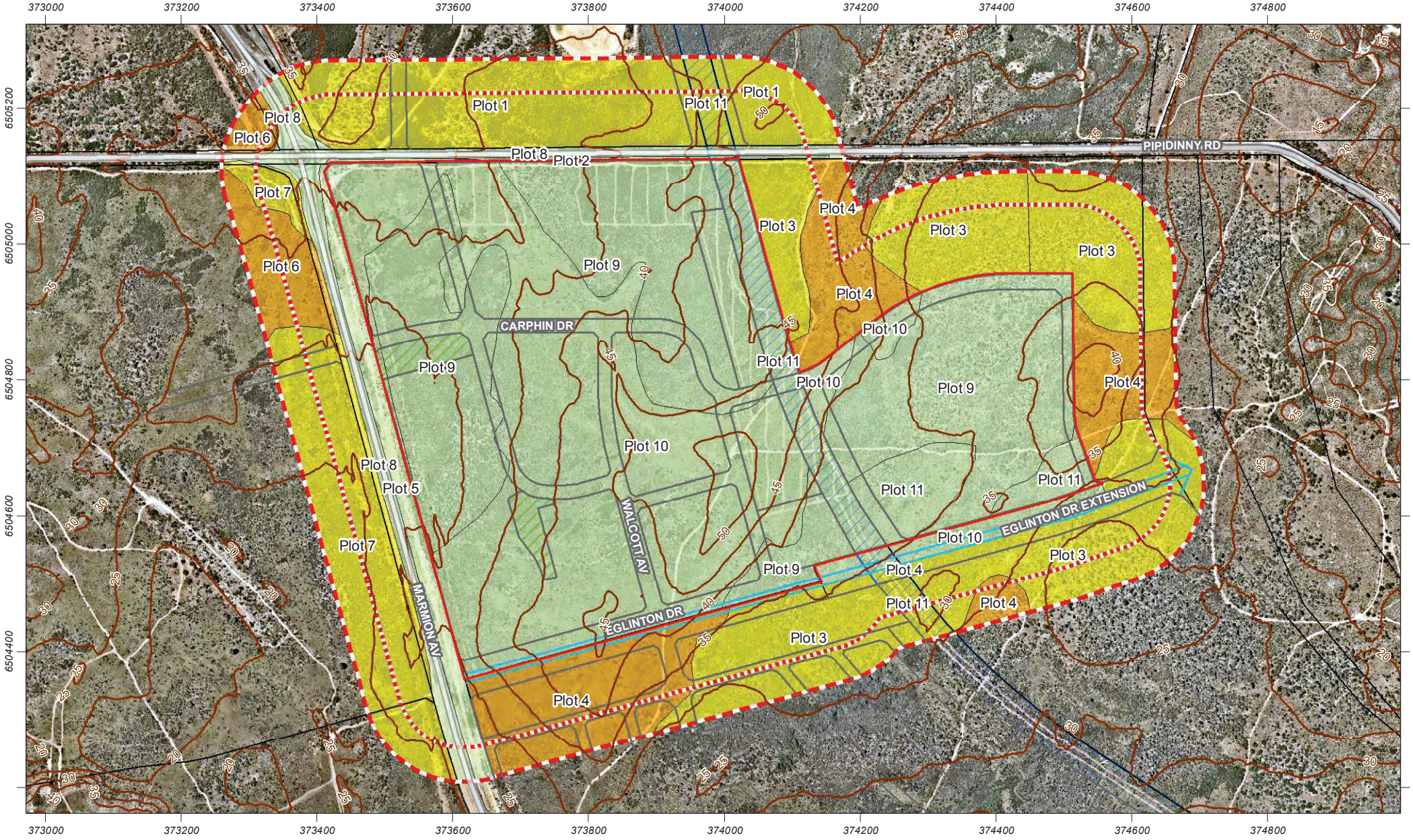

Figure 4: Post-development vegetation classification and effective slope

N

Scale 1:7,500 at A4

0 100 200 m

Coordinate System: GDA 1994 MGA Zone 50

Date: 30/01/2019

Legend

- Roads
- Project area
- Surface elevation (mAHD)
- Concept plan
- POS/Drainage
- 100m assessment area
- 150m assessment area
- Cadastre
- Future rail corridor

Vegetation class

- Class C Shrubland
- Class D Scrub
- Excluded under Clauses 2.2.3.2. (e) and (f)

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Data source: Nearmap: Aerial image, flown 11/2018. Landgate: Cadastre, 07/2018. Client: Woodsome Management Pty Ltd, Development layout, 16/01/2019. Created by: jcrute

3.2 Assessment outputs

3.2.1 Bushfire Hazard Level (BHL) assessment

Pre and post-development vegetation extents have been assigned a bushfire hazard level in accordance with the methodology detailed in Appendix Two of the Guidelines as follows:

- all Class D Scrub has been assigned a bushfire hazard level of Extreme
- all Class C Shrubland has been assigned a bushfire hazard level of Moderate
- all vegetation/land excluded under AS 3959 Clauses 2.2.3.2 (e) and (f) has been assigned a bushfire hazard level of Low
- land that has a Low bushfire hazard level but is within 100 m of Extreme or Moderate bushfire hazard level vegetation has been assigned a Moderate bushfire hazard level.

Pre-development

Strategen has mapped the pre-development bushfire hazard levels within the project area and adjacent 150 m wide assessment area. The bushfire hazard levels have been assessed on the basis of the vegetation discussed in Section 3.1.2 (i.e. the current pre-development extent of vegetation within and surrounding the project area).

The pre-development BHL assessment (refer to Figure 5) shows that based on the existing vegetation, the project area contains land with Moderate and Extreme bushfire hazard levels.

Post-development

Strategen has mapped the potential post-development bushfire hazard levels to demonstrate that the future bushfire hazard levels will be acceptable for future development to occur within the project area. The bushfire hazard levels have been assigned on the basis of the vegetation discussed in Section 3.1.2 and the future expected vegetation extent within and surrounding the project area.

The BHL assessment has been based on the following assumptions:

- vegetation along the eastern side of the Marmion Avenue road will be cleared to accommodate planned future widening of the road
- vegetation within the Pipidinny Road reserve will be removed to accommodate future widening of the road or landscaped to a low threat state
- vegetation within the rail reserve will be cleared and maintained in a low threat state (exclusion 2.2.3.2 (f), or any retained vegetation will meet other exclusion criteria of AS 3959
- vegetation within the POS and drainage areas will comprise low threat vegetation (exclusion 2.2.3.2 [f]), or any retained vegetation will meet other exclusion criteria of AS 3959
- Eglinton Drive will be constructed to the southeast corner of the project area and will be fully cleared or maintained in a fully low threat state.

The post-development BHL assessment (refer to Figure 6) demonstrates that all future habitable development will be located on land with either a Low or Moderate bushfire hazard level.

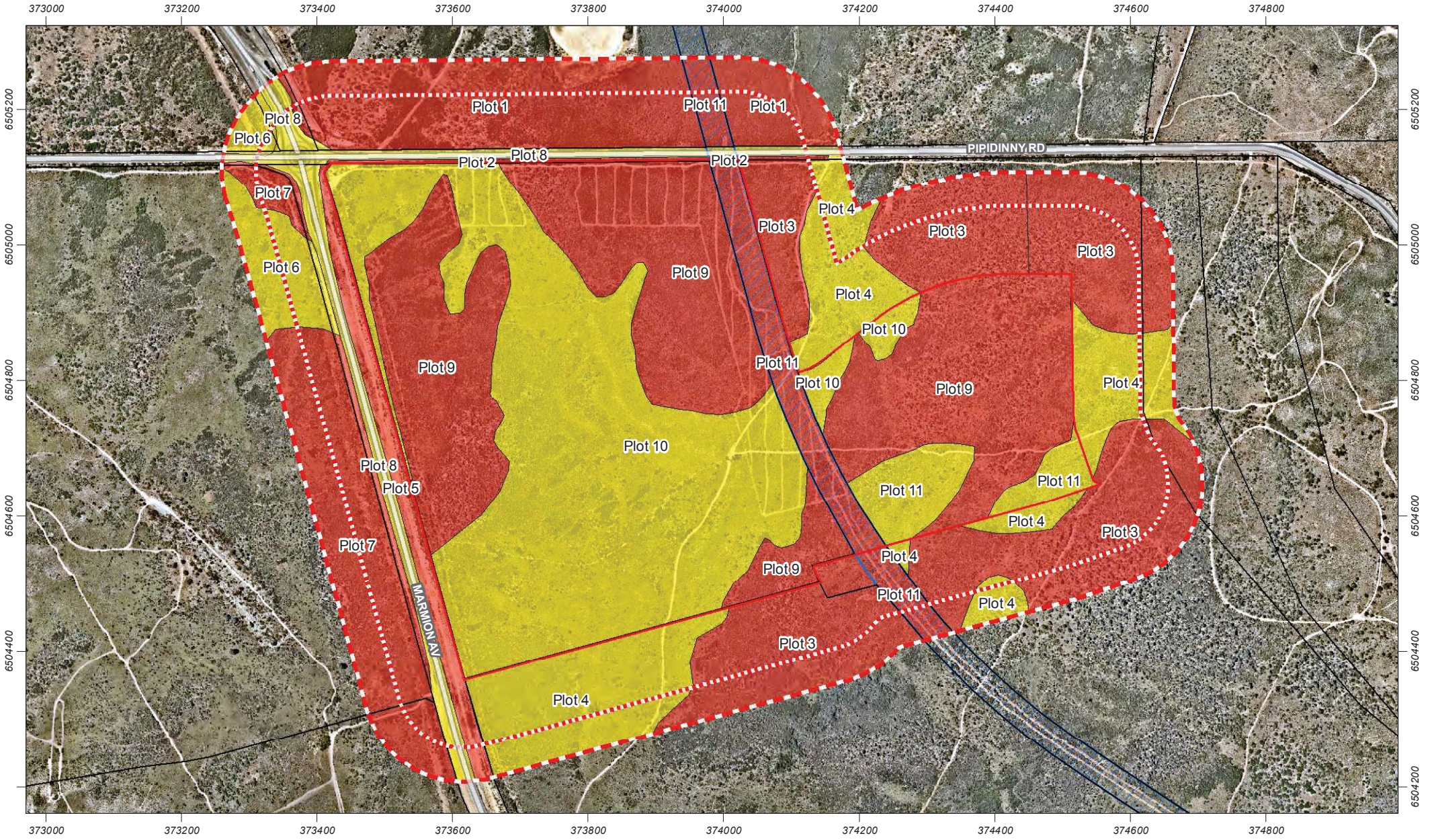

Figure 5: Pre-development bushfire hazard level assessment

N

Scale 1:7,500 at A4

0 100 200 m

Coordinate System: GDA 1994 MGA Zone 50

Date: 30/01/2019

Legend

- Roads
- Project area
- 100m assessment area
- 150m assessment area
- Cadastre
- Future rail corridor

Bushfire Hazard Level

- Extreme
- Moderate

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Data source: Nearmap: Aerial image, flown 11/2018. Landgate: Cadastre, 07/2018. Client: Woodsome Management Pty Ltd, Development layout, 01/2019. Created by: jcrute

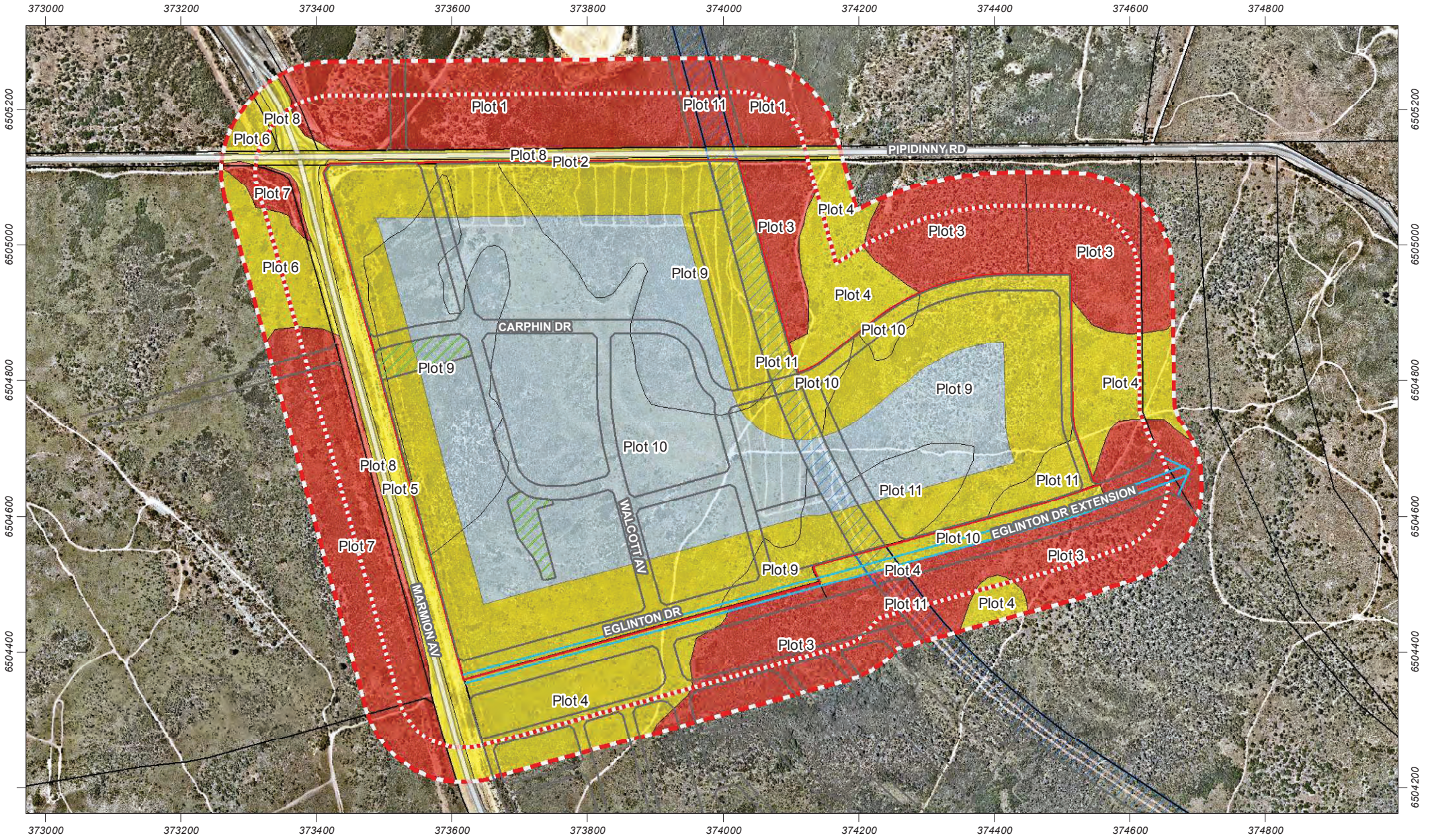

Figure 6: Post-development bushfire hazard level assessment

N

Scale 1:7,500 at A4

0 100 200 m

Coordinate System: GDA 1994 MGA Zone 50

Date: 30/01/2019

Legend

- Roads
- Concept plan
- Project area
- POS/Drainage
- 100m assessment area
- 150m assessment area
- Cadastre
- Future rail corridor

Bushfire Hazard Level

- Extreme
- Moderate
- Low

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Data source: Nearmap: Aerial image, flown 11/2018. Landgate: Cadastre, 07/2018. Client: Woodsome Management Pty Ltd, Development layout, 01/2019. Created by: jcrute

4. Identification of bushfire hazard issues

4.1 Bushfire context

The project area is predominantly surrounded by natural coastal shrub and scrub vegetation that poses a bushfire threat to future development. While this vegetation poses a bushfire threat to the project area currently, consideration of future development within the broader locality should also be considered as a large proportion of immediately surrounding land will either imminently or eventually be cleared to accommodate urban development of the Eglinton area. Future development is known to include:

- continued development of Allara Estate south and east of the project to join Pipidinny Road and the future Mitchell Freeway reserve
- continued development of Amberton Estate, to the south-west of the project area (west of Marmion Avenue) as part of Coastal Village Precinct 3
- development within the Eglinton Hill Precinct 4, immediately south of the project area and Employment Precinct 6 to the south-east
- development within Eglinton Eastern, Central and Western Precincts, to the south-east of the project area
- construction of the railway extension north to Yanchep
- construction of Mitchell Freeway (east of the project area).

The Amberton Estate, Allara Estate and Eglinton Hill development areas are all subject to approved Structure Plans, with various stages going through the subdivision approval process. The railway extension is expected to be completed prior to development of the project area. In this regard, it is highly likely that on commencement of development that the vegetation extents within the area will be reduced and fragmented in comparison to the current extent of vegetation. In the long-term, vegetation extents in proximity to the project area are expected to be limited as the full extent of development potential is realised within the Eglinton locality.

Nevertheless, it is expected that there will be a residual extent of bushfire prone vegetation remaining in proximity to the project area, in which case a bushfire occurring in adjacent vegetation needs to be considered as part of this BMP.

During typical summer afternoon southwest winds, a bushfire has potential to approach the project area through coastal shrub and scrub vegetation west of Marmion Avenue. Marmion Avenue provides a 50 m wide buffer between this vegetation, which would act to provide substantial separation between the bushfire prone vegetation and project area as well as a suitable access corridor for direct bushfire suppression operations.

During adverse, but less common strong northerly winds, Strategen considers a fire approaching the project area from the north/northeast through banksia woodland/ scrub/ shrub vegetation has the potential to be part of a landscape-scale bushfire. Vegetation to the north/northeast is contiguous with large unbroken tracts of vegetation extending several kilometres north towards Yanchep National Park.

As discussed previously it is likely the surrounding vegetation will become fragmented in the future through future urban development along the coast which will significantly reduce the bushfire threat to the project area.

It is considered that the bushfire risk to the proposed development posed by these hazards can be managed through standard application of acceptable solutions under the Guidelines, as well as through a direct bushfire suppression response if required. This is also the case with any vegetation retained and revegetation within proposed POS. Bushfire mitigation strategies applicable to the proposed development are addressed in Section 5 of this BMP.

4.2 Bushfire hazard issues

Examination of strategic development design in accordance with the ACSP concept and pre and post-development bushfire hazard levels has identified the following bushfire hazard issues to be considered at future planning stages:

1. The pre-development BHL assessment (Figure 5) demonstrates that prior to development, the project area contains land with both Moderate and Extreme bushfire hazard levels. In contrast, however, the post-development BHL assessment (Figure 6) demonstrates that on completion of development, the entire project area will comprise land with either a Moderate or Low bushfire hazard level. This satisfies Acceptable Solution A1.1.
2. The pre-development bushfire hazard levels are significant to this particular development as it is expected that development of the area will take a staged approach. Highlighting areas subject to Moderate or Extreme bushfire hazard levels helps to identify interfaces between stages where there is a risk that vegetation retained within future development stages may impose unacceptable bushfire attack levels (i.e. BAL—40 or BAL—FZ) on current stages of development. This bushfire hazard issue can be addressed at future planning stages through the establishment and maintenance of low threat staging buffers, as discussed below under Item 8.
3. The current ACSP design includes direct interfaces between future residential and commercial lots with Marmion Avenue road reserve, Pipidinny Road road reserve, future Eglinton Drive road reserve, the future railway reserve and POS and drainage areas.

   These interfaces have potential to contain bushfire prone vegetation which may result in elevated bushfire attack levels (i.e. BAL—40 or BAL—FZ) for adjacent properties as follows:

   - Marmion Avenue road reserve has historically been cleared but the full road reserve width is not currently being managed in a low threat state. The post-development BHL map has excluded this vegetation based on planned future widening of the road. If the vegetation within the eastern road is not cleared or managed as low threat, the potential Asset Protection Zone (APZ) setback for future adjacent habitable development to achieve BAL—29 is 15 m (based on Class D Scrub, downslope >0-5° (note that the actual setbacks would be determined through a detailed vegetation assessment during the subdivision stage of development).
   - Pipidinny Road road reserve is currently vegetated with mature Class C Shrubland and Class D Scrub vegetation (classified in the BHL assessment as Class D Scrub) immediately adjacent to the northern boundary of the project area. If vegetation within the road reserve is not managed as low threat as part of future development, then the potential APZ setbacks for future habitable development to achieve BAL—29 are:
     - Class C Shrubland, downslope >0-5° = 10 m
     - Class Scrub, downslope >0-5° = 10 m.

     (note that the actual setbacks would be determined through a detailed vegetation assessment during the subdivision stage of development).

     Future potential widening and construction works associated with Pipidinny Road are expected to result in removal of this vegetation, meaning APZ setbacks are unlikely to be required..
   - care should be taken when designing the Eglinton Drive road reserve to ensure that any retained vegetation is reduced to low threat, and that the road reserve is managed in a low threat state. Vegetation within the Eglinton Drive extension also has potential to create BAL impacts on the future school site, if the extension if not fully constructed prior to development of the school. If this occurs, then potential BAL—29 APZ setbacks may apply as follows:
     - Class C Shrubland, downslope >0-5° = 10 m
     - Class Scrub, downslope >0-5° = 10 m.

     The likely future situation is, however, that no natural vegetation will be retained in the Eglinton Drive road reserve and future vegetation would comprise low threat, landscaped streetscaping.
   - As the rail corridor will be generally in-cut through this part of Eglinton (i.e. the railway will be cut below ground level, as opposed to at grade), it is likely that all vegetation will be cleared within the future railway reserve, with no remnant vegetation being retained.

Although unlikely, any vegetation retained or introduced within the rail corridor will need to be considered during subsequent planning stages. There is potential that retained vegetation could meet the following exclusion criteria of AS 3959:

- Clause 2.2.3.2 (a) – vegetation of any type that is more than 100 m away from the site (i.e. developable lots)
- Clause 2.2.3.2 (d) – strips of vegetation less than 20 m in width and not within 20 m of developable lots, or each other, or other areas of vegetation being classified.

- the ACSP includes two POS and drainage areas in the west of the project area. Strategen understands that landscaping is likely to comprise low threat and managed landscaping meeting the exclusion criteria of AS 3959 Clause 2.2.3.2 (f), which would not require APZ setbacks sufficient to achieve BAL—29 for adjacent habitable development. The extent of landscaping will need to be demonstrated through the development of a Landscaping Plan at the relevant future stage of development, otherwise BAL impacts may be applied.

4. As an alternative to providing APZ setbacks to achieve BAL—29 at the interfaces mentioned above, perimeter roads could be used as a strategy to provide the required separation. Perimeter roads would also serve the purpose of providing firefighter access to vegetation hazards at the project area boundary, however, on completion of development, it is expected that the project area will be surrounded by low threat urban development.
5. The concept design makes provisions for future road connections to the east via the Eglinton Drive extension. As timing of extension through to meet the future Mitchell Freeway further east has not yet been determined, there is potential for Eglinton Drive to terminate in a dead-end. To ensure that occupants and firefighters are able to turn around safely along this road a temporary cul-de-sac head, compliant with Acceptable Solution A3.3 is to be provided where required. Similarly, during staged development within the project area, any temporary dead-end roads will need to be provided with a compliant temporary turnaround area where required. Any temporary dead-end roads will serve to provide for future enhanced access and are therefore not considered to be prohibitive to development.
6. Construction of the Neighbourhood Connector Road across the railway reserve will need to be timed carefully to coincide with development of the school site, to ensure that the school is provided with two access routes.
7. Staging of construction will need to ensure that each stage of development is provided with two access routes. The second access route may be provided by a public road, or alternatively by a temporary emergency access way (EAW) to link two public roads.
8. As the project area contains existing bushfire prone vegetation, including Class C Shrubland and Class D Scrub, staged construction at the subdivision stage of planning is to consider the BAL impacts from adjacent future stages that have not yet been developed. 100 m wide low threat buffers may need to be implemented around the current stage of development to ensure there is no residual BAL impact from vegetation that has not yet been cleared or landscaped to achieve a low threat state.

Based on the above, Strategen considers the bushfire hazards within and adjacent to project area and the associated bushfire risks are readily manageable through standard management responses outlined in the Guidelines and AS 3959. These responses will be factored into proposed development as early as possible at all stages of the planning process to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life, property and environmental assets.

5. Assessment against the bushfire protection criteria

5.1 Compliance table

An acceptable solutions assessment against the bushfire protection criteria is provided in Table 4, with the intent of demonstrating how compliance can be achieved at future planning stages.

Table 4: Compliance with the bushfire protection criteria of the Guidelines

Bushfire protection criteria	Method of compliance Acceptable solutions	Proposed bushfire management strategies
Element 1: Location	A1.1 Development location	The post-development BHL assessment (Figure 6) identifies that on completion of development, all developable land will comprise either a Low or Moderate bushfire hazard level.
Element 2: Siting and design	A2.1 Asset Protection Zone	APZs sufficient to achieve BAL—29 are to be implemented for all lots subject to a BAL above BAL-LOW, where required. The required APZs are to be identified at future planning stages based on future subdivision/development design and following a BAL contour assessment. APZs are to be implemented and maintained in accordance with Schedule 1 of the Guidelines (Appendix 3).
Element 3: Vehicular access	A3.1 Two access routes.	On completion of development, the existing and future public road network and proposed public internal roads will provide all occupants with the option of travelling to more than two different destinations. The ACSP (Figure 1) depicts the following future road connections: • two connections to Pipidinny Road in the north (one being via a temporary access road) • three connections to Marmion Avenue in the west via Pipidinny Road, Carphin Drive and Eglinton Drive • three connections to Eglinton Drive in the south via Walcott Avenue; an unnamed neighbourhood connector road east of the railway reserve; and an unnamed major access road extending the perimeter of the education zone. The timing of construction of the Eglinton Drive extension is yet to be determined, however, Strategen understands that this road will be extended at least to the Education zone to provide the future school with two access routes. The access roads described above will provide occupants with options to achieve access to: • Allara Estate approximately 600 m to the north via Marmion Avenue • Amberton Estate approximately 600 m to the south via Marmion Avenue and • Wanneroo Road approximately 2 km to the west via Pipidinny Road. The future extension of Eglinton Drive eastward to connect with the future Mitchell Freeway will also provide additional future access to the east. Future connections to Allara Estate via Pipidinny Road will provide access options to areas directly north of the project area and future connections to Eglinton Hill Estate (south of Eglinton Drive) will provide access options to areas directly south of the project area. In this regard, the proposed development is provided with more than two access routes, which exceeds the requirements of Acceptable Solution A3.1. In addition to the above, two access routes are to be provided for each individual stage of development.
	A3.2 Public road	All public roads are to be constructed to relevant technical requirements under the Guidelines (see Appendix 3).

Bushfire protection criteria	Method of compliance Acceptable solutions	Proposed bushfire management strategies
	A3.3 Cul-de-sac (including a dead-end-road)	No permanent dead-end roads are included in the ACSP. Where temporary dead-ends are created during staged development, or staged construction of Eglinton Drive, temporary cul-de-sac heads are to be installed to the standards stated under Acceptable Solution A3.3, including a minimum 17.5 m diameter turn-around head. Refer to Appendix 3 for full technical requirements.
	A3.4 Battle-axe	Battle-axes are to be avoided in bushfire prone areas. At this stage of planning, the ACSP does not include any battle-axes, however, if battle-axes are included in future subdivision design they are to comply with the requirements of Acceptable Solution A3.4 (refer to Appendix 3) and it must be demonstrated why they are unavoidable. This would only apply to lots in an area subject to BAL-12.5 or higher.
	A3.5 Private driveway longer than 50 m	All private driveways longer than 50 m are to be constructed to relevant technical requirements under the Guidelines (see Appendix 3), including turn-around areas within 50 m of each building, passing bays if driveways are longer than 200 m and additional turn-around areas for fire appliances every 500 m.
	A3.6 Emergency access way	Based on the ACSP design, the proposed development is not considered to require permanent emergency access ways (EAWs). However, temporary EAWs may be required to provide through access to public roads during staged development and are to be constructed to relevant technical requirements under the Guidelines (see Appendix 3).
	A3.7 Fire service access routes (perimeter roads)	Based on the ACSP design, the proposed development is not considered to require permanent fire service access routes (FSARs). Temporary FSARs may be required during staged development to provide firefighter access to and around the perimeter of undeveloped portions of the project area. Any proposed temporary FSAR is to be constructed to the relevant technical requirements of Acceptable Solution 3.7 (see Appendix 3).
	A3.8 Firebreak width	Each stage of development is required to comply with the requirements of Acceptable Solution A3.8 and the annual City of Wanneroo Firebreak and Fuel Hazard Reduction Notice as amended (refer to Appendix 4). The City of Wanneroo Firebreak and Fuel Hazard Reduction Notice details the following requirements: • Land with an area <4,000 m^2 and >4,000 m^2 ∗ a fire break, not less than three (3) metres wide must be cleared immediately inside (or as close as possible) around all external boundaries of the land ∗ all tree branches that over-hang a fire break must betrimmed back to a minimum height of three and a half (3.5) metres above ground level and the growth on the fire break cannot exceed fifty (50) millimetres high. On completion of development, it is expected that the residential lots would be smaller than 4,000 m^2, however as they will be fully developed with residential buildings, cultivated gardens and reticulated lawns (i.e. low threat vegetation), firebreaks would not be required. Similarly, it is likely that the commercial and education lots will comprise fully developed land, in which case firebreaks would not be required. This is to be confirmed at the subdivision and/or development application planning stages. Firebreak requirements are relevant to staged development, where 3 m wide by 3.5 m high perimeter firebreaks will be required to be installed immediately inside all boundaries of balance lots in accordance with the City of Wanneroo Firebreak and Fuel Hazard Reduction Notice (as detailed above),
Element 4: Water	A4.1 Reticulated areas	The proposed development will be connected to reticulated water supply via surrounding development (refer to Appendix 5) in accordance with Water Corporations Design Standard 63 requirements. Existing water hydrants are located at 200 m intervals along Marmion Avenue adjacent to the western boundary of the project area.
	A4.2 Non-reticulated areas	N/A – the proposed development will be provided with a reticulated firefighting water supply.

Bushfire protection criteria	Method of compliance Acceptable solutions	Proposed bushfire management strategies
	A4.3 Individual lots within non-reticulated areas (Only for use if creating 1 additional lot and cannot be applied cumulatively)	N/A – the proposed development will be provided with a reticulated firefighting water supply.

6. Responsibilities for implementation and management of the bushfire measures

This BMP has been prepared as a strategic guide to demonstrate how development compliance will be delivered at future planning stages in accordance with the Guidelines. Aside from the preparation of future BMPs to accompany future subdivision and development applications where appropriate, there are no further items to implement, enforce or review at this strategic stage of the planning process.

Future BMPs prepared for subsequent subdivision and development applications are to meet the relevant commitments outlined in this strategic level BMP, address the relevant requirements of SPP 3.7 (i.e. Policy Measures 6.4 and 6.5 respectively) and demonstrate in detail how the proposed development will incorporate the relevant acceptable solutions or meet the performance requirements of the Guidelines. Future BMPs are to include the following detailed information:

- proposed lot layout, including any public open space (POS) and drainage areas
- detailed landscaping design/plans in regard to POS and drainage areas, consistent with the provisions of this BMP
- post development classified vegetation extent and effective slope
- BAL contour map demonstrating that proposed development areas will achieve BAL–29 or lower
- width and alignment of compliant APZs/setbacks
- confirmation of how bushfire management will be addressed during development staging
- proposed approach to fuel management or AS 3959 application in response to on-site POS
- vehicular access provisions, including demonstration that a minimum of two access routes will be achieved for each stage of development in accordance with Acceptable Solution A3.1
- water supply provisions with regards to reticulated water
- future requirements for any potential vulnerable land uses, such as provision of a Bushfire Emergency Evacuation Plan (if relevant)
- future requirements for any potential high-risk land uses, such as provision of a Bushfire Risk Management Plan (if relevant)
- provisions for notification on Title for any future lots with a rating of BAL–12.5 or greater as a condition of subdivision
- compliance requirements with the current City of Wanneroo annual firebreak notice
- construction of Class 1, 2, 3 or associated 10a buildings in accordance with AS 3959 to the assessed BAL rating
- requirements for BMP/BAL compliance reports as conditions of subdivision
- compliance with performance principles of the bushfire protection criteria
- proposed implementation and audit program outlining all measures requiring implementation and the appropriate timing and responsibilities for implementation.

On the basis of the information contained in this BMP, Strategen considers the bushfire hazards within and adjacent to the project area and the associated bushfire risks are readily manageable through standard management responses outlined in the Guidelines and AS 3959. Strategen considers that on implementation of the proposed management measures, the project area will be able to be developed with a manageable level of bushfire risk whilst maintaining full compliance with the Guidelines and AS 3959.

7. References

Department of Fire and Emergency Services (DFES) 2018, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: *https://maps.slip.wa.gov.au/landgate/bushfireprone/*, [10/01/2019].

Department of Planning (DoP) 2016, *Visual guide for bushfire risk assessment in Western Australia*, Department of Planning, Perth.

Standards Australia (SA) 2009, *Australian Standard AS 3959–2009 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.

Strategen Environmental (Strategen) 2016, *Bushfire Management Plan: Eglinton Estates*, Strategen Environmental, Perth.

Western Australian Planning Commission (WAPC) 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*, Western Australian Planning Commission, Perth.

Western Australian Planning Commission (WAPC) 2017, *Guidelines for Planning in Bushfire Prone Areas*, Version 1.3 August 2017, Western Australian Planning Commission, Perth.

Appendix 1
Vegetation plot photos and description

Photo ID: 1a

Photo ID: 1b

Plot number		Plot 1
Vegetation classification	**Pre-development**	Class D Scrub
	Post-development	Class D Scrub
Description / justification		Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity. Majority of vegetation observed less than 2 m high, classification has applied a worst case approach.

Photo ID: 2a (in right of photo)

Photo ID: 2b (in photo background)

Plot number		Plot 2
Vegetation classification	**Pre-development**	Class D Scrub
	Post-development	Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f])
Description / justification		Plot 2 comprises a combination of Class C Shrubland (<2 height) and Class D Scrub (>2m height). Vegetation is located within Pipidinny Road road reserve, immediately adjacent to the northern boundary of the project area. This vegetation is expected to be cleared or landscaped to low threat as part of future development stages.

Photo ID: 3a

Photo ID: 3b

Plot number		Plot 3
Vegetation classification	**Pre-development**	Class D Scrub
	Post-development	Class D Scrub
Description / justification		Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity.

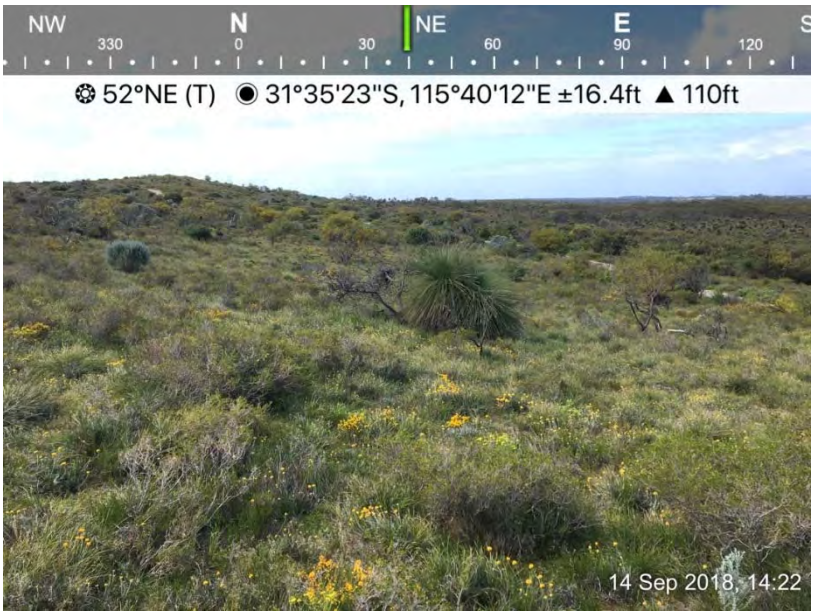


Photo ID: 4a

Plot number		Plot 4
Vegetation classification	**Pre-development**	Class C Shrubland
	Post-development	Class C Shrubland
Description / justification		Shrub vegetation less than 2 m high at maturity.

Photo ID: 5a

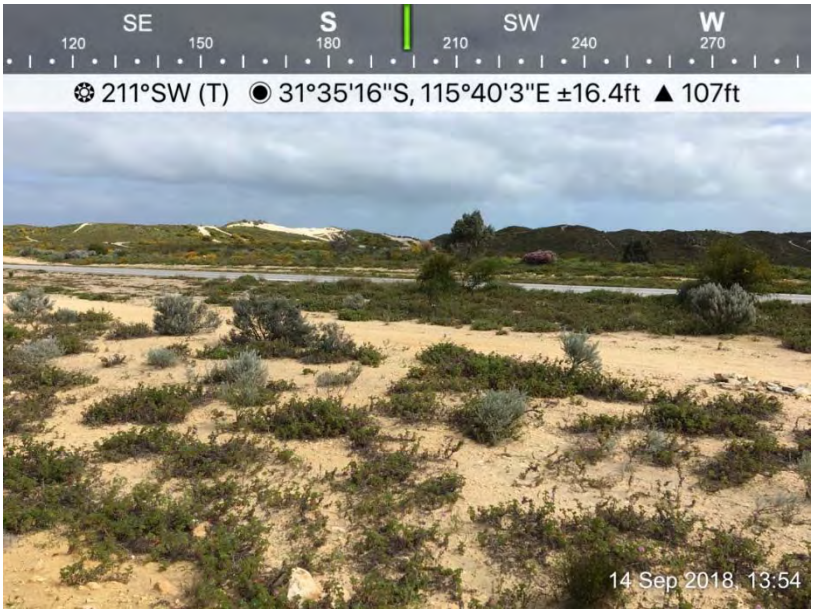


Photo ID: 5b

Plot number		Plot 5
Vegetation classification	**Pre-development**	Class D Scrub
	Post-development	Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f])
Description / justification		Vegetation in a state of natural revegetation within eastern Marmion Avenue road reserve. On completion of the development, the vegetation is expected to be cleared to accommodate planned future widening of Marmion Avenue.

Photo ID: N/A (nearmap imagery dated 5/1/2019)

Photo ID: N/A (Google earth imagery)

Plot number		Plot 6
Vegetation classification	**Pre-development**	Class C Shrubland
	Post-development	Class C Shrubland
Description / justification		Plot 6 predominantly comprises open shrubland vegetation less than 2 m high at maturity. A search of historical imagery dating back to 2009 indicates that this vegetation is in its mature state.

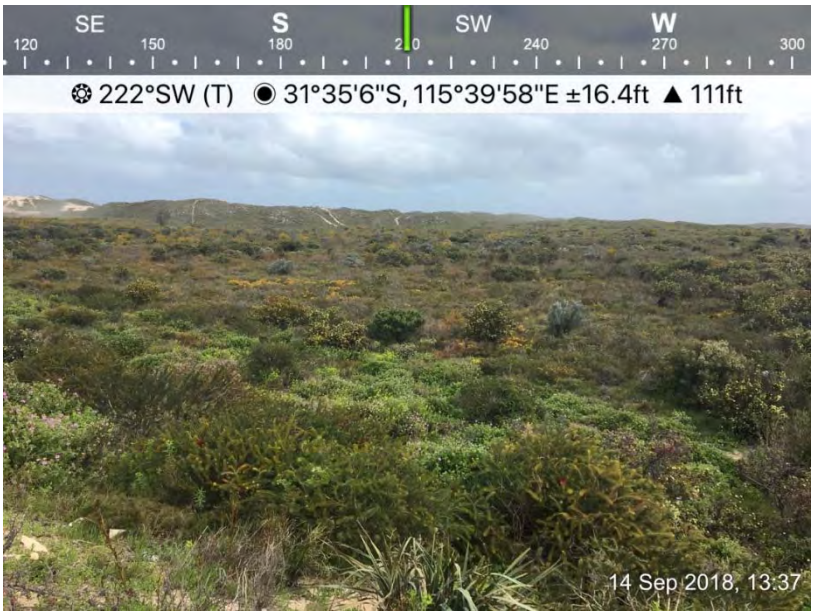


Photo ID: 7a

Photo ID: 7b

Plot number		Plot 7
Vegetation classification	**Pre-development**	Class D Scrub
	Post-development	Class D Scrub
Description / justification		Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity.

Photo ID: 8a

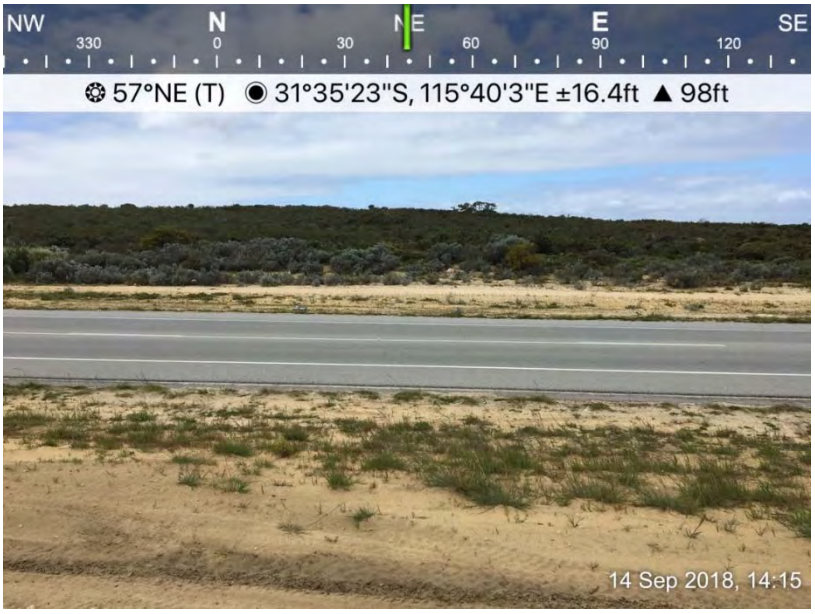


Photo ID: 8b

Plot number		Plot 8
Vegetation classification	**Pre-development**	Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f])
Description / justification		Plot 8 includes all existing public roads within the assessment area, comprising non-vegetated bitumen roads and low threat landscaping within nature strips/roundabouts.

Photo ID: 9a

Photo ID: 9b

Photo ID: 9c

Photo ID: 9d

Plot number		Plot 9
Vegetation classification	**Pre-development**	Class D Scrub
	Post-development	Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f])
Description / justification		Pre-development vegetation comprises vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity. On completion of the development, the plot is expected to be cleared and maintained in a non-vegetated/low threat state to accommodate residential development within the project area.

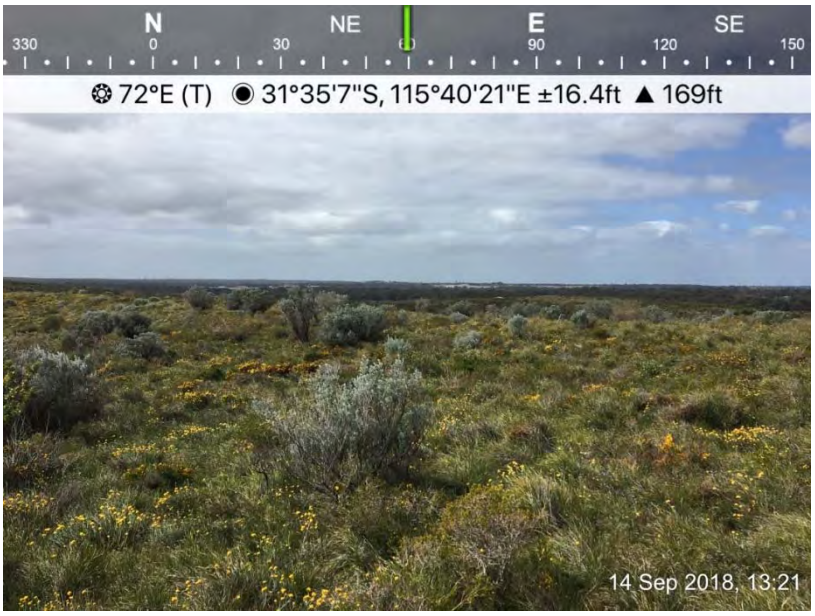


Photo ID: 10a

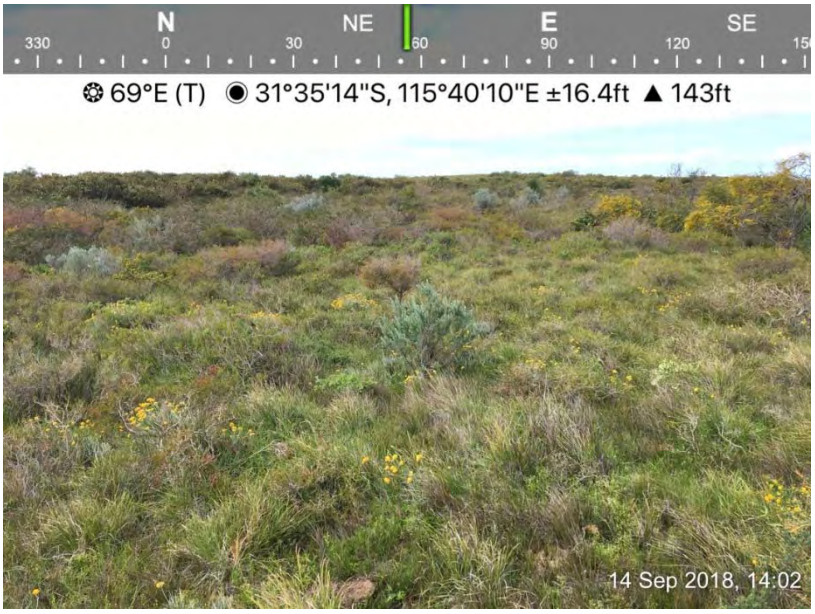


Photo ID: 10b

Plot number		Plot 10
Vegetation classification	**Pre-development**	Class C Shrubland
	Post-development	Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f])
Description / justification		Pre-development vegetation comprises shrub vegetation less than 2 m high at maturity. On completion of the development, the plot is expected to be cleared and maintained in a non-vegetated/low threat state to accommodate residential development within the project area.

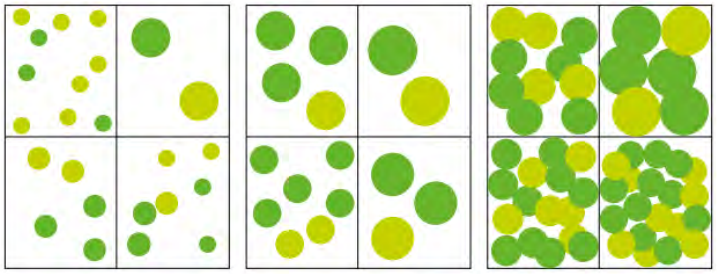
Photo ID: 11a

Plot number		Plot 11
Vegetation classification	**Pre-development**	Class D Scrub
	Post-development	Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f])
Description / justification		Pre-development vegetation comprises a combination of (shrub < 2 m height) and Class D Scrub (>2 m height). On completion of the development, the plot is expected to be cleared and maintained in a non-vegetated/low threat state to accommodate development of rail corridor. **Note:** the photo included is representative of vegetation within Plot 11, however, no photo was specifically taken of the future rail corridor.

Appendix 2
APZ standards (Schedule 1; WAPC 2017)

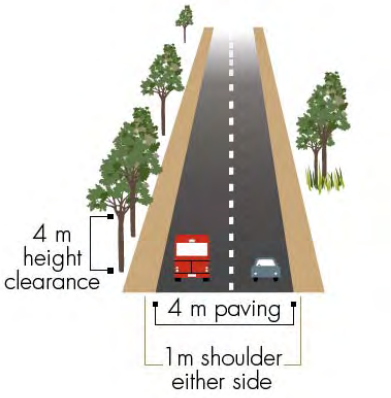
Schedule 1: Standards for Asset Protection Zones

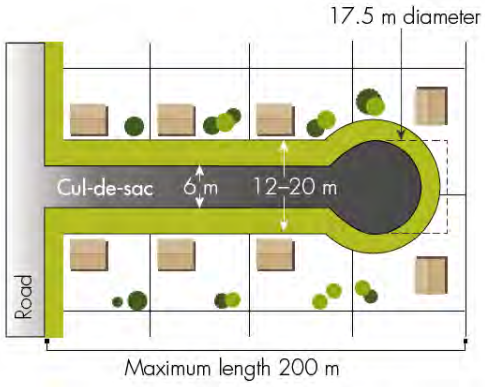
- **Fences:** within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.
- **Objects:** within 10 metres of a building, combustible objects must not be located close 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.



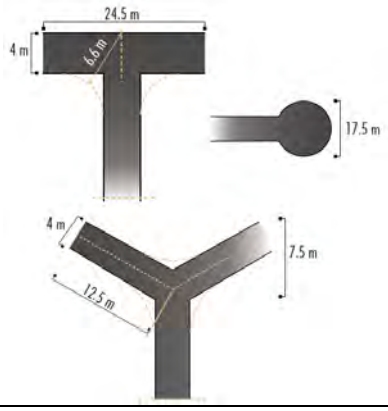
- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m^2 in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 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.

Appendix 3
Vehicular access technical standards
(WAPC 2017)

Public roads	
Acceptable solution A3.2	A public road is to meet the requirements in Table 1, Column 1.
Explanatory note E3.2	Trafficable surface: Widths quoted for access routes refer to the width of the trafficable surface. A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metre wide paving one metre wide constructed road shoulders. In special circumstances, where eight lots or less are being serviced, a public road with a minimum trafficable surface of four metres for a maximum distance of 90 metres may be provided subject to the approval of both the local government and Department of Fire and Emergency Services. Public road design: All roads should allow for two-way traffic to allow conventional two-wheel drive vehicles and fire appliances to travel safely on them. 

Cul-de-sac (including a dead-end road)	
Acceptable solution A3.3	A cul-de-sac and/ or a dead end road should be avoided in bushfire prone areas. Where no alternative exists (i.e. the lot layout already exists and/ or will need to be demonstrated by the proponent), the following requirements are to be achieved: • Requirements in Table 1, Column 2 • Maximum length: 200 metres (if public emergency access is provided between cul-de-sac heads maximum length can be increased to 600 metres provided no more than eight lots are serviced and the emergency access way is no more than 600 metres) • Turn-around area requirements, including a minimum 17.5 metre diameter head.
Explanatory note E3.3	In bushfire prone areas, a cul-de-sac subdivision layout is not favoured because they do not provide access in different directions for residents. In some instances it may be possible to provide an emergency access way between cul-de-sac heads to a maximum distance of 600 metres, so as to achieve two-way access. Such links must be provided as right of ways or public access easements in gross to ensure accessibility to the public and fire services during an emergency. A cul-de-sac in a bushfire prone area is to connect to a public road that allows for travel in two directions in order to address Acceptable Solution A3.1. 

Battle-axe	
Acceptable solution A3.4	Battle-axe access leg should be avoided in bushfire prone areas. Where no alternative exists, (this will need to be demonstrated by the proponent) all of the following requirements are to be achieved: • Requirements in Table 1, Column 3 • Maximum length: 600 metres • Minimum width: six metres.
Explanatory note E3.4	In bushfire prone areas, lots with battle-axe access legs should be avoided because they often do not provide two-way access and egress for residents and may be easily blocked by falling trees or debris. In some instances, however; it may be appropriate for battle-axe access to be used to overcome specific site constraints. Where used, they should comply with the minimum standards for private driveways. Passing bays should be provided at 200 metre intervals along battle-axe access legs to allow two-way traffic. The passing bays should be a minimum length of 20 metres, with the combined width of the passing bay and the access being a minimum of six metres. Turn-around areas should allow type 3.4 fire appliances to turn around safely (i.e. kerb to kerb 17.5 metres) and should be available at house sites and at 500 metre intervals along the access leg. 

Private driveway longer than 50 metres	
Acceptable solution A3.5	A private driveway is to meet all of the following requirements: • Requirements in Table 1, 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 • 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).
Explanatory note E3.5	For a driveway shorter than 50 metres, fire appliances typically operate from the street frontage however where the distance exceeds 50 metres, then fire appliances will need to gain access along the driveway in order to defend the property during a bushfire. Where house sites are more than 50 metres from a public road, access to individual houses and turnaround areas should be available for both conventional two-wheel drive vehicles of residents and type 3.4 fire appliances. Turn-around areas should be located within 50 metres of a house. Passing bays should be available where driveways are longer than 200 metres and turn-around areas in driveways that are longer than 500 metres. Circular and loop driveway designs may also be considered. These criteria should be addressed through subdivision design. Passing bays should be provided at 200 metre intervals along private driveways to allow two-way traffic. The passing bays should be a minimum length of 20 metres, with the combined width of the passing bay and the access being a minimum of six metres. Turn-around areas should allow type 3.4 fire appliances to turn around safely (i.e. kerb to kerb 17.5 metres) and should be available at the house sites and at 500 metre intervals along the driveway. 

Emergency access way	
Acceptable solution A3.6	An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet all of the following requirements: • Requirements in Table 1, Column 4 • No further than 600 metres from a public road • Provided as right of way or public access easement in gross to ensure accessibility to the public and fire services during an emergency • Must be signposted.
Explanatory note E3.6	An emergency access way is not a preferred option however may be used to link up with roads to allow alternative access and egress during emergencies where traffic flow designs do not allow for two-way access. Such access should be provided as a right-of-way or easement in gross to ensure accessibility to the public and fire emergency services during an emergency. The access should comply with minimum standards for a public road and should be signposted. Where gates are used to control traffic flow during non-emergency periods, these must not be locked. Emergency access ways are to be no longer than 600 metres and must be adequately signposted where they adjoin public roads. Where an emergency access way is constructed on private land, a right of way or easement in gross is to be established. 

Fire service access routes (perimeter roads)	
Acceptable solution A3.7	Fire service access routes are to be established to provide access within and around the edge of the subdivision and related development to provide direct access to bushfire prone areas for fire fighters and link between public road networks for firefighting purposes. Fire service access routes are to meet the following requirements: • Requirements in Table 1, Column 5 • Provided as right of ways or public access easements in gross to ensure accessibility to the public and fire services during an emergency • Surface: all-weather (i.e. compacted gravel, limestone or sealed) • Dead end roads are not permitted • Turn-around areas designed to accommodate type 3.4 appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres) • No further than 600 metres from a public road • Allow for two-way traffic • Must be signposted.
Explanatory note E3.7	Fire service access routes should be established to separate bushfire prone areas from developed areas, and to provide access within and around the edge of subdivisions and related development. Fire service access is used during bushfire suppression operations but can also be used for fire prevention work. Fire service access routes should: • Link up with the road network at regular intervals - the development and road network forms part of the fire service access system • Be adequately signposted • Allow for two-way traffic - that is, two fire appliances must be able to safely pass each other • Have an all-weather surface (i.e. compacted gravel, limestone or sealed) • Have erosion control measures in place. Driveways may be used as part of the designated fire service access system, provided they meet the minimum standard for fire service access routes. It is beneficial to link the fire service access routes with individual driveways to allow quick access to properties and houses during fire emergencies. Where gates are used, these should be wide enough to accommodate type 3.4 fire appliances (minimum width of 3.6m) with the design and construction to be approved by the relevant local government. Gates on fire service access routes may be locked to restrict access provided that a common key system is used and such keys are made available for fire appliances and designated fire officers within the local government area and/or surrounding district. Gates should be installed where fences cross fire service access routes. Management and access arrangements should be in place to ensure that the maintenance of fire service access routes will occur in the long term after an area has been subdivided. A number of options can be used to achieve this, including but not limited to: • Individual property owners being responsible for maintaining fire service access routes where these fall on their property • Providing such access as a right-of-way or easement in gross to ensure accessibility to fire services during an emergency; and/or • A levy system administered by local government to cover the cost of maintaining fire service access routes. Such arrangements should be documented in the relevant planning application (such as a structure plan, subdivision plan or development plan) and should be agreed to by local government.

Table 1: Vehicular access technical requirements

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

* Refer to E3.2 Public roads: Trafficable surface

Appendix 4
City of Wanneroo Firebreak and Fuel Hazard Reduction Notice (2018/19)

FIRE BREAKS / FUEL HAZARD REDUCTION / FIRE BREAK EXAMPLES

City of Wanneroo

Under the Bushfires Act (1954), all owners and occupiers of land in Western Australia must establish and maintain fire breaks.

Fire breaks and protection measures are vital in assisting the prevention of fires spreading and to allow safer access for bushfire fighters and vehicles.

Land with an area of less than 4,000m²

- A fire break, not less than three (3) metres wide must be cleared immediately inside (or as close as possible) around all external boundaries of the land.
- All tree branches that over-hang a fire break must be trimmed back to a minimum height of three and a half (3.5) metres above ground level and the growth on the fire break cannot exceed fifty (50) millimetres high.

Land with an area of 4,000m² or more

- A fire break, not less than three (3) metres wide, must be cleared immediately inside (or as close as possible) around all external boundaries of the land.
- All tree branches that over-hang a fire break must be trimmed back to a minimum height of three and a half (3.5) metres above ground level and the growth on the fire break cannot exceed fifty (50) millimetres high.

Buildings

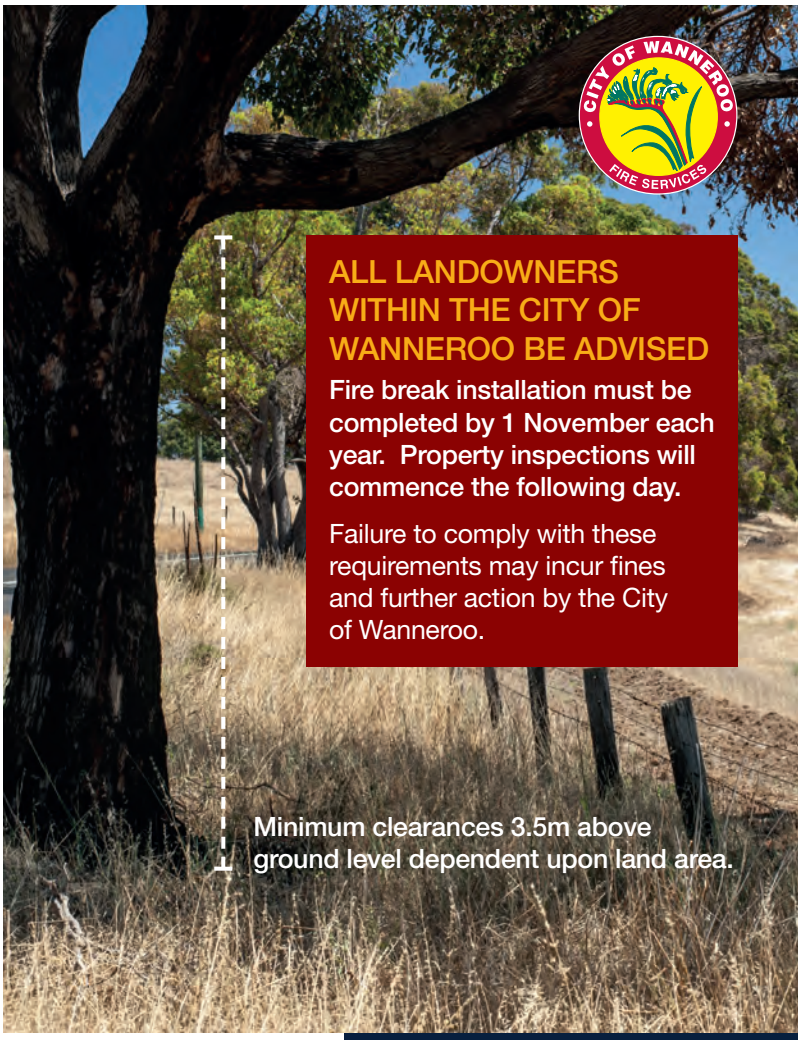
- Install and maintain a twenty (20) metre building protection zone surrounding all buildings, large hay stacks and fuel storage areas. A building protection zone includes undertaking measures such as pruning all lower tree branches to prevent fire entering the trees, ensuring three (3) metre spacing between tree canopies to prevent treetop fires spreading between trees, keeping all grasses to a height of not more than fifty (50) millimetres and storing all firewood piles more than twenty (20) metres away from the buildings.

APPLICATION TO VARY THE ABOVE REQUIREMENTS

If it is considered impracticable for any reason to implement any of the requirements of this Notice, application may be made not later than the 18th of October annually to the Council or its authorised officer for permission to provide alternative fire protection measures. If permission is not granted the requirements of this Notice must be complied with.

ADDITIONAL WORKS

In addition to the requirements of this Notice, you may be required to carry out further works which are considered necessary by an Authorised Officer and specified by way of a separate written notice forwarded to the address of the owner/s as shown on the City of Wanneroo rates record for the relevant land.




Non-compliant: no fire break installed inside boundary fence


Compliant: grass slashed to ground level


Non-compliant: mineral earth fire break showing grass/weed regrowth


Compliant: mineral earth fire break


Non-compliant: thick scrub creates a fire hazard around power poles


Compliant: cleared buffer zone around power poles

Appendix 5
Water technical standards

Reticulated areas	
Acceptable solution A4.1	The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.
Explanatory note E4.1	Water supply authorities in Western Australia include the Water Corporation, Aqwest and the Busselton Water Board. The Water Corporation's 'No. 63 Water Reticulation Standard' is deemed to be the baseline criterion for developments and should be applied unless local water supply authorities' conditions apply.