

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address:

Site visit:

Yes

☐

No

☐

Date of site visit (if applicable):

Day

Month

Year

Report author or reviewer:

WA BPAD accreditation level (please circle):

Not accredited

☐

Level 1 BAL assessor

☐

Level 2 practitioner

☐

Level 3 practitioner

☐

If accredited please provide the following.

BPAD accreditation number:

Accreditation expiry: Month

Year

Bushfire management plan version number:

Bushfire management plan date: Day

Month

Year

Client/business name:

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?		
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?		

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

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

None of the above

☐

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author
or reviewer



Date

BUSHFIRE MANAGEMENT PLAN

STAGES 5 – 8, VERTEX ESTATE YANCHEP

PREPARED FOR:

LWP PROPERTY PTY LTD



JUNE 2022

PREPARED BY:

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STAGES 5 - 8, VERTEX ESTATE BUSHFIRE MANAGEMENT PLAN

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1. BACKGROUND INFORMATION

LWP Property Group Pty Ltd are in the process of progressing development at the Vertex Estate in Yanchep, and commissioned Martinick Bosch Sell Pty Ltd (MBS Environmental, MBS) to prepare a bushfire management Plan to support the planning approvals process. The broad aim of the assessment process was to identify potential bushfire risks to future properties and their management when the site is developed.

The site is located within a designated bushfire prone area as designated by the Fire and Emergency Services Commissioner, Office of Bushfire Risk Management (OBRM), Department of Fire and Emergency Services (2021). Accordingly, there is a requirement for landowners to undertake an assessment to determine the risks and identify appropriate management strategies such that the development does not increase the inherent bushfire risk. Portions of the site that are located within 100 m of vegetation designated as being bushfire prone necessitate the need for a bushfire attack level assessment (BAL-assessment and assigning a BAL-rating that will determine appropriate construction standards as per AS 3959:2018. The BAL-assessment component of this document considers current site conditions along with the provisions of State Planning Policy (SPP) 3.7 *Planning in Bushfire Prone Areas* (Department of Planning and the Western Australian Planning Commission (WAPC), 2015) and *Guidelines for Planning in Bushfire Prone Areas* (Department of Planning, Lands and Heritage (DPLH) and the Western Australian Planning Commission (WAPC), V1.4_0, 2021.

1.1 LOCATION

The overall development site is located approximately 50 km northwest of the Perth Central Business District. Stages 5 – 8 are located to the north of Stages 1 – 4 that are in varying phases of development, and east the Perth – Yanchep railway line and associated infrastructure that is currently being constructed along the western boundary of the site (Figure 1).

1.2 AIMS AND OBJECTIVES

The aim of the BMP is to outline the fire management methods and requirements that will be implemented within Stages 5 – 8 of the Vertex Estate. Accordingly, broad aims include:

- Reduce the occurrence of and minimise the impact of fire to the life and property of future residents and the environment.
- Allow easy access of fire-fighters if a fire does occur.
- Protect the landscape within the site as far as is possible.
- Document fire prevention requirements of the area to which it relates.

The objectives of this BMP are to:

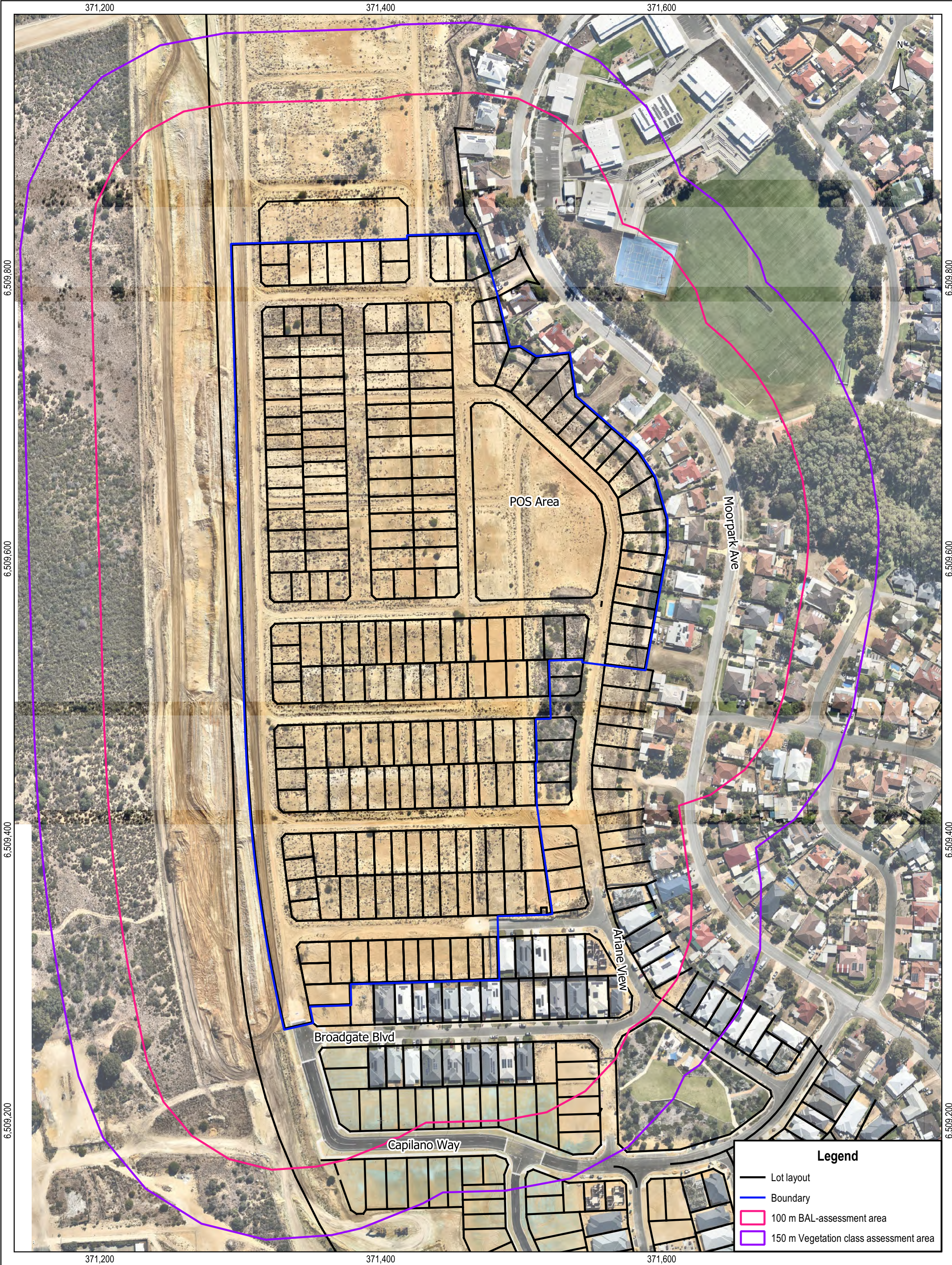
- Define land use areas and values within the subdivision, with the entire subdivision being developed as urban residential Lots except for the landscape protection area and various locations designation public open space (POS).
- Define and rank fire hazard areas according to the vegetation type and fire fuels present.
- Outline the roles and responsibilities of individuals and organisations in relation to fire management within the subdivision.
- Document fire management strategies for the subdivision, taking into consideration:
 - Vegetation to be retained in off-site locations to the west and east of the Site.
 - The need for building construction standards where vegetated areas interface with the urban development.

- Identify access for fire-fighting operations and daily maintenance in and around vegetated areas and stages of development.
- Define an assessment procedure that will evaluate the effectiveness and impact of existing and proposed fire prevention activities and strategies.
- Document the performance criteria and acceptable solutions adopted for the site.

1.3 DOCUMENT PREPARATION

This document has been prepared by Sue Brand, an accredited Level 2 Bushfire Planning and Design (BPAD) practitioner with the Fire Protection Association Australia. Activities involved with the plan preparation process included:

- Assessing the vegetation type and class present within and adjacent to the proposed development site using descriptions provided in *AS 3959:2018 Construction of Buildings in Bushfire Prone Areas*.
- Assigning hazard ratings based on the vegetation types present on and offsite.
- Determining bushfire attack level (BAL) ratings and suggesting management strategies that could be implemented based on current and projected site considerations.
- Preparing this BMP.



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Stages 5 - 8 Vertex Estate, Yanchep
Bushfire Management Plan

Figure 1

Location

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2. CONSIDERATION OF BUSHFIRE THREAT

2.1 SITE CHARACTERISTICS

2.1.1 Regional Context

Perth is located within the Swan Coastal Plain region of the Interim Biogeographical Regionalisation of Australia (IBRA). The Swan Coastal Plain comprises of two major divisions, namely the Swan Coastal Plain 1 – Dandaragan Plateau and Swan Coastal Plain 2 – Perth Coastal Plain. The Site is in the Perth subregion, which is broadly characterised as including areas of Jarrah and Banksia woodlands on sandy soils in a series of sand dunes, along with wetland areas, often within the interdunal swales (Mitchell, Williams and Desmond, 2002).

2.1.2 Vegetation

All native vegetation has been cleared from Stages 5 – 8 of the Vertex Site. Patches of Scrub and Shrubland vegetation are present west of the Perth – Yanchep railway line, with some Forest vegetation present to the east along Moorpark Ave. The vegetation in these locations is expected to be retained for the foreseeable future.

2.1.3 Land Use

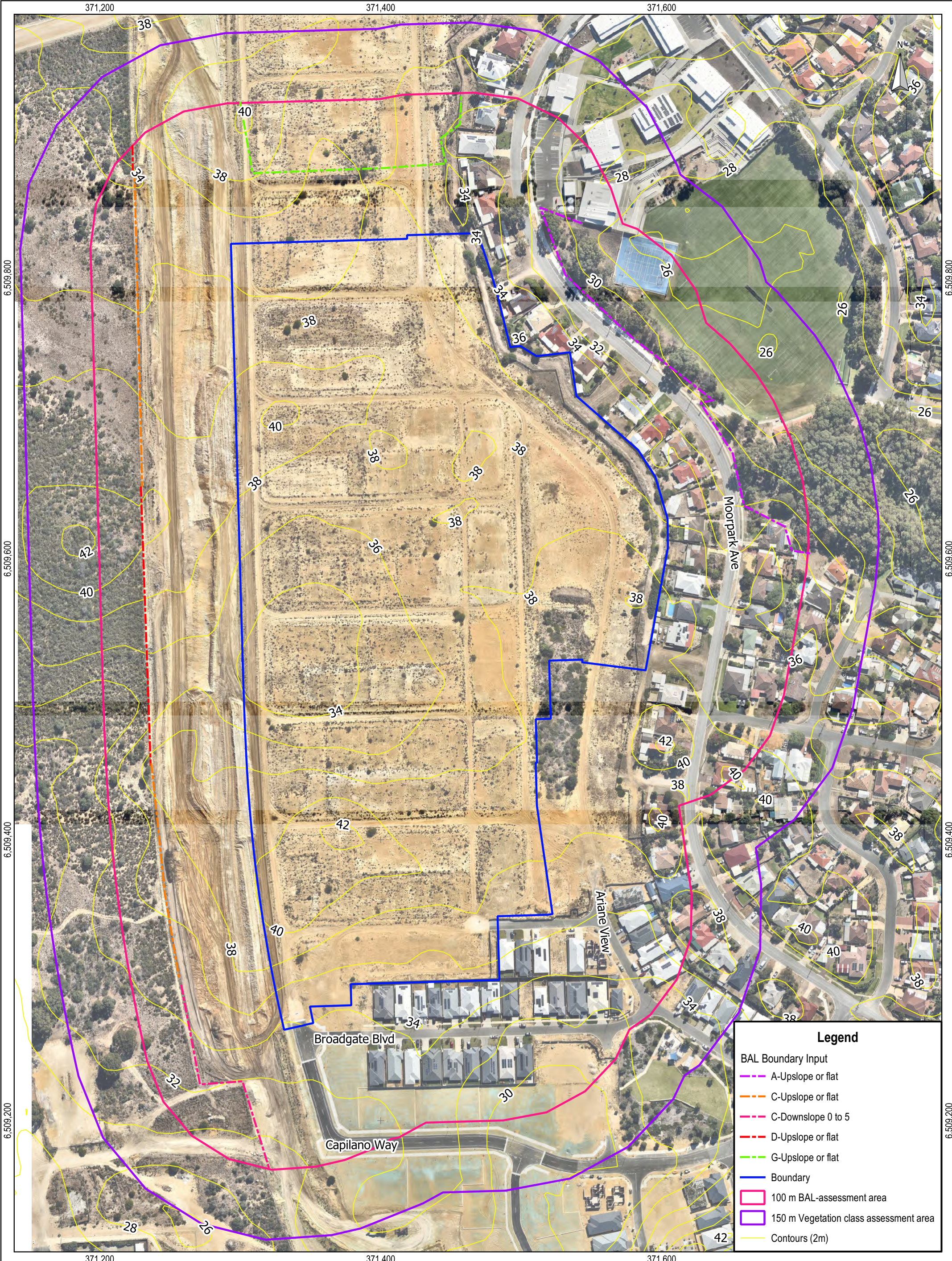
The current land use is an area cleared of native with a patchy, weedy regrowth (Figure 2).



Figure 2: Current Land Use

2.1.4 Contours and Slope

Stages 5 – 8 are located on flat land that has been cleared of native vegetation ahead of subdivision and development. The Perth – Yanchep railway line is located at a lower level than the Vertex Site, with vegetation further west of the railway line including upslope and downslope areas. Forest vegetation present to the east off Moorpark Ave is also downslope from the Vertex Site. Site contours and slope are provided in Figure 3.



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Figure 3
Contours and Slope

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2.1.5 Environmental Considerations

Environmental considerations at the Vertex Site have been considered during previous planning phases. Accordingly, there are none of the following within Stages 5 - 8:

- Bush Forever sites.
- Wetland areas.
- Threatened or priority listed flora or fauna populations.
- Threatened or priority listed ecological communities.

2.1.6 Landscaping

Landscaping will occur in the POS area planned for the continuation of Ariane Ave to the north (Figure 1). All native vegetation has been cleared from this location, and it is expected that it will be maintained as low-threat vegetation as per AS 3959:2018 that is subject to Exclusion Clause 2.2.3.2 (f), as has occurred in Capilano Park to the southeast of Stages 5 – 8.

2.2 VEGETATION CLASSIFICATION

Vegetation on and within 150 m of the Site was assessed using descriptions provided in Table 2.3 and Figure 2.4 of AS 3959:2018 during several site visits since 2018, with the most recent on 11 May 2022. Each vegetation class is discussed and shown in Figure 4, Figure 5, Figure 6, Figure 7, Figure 8, and Figure 9, with the pre-development vegetation classifications shown in Figure 10.

2.2.1 Patch 1: Class A Forest

Class A Forest is characterised by trees 10 – 30 m high with a 30% – 70% canopy cover and may include an understorey of low trees or shrubs. Two patches of Class A Forest are located a minimum of 40 m to the east of Stages 5 – 8 in St Andrews Park and around the perimeter of the school oval in Moorpark Avenue (Figure 4). This vegetation is expected to be retained on an ongoing basis and will represent an ongoing bushfire risk to the Vertex subdivision.

Patch: 1	Classification or Exclusion Clause:	Class A Forest
 <div> <p>UTM: 50J 371648mE 6509703mN Elevation: 2.2±2 m Accuracy: 3.4 m Azimuth: 108° (E) Pitch: 1.8° Time: 11-05-2022 11:18</p> </div> <div> <p>Powered by AngleCam</p> </div>		
Photo ID: 1		



Figure 4: Class A Forest

2.2.2 Patch 2: Class C Shrubland

Class C Shrubland is characterised by shrubs less than 2 m high with a canopy cover greater than 30%. Two patches of this vegetation class are present in vegetated areas across the Perth – Yanchep railway line construction site (Figure 5). It is expected that this vegetation class will be retained for the foreseeable future and represent a bushfire risk to the Site.





Figure 5: Class C Shrubland

2.2.3 Patch 3: Class D Scrub

Class D Scrub is characterised by shrubs from 2 – 4 m high with a canopy cover greater than 30% and continuous foliage from ground level. A patch of this vegetation class is present across the Perth – Yanchep railway line construction site to the west (Figure 6), with another small patch inferred from aerial imagery in the north-western portion of the vegetation classification assessment area. It is expected that this vegetation class will be retained for the foreseeable future and represents an on-going bushfire risk to the subdivision.

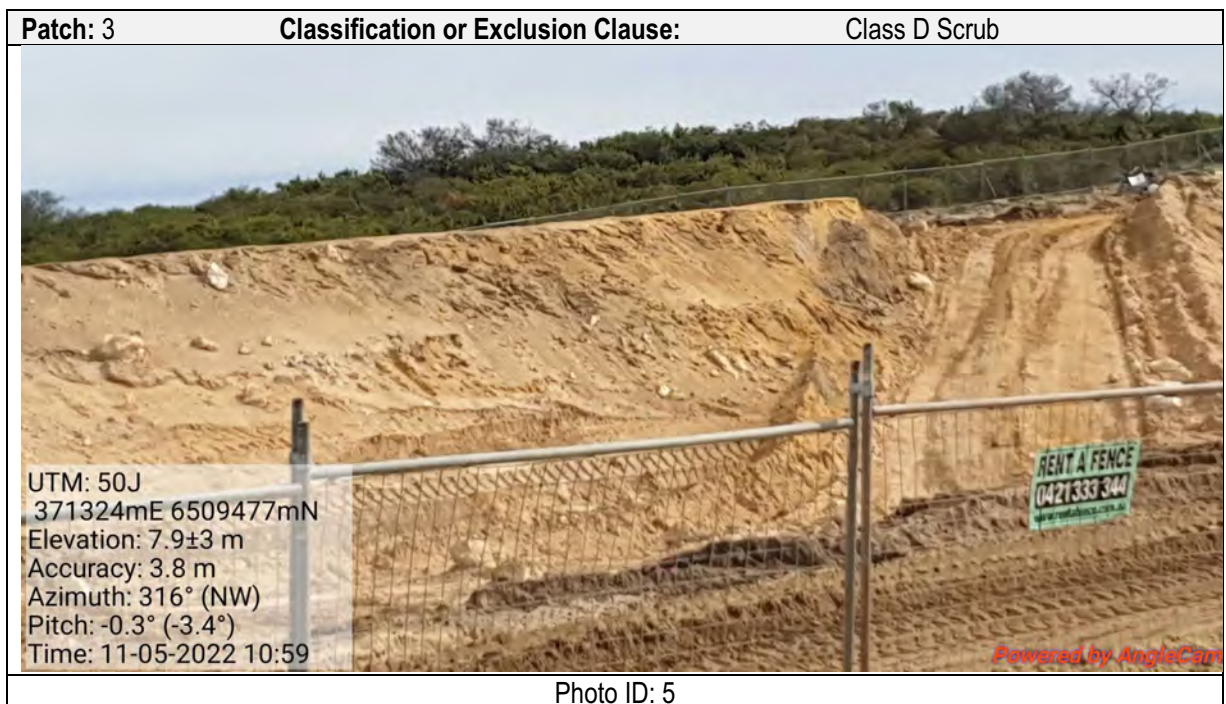


Figure 6: Class D Scrub

2.2.4 Patch 4: Class G Grassland

Class G Grassland is characterised by low shrubs and grasses up 50 cm in an un-managed state. A large patch of this vegetation class is present within the Stage 5 – 8 boundary after several years patchy weedy regrowth on the predominantly clay soils of this Site (Figure 7); this vegetation class will be removed to accommodate the planned residential development.

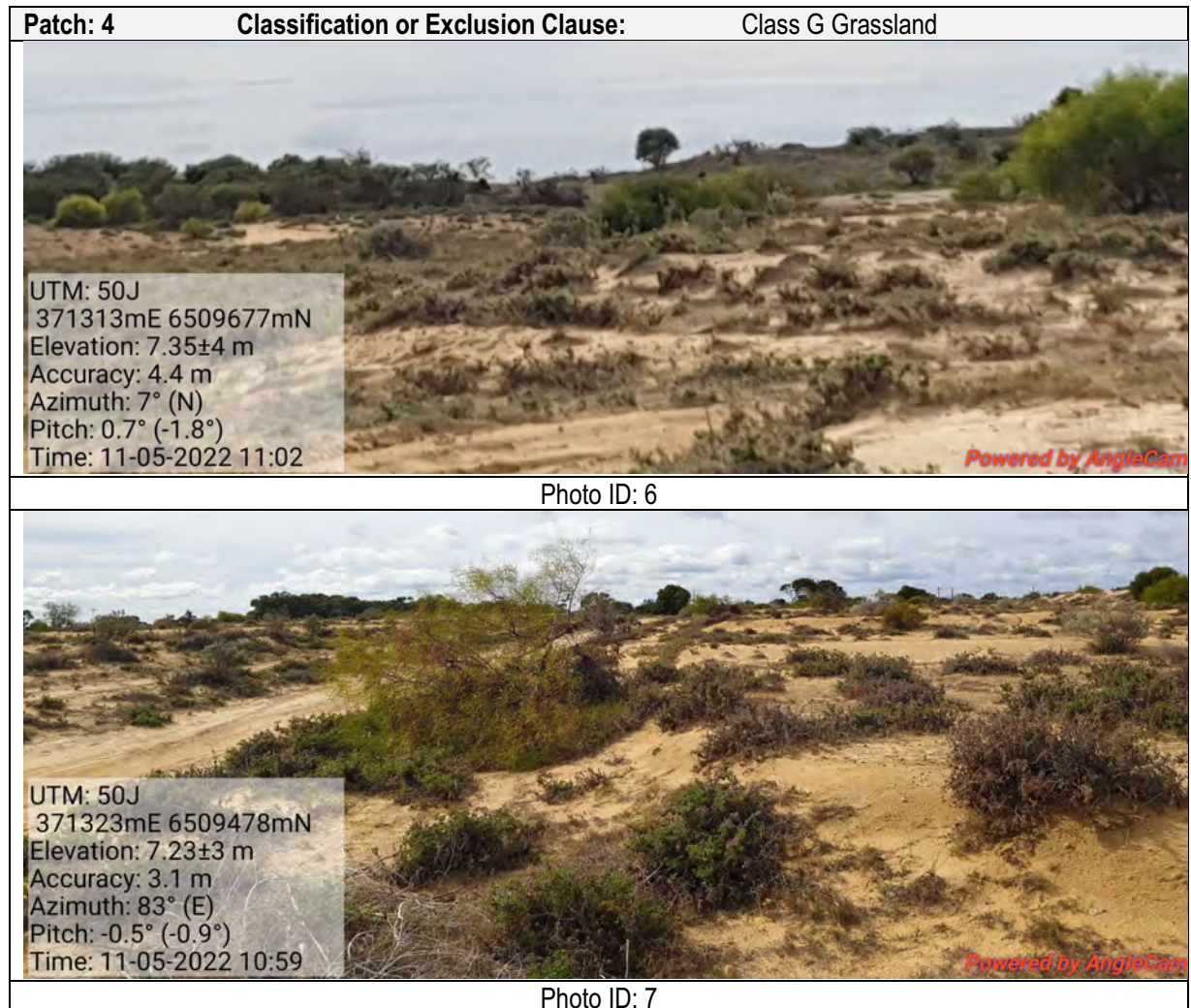


Figure 7: Class G Grassland

2.2.5 Patch 5: Low Threat Vegetation

Clause 2.2.3.2 of AS 3959: 2018 outlines various exclusion clauses for low-threat vegetation and non-vegetated areas. Clause 2.2.3.2 (b) applies to single areas of vegetation that is less than 1 ha in area and more than 100 m from any other classified vegetation. A portion of a 0.45 ha patch of vegetation with Class D Scrubland characteristics is present within the Stage 5 – 8, with the remainder of the patch within a previously approved subdivision stage, and thus is subject to Clause 2.2.3.2 (b) (Figure 8, Photo ID 9).

Exclusion clause 2.2.3.2 (f) applies to vegetation that is characterised by factors such as flammability, moisture content, or fuel load. This vegetation class includes grassland managed in a minimal fuel condition, maintained lawns, playing fields, golf courses (fairways and playing areas), maintained public reserves, parklands, vineyards, orchards, nature strips, windbreaks, and cultivated gardens. Capilano Park 100 m to the south-east of Stages 5 – 8 is a landscaped and maintained public reserve and thus subject to Exclusion clause 2.2.3.2 (f) (Figure 8, Photo ID 10), as is the primary school playing fields on Moorpark Ave to the east.



Figure 8: Low Threat Vegetation

2.2.6 Patch 6: Non-vegetated Areas

Non-vegetated areas are subject to exclusion clause 2.2.3.2 (e) of AS 3959:2018. Within Stages 5 – 8, non-vegetated areas include (Figure 9):

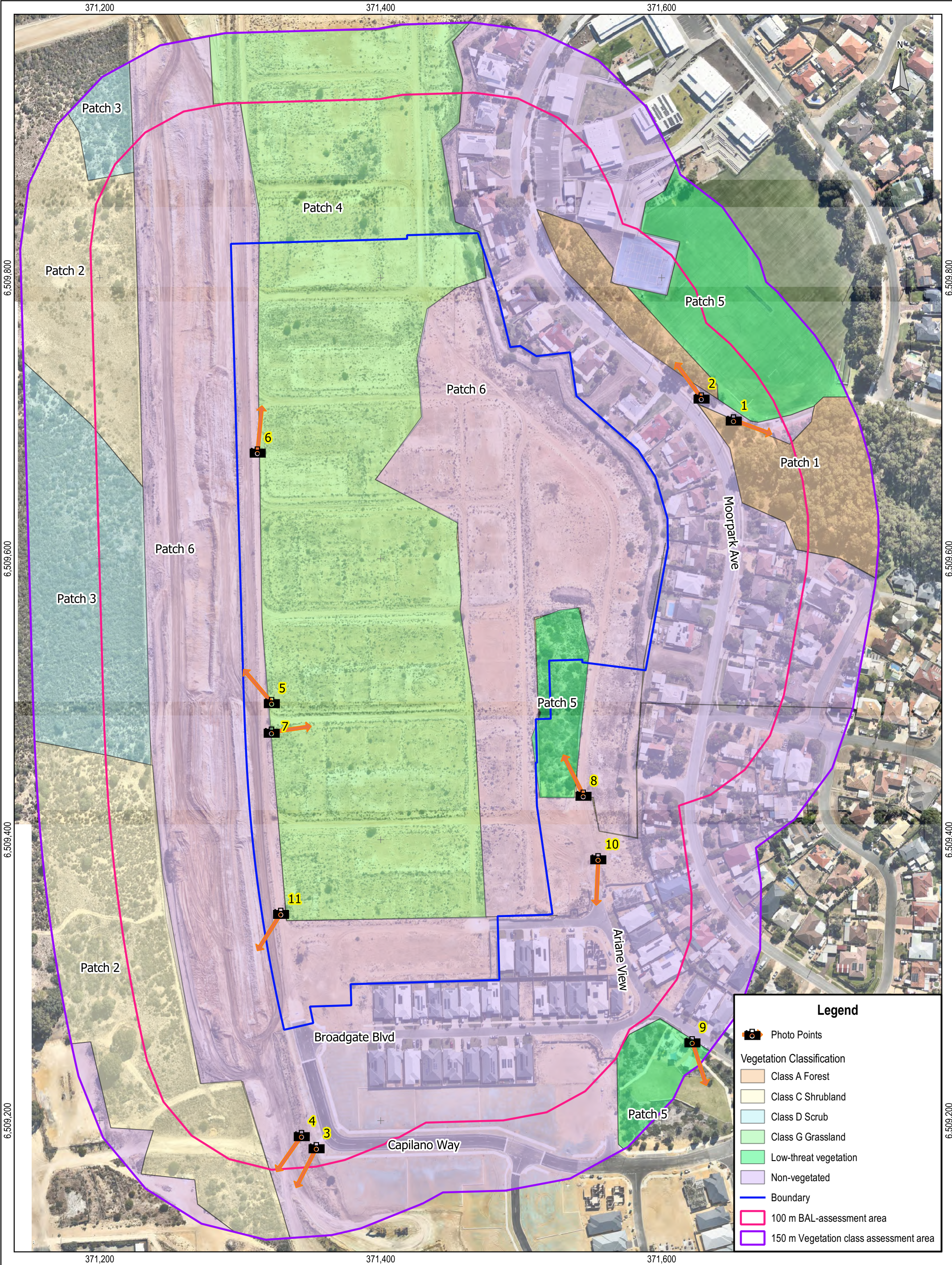
- Development in previous Stages of the Vertex subdivision, including constructed roads, dwellings, and footpaths to the south.
- The Perth – Yanchep railway construction site to the west.
- Existing residential development to the east along Moorpark Ave.
- Cleared areas within Stages 5 – 8 where vegetative regrowth is minimal.



Figure 9: Non-vegetated Areas

2.2.7 Post-development Vegetation Classification

As development proceeds, clearing of the Class G Grassland within Stages 5 – 8 and a patch of low threat vegetation that is present within the Stage 4 and Stages 5 – 8 boundaries will be cleared. The Post-development vegetation classification is provided in Figure 11.



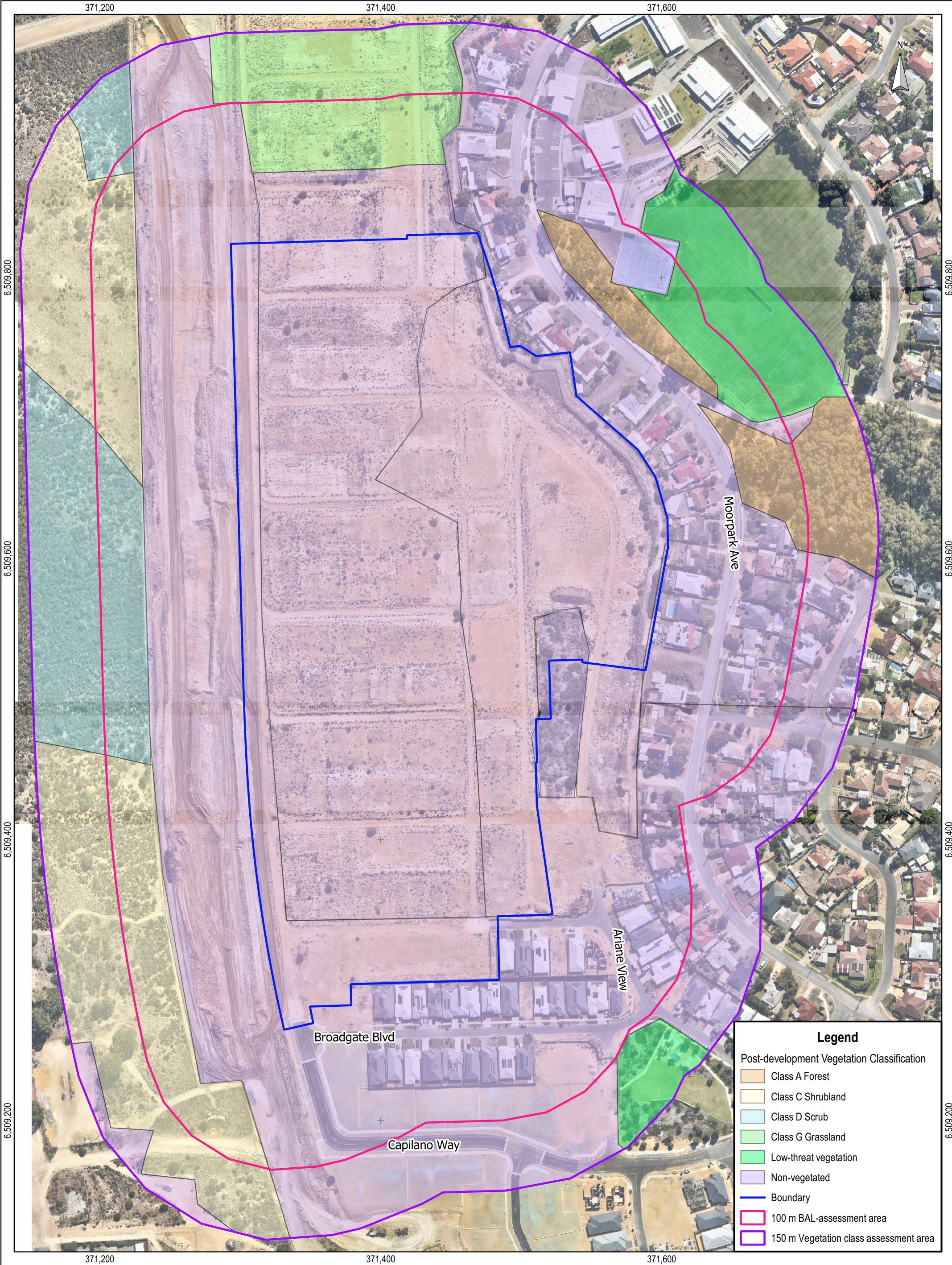
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Figure 10
Pre-development Vegetation Class as per AS 3959:2018

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Figure 11

Post-development Vegetation Class as per AS 3959:2018

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2.3 BUSHFIRE HAZARD LEVEL

2.3.1 Bushfire Hazard Assessment

Depending on the vegetation type, a hazard rating of low, moderate, or extreme is assigned. The nature of the vegetation in and around the development area means that the pre-development bushfire hazard rating ranges from Low to Extreme due to the presence of Class A Forest, Class C Shrubland and Class D Scrub within 100 m of the Site (Figure 12). All locations within 100 m of vegetation with a Moderate or Extreme hazard are shown as having a Moderate bushfire hazard due to the increased risks associated with their presence. Other locations within and in proximity to the Site will have a low hazard rating.

2.3.2 Fire Danger Index

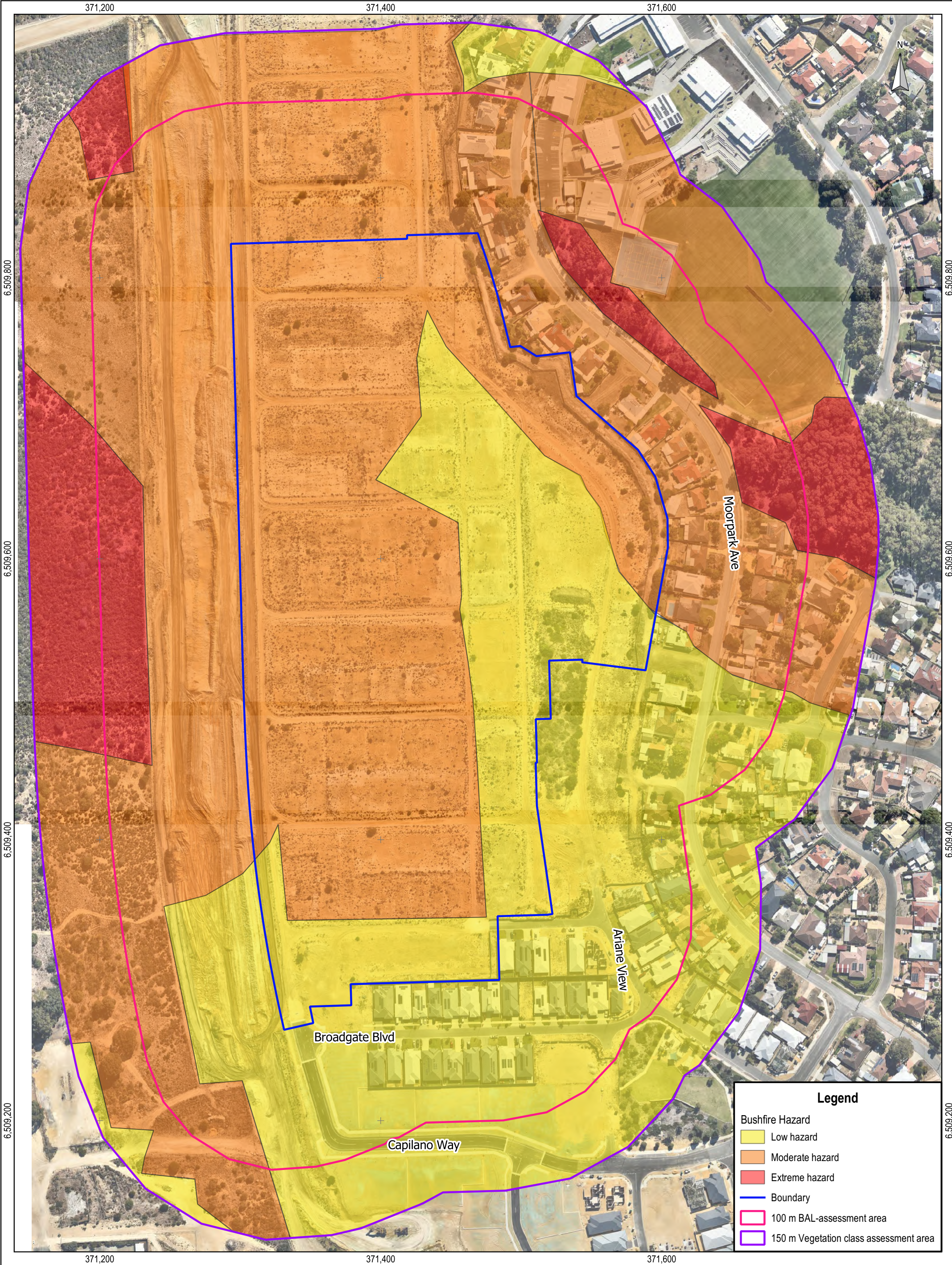
The fire danger index (FDI) for the Site is FDI 80, as documented in Table 2.5 of AS 3959:2018, and which is the nominated FDI for Western Australia.

2.3.3 Potential Fire Impacts

Potential fire impacts within the Site include smoke and ember attack as the classified vegetation that poses the greatest risk to the Site is located more than 40 m to the east in the Class A Forest and more than 80 m to the west in the Class C Shrubland and Class D Scrub west of the Perth – Yanchep railway construction zone. The BAL-analysis for the Site is provided in Table 1.

Table 1: BAL-analysis

Patch	Vegetation Class	Slope	Separation Distance (m)	BAL-rating
1	Class A Forest	Upslope or Flat	36 – 60	BAL-19
2	Class C Shrubland	Downslope 0 – 5o	67 – 84	BAL-12.5
	Class C Shrubland	Upslope or Flat	81 – 90	BAL-12.5
3	Class D Scrub	Upslope or Flat	81 – 85	BAL-12.5
4	Class G Grassland	Upslope or Flat	> 50	BAL-Low
5	Low Threat Vegetation	N/A	N/A	N/A
6	Non-vegetated areas	N/A	N/A	N/A



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Figure 12
Bushfire Hazard Assessment

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2.4 BAL-ASSESSMENT

Based on the presence of the Class A Forest, Class C Shrubland and the Class D Scrub that is located less than 100 m of the Site to the west and the east, 59 Lots in proximity to the eastern and western boundaries of Stages 5 – 8 will require a BAL-rating, with none higher than BAL-12.5 required. The following Lots will be rated BAL-12.5:

- 1, 2, 9 – 12, 13, 33 – 45, 48 – 51, 80 – 98, 117 – 120, 147 – 150, 177 – 180, 203 – 206 (Figure 13).

All other Lots are rated BAL-Low.

In assigning the BAL-ratings for the subdivision, the following should be noted:

- BAL-ratings are based on the post-development vegetation classification (Figure 11). If there is a change in vegetation coverage within the Site, or the expected clearing does not occur, then there may be a need to review and update the assigned BAL-ratings.
- There are several Lots where a portion of a BAL-12.5 contour crosses the Site, namely 9, 48, 51, 98, and 203. As building designs are not known, each has been assigned a BAL-12.5 rating as a precautionary measure, noting that it may be possible to ensure that building walls are located outside the contour extent. If that occurs, it is probable that the BAL-12.5 may be able to be reduced to BAL-Low; this will need to be checked by a Bushfire Consultant to confirm that outcome.

2.4.1 Asset Protection Zone

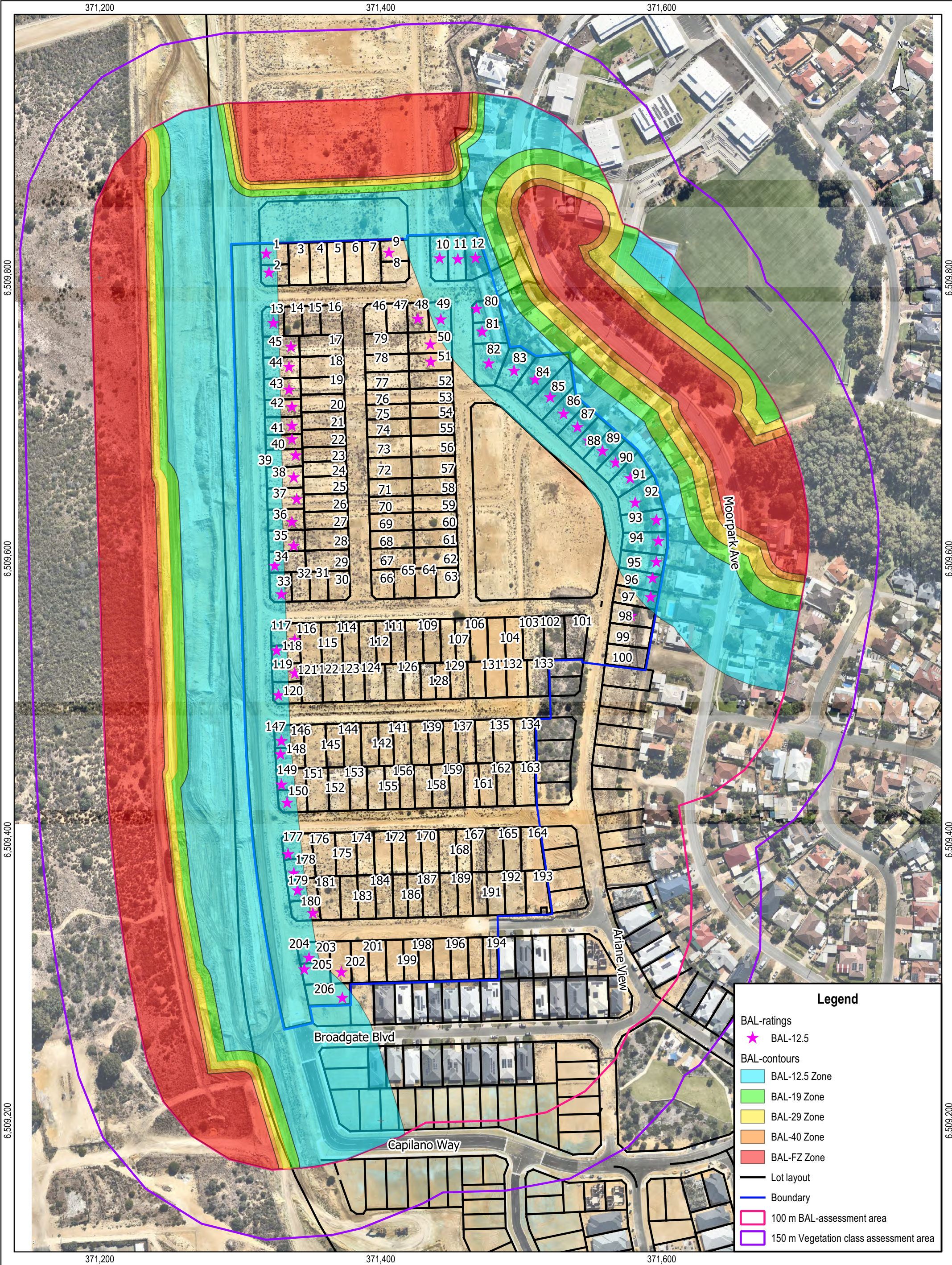
The asset protection zone for the Site is that area that provides the separation distance between the classified vegetation and building walls. It commences at the junction of the BAL-40 and BAL-29 zones, or the junction of the orange and yellow zones in Figure 13, and will extend to the building walls as that is the point where the potential radiant heat impact of a bushfire does not exceed 29 kW/m²; this point also demonstrates that bushfire risks on site can be managed.

2.4.2 Shielding

As the maximum BAL-rating for Lots within Stages 5 – 8 is BAL-12.5, the shielding provisions of Clause 3.5 of AS 3959:2018 are not applicable.

2.4.3 Other Bushfire Protection Measures

In addition to the assigning of BAL-ratings for Lots located within 100 m of classified vegetation, clearing of the grassy/weedy regrowth will be required for a 50 m distance to the north of Stages 5 – 8 to prevent the assigning of temporary BAL-rating. This area extends from the edge of the BAL-FZ zone (the red-coloured contour) to the northern boundary of the assessment area (blue boundary line) in Figure 13.



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Figure 13

BAL-contours and Ratings

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2.5 IMPLEMENTATION

Implementation of this BMP will commence immediately and will be the responsibility of the Developer, LWP Property Pty Ltd, both for installation and ongoing maintenance until the various Lots are sold and the POS area is ceded to the City of Wanneroo. The Developer is also responsible for ensuring the new owner of the site receives a copy of this BMP during the sale process.

When ownership arrangements change over time, the responsibility for the maintenance of fire management measures will devolve to the new owner or managing organisation, noting that landowners or managers are responsible for land under their direct control only. For example, Lot owners will be responsible for ensuring asset protection zones within their property are maintained. Activities that will be involved with the implementation of this plan are described in Table 2, which also includes an indication of maintenance responsibilities associated with a particular activity.

Table 2: Implementation Schedule

Item	Activity	Responsibility	Maintenance	Responsibility
1	Proposed building is constructed in accordance with assigned BAL-rating.	Developer/builder	N/A	N/A
2	Class G Grassland vegetation present to the north of Stages 5 – 8 is cleared for a distance of 50 m to ensure there are no temporary BAL-ratings assigned to Lots	Developer	As required	Developer
3	Hydrant requirements will be in accordance with the Water Corporation Design Standard 63 for hydrants: <ul style="list-style-type: none"> • Installation of markings to indicate the presence of hydrants, including: <ul style="list-style-type: none"> — A blue 'cats eye' reflective indicator in the centre line of the road. — A small blue 'H' painted on the curbing. — A white and red stripe around the pole nearest to the hydrant. • Clearance on the placement of hydrants will be required from Department of Fire and Emergency Services (DFES) and the Water Corporation. • Hydrants will need to be clearly identifiable, with markings installed by the developer prior to sign off. 	Developer	Developer	Developer
4	Install and maintain firebreak/low fuel zones and comply with the City of Wanneroo annual fire break notice.	Developer or owner/occupier	As required, in accordance with City of Wanneroo annual firebreak notice.	Developer or landowner
5	Landscaping within POS areas is confirmed to determine whether or not they will meet the definition of low-threat vegetation as per AS 3959:2018, or if there is a need to modify BAL-ratings on Lots in proximity to those areas if the extent of native retained vegetation increases.	Developer	When POS designs are confirmed	Developer
6	Ensure a Section 165 Notification is lodged on the titles of Lots with a BAL-rating or higher.	Developer	N/A	N/A
7	All roads, including the perimeter road, are constructed to the standards specified in Appendix 4 Element 3 Table 6 Column 1 on page 76 of the Guidelines.	Developer	As required	City of Wanneroo
8	Two access/egress options are available to all Lots with the subdivision.	Developer	As required, after subdivision completion	City of Wanneroo

2.6 RESPONSIBILITIES

Responsibilities for bushfire preparedness and response within the development area are shared by the City of Wanneroo, the Developer, and building owners/occupiers.

2.6.1 Developer Responsibilities

The Developer is responsible for implementing key portions of this BMP, including:

- Providing appropriate information, including a copy of this BMP, to potential Site purchasers.
- Class G vegetation is cleared for a 50 m to the north of Stages 5 - 8 to ensure no Lot has a temporary BAL-rating.
- Ensuring two access/egress options are available to the occupiers of all Lots in the event of a bushfire.
- Arrange for the Section 165 notification on the titles of Lots with a BAL-12.5 or higher rating.
- Landscaping in the POS area are assessed to confirm whether the assumed low-threat vegetation classification is appropriate, or adjustments are made to BAL-ratings of Lots in proximity to those locations.
- Roads and hydrants are installed in accordance with relevant guidelines.
- Ensure firebreaks/low fuel zones are installed around the perimeter of the subdivision in accordance with the City of Wanneroo annual firebreak notice.

2.6.2 City of Wanneroo Responsibilities

It should be noted that the City of Wanneroo has the responsibility and powers under the Town Planning Scheme and the *Bush Fires Act 1954* (WA) to ensure that this BMP, City of Wanneroo annual firebreak notices, any bushfire Information, and any Special orders issued under the *Bush Fires Act 1954* are complied with.

The City will be responsible for:

- Providing appropriate advice in relation to City requirements for firebreaks, hazard reduction, and any other fire management aspects it requires landowners to comply with to the Developer and property owners as required.
- Ensuring appropriate information is included on the title indicating the requirement to comply with this BMP.

2.6.3 Owner and/or Occupier Responsibilities

It is the responsibility of individual property owners building near the vegetated areas to:

- Ensure that the proposed building is constructed in accordance with the requirements of relevant sections of AS 3959:2018 for the assigned BAL rating.
- Where required, maintain the required asset protection zone.
- Include ember shields to evaporative air conditioners if installed.
- Inform DFES as soon as practicable after a fire is noticed within nearby bushland.
- Respond to advice from the City of Wanneroo, DFES, and/or the Developer in relation to maintaining properties in a manner that will reduce potential damage from ember attack.

3. COMPLIANCE AND JUSTIFICATIONS

3.1 SPP 3.7 OBJECTIVES AND APPLICATION OF POLICY MEASURES

The intent of *State Planning Policy (SPP) 3.7 Planning in Bushfire Prone Areas* (Department of Planning and Western Australian Planning Commission, 2015) is to ensure that bushfire risks are considered in a timely manner and that planning documents demonstrate the appropriate application of the various policy measures. Table 3 summarises the intent and objectives of SPP 3.7 and provides evidence of how the proposed development of Stages 5 – 8 in the Vertex Estate, Yanchep complies.

Table 3: SPP 3.7 Compliance Evidence

SPP Reference	Description	Evidence of Compliance
Intent	<ul style="list-style-type: none"> Ensure that risks associated with bushfires are planned using a risk-based approach. 	<ul style="list-style-type: none"> Preparation of a BMP in accordance with SPP 3.7. Hazard assessment indicates risks associated with bushfire are manageable.
Objective 1	<ul style="list-style-type: none"> Avoid any increase in the threat of bushfire to people, property, and infrastructure. 	<ul style="list-style-type: none"> Hazard assessment indicates risks associated with bushfire are manageable. Lots within 100 m of classified vegetation have been assigned a BAL-rating, with none higher than BAL-12.5.
Objective 2	<ul style="list-style-type: none"> Reduce vulnerability to bushfire. 	<ul style="list-style-type: none"> Hazard assessment indicates risks associated with bushfire are manageable. Lots within 100 m of classified vegetation have been assigned a BAL-rating, with none higher than BAL-12.5.
Objective 3	<ul style="list-style-type: none"> Ensure that higher order strategic planning documents and proposals consider bushfire protection requirements at an early stage. 	<ul style="list-style-type: none"> The planning process has considered the risk of bushfire in an earlier stage of the planning approvals process.
Objective 4	<ul style="list-style-type: none"> Achieve an appropriate balance between bushfire risk management and biodiversity conservation. 	<ul style="list-style-type: none"> Site environmental values have been considered during earlier stages of the planning approvals process.

3.2 BUSHFIRE PROTECTION CRITERIA

Appendix 4 of the Guidelines for Planning in Bushfire Prone Areas (DPLH and WAPC, v1.4_0, 2021) provide details of the acceptable bushfire protection solutions that can be used to demonstrate how a location can be developed in bushfire prone areas. Table 4 provides evidence of how Stages 5 – 8 comply with the bushfire protection criteria.

Table 4: Compliance with Bushfire Protection Criteria

Intent	Acceptable Solutions	Solution
Element 1: Location		
Ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.	A1.1 Development Location	
	Bushfire hazard assessment is or will on completion be moderate or low.	The subdivision is in an area where the bushfire hazard level is manageable. Lots within 100 m of classified vegetation have been assigned a BAL-rating, with none higher than BAL-12.5.
	BAL-rating is BAL-29 or lower.	Bushfire hazard assessment indicates manageable bushfire risk. Lots within 100 m of classified vegetation have been assigned a BAL-rating, with none higher than BAL-12.5.
Element 2: Siting and Design of Development		
To ensure that the siting and design of development minimises the level of bushfire impact.	A2.1 Asset Protection Zone (APZ)	
	<p>Every habitable building is surrounded by, and every proposed lot can achieve an APZ depicted on plans that meets the following:</p> <p>Width – bushfire radiant heat does not exceed radiant heat of 29 kW/m² (BAL-29) as measured from any external wall or supporting post or column in all circumstances.</p> <p>Location – APZ contained solely within the boundaries of the Lot on which the building is situated, except in instances where the neighbouring lot(s) will be managed in a low-fuel state on an ongoing basis, in perpetuity.</p> <p>Management – the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones' (Schedule 1 on page 71 of the Guidelines).</p>	<p>The APZ coincides with the boundary between BAL-40 and BAL-29 zones (Figure 13) and includes a perimeter road along the western boundary of the Site, with the POS area in the eastern portion of the Site (Figure 1) expected to be landscaped and be considered Low-threat vegetation as per AS 3959: 2018.</p> <p>Subdivision design ensures width is suitable to ensure radiant heat does not exceed 29 kW/m² (BAL-29) as measured from any external wall or supporting post or column in all circumstances.</p> <p>Management of the APZ will devolve to the Lot owner after sale of the property.</p>

Intent	Acceptable Solutions	Solution
Element 3: Vehicular Access		
<p>Ensure that the vehicular access serving a subdivision/ development is available and safe during a bushfire event.</p> <p>To achieve the intent, all applicable acceptable solutions must be addressed:</p> <p>SP – Strategic planning proposal and structure plan where the lot layout is not known.</p> <p>Sb – Structure plan where the lot layout is known and subdivision application.</p> <p>Dd – Development application for a single dwelling, ancillary dwelling, or minor development.</p> <p>Do – Development application for any other development that is not a single dwelling, ancillary dwelling, or minor development.</p>	A3.1 Public Roads (SP Sb Do)	
	Public roads are to meet the minimum technical requirements in Table 6, Column 1 on page 76 of the Guidelines. The trafficable (carriageway/pavement) width is to be in accordance with the relevant class of road in the Local Government Guidelines for Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad standards and/or any applicable standards for the local government area.	Public roads will be constructed in accordance with the technical requirements outlined in Column 1 of Table 5 on page 76 of the Guidelines.
	A3.2a Multiple Access Routes (SP Sb Do)	
	Public road access is to be provided in two different directions to at least two different suitable destinations with an all-weather surface (two-way access).	Several access/egress roads will be constructed that will connect to Moorpark Ave to the east as well as to Ariane View and Capilano Way to the south in Stages 1 – 4 of the Vertex development. A perimeter road to the west of the development area that provides separation between the classified vegetation across the Perth – Yanchep railway construction site to the west will also provide an alternative access/egress option.
	If the public road access is via a no-through road that cannot be avoided due to demonstrated site constraints, the road access is to be a maximum of 200 m from the subject lot(s) boundary to an intersection where two-way access is provided.	N/A
	A no-through road may exceed 200 m if it is demonstrated that an alternative access way cannot be provided due to site constraints and the following requirements are met: The no-through road travels towards a suitable destination. The balance of the no-through road that is greater than 200 m from the subject site is wholly within BAL-Low or is in a residential built-out area (Figure 23 on page 81 of the guidelines).	N/A
	A3.2b Emergency Access Way (SP Sb Do)	
	Where it is demonstrated that A3.2a cannot be achieved due to site constraints, or where an alternative design option does not exist, an emergency access way can be considered as an acceptable solution. An emergency access way is to meet all the following requirements: Requirements in Table 6, Column 2 on page 76 of the guidelines.	N/A – access will be via the existing and planned road network.

Intent	Acceptable Solutions	Solution
	Provides a through connection to a public road. Be no more than 500 m. Must be signposted and if gated, gates must open the whole trafficable width and remain unlocked.	
	A3.3 Through-roads (SP Sb)	
	All public roads should be through-roads. No-through roads should be avoided and should only be considered as an acceptable solution where: It is demonstrated that no alternative road layout exists due to site constraints, and The no-through road is a maximum length of 200 m to an intersection providing two-way access unless it satisfies the exemption provisions in A3.2a.	All public roads will be through roads.
	A no-through road is to meet all the following requirements: Requirements of a public road (Table 6, Column 1, Page 76). Turn-around area as shown in Figure 24 on page 81 of the Guidelines.	N/A
	A3.4a Perimeter Roads (SP Sb)	
	A perimeter road is a public road and should be provided for greenfield or infill development where 10 or more lots are being proposed, including as part of a staged subdivision, with the aim of: Separating areas of classified vegetation under AS 3959 that adjoin the subject site from the proposed lots, and Removing the need for battle-axe lots that back onto areas of classified vegetation.	A perimeter road is provided along the western boundary of the development that provides separation between vegetation to the west of the Perth – Yanchep railway line.
	A perimeter road is to meet the requirements contained in Table 6, Column 1 on page 76 of the Guidelines.	The perimeter road will be constructed in accordance with the requirements outlined in Column 1 of Table 6 on page 76 of the Guidelines.
	A perimeter road may not be required where: The adjoining classified vegetation is Class G Grassland. Lots are zoned for rural living or equivalent. It is demonstrated that it cannot be provided due to site constraints. All lots have frontage to an existing public road.	N/A

Intent	Acceptable Solutions	Solution
	A3.4b Fire Service Access Route (SP Sb)	
	Where proposed lots adjoin classified vegetation under AS 3959 (excluding Class G Grassland) and a perimeter road is not required in accordance with A3.4a, a fire service access route can be considered as an acceptable solution to provide firefighter access, where access is not available, to the classified vegetation. A fire access route is to meet all the following requirements: Requirements in Table 6 Column 3 on page 76 of the Guidelines. Be through-routes with no dead-ends. Linked to the internal road system at regular intervals, every 500 m. Must be signposted. No further than 500 m from a public road. If gated, gates must open the required trafficable width and be locked by the local government and/or emergency services, if keys are provided for each gate. Turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 m.	N/A
	A3.5 Battle-axe Access Legs (Sb)	
	Where it is demonstrated that a battle-axe access leg cannot be avoided due to site constraints, it can be considered as an acceptable solution. There are no battle-axe technical requirements where the point of the battle-axe access leg joins the effective area of the battle-axe lot is less than 50 m from a public road in a reticulated water area.	N/A
	In circumstances where the above condition is not met, or the battle-axe lot is in a non-reticulated water area, the battle-axe access leg is to meet all the following requirements: Requirements in Table 6, Column 4 on page 76 of the Guidelines. Passing bays every 200 m with a minimum length of 20 m and minimum additional trafficable width of two metres (i.e., the combined trafficable width of the passing bay and constructed driveway to be a minimum six metres).	N/A

Intent	Acceptable Solutions	Solution
	A3.6 Private Driveways (Dd Do)	
	There are no private driveway technical requirements where the private driveway is: Within a lot serviced by reticulated water. No greater than 70 m in length between the most distant external part of the development site and the public road as measured as a hose lay. Accessed by a public road where the road speed limit is not greater than 70 km/h.	N/A
	In circumstances where all the above conditions are not met, or the private driveway is in a non-reticulated water area, the private driveway is to meet all the following requirements: Requirements in Table 6, Column 4 on page 76 of the Guidelines. Passing bays every 200 m with a minimum length of 20 m and minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed driveway to be a minimum six metres). Turn around areas as shown in Figure 28 on page 86 of the Guidelines and within 30 m of the habitable building.	N/A
	Element 4: Water	
<p>Ensure that water is available to enable people, property, and infrastructure to be defended from bushfire.</p> <p>To achieve the intent, all applicable acceptable solutions must be addressed:</p> <p>SP – Strategic planning proposal and structure plan where the lot layout is not known.</p> <p>Sb – Structure plan where the lot layout is known and subdivision application.</p> <p>Dd – Development application for a single dwelling, ancillary dwelling, or minor development.</p>	A4.1 Identification of Future Water Supply (SP)	
	Evidence that a reticulated or sufficient non-reticulated water supply for bushfire fighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2 on Page 90 of the Guidelines.	The subdivision will be connected to a reticulated water supply and will comply with Water Corporation specifications.
	Where the provision of a strategic water tank(s) is required in a suitable area within a road reserve or a dedicated lot the location should be identified on the structure plan to the satisfaction of the local government.	N/A
	A4.2 Provision of Water for Firefighting Purposes (Sb Dd Do)	
	Where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority. Where these specifications cannot be met, then the following applies: The provision of a water tank(s) in accordance with the requirements of Schedule 2 on page 90 of the guidelines. Where the provision of a strategic water tank(s) is applicable, then the following requirements apply:	Hydrants will be installed in accordance with Water Corporation requirements.


Intent	Acceptable Solutions	Solution
<p>Do – Development application for any other development that is not a single dwelling, ancillary dwelling, or minor development.</p>	<ul style="list-style-type: none"> — Land to be ceded free of cost to the local government for the placement of the tank(s). — The lot or road reserve where the tank is to be located is identified on the plan of subdivision. — Tank capacity, construction, and fittings provided in accordance with the requirements of Schedule 2 on page 90 of the Guidelines. — A strategic water tank is to be located no more than 10 minutes from the subject site (at legal road speeds). <p>Where a subdivision includes an existing habitable building(s) that is to be retained, a water supply should be provided to this existing habitable building(s) in accordance with the requirements listed above.</p>	
Element 5: Vulnerable Tourism Land Uses		
<p>Provide for bushfire protection for tourism land uses relevant to the characteristics of the occupants and/or the location, to preserve life and reduce the impact of bushfire on property and infrastructure. All applicable acceptable solutions must be addressed.</p>	<p>Every habitable building is surrounded by Asset Protection Zone (APZ) in accordance with Element 2: Siting and Design of Development – A2.1 Asset Protection Zone.</p>	N/A – subdivision is a residential subdivision.
	<p>Habitable buildings are sited and designed to:</p> <p>Minimise clearing of existing vegetation.</p> <p>Provide hazard separation between classified vegetation and a development site that is managed in perpetuity to protect life, prevent the spread of, and manage the impacts of fire.</p>	N/A
	<p>Suitable access/egress is provided for users of tourism sites.</p>	N/A
	<p>Adequate water is available for firefighting purposes in the event of a bushfire.</p>	N/A

3.3 COMPLIANCE WITH RELEVANT DOCUMENTS

Sections 3.1 and 3.2 demonstrate how the subdivision of Stages 5 – 8 in the Vertex Estate in Yanchep complies with State Planning Policy 3.7 (Department of Planning and WA Planning Commission, 2015) and *Guidelines for Planning in Bushfire Prone Areas* (Department of Planning and WA Planning Commission, V1.4_0, 2021). Site owners/occupiers must comply with relevant sections of the annual firebreak notice and bushfire information prepared by the City of Wanneroo, such as total fire ban and hazard reduction programs.

3.4 COMPLIANCE STATEMENT

This BMP has been prepared in accordance with the requirements of *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (Department of Planning and Western Australian Planning Commission, 2015) and *Guidelines for Planning in Bushfire Prone Areas* (Department of Planning and WA Planning Commission, V1.4_0, 2021). The information contained in this document represents current site conditions based on the most recent visit to the site in May 2022 and associated planning.

Signed: 

Date: 20 June 2022

Accreditation Number: BPAD 36638

Accreditation Expiry Date: 30 April 2023



4. REFERENCES

Australian Standard, AS 3959:2018, *Construction of Buildings in Bushfire-Prone Areas*, Standards Australia, NSW.

Bushfires Act 1954 (WA)

Department of Planning, Lands and Heritage (DPLH) and Western Australian Planning Commission (WAPC), (V1.4_0, Dec 2021), *Guidelines for Planning in Bushfire Prone Areas*, Western Australian Planning Commission, Perth, Western Australia.

Department of Planning and Western Australian Planning Commission, (2015), *State Planning Policy 3.7 Planning in Bushfire Prone Areas*, Western Australian Planning Commission, Perth, Western Australia.

Mitchell, Williams and Desmond, (2002) *Swan Coastal Plain 2* (SWA2 – *Swan Coastal Plain subregion*), Department of Conservation and Land Management, https://www.dpaw.wa.gov.au/images/documents/about/science/projects/waaudit/swan_coastal_plain02_p606-623.pdf, accessed August 2021.

Office of Bushfire Risk Management, (2022), *Map of Bushfire Prone Areas*, accessed May 2022 via: <https://maps.slip.wa.gov.au/landgate/bushfireprone/>.