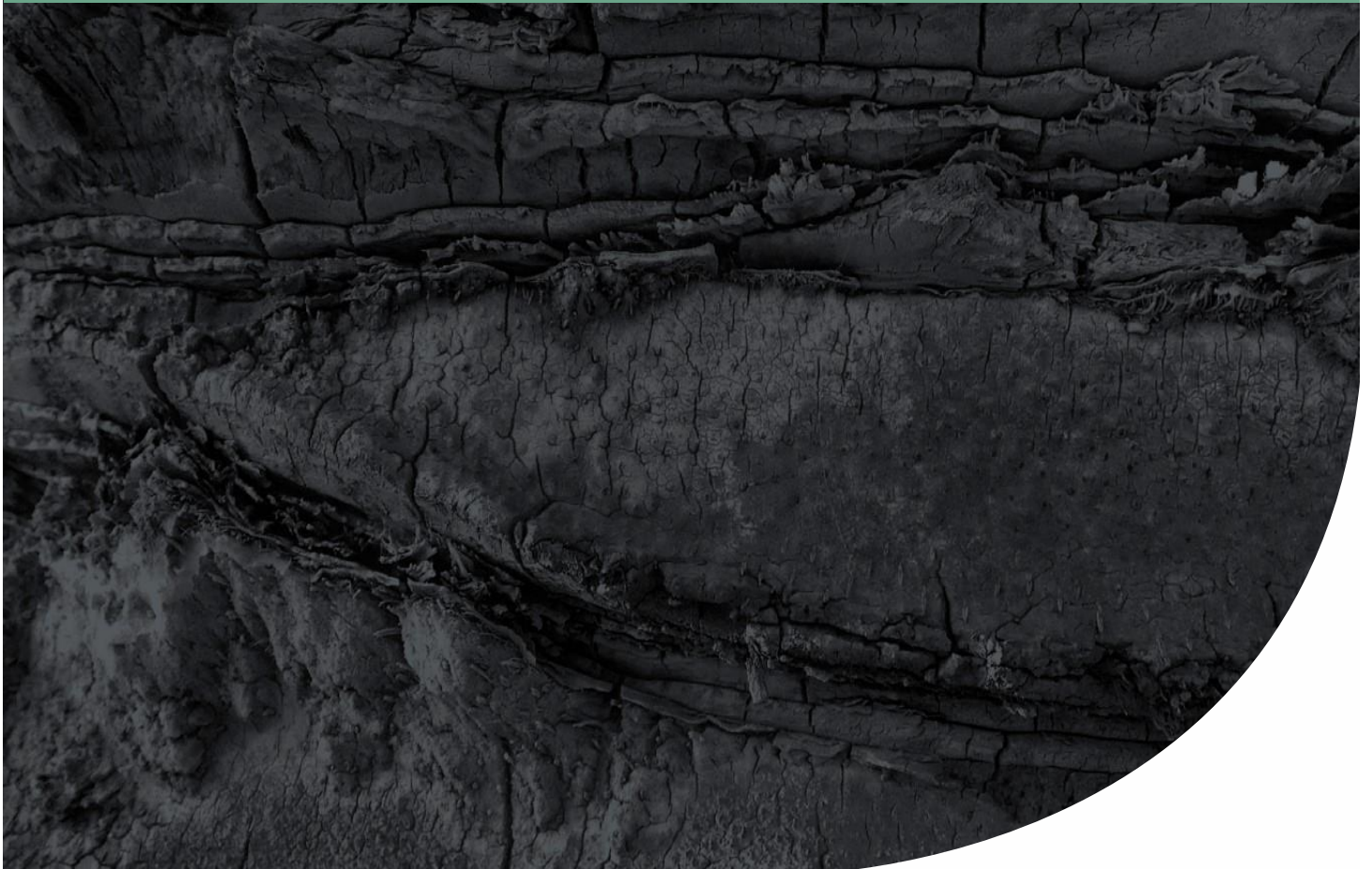


Bushfire Management Plan

Kelmscott Activity Centre Structure Plan

Project No: EP21-032(02)

**Prepared for City of Armadale
August 2022**



Bushfire Management Plan

Kelmscott Activity Centre Structure Plan



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This document has been prepared in good faith and is derived from information sources believed to be reliable and accurate at the time of publication. Nevertheless, it is distributed on the terms and understanding that the author is not liable for any error or omission in the information sources available or provided to us, or responsible for the outcomes of any actions taken based on the recommendations contained herein. It is also expected that our recommendations will be implemented in their entirety, and we cannot be held responsible for any consequences arising from partial or incorrect implementation of the recommendations provided.

This document has been prepared primarily to consider the layout of development and/or the appropriate building construction standards applicable to development, where relevant. The measures outlined are considered to be prudent minimum standards only based on the standards prescribed by the relevant authorities. The level of bushfire risk mitigation achieved will depend upon the actions of the landowner or occupiers of the land and is not the responsibility of the author. The relevant local government and fire authority (i.e. Department of Fire and Emergency Services or local bushfire brigade) should be approached for guidance on preparing for and responding to a bushfire.

Notwithstanding the precautions recommended in this document, it should always be remembered that bushfires burn under a wide range of conditions which can be unpredictable. An element of risk, no matter how small, will always remain. The objective of the Australian Standard AS 3959:2018 is to "prescribe particular construction details for buildings to reduce the risk of ignition from a bushfire" (Standards Australia 2018). Building to the standards outlined in AS 3959 does not guarantee a building will survive a bushfire or that lives will not be threatened by the effects of bushfire attack.

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Executive Summary

This Bushfire Management Plan has been prepared on behalf of the City of Armadale (the proponent) to support the preparation of a proposed Structure Plan for the Kelmscott Activity Centre, referred to herein as 'the site'. The proposed Structure Plan provides a framework for the planning and development of the area by providing a holistic long-term vision and implementation framework. The site covers a total area of approximately 57 ha and is situated approximately 23 km south-east of the Perth Central Business District, within the City of Armadale.

The site is predominantly zoned 'urban' under the Metropolitan Region Scheme and "district centre" and 'residential' under the City of Armadale *Local Planning Scheme No. 4*. The City of Armadale is the responsible authority for planning and development within its municipality, with the exception of those areas under the jurisdiction of DevelopmentWA under the provisions of the *Metropolitan Redevelopment Authority Act 2011*. The City of Armadale is likely to reassume planning control of the Redevelopment Area within the Kelmscott District Centre in the next 2-3 years.

The northern and north-eastern region of the site is currently identified as a 'bushfire prone area' under the state-wide *Map of Bush Fire Prone Areas* prepared by the Office of Bushfire Risk Management (OBRM 2021). The identification of bushfire prone areas within any portion of the site requires further assessment of the bushfire hazard implications on proposed development to be undertaken in accordance with *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) (WAPC 2015) and the *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (the Guidelines) (DPLH & WAPC 2021). The BMP has assessed the entire site including those areas designated as bushfire prone.

The purpose of this BMP is to assess the bushfire hazards, both within and nearby the site, and identify the 'management' strategies required to ensure the development of the land is consistent with the intent of SPP 3.7 - *to preserve life and reduce the impact of bushfire on property and infrastructure*. The Kelmscott Activity Centre includes existing development. The requirements of SPP 3.7 apply to new development and do not apply retroactively to existing development.

As part of assessing the long-term bushfire risk to the site, vegetation classifications have been detailed for the post-development scenario in order to inform a bushfire attack level (BAL) assessment. The majority of the site has been historically cleared of native vegetation and developed to establish residential and commercial operations, recreational and community assets, as well as road networks and a railway line. Bushfire hazards are present across the eastern portion of the site and 150 m buffer, due to the presence of forest (Class A) vegetation associated with the Canning River. Bushfire hazards are also present in the western portion of the site and 150 m buffer, associated with a small area of scrub (Class D) and various pockets of forest (Class A) and grassland (Class G) situated within the residential development. Almost all lots within the site can be excluded under 2.2.3.2 (e) and/or (f) of AS 3959. Whilst hazards have been identified throughout the site, there are no additional planning or building requirements related to bushfire for land outside a designated bushfire prone area. Additionally, many areas classified as grassland may be easily managed and the hazard mitigated.

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This BMP demonstrates that as future development progresses, it will be possible for an acceptable solution to be adopted for each of the applicable bushfire protection criteria outlined in the Guidelines. This includes:

- **Location:** the majority of the Structure Plan area can achieve BAL-29 or below. However, the proximity of land to forest vegetation along the Canning River will, on completion, be subject to a high bushfire hazard of BAL-FZ. Whilst the Structure Plan has accommodated a setback buffer to mitigate bushfire hazards, this is not large enough to achieve a BAL rating of BAL-29 or less. The remainder of the site will, on completion, achieve a BAL-29 or less.
- **Siting and Design:** the majority of land within the Structure Plan area is subject to a BAL rating of BAL-LOW or BAL-12.5. However, future residential land along the eastern periphery is exposed to BAL-40 or BAL-FZ. New development within BAL-40 or above is restricted and unlikely to be suitable for habitable dwellings.
- **Vehicular Access:** the proposed Structure Plan layout utilises the existing road network. No new roads are proposed. The road network is interconnected and provides multiple egress options to the north, south, east and west via a number of roads including Albany Highway and Railway Avenue.
- **Water:** the site is located in an area with a reticulated water supply and will therefore be able to support onsite firefighting requirements.

The measures to be implemented through the proposed Structure Plan, associated future development applications and, where applicable, subdivision design have been outlined as part of this BMP and can be used to support future planning and development approvals processes. It is expected that a revised BMP will be prepared to support any future subdivision application, which would respond to the subdivision design and proposed management of the environmental features within the site. Site-specific BMPs may be required for subdivision and development applications in areas subject to BAL-12.5 or above. Vulnerable or high risk use will also require additional reporting.

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Appendices

Appendix A

Draft Structure Plan (Taylor Burrell Barnett 2022)

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List of Abbreviations

Table A1: Abbreviations – General terms

General terms	
AHD	Australian Height Datum
AS	Australian Standard
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BMP	Bushfire Management Plan
BPAD	Bushfire Planning and Design
CBD	Central Business District
CCW	Conservation Category Wetland
ESL	Emergency Services Levy
FDI	Fire Danger Index
FZ	Flame Zone
POS	Public Open Space
REW	Resource Enhancement Wetland
UFI	Unique Feature Identifier

Table A2: Abbreviations – Organisations

Organisations	
DBCA	Department of Biodiversity Conservation and Attractions
DFES	Department of Fire and Emergency Services
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
OBRM	Office of Bushfire Risk Management
SES	State Emergency Services
WAPC	Western Australian Planning Commission

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Table A3: Abbreviations – Legislation and policies

Legislation	
AS 3959	Australian Standard 3959-2009 Construction of buildings in bushfire prone areas
Guidelines	Guidelines for Planning in Bushfire Prone Areas version 1.4 (DPLH & WAPC 2021)
SPP 3.7	State Planning Policy 3.7 Planning in Bushfire Prone Areas (WAPC 2015)

Table A4: Abbreviations – Planning and building terms

Planning and building terms	
MRS	Metropolitan Regional Scheme
Structure Plan	Kelmscott Activity Centre Structure Plan
TPS	Town Planning Scheme

Table A5: Abbreviations – units of measurement

Units of measurement	
cm	Centimetre
ha	Hectare
kW	Kilowatts
m	Metre
m ²	square metre
m AHD	m in relation to the Australian height datum
mm	Millimetre

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1 Introduction

1.1 Background

This Bushfire Management Plan (BMP) has been prepared for the City of Armadale (the proponent) to support the Kelmscott Activity Centre Structure Plan (herein referred to as 'the site'). The Structure Plan is provided in **Appendix A** and sets out the proposed spatial framework for future residential and commercial development within the site. The site is approximately 57 ha in area and is located approximately 23 km south-east of the Perth CBD within the City of Armadale, as shown in **Figure 1**. The site is generally bound by the Railway Avenue and the Armadale train line to the west, the Canning River to the east, residential developments to the south and rural-residential land to the north. The site largely consists of residential, retail, commercial, restaurants/cafes, medical and community related uses and public open spaces (POS). It is immediately adjacent to a portion of the Canning River foreshore. Several transport and commercial assets are located within the site including the Kelmscott train station, Kelmscott Plaza and the Stargate Kelmscott.

The proposed Structure Plan provides a framework for the planning and development of the area by providing a holistic long-term vision and implementation framework. The City of Armadale currently has a total population of approximately 90,000 persons and is estimated to reach approximately 144,827 persons by 2036. Planning for the Structure Plan area is required to accommodate not only future growth of the centre, but also a changing appreciation for the urban form of the centre with a greater emphasis on inner city and higher density living in close proximity to public transport, commercial Structures and town centre locations. The Structure Plan is intended to guide decision making by all stakeholders, including Local and State Government, landowners, business owners, residents and investors.

The northern and north-eastern region of the site are located within a 'bushfire prone area' under the state-wide Map of Bush Fire Prone Areas prepared by the Office of Bushfire Risk Management (OBRM 2021) as shown in **Plate 1**. The identification of a site within an area declared as bushfire prone necessitates further assessment of the determined bushfire risk affecting the site in accordance with *Australian Standard 3959:2018 Construction of buildings in bushfire prone areas* (AS 3959), and the satisfactory compliance of the proposal with the policy measures described in *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) and the *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (the Guidelines) (DPLH & WAPC 2021). The entire site has been assessed for bushfire hazards, however, only land designated as bushfire prone is required to meet the planning and building requirements for bushfire hazards.

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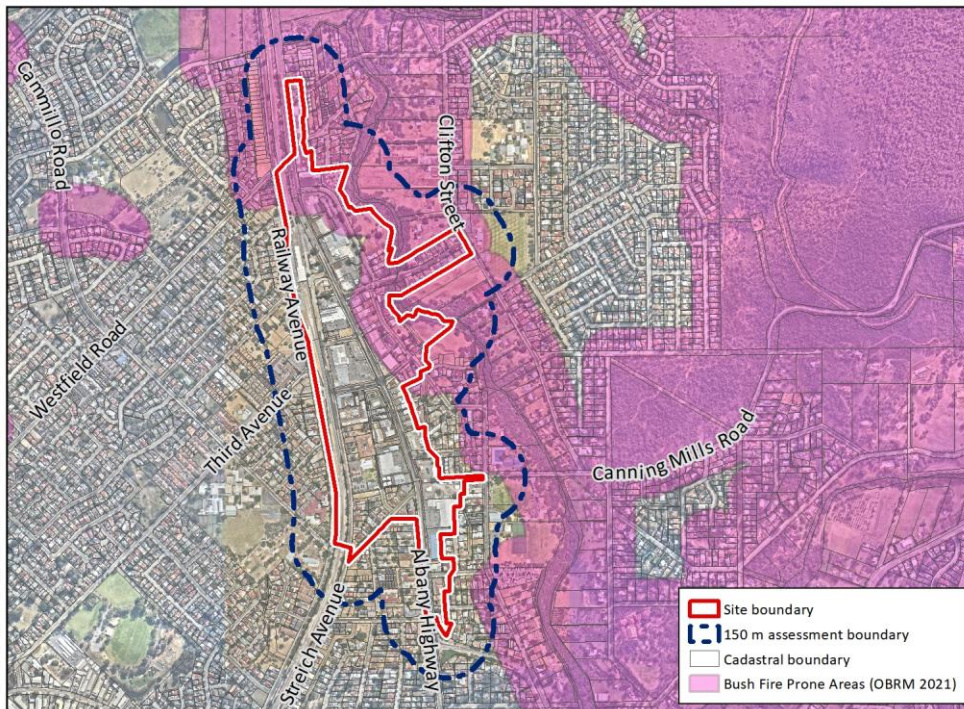


Plate 1: Areas within and surrounding the site identified as 'bushfire prone areas' (as indicated in purple) under the state-wide Map of Bush Fire Prone Areas (OBRM 2021).

The purpose of SPP 3.7 and its policy intent is to preserve life and reduce the impact of bushfire on property and infrastructure through effective risk-based land use planning. Importantly, it is risk-based, requiring a methodical approach to identify and evaluate the hazards and provide the treatments to ameliorate these hazards to an acceptable level. SPP 3.7 requires that the determining authority give consideration to the precautionary principle (clause 6.11 in SPP 3.7) and they must be satisfied that the potential for significant adverse impacts can be adequately reduced or managed. In particular:

*SPP 3.7 does not require that there be no increase at all in the threat of bushfire to people property or infrastructure. Rather, as is seen in clause 2 of SPP 3.7, the intention of the policy is to 'implement effective, risk-based land use planning and development to preserve life and **reduce the impact of bushfire on property and infrastructure**'. (emphasis added)¹*

1.2 Aim of this report

The purpose of this BMP is to assess bushfire hazards both within the site and nearby and demonstrate that the threat posed by any identified hazards can be appropriately mitigated and managed. This BMP has been prepared to support the proposed Structure Plan for the site, and addresses the requirements of SPP 3.7 (WAPC 2015), the Guidelines (DPLH & WAPC 2021) and (AS 3959) (Standards Australia 2018).

¹ Harmanis Holdings No. 2 Pty Ltd and Western Australian Planning Commission [2019] WASAT 43 (Harmanis).

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The BMP includes:

- An assessment of the existing classified vegetation in the vicinity of the site (within 150 m) and consideration of bushfire hazards that will exist in the post development scenario (**Section 3**).
- Commentary on how the future development can achieve the bushfire protection criteria outlined within the Guidelines including an indication of BAL ratings likely to be applicable to future dwellings (**Section 5**).
- An outline of the roles and responsibilities associated with implementing this BMP (see **Section 6**).

1.3 Statutory policy and framework

The following key legislation, policies and guidelines are relevant to the preparation of a bushfire management plan:

- *Bush Fires Act 1954*
- *Fire and Emergency Services Act 1998*
- *Planning and Development Act 2005* and associated regulations
- *Building Act 2011* and associated regulations
- *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (WAPC 2015)
- *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (DPLH & WAPC 2021)
- *Australian Standard AS 3959 – 2018 Construction of buildings in bushfire prone areas* (Standards Australia 2018).

1.4 Description of the proposed development

Taylor Burrell Barnett has prepared the Kelmscott Activity Centre Plan, on behalf of the City of Armadale, to provide a framework for the planning and development of the area by providing a holistic long-term vision and implementation framework.

The proposed Structure Plan identifies the following future land uses within the site:

- Mixed use residential.
- Residential lots, including higher density around areas of amenity.
- Commercial centres, which may include small supermarkets or similar.
- A pedestrian shopping street.
- An interconnected network of green space which will include areas for active and passive recreation.
- Protection of buildings with local heritage significance.
- Stormwater management.
- An interconnected road network that will integrate with the existing public roads.

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1.5 Description of land characteristics

The majority of the site has been historically cleared of native vegetation. A review of historical aerial photography indicates that the clearing occurred sometime prior to 1953. It is likely this clearing occurred to support agricultural purposes, including grazing and orchardry. The site currently comprises community infrastructure, retail and commercial facilities, local heritage buildings, residential lots and public open spaces. Remnant native vegetation within the site is primarily associated with the Canning River, which is associated with multiple conservation category wetlands (CCW) (Unique Feature Identifier (UFI) #15644, UFI #15655, UFI #15669 and UFI #15675). These values are shown in **Figure 1** and discussed further in **Section 2**.

The natural topographic contours indicate that the site is gently sloping down from west to east, with the topography ranging from approximately 30 metres Australian Height Datum (m AHD) in the south-western portion of the site to 17m AHD in the eastern portion of the site (DoW 2008), as shown in **Figure 1**.

The site is located in an area with an existing road network, with Albany Highway and Railway Avenue intersecting the site. These roads connect to the broader public road network, including Brookton Highway (less than 50 m south of the site) and Canning Highway (approximately 2 km north of the site), providing multiple access and egress routes. In addition, the Armadale train line stretches along the western periphery of the site. The Kelmscott Activity Centre includes a rail overpass located at Davis Road. The crossing at Denny Avenue was permanently closed on 1 April 2022.

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2 Environmental Considerations

In accordance with the *Bushfire Management Plan – BAL Contour* template prepared by the Department of Planning, Lands and Heritage (2018), this BMP has considered whether there are any environmental values that may require specific consideration through either protection, retention or revegetation. To support this, a review of publicly available databases has been undertaken, with particular reference to the Shared Location Information Platform (SLIP) databases. A summary of the search results has been provided in **Table 1**.

The majority of the site has been cleared of vegetation and now consists mostly of urban-commercial and residential land uses. As a result, the site contains limited environmental values of conservation significance, and these are primarily associated with the Canning River.

Table 1: Summary of potential environmental considerations that may be associated with the site (based on a search of the SLIP databases)

Key environmental feature (information in brackets refers to mapping data source)	Yes / no / potentially occurring within the site	If yes / potentially, describe value that may be impacted
Conservation category wetlands and buffer (Geomorphic wetlands, Swan Coastal Plain (DBCA-019))	Yes	The site intersects four Conservation Category Wetlands (UFI #15644, UFI #15655, UFI #15669 and UFI #15675) which extend along the eastern periphery of the site. These are associated with the Canning River Floodplain. The proposed Structure Plan does not include modification to vegetation associated with the Canning River. The layout includes setback controls to ensure bushfire and flooding is addressed along the Canning River, which encompasses the forest classified vegetation.
RAMSAR wetlands (DBCA-010)	No	No RAMSAR wetlands are identified within the mapping as occurring within the site or in close proximity.
Bush Forever areas (DPLH-019)	Yes	Bush Forever Site 246, which is associated with the Canning River, intersects the site on the eastern side, primarily in the area surrounding Gilwell Avenue and to the east of the southern end of Page Road. The vegetation associated with the bush forever area is proposed to be retained, which will therefore create a permanent bushfire hazard for the site.
Threatened and priority flora	Potentially	A flora and vegetation survey has not been undertaken across the site due to the developed nature of the area. However, based on the extent of disturbance and presence of commercial and residential properties, it is unlikely that threatened or priority flora is present.
Threatened ecological communities (DBCA-038)	Potentially	A flora and vegetation survey has not been undertaken across the site due to the developed nature of the area . A search was conducted for TEC's that may occur within a 1 km radius of the site using the Protected Matters Search Tool (PMST) on 21 April 2022. Two TEC's were identified, including: <i>(continued below)</i>

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Table 1: Summary of potential environmental considerations that may be associated with the site (based on a search of the SLIP databases) (continued)

Key environmental feature (information in brackets refers to mapping data source)	Yes / no / potentially occurring within the site	If yes / potentially, describe value that may be impacted
		<ul style="list-style-type: none"> • Banksia Woodlands of the Swan Coastal Plain ecological community, which is likely to occur within the area. • Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and Forests of the Swan Coastal Plain ecological community, which may occur within the area. <p>However, given that Banksia woodland is not common along river channels and Tuart woodland is not present this far inland, it is unlikely these TEC's are present within the site.</p>
Threatened and priority fauna (DBCA-057)	Potentially	There is a small area of vegetation south of Gilwell Avenue, adjacent to the Canning River that is identified as an area requiring investigation for Carnaby's Cockatoo foraging habitat (Site ID 245). This area is not proposed to be cleared as part of the development.
Clearing regulations – Environmentally Sensitive Areas (DWER-046)	Yes	<p>The southern half of the site (south of Davis Road) and eastern portion of the site (associated with the Canning River) are identified within an environmentally sensitive area (Figure 1). No modification to the vegetation along the river is proposed.</p> <p>The majority of the ESA has been previously cleared and is currently utilised for residential/transportation purposes, as well as public open space.</p>
Swan Bio-plan Regionally Significant Natural Areas 2010 (DWER-070)	No	Not applicable. This site is not within the Swan Bio-plan.
Aboriginal heritage (DPLH-001)	Yes	<p>There are two registered Aboriginal Heritage Sites that intersect the site:</p> <ul style="list-style-type: none"> • The Swan River (ID 3536) • The Canning River (ID 3538). <p>These registered Aboriginal sites are not proposed to be cleared or impacted by development works.</p>
Non-indigenous heritage (DPLH-008)	No	<p>There are two registered Local Heritage Sites that intersect the site:</p> <ul style="list-style-type: none"> • Metropolitan Water Supply – The Yard (ID 18972) • Jesse Hammond's Residence (ID 4703). <p>These buildings will be protected during the development of the site.</p> <p>Other heritage places within the site are protected under the <i>Armadale Redevelopment Scheme No.2</i>, including the Station Master's House.</p>

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2.1 Native vegetation – modification and clearing

The majority of the Kelmscott Activity Centre is built out with limited remnant native vegetation. At this stage, no vegetation clearance is proposed. Any proposed modification to vegetation in the future will be subject to separate approval processes at detailed planning stages. However, based on the proposed zoning, limited modification and clearing of vegetation within the site may be required to facilitate future development. This may be limited to non-native vegetation.

All vegetation outside the site is assumed to remain in its existing condition. No areas of native vegetation outside the site are proposed to be modified or cleared by the proponent as part of the proposed development.

With regard to bushfire management, native vegetation clearing within the site may be required to enable the relevant siting and access requirements of the Guidelines to be achieved and would be associated with clearing to establish:

- Future lots
- Asset protection zones (APZs)
- Public roads
- Firebreaks, particularly associated with the wetland buffers.

Where clearing of native vegetation is undertaken in accordance with a subdivision approval under the *Planning and Development Act 2005*, it is exempt from requiring a clearing permit under Schedule 6 of the *Environmental Protection Act 1986* (EP Act). Additionally, a clearing permit will not be required where other exemptions pursuant to the *Environmental Protection Act 1986* or Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (where outside and ESA) exist, such as those associated with a building licence or Section 33 of the *Bush Fires Act 1954*.

2.2 Revegetation and landscape plans

This BMP has not assessed any revegetation proposals as part of the Structure Plan, therefore any landscaping and revegetation proposals will need to be considered in future detailed planning stages and development processes. The existing areas of public open space are proposed to be retained, such as Fancote Park. The areas of public open space within the site are intended to be utilised for recreation and drainage purposes. The detailed design of any additional public open space will be determined by, or with the approval of, the City of Armadale as part of the standard public open space landscape design processes. The City will have regard to bushfire hazard and will generally design public open space to match current bushfire vegetation classifications. Where that classification requires achievement of low threat vegetation in accordance with Section 2.2.3.2 of AS 3959, ongoing management is likely to include:

- Irrigation of grass and garden beds (where required).
- Regular removal of weeds and built-up dead material (such as fallen branches, leaf litter etc.)
- Low pruning of trees (branches below 2 m in height removed where appropriate).
- Application of ground/surface covers such as mulch or non-flammable materials as required.
- Regular mowing/slashing of grass to less than 100 mm in height.

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It is also expected that private landowners and service providers maintain any existing drainage areas and areas of undeveloped residential land in accordance with the above arrangements to eliminate potential hazards across the site. The long-term maintenance of public open space within the site is the responsibility of the relevant management body (typically the City of Armadale).

3 Bushfire Assessment Results

Bushfire risk for the site has been appropriately considered both in context to the site and potential impact upon the site using AS 3959 and the Guidelines.

The objective of AS 3959 is to reduce the risk of ignition and loss of a building to bushfire. It provides a consistent method for determining a radiant heat level (radiant heat flux) as a primary consideration of bushfire attack. AS 3959 measures the Bushfire Attack Level (BAL) as the radiant heat level (kW/m²) over a distance of 100 m. AS 3959 also prescribes deemed-to-satisfy construction responses that can resist the determined radiant heat level at a given distance from the fire. It is based on six Bushfire Attack Level (BAL) ratings: BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

A BAL contour plan has been prepared in accordance with Appendix Three of the Guidelines and Method 1 of AS 3959 to determine the BAL ratings likely to be applicable to future buildings. This has been based on the vegetation classifications and the effective slope under the vegetation, with the result presented on the BAL contour plan.

3.1 Assessment inputs

This bushfire attack level (BAL) assessment was undertaken in accordance with Method 1 of AS 3959. The assumed vegetation classifications and effective slope following development have been detailed in **Figure 2**. All vegetation across the site and within 150 m has been classified regardless of whether it is in a bushfire prone area or not. Emerge Associates attended the site on 6 April 2022.

3.1.1 Assumptions

The BAL assessment is based on the following assumptions:

- **Designated FDI:** 80
- **Flame temperature:** 1090 K
- **Effective slope beneath classified vegetation:** flat/upslope, downslope 0-5° (**Figure 2**)
- Areas of low threat vegetation outside the site will continue to be managed and/or considered to achieve low threat (in accordance with Section 2.2.3.2 of AS 3959) based on the existing maintenance regimes, and/or as per the City of Armadale's Fire Break Notice.
- Classified vegetation that has been identified outside of the site has been assumed to remain in its current state (unless stated otherwise) and will therefore continue to be a bushfire hazard to development within the site.
- Developed residential and commercial areas have been shown as non-vegetated for ease of reference, however, they include areas of low threat vegetation.
- Areas of grassland can include up to 10% foliage cover from shrubs and trees, per AS 3959.

3.1.2 Vegetation Classification

All vegetation within 150 m of the site was classified in accordance with Clause 2.2.3 of AS 3959. The assignment of vegetation classifications is based on an assessment of vegetation structure, which includes consideration of the various fuel layers of different vegetation types. For example, fuel

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layers in a typical forest environment can be broken down into five segments as illustrated in **Plate 2**. These defined fuel layers are considered when determining the classification of vegetation. Each distinguishable vegetation plot is described in **Table 2** and shown in **Figure 2**. This classification is a conservative assessment of the vegetation which includes areas that should be managed to a low threat under the City of Armadale Fire Break Notice.

Not all vegetation is a classified bushfire risk. Vegetation and ground surfaces that are exempt from classification as a potential hazard are identified as a low threat under Section 2.2.3.2 of AS 3959. Low threat vegetation includes the following:

- a) *Vegetation of any type that is more than 100 m from the site.*
- b) *Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified.*
- c) *Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified.*
- d) *Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified.*
- e) *Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings, and rocky outcrops.*
- f) *Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves, and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and wind breaks.*

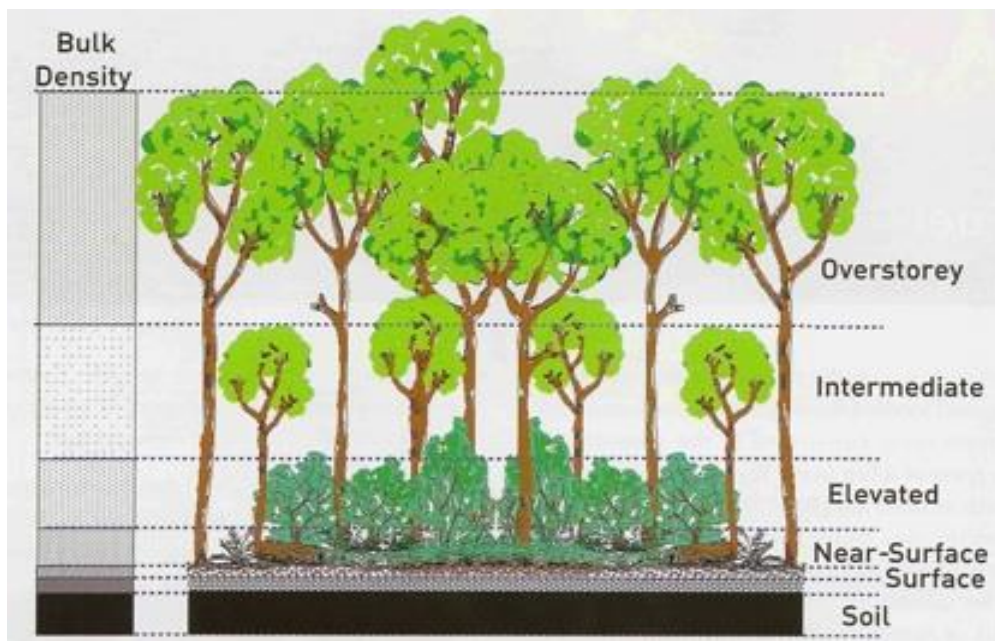


Plate 2: The five fuel layers in a forest environment that could be associated with fire behaviour (Gould et al. 2007)

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**)

Photo ID:	1	Plot:	1	<p>DIRECTION 225 deg(T) 32.11428°S ACCURACY 7 m</p> <p> 116.01746°E DATUM WGS84</p>
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>The vegetation within Plot 1 is associated with the Canning River, which extends along the eastern periphery of the site. The vegetation primarily has a Eucalypt overstorey, reaching between 10 – 15 m in height. The understorey is primarily comprised of juvenile trees and non-native grasses. The surface layer comprises leaf litter. The foliage cover is greater than 30%.</p>				
Photo ID:	2	Plot:	1	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>The vegetation within Plot 1 is associated with the Canning River, which extends along the eastern periphery of the site. The vegetation primarily has a Eucalypt overstorey, reaching between 10 – 15 m in height. The foliage cover is greater than 30%. This vegetation is on the edge of a managed area. The accumulated leaf litter in this photo is included in the forest classification as it would exceed two tonnes per hectare. The managed area is shown in Photo 34.</p>				
Photo ID:	3	Plot:	1	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>The vegetation within Plot 1 is associated with the Canning River, which extends along the eastern periphery of the site. The vegetation primarily has a Eucalypt overstorey, reaching between 10 – 15 m in height. In photo 3, the understorey is primarily comprised of juvenile trees, Myrtaceae and non-native grasses. The surface layer comprises leaf litter. The foliage cover is greater than 30%.</p>				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	4	Plot:	1	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>The vegetation within Plot 1 is associated with the Canning River, which extends along the eastern periphery of the site. The vegetation primarily has a Eucalypt overstorey, reaching between 10 – 15 m in height. In photo 4, the understorey is primarily comprised of juvenile trees, Myrtaceae and non-native grasses. The surface layer comprises leaf litter. The foliage cover is greater than 30%.</p>				
Photo ID:	5	Plot:	1	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>The vegetation within Plot 1 is associated with the Canning River, which extends along the eastern periphery of the site. The vegetation primarily has a Eucalypt overstorey, reaching between 10 – 15 m in height. The understorey is primarily comprised of juvenile trees and non-native grasses. The surface layer comprises leaf litter. The foliage cover is greater than 30%. The Canning River is also illustrated by Photo 5.</p>				
Photo ID:	6	Plot:	1	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>The vegetation within Plot 1 is associated with the Canning River, which extends along the eastern periphery of the site. The vegetation primarily has a Eucalypt overstorey, reaching between 10 – 15 m in height. The understorey is primarily comprised of juvenile trees and non-native grasses. The surface layer comprises leaf litter. The foliage cover is greater than 30%.</p>				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	7	Plot:	2	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>Plot 2 contains classified forest vegetation (Class A). The overstorey reaches approximately 6 – 8 m in height and comprises banksia species and jarrah trees. The understorey is primarily comprised of juvenile trees, zamias, allocasuarina shrubs, as well as grass trees. Leaf litter occupies the surface layer. The foliage cover is greater than 30%. This is a conservative assessment of the vegetation which assumes the canopy height and cover will increase over time.</p>				
Photo ID:	8	Plot:	2	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>Plot 2 contains classified forest vegetation (Class A). The overstorey reaches approximately 6 – 8 m in height and comprises banksia species and jarrah trees. The understorey is primarily comprised of juvenile trees, zamias, allocasuarina shrubs, as well as grass trees. Leaf litter occupies the surface layer. The canopy cover is greater than 30%.</p>				
Photo ID:	9	Plot:	2	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>Plot 2 contains classified forest vegetation (Class A). The overstorey reaches approximately 6 – 8 m in height and comprises banksia species and jarrah trees. The understorey is primarily comprised of juvenile trees, zamias, allocasuarina shrubs, as well as grass trees. Leaf litter occupies the surface layer. The foliage cover is greater than 30%.</p>				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	10	Plot:	3	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>Plot 3 has an overstorey of native (Marri) and non-native tree species, reaching approximately 10 – 15 m in height. The understorey is comprised of shrubs and grasses greater than 10 cm in length. Foliage cover is greater than 30%. Photo 10 illustrates the presence of the native Marri species.</p>				
Photo ID:	11	Plot:	3	
Vegetation Classification or Exclusion Clause				
Forest				
Description / Justification for Classification				
<p>Plot 3 has an overstorey of native (Marri) and non-native tree species, reaching approximately 10 – 15 m in height. The understorey is comprised of shrubs and grasses greater than 10 cm in length. Canopy cover is greater than 30%. Photo 11 illustrates the presence of the native Marri species.</p>				
Photo ID:	12	Plot:	4	
Vegetation Classification or Exclusion Clause				
Scrub				
Description / Justification for Classification				
<p>Castor oil weeds are abundant in Plot 4, reaching an average height of 2.5 m. The understorey contains grasses greater than 10 cm in length. The management regime for this vegetation is unknown, therefore a conservative approach has been adopted for this vegetation.</p>				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	13	Plot:	4	<p>DIRECTION 73 deg(T) 32.11490°S ACCURACY 5 m 116.01221°E DATUM WGS84</p> <p>Emerge Associates Taken With Context Camera 2022-04-06 13:57:54+08:00</p>
Vegetation Classification or Exclusion Clause				
Scrub				
Description / Justification for Classification				
<p>Castor oil weeds are abundant in Plot 4, reaching an average height of 2.5 m. The understorey contains grasses greater than 10 cm in length. Photo 13 further illustrates the variably managed grassland bordering the population of weeds.</p>				
Photo ID:	14	Plot:	5	<p>06 04 2022</p>
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
<p>Plot 5 comprises grassland vegetation, where the grass is unmanaged and greater than 10 cm in length. Whilst there is evidence that the grass has been slashed in Plot 5, there is a large amount of grass clippings present across the lot, and the management regime for the site is unknown. A conservative approach has been adopted for this vegetation.</p>				
Photo ID:	15	Plot:	5	<p>DIRECTION 203 deg(T) 32.11375°S ACCURACY 7 m 116.01843°E DATUM WGS84</p> <p>Emerge Associates Taken With Context Camera 2022-04-06 12:22:33+08:00</p>
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
<p>Plot 5 comprises grassland vegetation, where the grass is unmanaged and greater than 10 cm in length. Whilst there is evidence that the grass has been slashed in Plot 5, there is a large amount of grass clippings present across the lot.</p>				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	16	Plot:	5	
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
Plot 5 comprises grassland vegetation, where the grass is unmanaged and greater than 10 cm in length. Photo 5 and aerial imagery illustrates that the rural residential lots situated to the east of the river comprise pasture grasses. This site was inaccessible for taking photographs of the vegetation however, it was observed to contain grass with minimal shrubs or trees.				
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
Isolated areas of grassland have been identified throughout the assessment area and are included in Plot 6 for brevity. Vegetation associated with the agricultural facility at the Kelmscott Senior High School includes large areas of unmanaged grass greater than 10 cm in height. The moisture content of the grass means it is currently low threat, however, the management regime is unknown and the grass has the potential to cure. Therefore, this vegetation has been classified as grassland.				
Photo ID:	17	Plot:	6	
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
Plot 6 comprises grassland vegetation, where the grass is unmanaged and greater than 10 cm in length. Photo 6 and aerial imagery illustrates that the rural residential lots situated to the east of the river comprise pasture grasses. This site was inaccessible for taking photographs of the vegetation however, it was observed to contain grass with minimal shrubs or trees.				
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
The vegetation associated with undeveloped residential lots in the north of the assessment area is characterised by unmanaged grass greater than 10 cm in height. Overall, there is less than 10% overstorey foliage coverage. Therefore, this vegetation has been classified as grassland.				
Photo ID:	18	Plot:	6	
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
Plot 6 comprises grassland vegetation, where the grass is unmanaged and greater than 10 cm in length. Photo 6 and aerial imagery illustrates that the rural residential lots situated to the east of the river comprise pasture grasses. This site was inaccessible for taking photographs of the vegetation however, it was observed to contain grass with minimal shrubs or trees.				
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
The vegetation associated with undeveloped residential lots in the north of the assessment area is characterised by unmanaged grass greater than 10 cm in height. Overall, there is less than 10% overstorey foliage coverage. Therefore, this vegetation has been classified as grassland.				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	19	Plot:	6	<p>DIRECTION 292 deg(T) 32.11195°S ACCURACY 8 m 116.01212°E DATUM WGS84</p> <p>Emerge Associates Taken With Context Camera 2022-04-06 14:06:23+08:00</p>
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
Vegetation associated with undeveloped residential lots to the west of the train station is characterised by unmanaged grass greater than 10 cm in height. Overall, there is less than 10% overstorey foliage coverage, Therefore, this vegetation has been classified as grassland.				
Photo ID:	20	Plot:	6	<p>DIRECTION 240 deg(T) 32.11268°S ACCURACY 9 m 116.01245°E DATUM WGS84</p> <p>Emerge Associates Taken With Context Camera 2022-04-06 14:08:08+08:00</p>
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
Vegetation associated with undeveloped residential lots to the west of the train station is characterised by unmanaged grass greater than 10 cm in height. Overall, there is less than 10% overstorey foliage coverage, Therefore, this vegetation has been classified as grassland.				
Photo ID:	21	Plot:	6	<p>DIRECTION 250 deg(T) 32.11482°S ACCURACY 6 m 116.01300°E DATUM WGS84</p> <p>Emerge Associates Taken With Context Camera 2022-04-06 13:44:24+08:00</p>
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
Vegetation associated with undeveloped residential lots to the west of the train station is characterised by unmanaged grass greater than 10 cm in height. Overall, there is less than 10% overstorey foliage coverage, Therefore, this vegetation has been classified as grassland. Photo 20 illustrates the presence of the castor oil weeds within Plot 4.				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	22	Plot:	6	
Vegetation Classification or Exclusion Clause				
Grassland				
Description / Justification for Classification				
Vegetation associated with undeveloped residential lots to the east of the train station is characterised by unmanaged grass greater than 10 cm in height. Overall, there is less than 10% overstorey foliage coverage, Therefore, this vegetation has been classified as grassland.				
Photo ID:	23	Plot:	7	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (c)				
Description / Justification for Classification				
The vegetation present within Plot 7 has been excluded in accordance with Clause 2.2.3.2 (c). Plot 7 has an overstorey comprising of Jarrah species, along with a planted Ficus species. The overstorey reaches approximately 8 m in height. The understorey is primarily comprised of juvenile trees (Jacaranda) and shrubs. Leaf litter occupies the surface layer.				
Photo ID:	24	Plot:	8	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (d)				
Description / Justification for Classification				
Plot 8 contains strips of vegetation less than 20 m in width that are present at a distance greater than 20 m from the site and other classified vegetation, which have been excluded in accordance with Clause 2.2.3.2 (d). Photo 24 illustrates the presence of vegetation that extends parallel to the railway, within the road reserve.				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	25	Plot:	9	<p>DIRECTION 342 deg(T) 32.11064°S ACCURACY 7 m 116.01189°E DATUM WGS84</p> <p>Emerge Associates Taken With Context Camera 2022-04-06 14:14:45+08:00</p>
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (e)				
Description / Justification for Classification				
Plot 9 contains non-vegetated areas, which have been excluded in accordance with Clause 2.2.3.2 (e). Photo 25 illustrates vacant lots ready for development.				
Photo ID:	26	Plot:	9	<p>DIRECTION 200 deg(T) 32.11040°S ACCURACY 8 m 116.01505°E DATUM WGS84</p> <p>Emerge Associates Taken With Context Camera 2022-04-06 11:25:29+08:00</p>
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (e)				
Description / Justification for Classification				
Plot 9 contains non-vegetated areas, which have been excluded in accordance with Clause 2.2.3.2 (e). Photo 26 illustrates the presence of a firebreak, which has been cleared of vegetation and leaf litter to separate the classified forest vegetation (Plot 1) from the residential properties. This is well managed.				
Photo ID:	27	Plot:	9	<p>DIRECTION 186 deg(T) 32.11676°S ACCURACY 8 m 116.01939°E DATUM WGS84</p> <p>Emerge Associates Taken With Context Camera 2022-04-06 13:01:13+08:00</p>
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (e)				
Description / Justification for Classification				
Plot 9 contains non-vegetated areas, which have been excluded in accordance with Clause 2.2.3.2 (e). Photo 27 illustrates a sealed bitumen road. Maintained hedges are also present within the road reserve.				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	28	Plot:	9	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (e)				
Description / Justification for Classification				
<p>Plot 9 contains non-vegetated areas, which have been excluded in accordance with Clause 2.2.3.2 (e). Photo 28 illustrates a sealed bitumen road, and carparking associated with Frye Park. A maintained lawn is also present within the road reserve.</p>				
Photo ID:	29	Plot:	10	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (f)				
Description / Justification for Classification				
<p>Plot 10 consists of low threat vegetation which has been excluded from this BAL assessment in accordance with Clause 2.2.3.2 (f). Photo 29 shows a developing residential estate located on Sadlers Retreat. The grass is maintained to a length less than 10 cm. The overstorey present within photo 29 is part of the classified forest vegetation of Plot 1.</p>				
Photo ID:	30	Plot:	10	<div style="display: flex; justify-content: space-between; font-size: small;"> DIRECTION 311 deg(T) 32.11142°S 116.01316°E ACCURACY 5 m DATUM WGS84 </div>
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (f)				
Description / Justification for Classification				
<p>Plot 10 consists of low threat vegetation which has been excluded from this BAL assessment in accordance with Clause 2.2.3.2 (f). Photo 30 illustrates maintained hedges that extend along a bitumen path alongside the railway line.</p>				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	31	Plot:	10	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (f)				
Description / Justification for Classification				
<p>Plot 10 consists of low threat vegetation associated with Fancote Park, which has been excluded from this BAL assessment in accordance with Clause 2.2.3.2 (f). Photo 31 illustrates that the grass is maintained to a length less than 10 cm. The grass appears to be reticulated and there is negligible fine fuel associated with the trees and shrubs.</p>				
Photo ID:	32	Plot:	10	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (f)				
Description / Justification for Classification				
<p>Plot 10 consists of low threat vegetation associated with large private landholdings on Clifton Street, which has been excluded from this BAL assessment in accordance with Clause 2.2.3.2 (f). Photo 32 illustrates that the grass is maintained to a length less than 10 cm. There is negligible fine fuel associated with the trees and shrubs within the private lot.</p>				
Photo ID:	33	Plot:	10	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (f)				
Description / Justification for Classification				
<p>Plot 10 consists of low threat vegetation associated with an oval at Orlando Street, which has been excluded from this BAL assessment in accordance with Clause 2.2.3.2 (f). Photo 33 illustrates that the grass is maintained to a length less than 10 cm. The grass appears to be reticulated and there is negligible fine fuel associated with the trees.</p>				

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Table 2: AS 3959 Vegetation Classification (refer to **Figure 2**) (continued)

Photo ID:	34	Plot:	10	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (f)				
Description / Justification for Classification				
<p>Plot 10 consists of low threat vegetation which has been excluded from this BAL assessment in accordance with Clause 2.2.3.2 (f). Photo 34 shows an area of managed vegetation at the rear of MercyCare Kelmscott on Clifton Street. All understorey vegetation has been removed and there is minimal leaf litter across the area on the left. Dense leaf litter has accumulated to the right of the red line and this area has been included in the Plot 1 forest vegetation.</p>				
Photo ID:	35	Plot:	10	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (f)				
Description / Justification for Classification				
<p>Plot 10 consists of low threat vegetation which has been excluded from this BAL assessment in accordance with Clause 2.2.3.2 (f). Photo 35 illustrates the presence of low threat vegetation that extends along Railway Avenue, alongside the railway line.</p>				
Photo ID:	36	Plot:	10	
Vegetation Classification or Exclusion Clause				
Exclusion 2.2.3.2 (f)				
Description / Justification for Classification				
<p>Plot 10 consists of low threat vegetation which has been excluded from this BAL assessment in accordance with Clause 2.2.3.2 (f). Photo 36 shows trees maintained to a low threat that extend along a bitumen path alongside the railway line. At the rear of this photo, maintained scrub is present between the railway tracks.</p>				

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3.2 Assessment outputs

The vegetation classification undertaken in **Section 3.1.2** is summarised in **Table 3** and incorporates the known changes to vegetation post-development. The resultant BALs are shown in **Figure 3**. BAL ratings are based on the minimum distance outlined in Table 2.5 of AS3959.

Table 3: AS3959 Vegetation Classification and Effective Slope

Plot	Applied vegetation classification	Effective slope
1	Class A – Forest	Downslope 0 – 5°
2	Class A – Forest	Flat/upslope
3	Class A – Forest	Flat/upslope
4	Class D – Scrub	Flat/upslope
5	Class G – Grassland	Flat/upslope
6	Class G – Grassland	Downslope 0 – 5°
7	Exclusion 2.2.3.2 (c)	N/A
8	Exclusion 2.2.3.2 (d)	N/A
9	Exclusion 2.2.3.2 (e)	N/A
10	Exclusion 2.2.3.2 (f)	N/A

The BAL ratings for all lots within the site have been calculated based on the vegetation assessment presented in **Table 2** above. The BAL ratings applicable to the lots have been illustrated in the BAL Contour Plan shown in **Figure 3**. The BAL rating relevant to the designated bushfire prone land has been illustrated in **Figure 4**.

The setback distances to achieve each BAL rating are based on the post-development classified vegetation and effective slope are taken from Table 2.5 of AS 3959 and provided in **Table 4**.

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Table 4: Setback distances based on vegetation classification and effective slope and Table 2.5 of AS 3959, as determined by the method 1 BAL assessment

Plot number (see Figure 2)	Vegetation classification (see Figure 2)	Effective slope (see Figure 2)	Distance to vegetation (from Table 2.5 of AS 3959)	BAL rating (see Figure 3)
Plot 1	Forest (Class A)	Downslope 0 – 5°	< 20 m	BAL-FZ
			20 - < 27 m	BAL-40
			27 - < 37 m	BAL-29
			37 - < 50 m	BAL-19
			50 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
Plot 2 – Plot 3	Forest (Class A)	Flat/upslope	< 16 m	BAL-FZ
			16 - < 21 m	BAL-40
			21 - < 31 m	BAL-29
			31 - < 42 m	BAL-19
			42 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
Plot 4	Scrub (Class D)	Flat/upslope	< 10 m	BAL-FZ
			10 - < 13 m	BAL-40
			13 - < 19 m	BAL-29
			19 - < 27 m	BAL-19
			27 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
Plot 5	Grassland (Class G)	Flat/upslope	< 6 m	BAL-FZ
			6 - < 8 m	BAL-40
			8 - < 12 m	BAL-29
			12 - < 17 m	BAL-19
			17 - < 50 m	BAL-12.5
			> 50 m	BAL-LOW
Plot 6	Grassland (Class G)	Downslope 0 – 5°	< 7 m	BAL-FZ
			7 - < 9 m	BAL-40
			9 - < 14 m	BAL-29
			14 - < 20 m	BAL-19
			20 - < 50 m	BAL-12.5
			> 50 m	BAL-LOW

4 Identification of Bushfire Hazard Issues

From a bushfire hazard management perspective, the key issues requiring management include:

- Provision of appropriate separation distance from permanent bushfire hazards within and surrounding the site, including areas of existing remnant vegetation associated with Canning River, to ensure a BAL rating of BAL-29 or less can be achieved at future-built form.
- Provision of appropriate vehicular access, including two access routes at all stages of development. If future development is staged, ensuring that each development area is provided with appropriate access and egress for occupants and emergency personnel in a bushfire event, including provision of temporary turn-around areas and/or emergency access ways.
- Provision of appropriate water supply and associated infrastructure.

These issues are considered further in **Section 5**.

4.1 Permanent Hazards

The surrounding 150 m comprises areas of classified vegetation, with large areas of low threat vegetation and non-vegetated land. Classified vegetation surrounding the site includes:

- Class A – Forest vegetation along Canning River.
- Class A – Forest vegetation situated to the south-west of the site on the corner of Railway Avenue and Cammillo Road.
- Class A – Forest vegetation situated to the west of site on the corner of Railway Avenue and Merrifield Avenue.
- Class D – Scrub vegetation to the west, located on the corner of Railway Avenue and Merrifield Avenue.
- Class G – Unmanaged grassland vegetation, present in scattered patches throughout the site and assessment area. These are generally associated with undeveloped/developing residential lots.

4.2 Temporary/Manageable Hazards

Several areas of undeveloped residential land with unmanaged grass were identified during this assessment. The proximity of these areas to proposed residential and commercial land mean they cannot be excluded from classification. Therefore, this vegetation has been treated as classified for the purposes of the BMP. These areas may be intermittently managed by given the condition during the field work, a conservative approach has been adopted, classifying these areas as grassland. The hazard associated with these areas will likely be removed once they are developed, however, the timeline is unknown. Another mechanism to address this issue is enforcement under the City of Armadale Fire-break and Hazard Reduction Notice to remove inflammable material.

Vegetation associated with drainage lines was also classified as grassland. A regular management regime can ensure that this vegetation does not become a hazard.

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All other vegetation within the site (shown on **Figure 2**) is considered to be able to be managed to achieve low threat (and therefore not a hazard). **Section 4** of this report provides guidance on mitigating these hazards to reduce the risk of any future development within the site.

The BAL contour plan identifies the BAL ratings associated with these temporary hazards. There are only minor incursions into the site as a result of this vegetation.

4.3 Vulnerable Land Use

The definition of a vulnerable land use is where persons may be less able to respond in a bushfire emergency. The types of land use considered vulnerable was expanded in the newest version of the Guidelines and includes *'facilities that, due to the building design or use, or the number of people accommodated, are likely to present evacuation challenges.'* The identification of a land use as a vulnerable use is at the discretion of the decision maker in the event of a proposed development being lodged for planning approval.

The proposed development has not allocated land for a vulnerable use. If this design is altered and proposes to accommodate a vulnerable land use, such as a school, this would require assessment at the development stage along with the preparation of a bushfire management plan and bushfire emergency evacuation plan.

4.4 Map of Bush Fire Prone Areas

As previously noted in this report, not all land within the Structure Plan area is within a designated bushfire prone area (refer to **Plate 1** and **Figure 4**). This means that regardless of the BAL assessment results for land outside a designated bushfire prone area, there are no additional planning or building requirements for that land associated with bushfire hazard. This assessment has, however, highlighted existing areas of unmanaged vegetation within the site and surrounding 150 m that has the potential to become a hazard if left unmanaged. A cautious approach to vegetation classification has been undertaken as the management regimes for all land within the assessment area is unknown. Generally, if there is unmanaged vegetation outside the bushfire prone areas mapping that is one hectare or more, this can become a hazard and it would be prudent to ensure these areas (as a minimum) are being reviewed in accordance with the Firebreak Notice or added to the Map of Bush Fire Prone Areas, as appropriate.

4.5 Land Subject to BAL-40 and BAL-FZ

As demonstrated in **Figure 3** and **Figure 4**, there are areas of land within the site subject to BAL40 and above based on the vegetation and effective slope. Future development in BAL-40 and BAL-FZ is limited to minor and unavoidable development.

Significantly, land along Page Road is impacted by BAL-40 and BAL-FZ due to the close proximity of forest vegetation along Canning River. The BAL ratings are based on the Method 1 calculation in AS 3959. There is potential for the BAL ratings to be recalculated using Method 2, which is limited to Level 3 practitioners in Western Australia. Method 1 calculates the BAL rating based on a fire run of 100 m, whilst Method 2 uses the actual width of the vegetation. In this case, the forest along Canning

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River varies in width, therefore, depending on the location of the development, there may be some merit in applying a Method 2 calculation.

The existing development in these areas, whilst subject to BAL-40/FZ, are not retroactively subject to SPP 3.7 or the Guidelines. Future development, however would be restricted. A Method 2 assessment can be undertaken to calculate radiant heat impact more accurately at a subsequent stage of the planning process or as part of site-specific BMPs. Where the vegetation is 100 m or more in width, a Method 2 assessment is unlikely to provide a reduced BAL rating.

4.6 Future Landscaping

This BMP has assessed the bushfire risk based on the management of existing developed land in a low threat or non-vegetated condition as observed during site inspection. Where classified vegetation has been identified this is shown as a hazard with the impact considered in relation to future development. Any future proposals to introduce a bushfire hazard, such as revegetation, will require reassessment of the bushfire risk.

Bushfire Management Plan

Kelmscott Activity Centre Structure Plan



5 Assessment Against the Bushfire Protection Criteria

This BMP provides an outline of the mitigation strategies that will be utilised to ensure that as development progresses within the site, an acceptable solution can be adopted for each of the bushfire protection criteria detailed within Appendix Four of the Guidelines. The bushfire protection criteria identified in the Guidelines and addressed as part of this BMP are:

- Element 1: Location of the development
- Element 2: Siting and design of the development
- Element 3: Vehicular access
- Element 4: Water supply.

As part of future development, it is likely that an 'acceptable solution' will be able to address the intent of all four bushfire protection criteria as part of future subdivision of the site. A summary of how this can be achieved and an associated compliance statement for each has been provided in **Table 5**.

Table 5: Assessment against the bushfire protection criteria from the Guidelines

Bushfire protection criteria	Proposed bushfire management strategies
Element 1: Location	
A1.1 Development location	The majority of the Structure Plan area will, on completion, be subject to BAL-29 or below. However, the proposed Mixed Use Residential land along the eastern periphery of the site includes areas subject to BAL-40 and BAL-FZ. Development of buildings within 27 m of forest vegetation (downslope >0-5°) along the Canning River will be subject to BAL/40/BAL-FZ and will need to be restricted. The restricted areas are identified on Figure 5 . All remaining areas will achieve BAL-29 or below based on the proposed vegetation management detailed in this report.
Element 2: Siting and design	
A2.1 Asset Protection Zone	<p>Separation from permanent bushfire hazards is provided within the Structure Plan through the management of future lots, the strategic placement of public open space, public roads, and the proposed design of interfaces between areas of bushfire hazard and development. The majority of the site can achieve BAL-29 or below through these management measures. Part of the mixed-use residential land located along Page Road, however, cannot achieve BAL-29 or below.</p> <p>The BAL contour plan provided in Figure 3 and Figure 4 demonstrates that the proposed lots along the eastern periphery, adjacent to Page Road, cannot achieve a BAL rating of BAL-29 or below. Affected lots may not be able to be developed with habitable buildings if it is not possible to achieve BAL-29 or below. There may be opportunity to develop under a performance solution if there is no way to reduce the BAL ratings.</p> <p>The distances in Table 4 can be used to inform the future proposed development layout at subdivision/development stage, for areas adjacent to classified vegetation, and as a minimum, future subdivision layouts should ensure future building areas are able to achieve a BAL rating of BAL-29 or less.</p>

Bushfire Management Plan

Kelmscott Activity Centre Structure Plan



Table 5: Assessment against the bushfire protection criteria from the Guidelines (continued)

Bushfire protection criteria	Proposed bushfire management strategies
Element 3: Vehicular access	
A3.1 Public roads	No changes to the existing road system are proposed. The existing road network is considered to comply with the applicable standards of the local government area. Therefore, the proposal complies with A3.1 .
A3.2a Two access routes.	The proposed Structure Plan layout, provided in Appendix A , utilises the existing interconnected loop road network which provides multiple egress options to the north, south, east and west, providing access to the existing public road network, including Albany Highway, Railway Avenue, Gilwell Avenue, Streich Avenue and Church Street. Therefore, the development is compliant with A3.2a .
A3.2b Emergency access way	The proposed Structure Plan meets the acceptable solution for A3.2a and no emergency access ways are proposed. Therefore, A3.2b is not applicable. If EAWs are required during staging of future development then they must meet the minimum technical requirements outlined in Appendix Four of the Guidelines.
A3.3 Through-roads	<p>No no-through roads are proposed. There is one existing no-through road (Erica Street) within the site. However, this road is not located within a designated bushfire prone area, and it is less than 100 m from an intersection providing two-way access (Ottway Street).</p> <p>All no through-roads in designated bushfire prone areas must meet the minimum technical requirements for public road and require a turning head, in accordance with Appendix Four of the Guidelines. The proposal is compliant with A3.3. If development is staged, temporary no-through roads must comply with A3.3.</p>
A3.4a Perimeter roads	<p>The road network is an existing design that is not proposed to change as a result of the Structure Plan. Classified vegetation along the Canning River is the primary hazard affecting the site. Due to existing site constraints, it is not feasible to incorporate a perimeter road to separate development. The retention of existing managed land, especially the low threat public open space, alongside the forest vegetation provides adequate separation to achieve BAL-29 or below for development further west, with the exception of the land already identified as BAL-40 and above.</p> <p>The proposal is considered compliant with A3.4a by virtue of site constraints restricting the provision of perimeter roads.</p>
A3.4b Fire service access route	The Structure Plan does not specifically propose 'lots' as the site is an existing developed area being assessed for redevelopment. Amalgamation and subdivision to lot level may be undertaken in future planning stages. Regardless, as discussed above, it is not possible to provide a perimeter road between the Canning River vegetation and the developable land. The City may consider the adoption of fire service access routes to provide access to the forest along the river. However, given the arrangement of the roads is existing, and no 'lots' are proposed, arguably A3.4a and subsequently A3.4b are not applicable.
A3.5 Battle-axe access legs	None proposed at this stage.
A3.6 Private driveway longer than 50 metres	None proposed at this stage based on the density of residential development.
Element 4: Water	
A4.1 Reticulated areas	The proposed development is located in an area with a reticulated water supply along existing roads. This will be expanded into new roads as subdivision occurs.
A4.2 Provision of water for firefighting purposes	Fire hydrants are present within the site for bushfire fighting purposes (see Figure 5).

Bushfire Management Plan

Kelmscott Activity Centre Structure Plan



Table 6: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public roads	2 Emergency access way ¹	3 Fire service access route ¹	4 Battle-axe and private driveways ²
Minimum trafficable surface (metres)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (metres)	N/A	6	6	6
Minimum vertical clearance (metres)	4.5			
Minimum weight capacity (tonnes)	15			
Maximum grade unsealed road ³	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum grade sealed road ³		1:7 (14.3%)		
Maximum average grade sealed road		1:10 (10%)		
Minimum inner radius of road curves (metres)		8.5		

Notes:

¹ To have crossfalls between 3 and 6%.

² Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

³ Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle.

Plate 3: Excerpt of Table 6 from The Guidelines

5.1 Additional management strategies

5.1.1 Future approval considerations

The BAL assessment is a conservative and cautious assessment of the potential bushfire risk posed to future habitable buildings within the site based on the proposed management of vegetation and assumptions outlined in **Section 3**.

This BMP and the predicted BAL ratings (see **Figure 3** and **Figure 4**) have been prepared to support the Structure Plan for the site. At the subdivision or development stage, a revised BMP will need to be prepared to respond to the specific subdivision or development layout, and to confirm that the bushfire mitigation strategies in this document have been accommodated. This updated document will detail any specific management actions, including the BAL rating applicable to specific subdivision or development layout.

Following the creation of lot titles or development approval, a building licence will be required before the construction can commence. This BMP and the indicative BAL ratings can be used to inform the construction requirements for future lot titles or development approval.

Proposed development not within a bushfire prone area does not have to meet additional requirements under planning or building associated with bushfire hazard.

Bushfire Management Plan

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5.1.2 Landscape management

5.1.2.1 Within the site

All lots within the site are to be designed, landscaped and maintained to a low threat standard by the developer in accordance with Section 2.2.3.2 of AS 3959 (in particular Clause 2.2.3.2 (e) and (f)). This is with the exception of areas of retained forest vegetation along the Canning River as shown in **Figure 5**. This will ensure that the BAL rating indicated in this report are able to be achieved in perpetuity.

As part of the Structure Plan, remnant vegetation identified within the 'green space' area adjacent to the Canning River will be retained. These areas will not be formally maintained as part of future management of the site and have therefore been considered a bushfire hazard. A setback control buffer is present on the Structure Plan (**Appendix A**) between the vegetation and the proposed residential properties reflecting the extent of BAL-40/BAL-FZ within the site.

Existing areas of public open space that are shown as low threat or non-vegetated in Figure 2 are assumed to be managed in their current condition in perpetuity. Any redevelopment of these areas will need to ensure that the landscaping design does not increase risk to existing development. Future development within these areas will be designed, landscaped and maintained to a low threat standard by the developer in accordance with Section 2.2.3.2 of AS 3959 (in particular Clause 2.2.3.2 (f)) and as per typical public open space requirements of Liveable Neighbourhoods and the City of Armadale. Management of these areas will need to maintain a minimal fuel condition and may include regular mowing of grass to less than 100 mm in height, removal of weeds and built-up dead material such as leaf litter and fallen branches and low pruning of retained and/or mature trees.

The design and construction of public open space is generally a condition of subdivision approval. Detailed design for public open space areas is usually determined in collaboration with the local government as part of the typical subdivision construction process. Conceptual landscape designs will be developed as detailed design progresses, responding to the requirements of the City of Armadale.

The proponent will be responsible for the initial maintenance of these areas, and following handover the City of Armadale will be responsible for the long-term maintenance of the public open space areas to a low threat standard.

5.1.2.2 Surrounding the site

The landholdings surrounding the site are assumed to be managed by the applicable landowners in accordance with existing maintenance regimes. All other vegetation will remain in its existing condition for the foreseeable future.

5.1.3 City of Armadale Fire Break and Hazard Reduction Notice

The City of Armadale releases a Fire-Break and Hazard Reduction Notice (Firebreak Notice) on an annual basis to provide a framework for bushfire management within the City. The City of Armadale are able to enforce this notice in accordance with Section 33 of the *Bush Fires Act 1954*.

Bushfire Management Plan

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All landowners of future lots will be required to comply with the Firebreak Notice as published. The Firebreak Notice also requires landowners to comply with the BMP applicable to their property.

5.1.4 Vulnerable or high-risk land uses

There are no vulnerable or high-risk land uses, as defined under SPP 3.7, proposed within the site as part of the proposed Structure Plan. Any potential vulnerable lands use such as retirement living, educational establishments, aged care or lifestyle villages will need to be assessed against SPP 3.7 and may require a Bushfire Management Plan and Bushfire Emergency Evacuation Plan.

5.1.5 Public education and preparedness

Community bushfire safety is a shared responsibility between individuals, the community, government and fire agencies. DFES has an extensive Community Bushfire Education Program including a range of publications, a website and Bushfire Ready Groups. The DFES website (<https://www.dfes.wa.gov.au/bushfire/prepare/>) provides a range of materials to help the community prepare for and survive the bushfire season.

The City of Armadale provides bushfire safety advice to residents available from their website <https://www.armadale.wa.gov.au/fire-and-emergency-services>. Professional, qualified consultants also offer bushfire safety advice and relevant services to residents and businesses in high-risk areas in addition that that provided in this BMP.

Future residents of the site are able to access additional bushfire information via the above sources, or through contacting the City of Armadale or DFES directly. In the case of a bushfire in the area, advice would be provided to residents by DFES, DBCA and/or the City of Armadale on any specific recommendations to responding to the bushfire, including evacuation if required. It is recommended that future residents should make themselves aware of their responsibilities with regard to preparing for and responding to a potential bushfire that may impact them, their family/dependents and their property.

Bushfire Management Plan

Kelmscott Activity Centre Structure Plan



6 Responsibilities for Implementation and Management of Bushfire Measures

Table 6 outlines the responsibilities of the proponent (developer) associated with implementing this BMP.

Table 6: Responsibilities for the implementation of this BMP

No.	Implementation action
1	Provide a copy of this BMP to the relevant decision makers to support approval of the proposed Structure Plan.
2	Prepare a new/revised BMP in accordance with SPP 3.7, the Guidelines and AS 3959 to support future subdivision and development applications, as required, based on the proposed detailed layout and in consideration of existing bushfire hazards or those that will be present following development.
3	Where required, and based on the outcomes of this BMP or subsequent BMP/s, make spatial provision within the subdivision layout/design to ensure future habitable buildings are able to be located so that BAL-29 or less applies. Separation distances should be in accordance with the minimum distances outlined in Table 4 of this BMP for the corresponding vegetation plot/classification, or as determined in subsequent BMPs/BAL assessments. This may include the provision of public roads and/or managed public open space between habitable buildings and bushfire hazards, or by ensuring lots are an adequate depth or width to ensure BAL-29 is not exceeded at future habitable buildings.
4	Where land is subject to BAL-40 or above, ensure restrictive covenants are applied to new titles to restrict development of habitable buildings in these areas.
5	Review the management of existing undeveloped land and drainage lines within the site and undertake management to meet the requirements of the City of Armadale Firebreak Notice. This should eliminate BAL ratings associated with isolated pockets of grassland.

Bushfire Management Plan

Kelmscott Activity Centre Structure Plan



7 Applicant Declaration

7.1 Accreditation

This assessment report has been prepared by Emerge Associates who have a number of team members who have undertaken Bushfire Planning and Design (BPAD) Level 1 and Level 2 training and are Fire Protection Association of Australia (FPAA) accredited practitioners. Emerge Associates have been providing bushfire risk management advice for more than 10 years, undertaking detailed bushfire assessments (and associated approvals) to support the land use development industry.

Dana Elphinstone is a FPAA Level 2 BPAD accredited practitioner (BPAD No. 52565) and is also accredited as a Bushfire Hazard Practitioner in Tasmania (BFP-146), with over seven years' experience.

7.2 Declaration

I declare that the information provided is true and correct to the best of my knowledge.

Signature:

A handwritten signature in black ink that reads "Dana E".

Name: Dana Elphinstone

Company: Emerge Associates

Date: 4 August 2022

BPAD Accreditation: Level 2 - 52565

Bushfire Management Plan

Kelmscott Activity Centre Structure Plan



8 References

8.1 General references

The references listed below have been considered as part of preparing this document.

Department of Water (DoW) 2008, *LiDAR Elevation Dataset, Swan Coastal Plain*, Perth.

Department of Planning, Lands and Heritage, and Western Australian Planning Commission, (DPLH & WAPC) 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4*, Perth, Western Australia.

Gould, J., McCaw, W., Cheney, N., Ellis, P. and Matthews, S. 2007, *Field Guide: Fuel Assessment and Fire Behaviour Prediction in Dry Eucalypt Forest*, CSIRO and Department of Environment and Conservation, Perth, Western Australia.

Office of Bushfire Risk Management (OBRM) 2021, *Map of Bushfire Prone Areas*, Perth, <<https://dfes.wa.gov.au/site/bushfire/bushfireproneareas.html>>.

Standards Australia 2018, *AS 3959:2018 Construction of buildings in bushfire-prone areas*, Sydney.

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

8.2 Online references

The online resources that have been utilised in the preparation of this report are referenced in **Section 8.1**, with access date information provided in **Table R-1**.

Table R 1 Access dates for online references

Reference	Date accessed	Website or dataset name
(DoW 2008)	20 April 2022	LIDAR derived 1 m elevation contours
(OBRM 2021)	20 April 2022	Map of Bush Fire Prone Areas

Figures



Figure 1: Site Location

Figure 2: AS 3959 Vegetation Classifications and Effective Slope

Figure 3: BAL Contour Plan

Figure 4: BAL Contour Plan for Designated Bushfire Prone Area

Figure 5: Spatial Representation of Bushfire Management Strategies

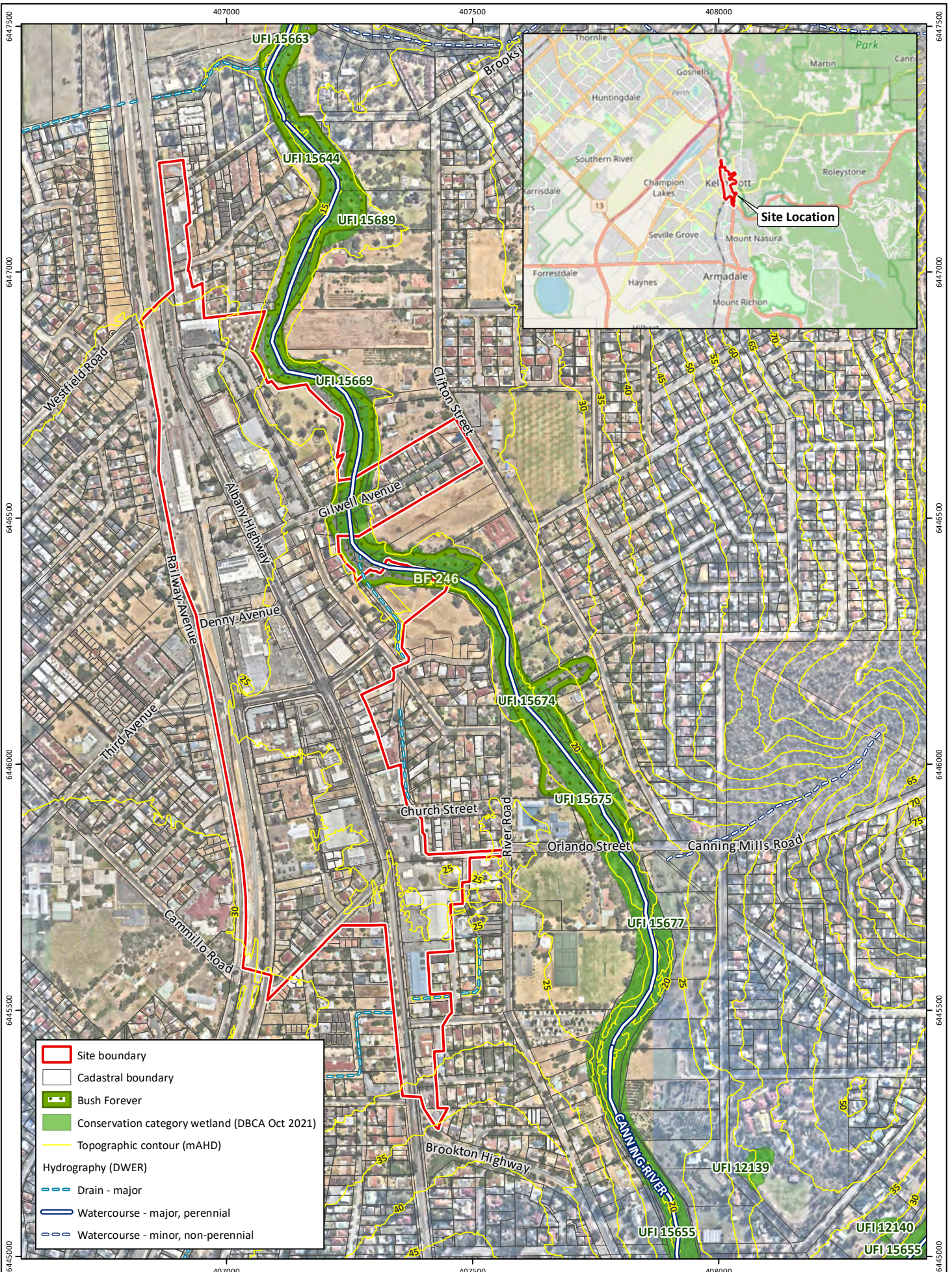


Figure 1: Site Location

Project: Bushfire Management Plan
Kelmscott Activity Centre Structure Plan

Client: City of Armadale

Plan Number: EP21-032(02)-F04
Drawn: WJC
Date: 14/04/2022
Checked: SJB
Approved: DAE
Date: 05/05/2022



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Scale: 1:210,000@A4
GDA 1994 MGA Zone 50



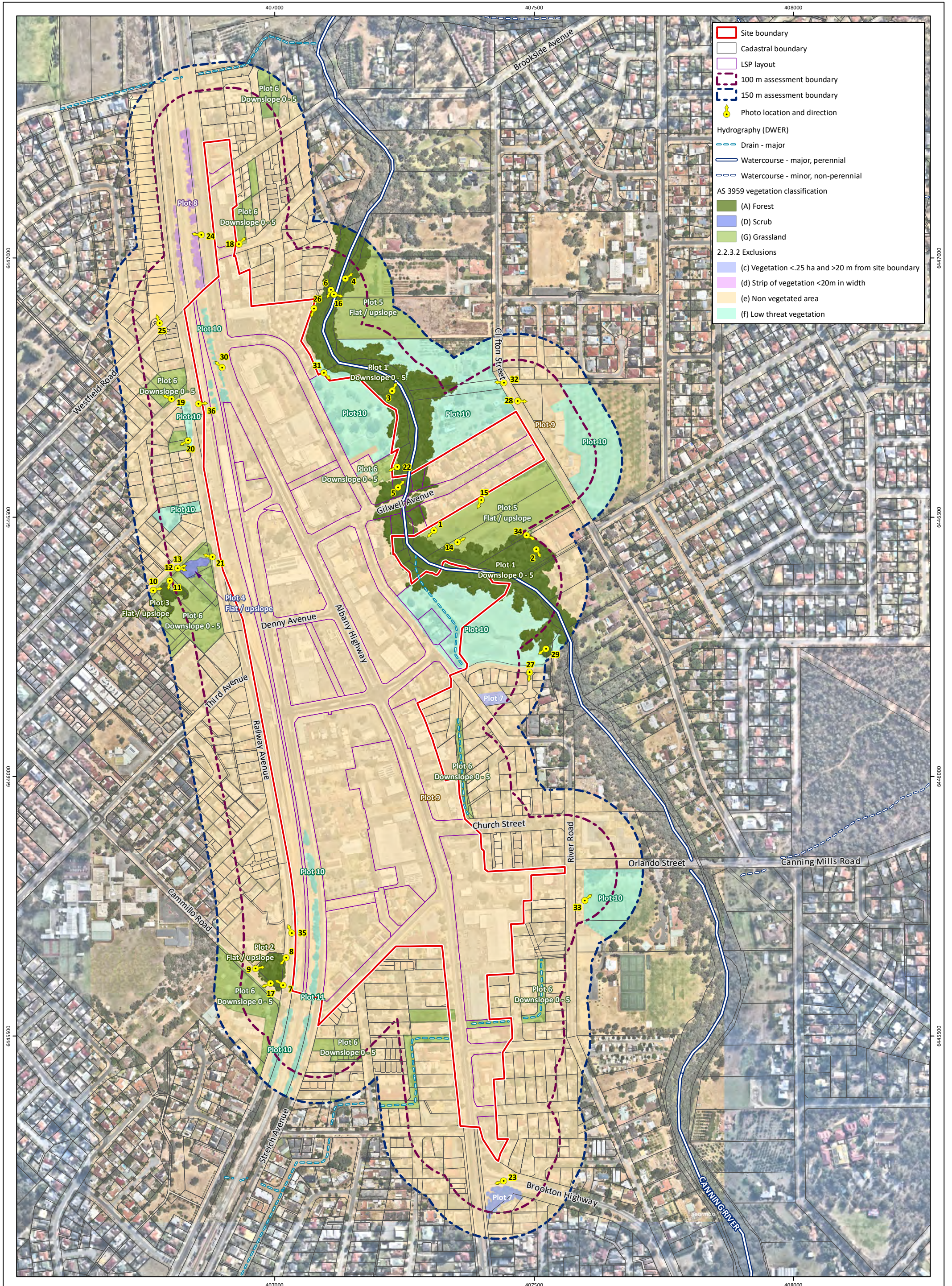


Figure 2: AS 3959 Vegetation Classification and Effective Slope

Project: Bushfire Management Plan
Kelmescott Activity Centre Structure Plan
Client: City of Armadale

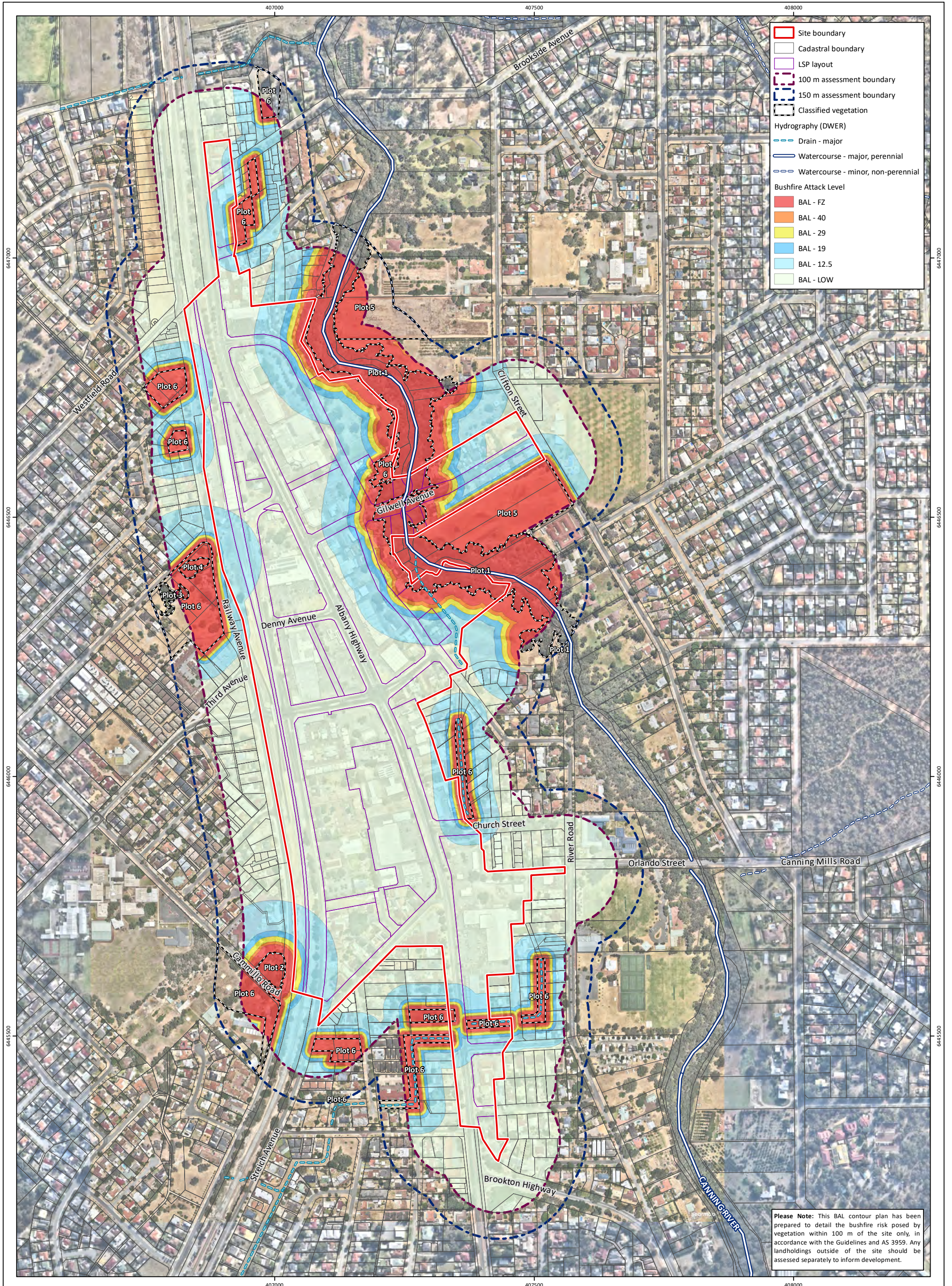
Plan Number: EP21-032(02)-F05
Drawn: GAR
Date: 03/05/2022
Checked: SJB
Approved: DAE
Date: 05/05/2022



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Scale: 1:6,500@A3
GDA 1994 MGA Zone 50



While Emmerge Associates makes every attempt to ensure the accuracy and completeness of data, Emmerge accepts no responsibility for externally sourced data used
© Landgate (2021). Nearmap Imagery date: 30/01/2022



Please Note: This BAL contour plan has been prepared to detail the bushfire risk posed by vegetation within 100 m of the site only, in accordance with the Guidelines and AS 3959. Any landholdings outside of the site should be assessed separately to inform development.

Figure 3: BAL Contour Plan

Project: Bushfire Management Plan
Kelmescott Activity Centre Structure Plan
Client: City of Armadale

Plan Number: EP21-032(02)-F06
Drawn: GAR
Date: 19/04/2022
Checked: SJB
Approved: DAE
Date: 05/05/2022



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Scale: 1:6,500@A3
GDA 1994 MGA Zone 50



While Emmerge Associates makes every attempt to ensure the accuracy and completeness of data, Emmerge accepts no responsibility for externally sourced data used
© Landgate (2021). Nearmap Imagery date: 30/01/2022

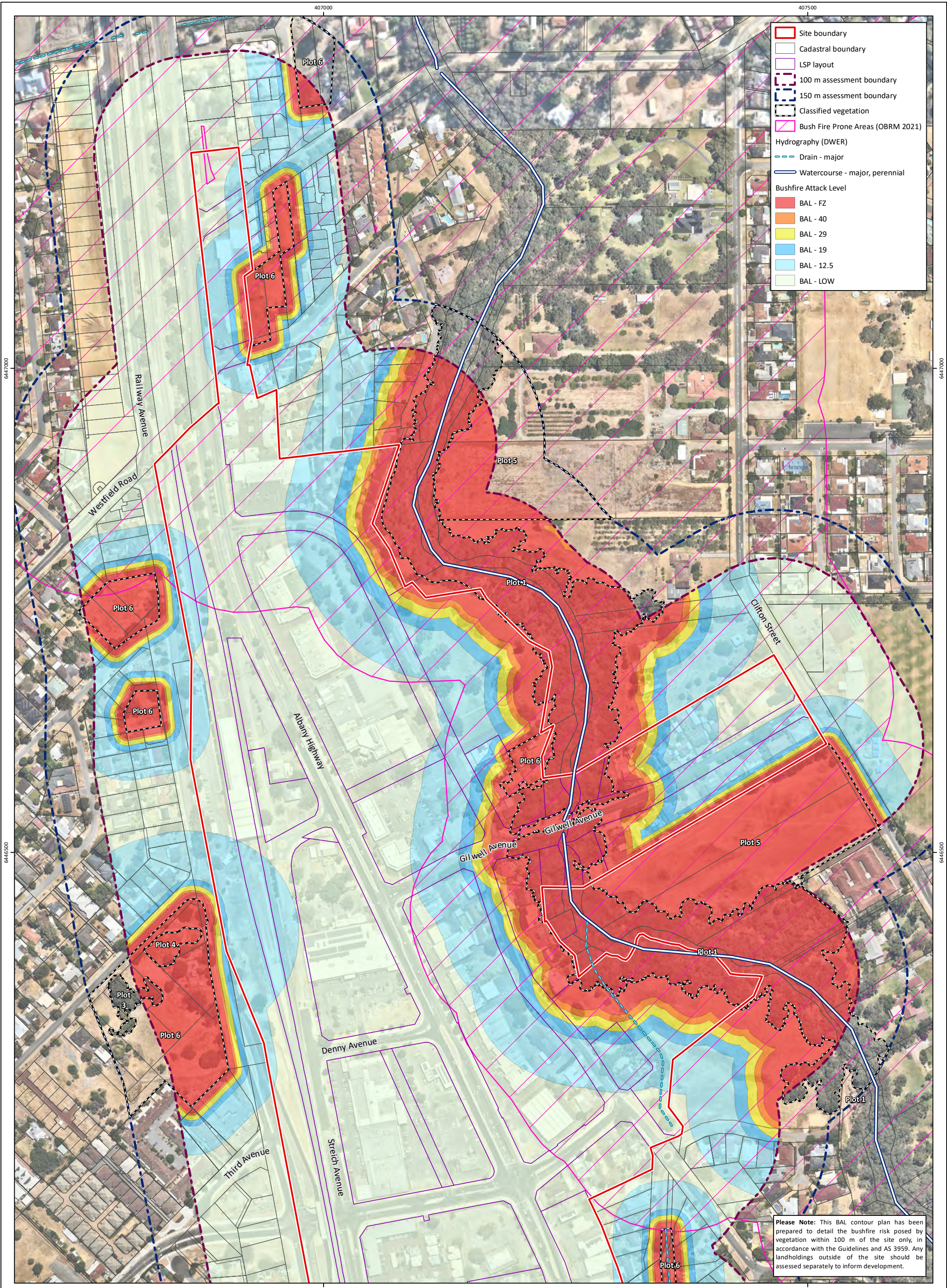


Figure 4: BAL Contour Plan

Project: Bushfire Management Plan
Kelmescott Activity Centre Structure Plan
Client: City of Armadale

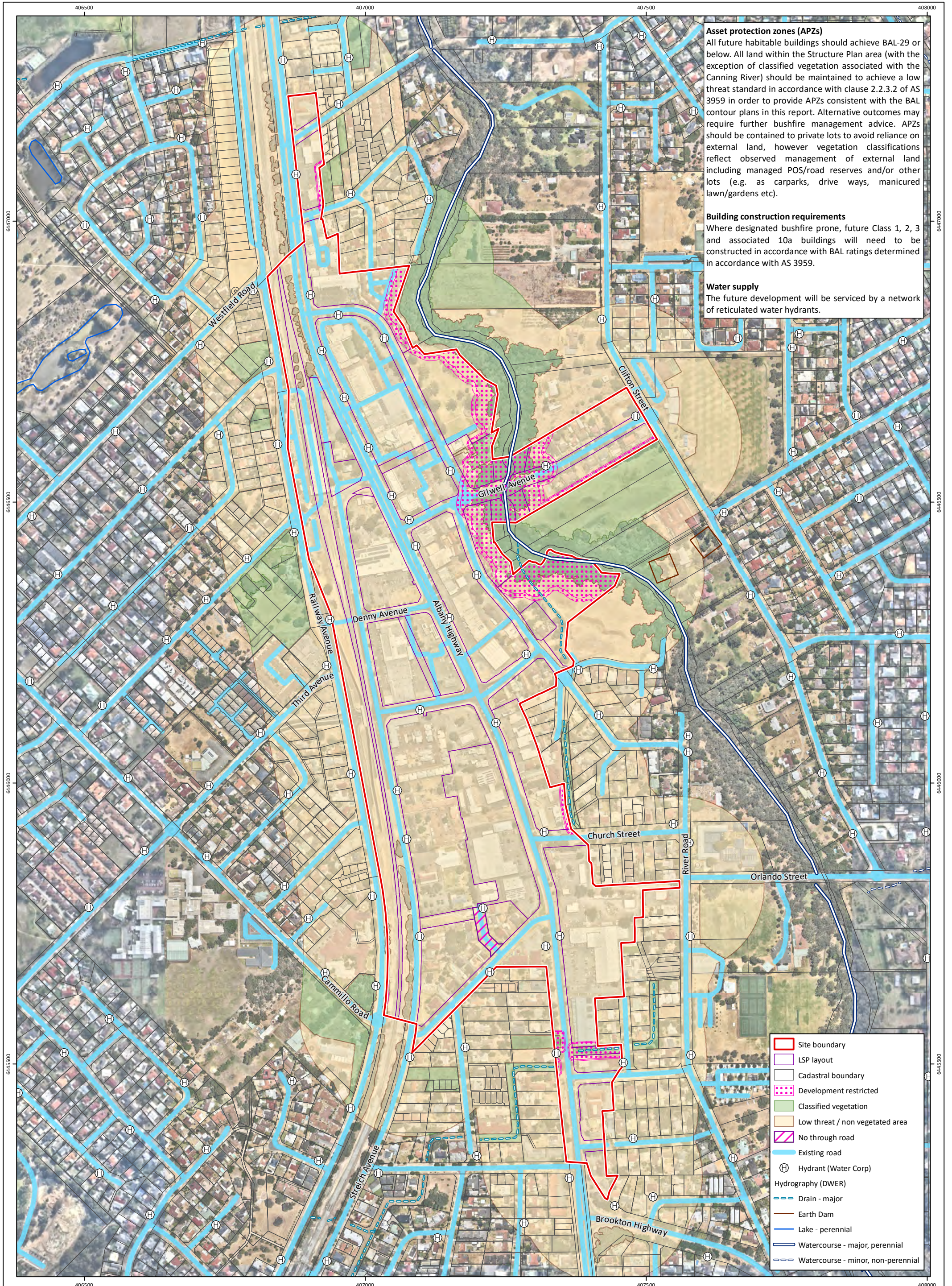
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Drawn: GAR
Date: 19/04/2022
Checked: SJB
Approved: DAE
Date: 05/05/2022



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Scale: 1:3,500@A3
GDA 1994 MGA Zone 50



While Emmerge Associates makes every attempt to ensure the accuracy and completeness of data, Emmerge accepts no responsibility for externally sourced data used
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Asset protection zones (APZs)
 All future habitable buildings should achieve BAL-29 or below. All land within the Structure Plan area (with the exception of classified vegetation associated with the Canning River) should be maintained to achieve a low threat standard in accordance with clause 2.2.3.2 of AS 3959 in order to provide APZs consistent with the BAL contour plans in this report. Alternative outcomes may require further bushfire management advice. APZs should be contained to private lots to avoid reliance on external land, however vegetation classifications reflect observed management of external land including managed POS/road reserves and/or other lots (e.g. as carparks, drive ways, manicured lawn/gardens etc).

Building construction requirements
 Where designated bushfire prone, future Class 1, 2, 3 and associated 10a buildings will need to be constructed in accordance with BAL ratings determined in accordance with AS 3959.

Water supply
 The future development will be serviced by a network of reticulated water hydrants.

- Site boundary
- LSP layout
- Cadastral boundary
- Development restricted
- Classified vegetation
- Low threat / non vegetated area
- No through road
- Existing road
- Hydrant (Water Corp)
- Hydrography (DWER)**
- Drain - major
- Earth Dam
- Lake - perennial
- Watercourse - major, perennial
- Watercourse - minor, non-perennial

Figure 5: Spatial Representation of Bushfire Management Strategies

Project: Bushfire Management Plan
 Kelmescott Activity Centre Structure Plan
Client: City of Armadale

Plan Number: EP21-032(02)-F07a
Drawn: GAR
Date: 04/08/2022
Checked: SJB
Approved: DAE
Date: 04/08/2022



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 GDA 1994 MGA Zone 50

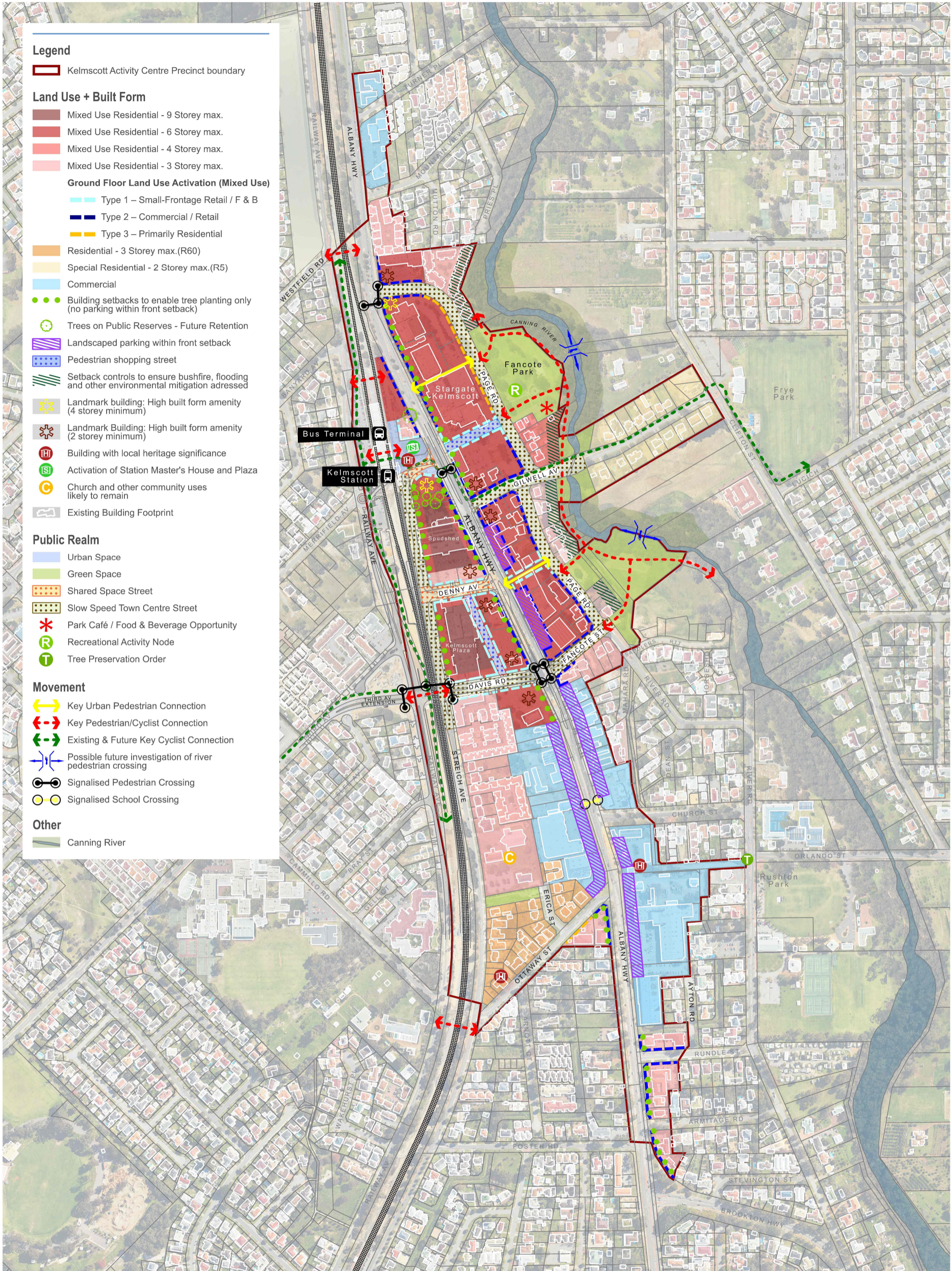


While Emerge Associates makes every attempt to ensure the accuracy and completeness of data, Emerge accepts no responsibility for externally sourced data used
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Appendix A

Draft Structure Plan (Taylor Burrell Barnett 2022)





Legend

Kelmscott Activity Centre Precinct boundary

Land Use + Built Form

- Mixed Use Residential - 9 Storey max.
- Mixed Use Residential - 6 Storey max.
- Mixed Use Residential - 4 Storey max.
- Mixed Use Residential - 3 Storey max.

Ground Floor Land Use Activation (Mixed Use)

- Type 1 – Small-Frontage Retail / F & B
- Type 2 – Commercial / Retail
- Type 3 – Primarily Residential
- Residential - 3 Storey max.(R60)
- Special Residential - 2 Storey max.(R5)
- Commercial
- Building setbacks to enable tree planting only (no parking within front setback)
- Trees on Public Reserves - Future Retention
- Landscaped parking within front setback
- Pedestrian shopping street
- Setback controls to ensure bushfire, flooding and other environmental mitigation addressed
- Landmark building: High built form amenity (4 storey minimum)
- Landmark Building: High built form amenity (2 storey minimum)
- Building with local heritage significance
- Activation of Station Master's House and Plaza
- Church and other community uses likely to remain
- Existing Building Footprint

Public Realm

- Urban Space
- Green Space
- Shared Space Street
- Slow Speed Town Centre Street
- Park Café / Food & Beverage Opportunity
- Recreational Activity Node
- Tree Preservation Order

Movement

- Key Urban Pedestrian Connection
- Key Pedestrian/Cyclist Connection
- Existing & Future Key Cyclist Connection
- Possible future investigation of river pedestrian crossing
- Signalised Pedestrian Crossing
- Signalised School Crossing

Other

- Canning River

