BUSHFIRE MANAGEMENT PLAN
STAGES 10 – 14
OAKABELLA ESTATE, WELLARD

PREPARED FOR:

LWP WELLARD PTY LTD

APRIL 2024

PREPARED BY:

Martinick Bosch Sell Pty Ltd
4 Cook Street
West Perth WA 6005
Ph: (08) 9226 3166
Email: info@mbsenvironmental.com.au
Web: www.mbsenvironmental.com.au

MBS ENVIRONMENTAL

MARTINICK BOSCH SELL PTY LTD
ABN 60 102 614 479
MBS ENVIRONMENTAL
environmental and geoscience consultants

STAGES 10 - 14 OAKABELLA ESTATE, WELLARD
BUSHFIRE MANAGEMENT PLAN

Distribution List:

Company	Contact name	Copies	Date
LWP Group Pty Ltd	Mitch Whalan, Development Manager	[01]	08 April 2024
Taylor Burrell Burnett	Farida Farrag	[02]	08 April 2024

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Draft Report	Sue Brand	Terryn Attwood	11 March 2024
Final Report	Sue Brand	Terryn Attwood	08 April 2024

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1. BACKGROUND INFORMATION

LWP Wellard Pty Ltd are in the process of developing Stages 10 to 14 of the Oakabella Estate (the Site) as a residential subdivision in part of Lot 9010 off Johnson Road, Wellard, within the City of Kwinana (Figure 1). MBS Environmental (MBS) were engaged to prepare a Bushfire Management Plan (BMP) to support the planning approvals process associated with the future development of these Stages. The broad aim of the assessment process was to identify potential bushfire risks to future properties along with their management when the Site is developed.

The Site is located within a bushfire prone area as designated by the Fire and Emergency Services Commissioner, Office of Bushfire Risk Management (OBRM), within the 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 Construction of Buildings in Bushfire Prone Areas* (*AS 3959:2018*). The BAL-assessment component of this document considers current and projected site conditions (i.e.: vegetation classification pre and post development), 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, 2021 (*the Guidelines*).

1.1 LOCATION

Lot 9010 Johnson Road is located approximately 35 km south of the Perth central business district (CBD), and is zoned development, park, recreation, and drainage under the City of Kwinana Town Planning Scheme No. 2 (DPLH, 2021). The Site is bounded by portions of Bollard Bulrush Swamp to the west, with earlier stages of the Oakabella Estate progressing to the north, Johnson Road to the east, and rural land holdings owned by others to the south that will be developed at some point in time, with a structure planning process for that location being progressed (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 10 – 14 of the Oakabella Estate. Accordingly, broad aims include:

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

The objectives of this BMP are to:

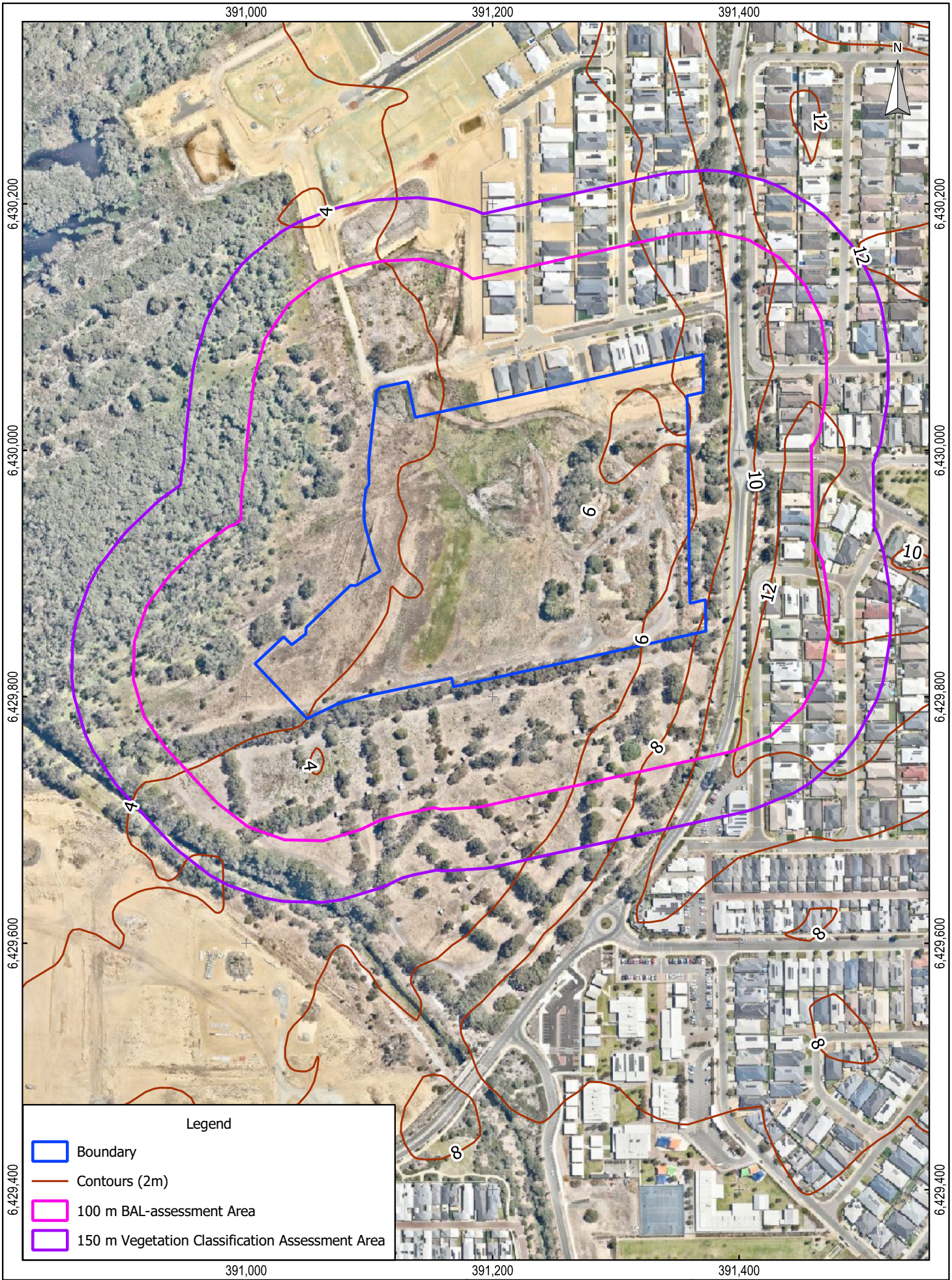
- Define land use areas and values within the subdivision stages, with the entire subdivision being developed as urban residential Lots except for Bollard Bulrush Swamp to the west, and nominated areas designated public open space (POS) and/or drainage.
- Define and rank bushfire hazard areas according to the vegetation classification and fire fuels present.
- Outline the roles and responsibilities of individuals and organisations in relation to bushfire management within the subdivision.

- Document bushfire management strategies for the subdivision, taking into consideration:
  - Vegetation to be retained in Bollard Bulrush Swamp, with consideration given to projected revegetation activities within the 50 m buffer zone that extends from the edge of the wetland for the first 40 m.
  - The need for building construction standards where vegetated areas interface with the urban development.
  - Identify access for firefighting 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 bushfire 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*.
- Assigning bushfire hazard ratings as per the *Guidelines* 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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Original Size: A4
Aerial Imagery: NearMap Jan 2024
Grid: GDA94 / MGA zone 50
0 50 100 m

Bushfire Management Plan
Oakabella Stages 10 - 14
LWP Wellard Pty Ltd

Figure 1

Location and Contours

Martinick Bosch Sell Pty Ltd
4 Cook St
West Perth WA 6005
Australia
t: +61 8 9226 3166
info@mbsenvironmental.com.au
www.mbsenvironmental.com.au

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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

Vegetation within the Site primarily consists of low to medium grassland vegetation associated with the wetter perimeter of Bollard Bushland Swamp during cooler months, with denser scrub vegetation associated with a low woodland of *Melaleuca rhaphiophylla* (Swamp Paperbark) and the occasional *Eucalyptus rudis* subsp. *rudis* (Flooded Gum) over a range of non-native species present further west (Figure 2).

Figure 2: Site Vegetation – Grassland Transitioning into Scrub

2.1.3 Contours and Slope

As the land is primarily 4 m Australian Height Datum (AHD) in the western portion, then rises to 6 m AHD towards the east, it is upslope or flat land for the purposes of the BAL-assessment process (Figure 1).

2.1.4 Land Use

The current land use within what will become Stages 10 – 14 of the Oakabella Estate is a mix of grassland vegetation that will be cleared to accommodate the estate development and areas that have already been cleared (Figure 2, Figure 3).

Figure 3: Current Land Use

2.1.5 Environmental Values

The environmental values of the Site development area and the Bollard Bulrush Swamp were considered during the preparation of the Local Structure Plan (LSP) for Lots 503 and 504 Tamblyn Place and Lots 505, 507 and 900 Johnson Road Wellard (Taylor Burrell Barnett (TBB), 2016) that included an assessment of flora, vegetation, fauna, and wetlands by RPS (2015) and documented in an Environmental Assessment Report submitted as an appendix to the LSP. The key environmental factor to be considered was the presence of Bollard Bulrush Swamp, which has been retained with a 50 m buffer designated around the perimeter of the wetland.

2.1.6 Revegetation

The 50 m buffer that surrounds the Bollard Bulrush Swamp will be revegetated for 40 m from the edge of the wetland, with vegetation similar to that present within the wetland, or vegetation to 4 m with a continuous canopy from ground level (Class D Scrub).

2.1.7 Landscaping

Some locations within the Site development area will become areas of public open space (POS 1, POS 2, and POS 3), creating parkland recreational areas within the subdivision. A typical section for the area between the wetland and the Site development area is provided in Figure 4, and shows the indicative planning for the final 10 m of the wetland buffer and the portion of POS 2 reserve that will be adjacent to Lot 151. Accordingly, Figure 1 indicates that the proposed landscaping will provide a minimum 10 m area of low threat vegetation as per *AS 3959:2018*.

POS 1 and POS 2 to the southwest of the Site will provide recreational and drainage functions, and thus will meet the definition of low threat vegetation, with landscaping plans to be approved by the City of Kwinana when prepared.

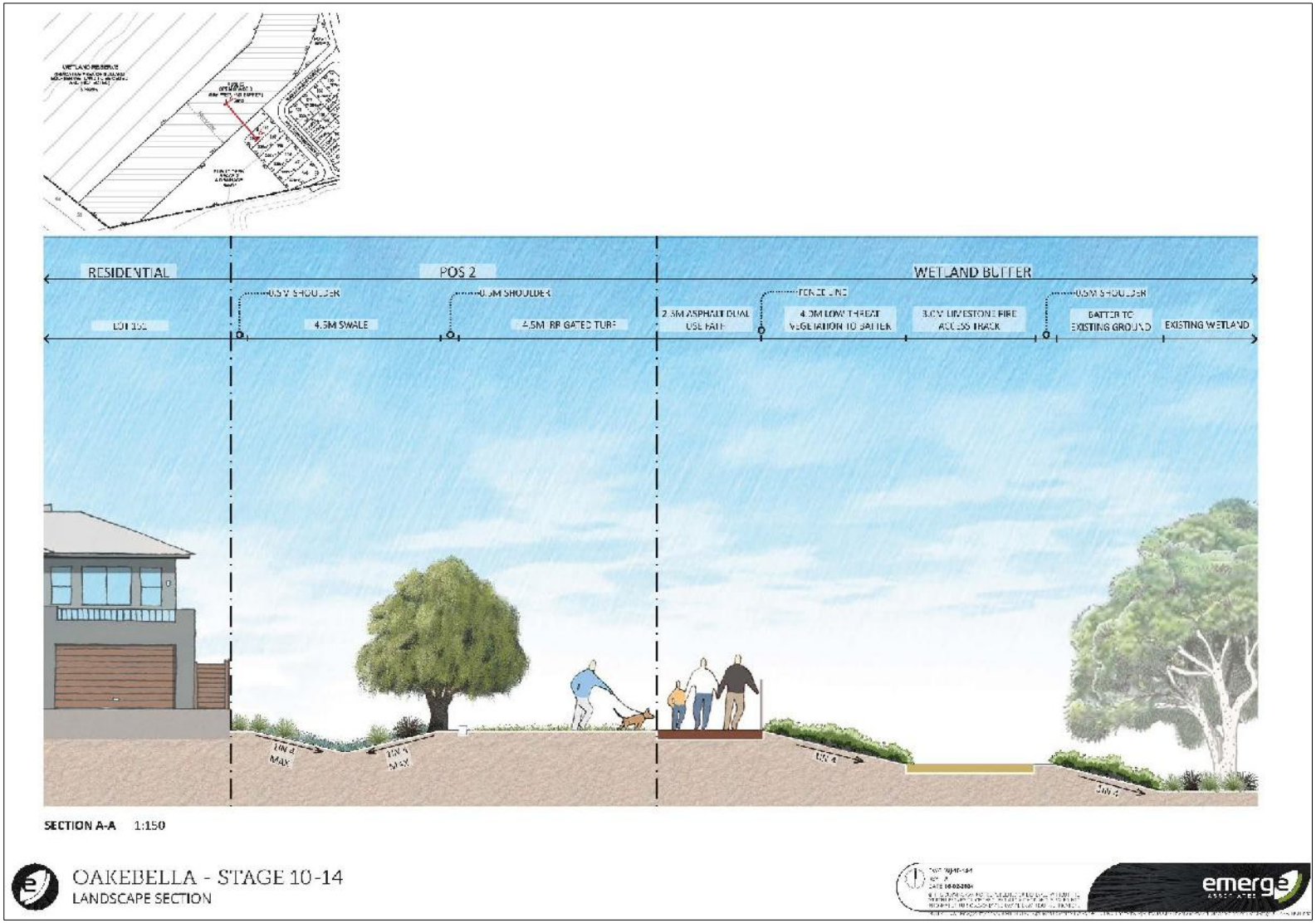


Figure 4: Landscape Section, Oakabella Stage 10 - 14

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, with the most recent being 28 February 2024. Each vegetation class is discussed and shown in Figure 5, Figure 6, Figure 7, and Figure 8. The pre-development vegetation classifications for the Site are shown in Figure 9, with the post-development classifications shown in Figure 10.

2.2.1 Patch 1: Class D Scrub

Class D Scrub is characterised by vegetation from 2 – 4 m and the occasional tree to 6 m. This vegetation typically has a continuous canopy from ground level, with a foliage cover > 30%. It is often found in wetter areas affected by poor soil fertility and is typical of the vegetation associated with the less disturbed areas of Bollard Bulrush Swamp (Figure 5). This vegetation class will be retained into the future within the wetland area and will form the basis of the revegetation within the wetland buffer area for 40 m. Accordingly, its presence will represent an ongoing bushfire risk to Lots closest to the Swamp.

Patch: 1	**Classification or Exclusion Clause:**	Class D Scrub

Photo ID 1

Photo ID 2

Figure 5: Class D Scrub – Bollard Bulrush Swamp

2.2.2 Patch 2: Class G Grassland

Class G Grassland includes all forms of grassland, including pasture, croplands, and those areas with the occasional tree and shrub when the overstorey foliage is less than 10%. Class G Grassland in various forms is present within the wetland area to the east of the Class D Scrub and across most of the Site (Figure 6). Some of the Class G Grassland within the wetland buffer area, to 40 m, will be revegetated with the final mature form expected to be Class D Scrub, while the grassland within the Site boundary will be cleared to accommodate the estate development.

Small patches of grassland are also present in private property to the south past the row of screening trees along the fence line and the firebreak. A review of what could be observed from the property boundary and current aerial imagery (NearMap, 2024) suggests that the dominant vegetation class in the property to the south is Class G Grassland with the occasional tree, noting that the owners are progressing a structure planning process that result in the residential development of that site at some future point.

Patch: 2	**Classification or Exclusion Clause:**	Class G Grassland

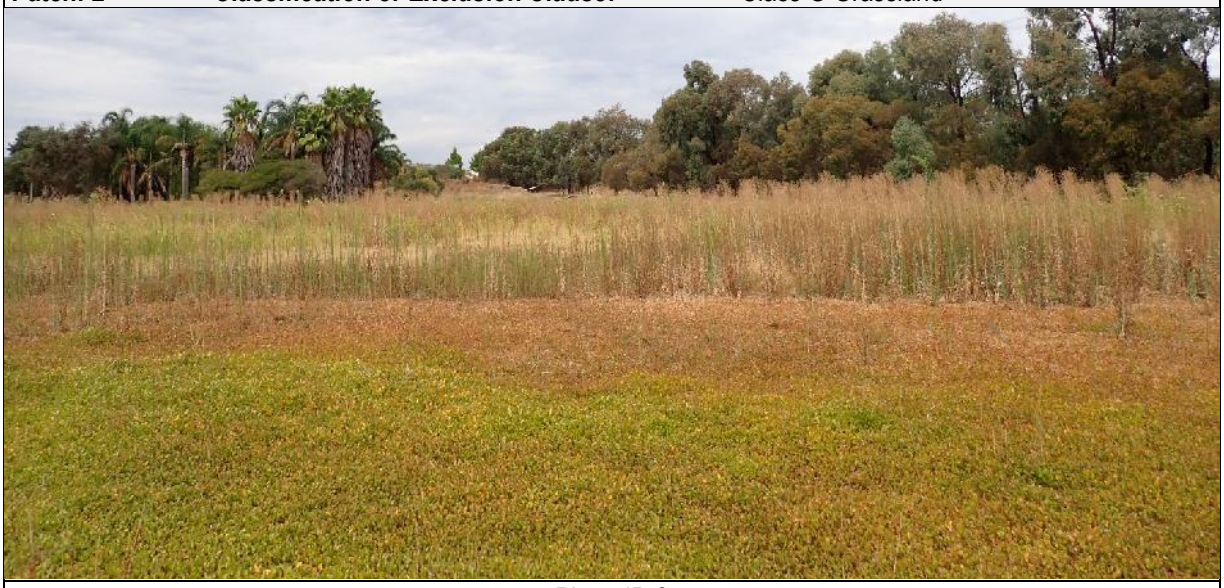


Photo ID 3

Photo ID 4

Photo ID 5

Figure 6: Class G Grassland

2.2.3 Patch 3: Low Threat Vegetation

Vegetation meets the definition of low threat as per AS 3959 due to factors such as flammability, moisture content, or fuel load and are subject to Exclusion Clause 2.2.3.2 (f). Examples of this vegetation class include managed/landscaped parkland areas, grassland maintained in a minimal fire fuel load condition, cultivated gardens, nature strips and windbreaks. Within Stages 10 – 14, the only low threat vegetation that is present are the lines of trees that act as a windbreak and visual barrier between the Site and the land to the south as well as in private property further south around 150 m from the Site boundary (Figure 7). However, as development in Stages 10 – 14 progresses, low threat vegetation will be created in the final 10 m of the wetland buffer (POS 3) (Figure 4), as well as in what will become POS 1 and POS 2 and drainage to the northwest and southwest of the estate development.

Patch: 3 **Classification or Exclusion Clause:** Low threat vegetation – Exclusion clause 2.2.3.2 (f)

Photo ID 6

Photo ID 7

Figure 7: Low Threat Vegetation

2.2.4 Patch 4: Non-vegetated Areas

Non-vegetated areas are devoid of vegetation are subject to Exclusion Clause 2.2.3.2 (e) of *AS 3959:2018* and include (Figure 8):

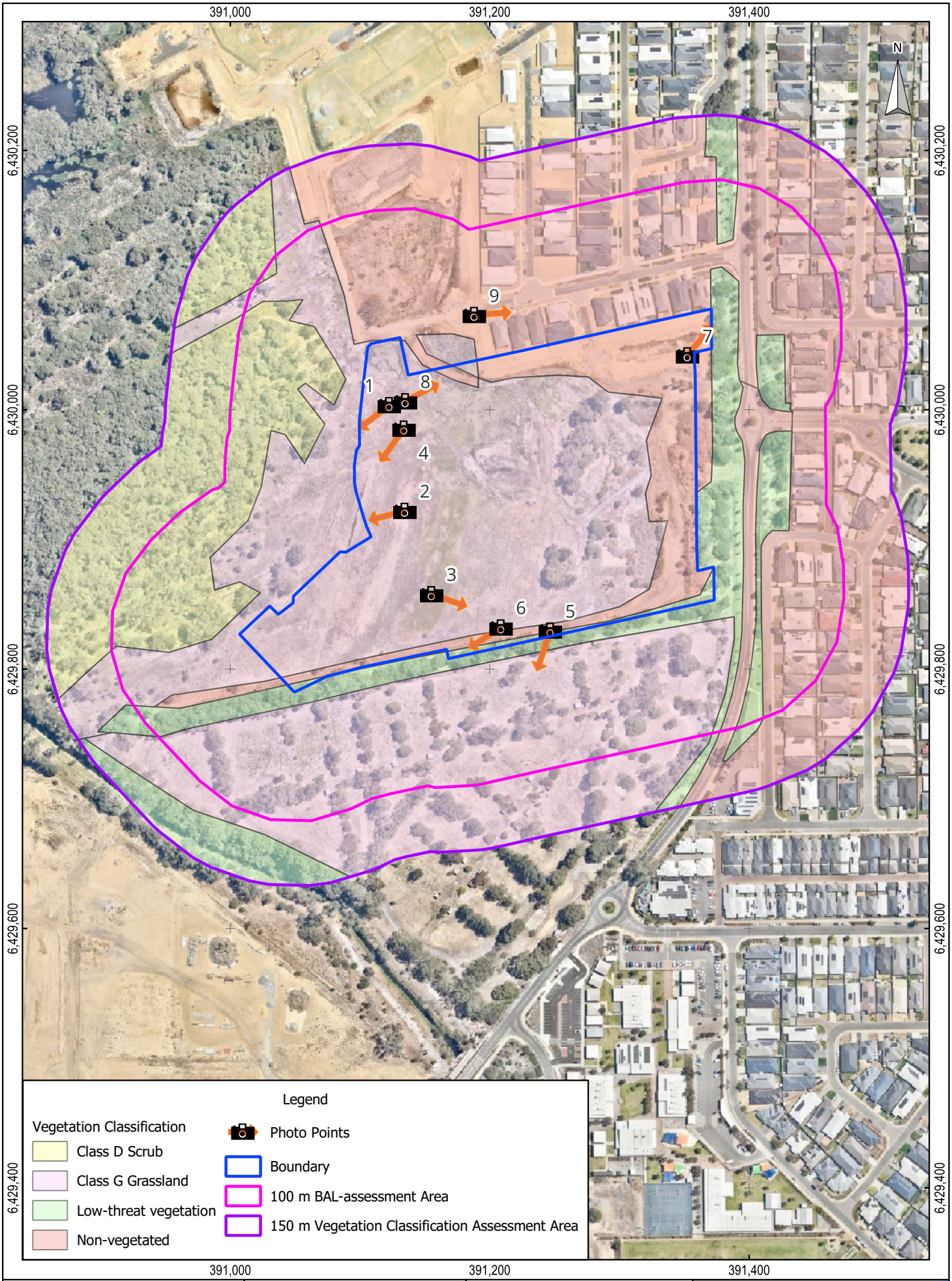
- Areas cleared of vegetation to accommodate the estate development.
- Lots in previous development stages where construction has commenced or is complete.
- Roads and footpaths.

Patch: 4 **Classification or Exclusion Clause:** Low threat vegetation – Exclusion Clause 2.2.3.2 (e)

Photo ID 8

Photo ID 9

Figure 8: Non-vegetated Areas



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Grid: GDA94 / MGA zone 50
0 50 100 m

Bushfire Management Plan
Oakabella Stages 10 - 14
LWP Wellard Pty Ltd

Figure 9

Pre-development Vegetation Classification as per AS 3959:2018

Martinick Bosch Sell Pty Ltd
4 Cook St
West Perth WA 6005
Australia
t: +61 8 9226 3166
info@mbsenvironmental.com.au
www.mbsenvironmental.com.au

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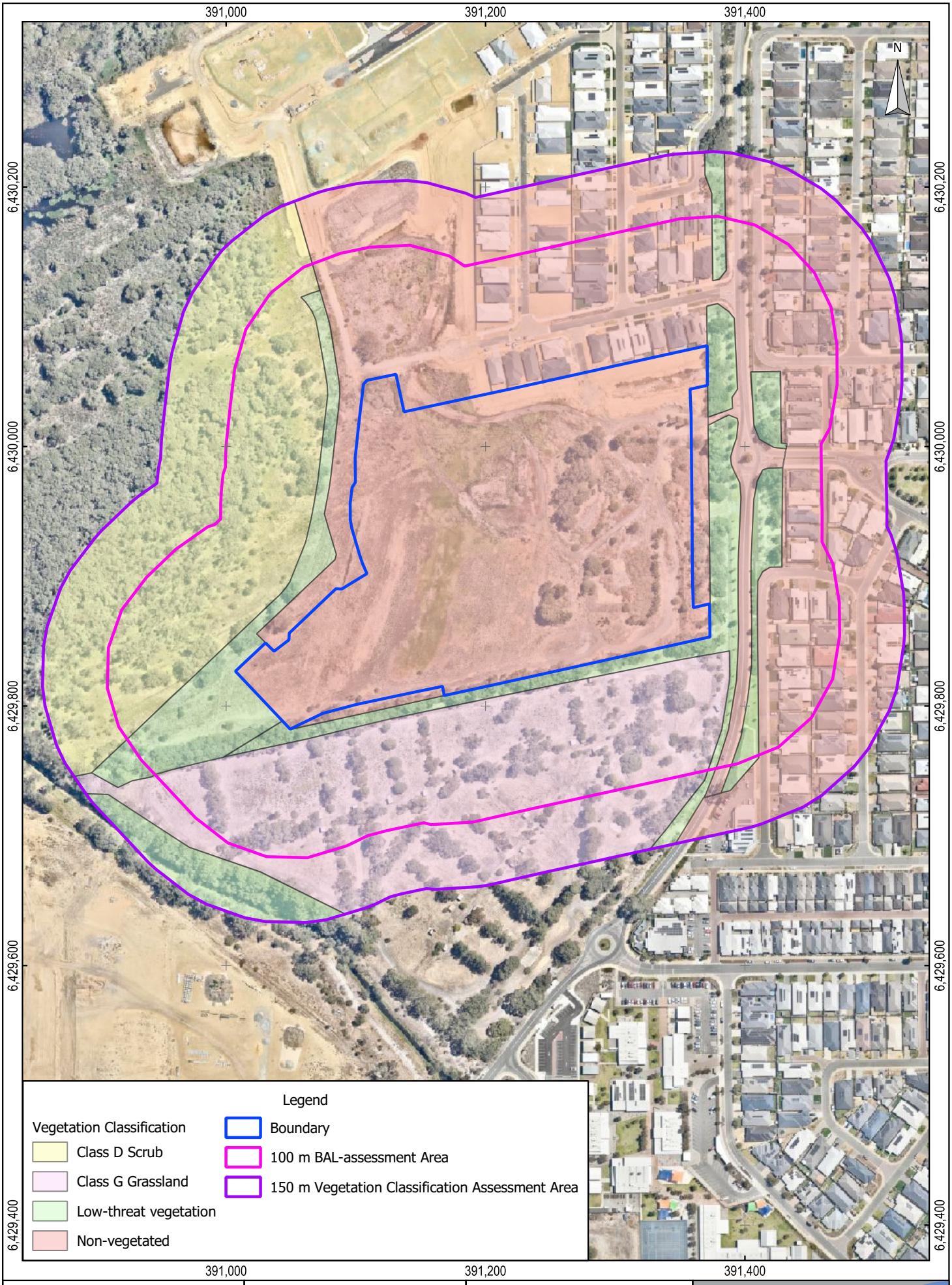

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Grid: GDA94 / MGA zone 50
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Bushfire Management Plan
Oakabella Stages 10 - 14
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Figure 10

Post-development Vegetation Classification

Martinick Bosch Sell Pty Ltd
4 Cook St
West Perth WA 6005
Australia
t: +61 8 9226 3166
info@mbsenvironmental.com.au
www.mbsenvironmental.com.au

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2.3 BUSHFIRE HAZARD LEVEL

2.3.1 Bushfire Hazard Assessment

Depending on the vegetation classification(s) present, a hazard rating of low, moderate, or extreme is assigned. The nature of the vegetation in and around the Site development area means the pre-development bushfire hazard rating ranges from Low to Extreme due to the presence of the Class D Scrub within Bollard Bulrush Swamp (Figure 11). All areas within 100 m of the extreme bushfire hazard zone will have a moderate hazard rating due to the increased risk, with all other locations having 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 2.4.3 of *AS 3959:2018*, which is the nominated FDI for Western Australia.

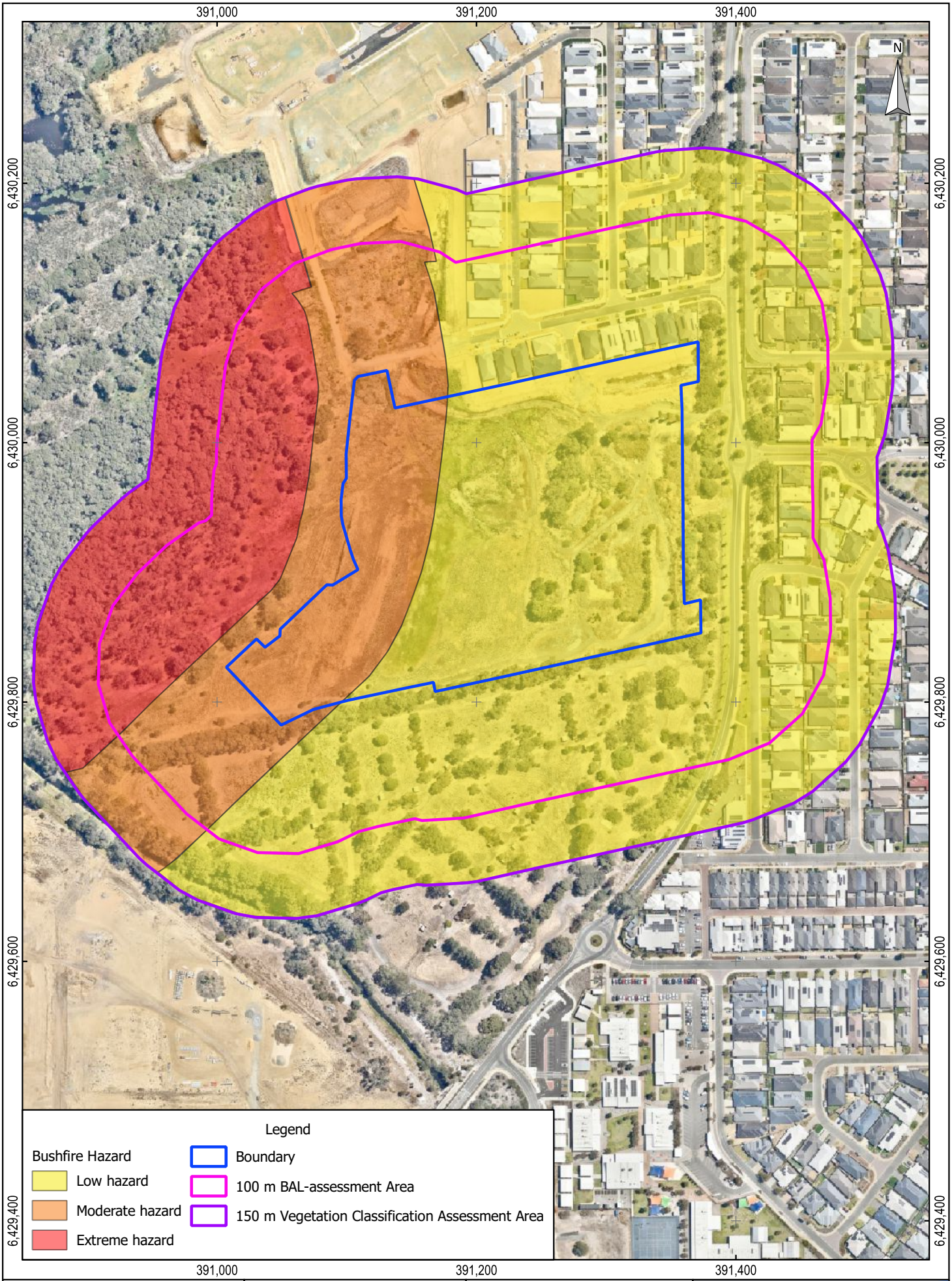
2.3.3 Potential Fire Impacts

Potential fire impacts within the Site include smoke and ember attack, based on revegetation of the wetland buffer to 40 m with Class D Scrub and the remaining 10 m of the buffer being either non-vegetated (dual use path and fire access track and shoulder), or maintained as low threat vegetation (batter slope between the dual use path and the fire access track). On this basis, some Lots are between 20 – 100 m of classified vegetation, thus will have a maximum BAL-19 rating and the remainder having either a BAL-12.5 or a BAL-Low rating.

The Class G Grassland present to the south of the Site also needs to be considered as the property is in private ownership with no formal arrangements for ongoing management or maintenance to ensure it is kept in a low-fuel state such that it will not influence BAL-ratings within the estate development boundary. The windbreak between the Site and the land to the south which meets the definition of low threat vegetation is subject to Exclusion Clause 2.2.3.2 (f) of *AS 3959:2018* ranges from 9 – 10 m from the southern Site boundary. Accordingly, the presence of this low threat vegetation provides a suitable separation distance that the grassland results in a maximum BAL-29 rating for Lots 111 - 127 immediately adjacent to the property to the south. All other grassland within the Site will be cleared for 50 m to prevent temporary BAL-ratings on Lots. Table 1 provides the outcome of the BAL-analysis process.

Table 1: BAL-analysis

Patch	Vegetation Class	Slope	Separation Distance (m)	Maximum BAL-rating
1	Class D Scrub	Upslope or flat	20 – 100	BAL-19
2	Class G Grassland	Upslope or flat	9 – 50	BAL-29
3	Low threat vegetation	N/A	N/A	N/A
4	Non-vegetated	N/A	N/A	N/A



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Aerial Imagery: NearMap Jan 2024
Grid: GDA94 / MGA zone 50
0 50 100 m

Bushfire Management Plan
Oakabella Stages 10 - 14
LWP Wellard Pty Ltd

Figure 11

Bushfire Hazard Assessment

Martinick Bosch Sell Pty Ltd
4 Cook St
West Perth WA 6005
Australia
t: +61 8 9226 3166
info@mbsenvironmental.com.au
www.mbsenvironmental.com.au

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2.4 BAL-ASSESSMENT

The BAL-assessment has been carried out based on the outcomes of discussions that have occurred with the City of Kwinana regarding an acceptable treatment within the wetland buffer that allows for the first 40 m of the 50 m wetland buffer to be revegetated, with the final 10 m of the buffer meeting the definition of low threat vegetation or non-vegetated (Figure 4).

The presence of the Class D Scrub within the current wetland boundary and the planned revegetation within the first 40 m of the 50 m buffer represents an ongoing bushfire hazard and will result in several Lots within 100 m of that vegetation class being assigned a BAL-rating as a means of reducing the risk of damage in the event of a bushfire. Consideration also needs to be given to the presence of the Class G Grassland in property owned by others to the south. Class G Grassland is considered for 50 m rather than the 100 m of other vegetation classes meaning that those Lots closest to the southern boundary will have a BAL-rating. Accordingly, the BAL-assessment has made the following assumptions:

- BAL-ratings have been determined based on the distance from the edge of the classified vegetation to the Lot boundary as house designs and placement on Lots are not known. Building setbacks from a particular boundary (front or rear) may enable a lower BAL-rating than that currently assigned in this document.
- The batter slope between the dual use path and the fire access track is installed and maintained as per Exclusion Clause 2.2.3.2 (f) of *AS 3959:2018*, based on previous discussions with the City of Kwinana.
- POS 1 and POS 2 will be designed and maintained as low threat vegetation subject to Exclusion Clause 2.2.3.2 (f) of *AS 3959:2018*.
- The Grassland in private property to the south commences at the southern perimeter of the windbreak (low threat vegetation) that is present along the boundary between the two properties. Given that structure planning for this property has commenced, there is the possibility that BAL-ratings assigned to Lots closest to the boundary, namely Lots 111 – 128, 145, and 146 will be temporary or reduce when that development proceeds.

The following BAL-ratings have been assigned based on the current and expected post-development Site conditions within the Site (Figure 12), with none higher than BAL-29 and which is an acceptable solution:

- **BAL-Low:** Lots 8 – 36, 55 – 88, and 94 – 110.
- **BAL-12.5:** Lots A, B, C, 37 – 54, 89 – 93, 128 – 145, and 147 – 150.
- **BAL-19:** Lots 111 – 114, 146 and 151.
- **BAL-29:** Lots 115 - 127.

2.5 ASSET PROTECTION ZONE

The asset protection zone (APZ) for the Site is the 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 12, 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/m^2. Delineating the APZ also demonstrates that bushfire risks on Site can be managed.

2.6 SHIELDING

The shielding provisions of *AS 3959:2018* indicate that where a building elevation is not exposed to the bushfire source, that elevation can be constructed to the next lower BAL-rating, noting that it cannot be lower than BAL-12.5. This will apply to the wall including openings but will not apply to subfloors or roofs. As the maximum BAL-rating will be BAL-29, at least on a temporary basis, the provisions of this clause may be applicable to Lots currently rated BAL-19 or BAL-29.

390,900 391,000 391,100 391,200 391,300 391,400

6,430,000

6,429,900

6,429,800

N

Legend

BAL-ratings

- BAL-12.5
- BAL-19
- BAL-29

BAL-contours

- BAL-12.5 Zone
- BAL-19 Zone
- BAL-29 Zone
- BAL-40 Zone
- BAL-FZ Zone
- Lot Layout
- Boundary
- 100 m BAL-assessment Area
- 150 m Vegetation Classification Assessment Area

Scale: 1: 1,500
Original Size: A3
Aeial Imagery: NearMap January 2024
Grid: GDA94 / MGA zone 50 (EPSG:28350)

0 50 100 m

Bushfire Management Plan
Oakabella Stages 10 - 14
LWP Wellard Pty Ltd

Figure 12

BAL-contours and Ratings

Martinick Bosch Sell Pty Ltd
4 Cook St
West Perth WA 6005
Australia
t: +61 8 9226 3166
info@mbsenvironmental.com.au
www.mbsenvironmental.com.au

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2.7 OTHER BUSHFIRE PROTECTION MEASURES

As Stages 10 – 14 are located closer to Bollard Bulrush Swamp, access and egress will primarily be available via Lattuga Dr that acts as the perimeter road between the classified vegetation and the subdivision. This situation means that until the remainder of the Site is developed to the east of these stages, a secondary egress option is not available. To ensure that two egress options are available as required by the Guidelines, a temporary emergency accessway will be installed to the east of Stages 10 – 14 that connects through to Brassica St and Johnson Ave to the east (Figure 12).

2.8 IMPLEMENTATION

Implementation of this BMP will commence immediately and will be the responsibility of the Developer, LWP Wellard Pty Ltd, both for installation and ongoing maintenance until the Site is fully developed and no longer their responsibility, either through the sale of Lots and/or the ceding of POS areas to the City of Kwinana. The Developer is also responsible for ensuring the occupier or new owner of the Site, whichever is relevant, receives a copy of this BMP to inform building construction standards and/or ongoing land management.

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	Ensure proposed building is constructed in accordance with assigned BAL-rating.	Builder/owner	Not required	N/A
2	Assess bushfire management implications of proposed revegetation and landscaping plans, particularly as they relate to the wetland buffer and proposed POS areas.	Developer	As required during the design phase.	Developer
3	Hydrant requirements will be in accordance with the Water Corporation Design Standard 63 for hydrants: • Installation of markings to indicate the presence of hydrants, including: — 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	As required until the Developer is no longer responsible for the Site.	Developer
4	Install and maintain firebreak/low fuel zones around the various development stages to minimise the potential for temporary BAL-ratings on Lots.	Developer	Checking of firebreaks on a regular basis, in accordance with City of Kwinana requirements, noting that the City may initiate inspections to ensure compliance.	Developer
5	If required, undertake slashing of any long grass or other low vegetation to 50 mm and other weed control to reduce fuel load in areas of Class G Grassland within 50 m of Lots.	Developer	At least annually prior to summer, and at other times if warranted.	Developer
6	Ensure that as each stage of the development progresses, there are two access/egress options are available to satisfy the requirements of Element 3: Vehicular Access of the Guidelines.	Developer	If required until roads are constructed to the east that formalises the egress options.	N/A

2.9 RESPONSIBILITIES

Responsibilities for bushfire preparedness and response within the Site development area are shared by the developer, LWP Wellard Pty Ltd, the City of Kwinana, and building owners/occupiers.

2.9.1 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 purchasers or occupiers of Lots.
- Undertaking a review of this BMP when the design or other aspects materially change the bushfire risk to proposed Lots.
- Arranging for appropriate information relating to BAL-ratings of 12.5 or higher to be included on titles of Lots.
- Complying with the requirements of City of Kwinana annual firebreak notices.
- Maintaining a low-fuel zone for 50 m around Grassland areas within the Site development area and within the broader Oakabella boundary to prevent temporary BAL-ratings on Lots.

2.9.2 Kwinana Responsibilities

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

The City of Kwinana 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.

2.9.3 Owner and/or Occupier Responsibilities

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

- Ensure the proposed building is constructed in accordance with the requirements of relevant sections of *AS 3959:2018* for the BAL-rating assigned to their Lot.
- Where required, maintain the required asset protection zone within their Lot.
- 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 Kwinana, DFES, 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 7 – 10 of the Oakabella Estate complies.

Table 3: SPP 3.7 Compliance Evidence

SPP Reference	Description	Evidence of Compliance
Intent	• Ensure that risks associated with bushfires are planned using a risk-based approach.	• Preparation of a BMP in accordance with SPP 3.7. • Hazard assessment indicates risks associated with bushfire are manageable with no Lot having a BAL-rating higher than BAL-29 (Figure 12).
Objective 1	• Avoid any increase in the threat of bushfire to people, property, and infrastructure.	• Hazard assessment indicates risks associated with bushfire are manageable. • Several Lots will be assigned a BAL-rating with none higher than BAL-29 (Figure 12).
Objective 2	• Reduce vulnerability to bushfire.	• Hazard assessment indicates risks associated with bushfire are manageable. • Several Lots will be assigned a BAL-rating, with none higher than BAL-29 (Figure 12).
Objective 3	• Ensure that higher order strategic planning documents and proposals consider bushfire protection requirements at an early stage.	• The planning process has considered the risk of bushfire in an early stage, with this BMP being an updated document associated with development design changes.
Objective 4	• Achieve an appropriate balance between bushfire risk management and biodiversity conservation.	• Site environmental values have been considered during earlier stages of the planning approvals process. • The Bollard Bulrush Swamp and its associated vegetation and buffer area will be retained on an ongoing basis.

3.2 BUSHFIRE PROTECTION CRITERIA

Appendix 4 of the *Guidelines for Planning in Bushfire Prone Areas* (DPLH and WAPC, v1.4, 2021) provides 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 demonstrates the Site's compliance with Bushfire Protection Criteria. Figure 12 provides the Lot layout, along with assigned BAL-ratings.

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. • Several Lots will be assigned a BAL-rating, with none higher than BAL-29 (Figure 12).
	BAL-rating is BAL-29 or lower.	• Bushfire hazard assessment indicates manageable bushfire risk. • Several Lots will be assigned a BAL-rating, with none higher than BAL-29 (Figure 12).
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)**	
	Every habitable building is surrounded by, and every proposed Lot can achieve an APZ depicted on plans that meets the following: • **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. • **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. • **Management** – the APZ is managed in accordance with the requirements of '*Standards for Asset Protection Zones*' (Schedule 1 on page 71 of the Guidelines).	• The APZ coincides with the boundary between BAL-40 and BAL-29 zones (Figure 12) and includes roads and cleared areas. • Subdivision design ensures width is suitable to ensure radiant heat does not exceed 29 kW/m^2 (BAL-29) as measured from any external wall or supporting post or column in all circumstances. • Several Lots will be assigned a BAL-rating, with none higher than BAL-29 (Figure 12).
Element 3: Vehicular Access		
Not applicable – access will be via the existing and planned road network.	**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.	Public roads will be constructed in accordance with the technical requirements outlined in Column 1 of Table 5 on page 76 of the Guidelines.

Intent	Acceptable Solutions	Solution
All public roads will be through roads.	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.	
	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).	• The final subdivision design includes several access/egress options away from bushfires that might occur within Bollard Bulrush Swamp, including perimeter and internal roads that lead to Johnson Road to the east or Wellard Road to the north. • The Developer will ensure that two access/egress options will be available as each Stage of the development is constructed (Figure 12).
	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.	• Not applicable – no permanent no-through roads are planned. • Any temporary no-through roads will be shorter than 200 m to an intersection where suitable egress is provided away from fires.
	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).	Not applicable – no permanent no-through roads are planned.
	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. • Provides a through connection to a public road. • Be no more than 500 m.	Not applicable, emergency access will be via the existing and planned road network.

Intent	Acceptable Solutions	Solution
	• 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 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.	Construction of the no-through roads will comply with the *Guidelines*.
	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.	• Perimeter roads are provided between the Bollard Bulrush Swamp 50 m buffer zone and POS areas and proposed Lots (Figure 12). • The design of the subdivision along the southern boundary allows for the complementary development of the Lot to the south at some future time, thus does not include a perimeter road between Lots 111 – 127 and the south. • The Guidelines allow for the absence of a perimeter road when the adjoining classified vegetation is Grassland, as is the case for Lots 111 – 127.
	A perimeter road is to the 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.	The Guidelines allow for the absence of a perimeter road when the adjoining classified vegetation is Grassland, as is the case for Lots 111 – 127.

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.	Not applicable – fire access will be via the existing and planned road network within the development area.
	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.	Not applicable – no battle-axe blocks are planned.
	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).	Not applicable – no battle-axe blocks are planned.
	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.	Not applicable – no private driveways are planned.

Intent	Acceptable Solutions	Solution
	• 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.	
	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.	Not applicable – no private driveways are planned.
Element 4: Water		
Ensure that water is available to enable people, property, and infrastructure to be defended from bushfire. To achieve the intent, all applicable acceptable solutions must be addressed: **SP** – Strategic planning proposal and structure plan where the lot layout is not known. **Sb** – Structure plan where the lot layout is known and subdivision application. **Dd** – Development application for a single dwelling, ancillary dwelling, or minor development. **Do** – Development application for any other development that is not a	**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.	Not applicable – subdivision will be connected to a reticulated water supply.
	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: — Land to be ceded free of cost to the local government for the placement of the tank(s).	Hydrants will be installed in accordance with Water Corporation requirements.

Intent	Acceptable Solutions	Solution
single dwelling, ancillary dwelling, or minor development.	— 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). 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.	
Element 5: Vulnerable Tourism Land Uses		
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.	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.	Not applicable – subdivision is a residential subdivision.
	Habitable buildings are sited and designed to: • Minimise clearing of existing vegetation. • 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.	Not applicable – subdivision is a residential subdivision.
	Suitable access/egress is provided for users of tourism sites.	Not applicable – subdivision is a residential subdivision.
	Adequate water is available for firefighting purposes in the event of a bushfire.	Not applicable – subdivision is a residential subdivision.

3.3 COMPLIANCE WITH RELEVANT DOCUMENTS

Sections 3.1 and 3.2 demonstrate how the Oakabella Estate in Wellard 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, Lands and Heritage (DPLH), and the WA Planning Commission (WAPC), V1.4, 2021). Site owners/occupiers must comply with relevant sections of the annual firebreak notice and bushfire information prepared by the City of Kwinana, 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* (DPLH and WAPC, V1.4, 2021). The information contained in this document represents current site conditions based on visits to the Site on 15 September 2022 and more recently on 28 February 2024, and associated planning.

Signed: 

Date: 08 April 2024

Accreditation Number: BPAD 36638

Accreditation Expiry Date: 30 April 2024

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

4. REFERENCES

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

Bush Fires Act 1954 (WA)

Department of Planning, Lands and Heritage (DPLH), Town of Kwinana Local Planning Scheme No. 2, accessed September 2022 via: https://www.wa.gov.au/system/files/2021-10/LPSC-kwinana2-schemetext.pdf.

Department of Planning. Lands and Heritage (DPLH) and the Western Australian Planning Commission (WAPC), (V1.4, 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.