

APPENDIX E | BUSHFIRE RISK MANAGEMENT PLAN

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address:

Site visit: Yes No

Date of site visit (if applicable): Day Month Year

Report author or reviewer:

WA BPAD accreditation level (please circle):

Not accredited Level 1 BAL assessor Level 2 practitioner Level 3 practitioner

If accredited please provide the following.

BPAD accreditation number: Accreditation expiry: Month Year

Bushfire management plan version number:

Bushfire management plan date: Day Month Year

Client/business name:

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

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

	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

None of the above

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

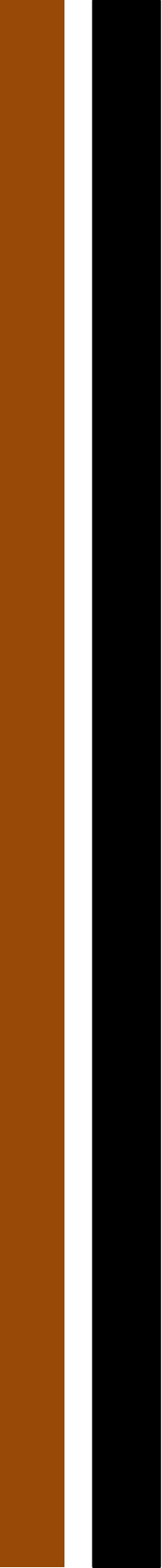
Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

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

Signature of report author
or reviewer



Date



Bushfire Management Plan Emergency Evacuation Plan

CONVENIENCE STORE/SHOWROOMS

**Lot 11 Yanchep Beach Road,
Yanchep WA**

24 July 2018

ENVISION Bushfire Protection
Hazard planning for resilience

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LIMITATIONS STATEMENT

This report has been solely prepared for the proposed convenience store and showrooms at Lot 11 Yanchep Beach Road, Yanchep WA. The proposal includes the sale of petrol and petroleum products.

In undertaking this work the authors have made every effort to ensure the accuracy of the information used. Any conclusions drawn or recommendations made in the report are done in good faith and the consultants take no responsibility for how this information and the report are used subsequently by others.

The investigations of this report have been based upon the information provided by the applicant and an undertaking to comply with all legislation applicable to the handling and storage of flammable and dangerous goods include facilities for the sale of petroleum products. Satisfaction of these requirements has been assumed in this report.

Please note that the contents in this report may not be directly applicable towards another organisation's needs. Envision Bushfire Protection accepts no liability whatsoever for a third party's use of, or reliance upon, this specific report.

It should be noted that the measures contained in this report cannot guarantee that the building, and site will not be damaged or survive a bushfire event on every occasion, or that fire can be contained to within the site. This is due to the degree of vegetation management, the unpredictable nature of fire behaviour (knowledge in this field continues to develop) and the unpredictable nature extreme weather conditions.

STATEMENT OF CONFORMITY – PLANNING AND DEVELOPMENT ACT 2005



Anthony Rowe BPAD36690 (BPAD L3)

Principal

ENVISION Bushfire Protection
Hazard planning for resilience



The signatory declares that this Bushfire Management Plan meets the requirements of State Planning Policy 3.7 and the Guidelines for Planning in Bushfire Prone Areas V1.3.

EXECUTIVE SUMMARY

The project is a convenience store and showrooms at Lot 11 Yanchep Beach Road, Yanchep WA.

“convenience store : means any land and or buildings used for the retail sale of convenience goods being those goods commonly sold in supermarkets, delicatessens and newsagents but including the sale of petrol and petroleum products and motor vehicle accessories and operated during hours which include but which may extend beyond normal trading hours and providing associated parking. The buildings associated with a convenience store shall not exceed 300m² gross leasable area”

(City of Wanneroo DPS 2 – Schedule 1)

The land is zoned “Business” in the City of Wanneroo Local Planning Scheme, a zone in which a Convenience Store is permitted. The land lies adjacent to a vacant Commercial lot located to its west and is located down slope from a Recreation reserve (*private club and recreation*) extending to the south and onto the coast. Newman Road to the east separates the site from residential development and Yanchep Beach road separates the site from a managed reserve and further residential development.

The subject land is also located within an area declared as bushfire prone under the Western Australian Fire and Emergency Services Act 1998.

The proposed convenience store and showrooms includes the sale of petrol and petroleum products. The provision of fuel dispensing facilities associated with a convenience store constitutes the treatment of the proposal as a service station for the purpose of bushfire risk management assessment. A service station is classed as potentially a high risk land use; to be assessed as a *high risk* pursuant to s. State Planning Policy 3.7 – Planning in Bushfire Prone Areas cl. 6.6.

The proposal is therefore a form of development requiring Planning Approval under the *Planning and Development Act 2005*, and this document presents an assessment of a proposal, as a *high risk development*, with the requirements State Planning Policy 3.7 and Guidelines for Planning in Bushfire Prone Areas (WAPC, V1.3 December 2017). This includes assessment against each of the Bushfire Protection Criteria. As part of this, assessment, and as an additional consideration applying to a high risk land use, regard has also been given to AS/NZS ISO 31000:2009 Risk management – principles and guidelines and the Office of Bushfire Risk Management (OBRM) community risk planning guidelines.

It is acknowledged that detailed design for the proposed construction and operation of the facility is still being progressed, and will inform the type, location and number of fire protection equipment installed, and will be approved through the Dangerous Goods Safety Act 2004 (and associated regulations).

As such many of the details that are controlled by other legislation can only be assumed to be satisfied. In particular, the satisfactions associated with both the Environmental Protection Act 1986 and the Dangerous Goods Safety Act 2004, the later in particular addressing fuel storage and site fire management.

The controls around fuel sales in terms of fuel management and fire safety are strict and refined when compared to the other types of land use listed as ‘high risk’ to the extent that a fire extending beyond the site is comparably rare. This is because the fire response planning and facilities are well regulated with the sale of petroleum products.

This also means that the risks or difficulties to traditional bushfire fighting practices, as is a consideration of a high risk land use, are not amplified, because regardless of the effect of a bushfire encroaching, or a fire starting at a site, the planning for the safety of fire fighters and the community is already considered, and arguably no

greater than for a fuel sales facility surrounded by built development. The consideration of limiting spread, and safe fire fighting have been addressed by regulated design and management practice.

As required by the Guidelines, existing bushfire hazards within 150 m of the site have been assessed and classified primarily as scrub (Class D) identified within an area zoned 'private club and recreation', and are therefore planned to remain in the long-term. This area extends south from the site and is upward sloping at 5.0°.

A Bushfire Attack Level (BAL) assessment has been undertaken as part of the BMP to understand likely radiant heat flux levels from a bushfire occurring nearby to the site. The results of the BAL assessment show that the proposed key infrastructure within the site (bowser,) can be found in an area subject to a BAL rating of BAL-29, whilst the closest building component being the bowers canopy, and convenience store which has been rated at BAL 40.

It is a feature of this convenience store fuel sales facility that it is primarily a paved surface with few if any combustible structures, as part of an inherently internal design focus to minimise fire and fire spread. It is the act of dispensing fuel, the potential for surface spill and ignition that is the risk. In terms of determining risk and treatment it is the actions around the bowsers that is the primary interest.

Overall, the BMP indicates that bushfire hazards can be appropriately mitigated, both with regard to achieving the bushfire protection criteria (Appendix Four of the Guidelines) and in managing onsite flammable hazards (policy measure 6.6 of SPP 3.7).

In terms of siting and design (elements 1 and 2), the convenience store fuel sales facility can be rendered to be within moderate bushfire hazard level, the surface of the convenience store fuel sales facility will be entirely paved except for a 'managed' garden located furthest from the potential hazard. Consideration can also be given to the private vacant land to the west of the convenience store/service station, which is zoned Commercial. The risk that land presents is therefore temporary and within the ambit of the City through s.33 1 (b) of the *Bushfires Act 1954*, to direct the owner maintain it in a state not conducive to the promotion of a bushfire.

The site is located within the Yanchep township with facilities to respond to a site fire, in addition to the site's suppression facilities (as will be regulated).

The site is located down slope and down wind, from the prevailing wind conditions over the summer period, when the risk is greatest, and is located at the furthest extent of classified vegetation. A fire at the convenience store/service station is unlikely to contribute to a bushfire, but more likely to be the end point of a bushfire.

There are no houses in a direct line with the upslope from the convenience store fuel sales facility, should a fire spread from it and travel south to ultimately end at the coast. The adjoining residents are tangential to the slope and separated by a road way.

In terms of access the site connects directly to Yanchep Beach Road offering alternate destination to the east, north and to the beachfront., the subject lot is a corner site and a paved surface providing ready access for fire fighting services suppressing a fire on site or defending the site from an external fire. The site itself is a paved surface, non-combustible. There is operating space between the bowsers and the adjacent classified vegetation, to defend from a bushfire or restrict the spread of a fire from an incident at the bowser.

In terms of water supply, the site is connected to a reticulated water supply and there is a fire hydrant within 50m of the site located on Newman Road.

Conclusion

This BMP has adopted a methodical approach to identify the components of the proposal, including the regulation of the sale of petroleum products.

It has analysed the site in context of its locality, and its relationship to bushfire fuel sources and likely bushfire occurrence and direction to conclude it is most likely at the end of a fire run, rather than at the point of initiation.

It has analysed the Bushfire Assessment Criteria to identify the proposal is a best response in terms of its siting and design on the lot, the provision of a workable firefighting access and water supply.

It has applied AS/NZS ISO 31000:2009 Risk management – principles to identify potential risks and controls that would render the residual risk of the proposal within an acceptable level, both from a bushfire impacting upon the site and as a potential source to initiate a fire.

It has also found applying the Office of Bushfire Risk Management (OBRM) community risk planning guidelines, that notwithstanding the risk of ignition from the site expanding to a bushfire is unlikely, should such an event occur the risk to community assets is low.

This BMP has been able to demonstrate that the proposed convenience store fuel sales facility can satisfy the land use planning bushfire framework, and that the bushfire protection criteria can be achieved through an acceptable solution approach, while onsite flammable risks can be appropriately mitigated through separate regulatory processes and risks and controls have been identified through application of AS31000:2009.

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1.0 PROPOSAL DETAILS

1.1 Introduction

This report is prepared as part of an initial consideration of planning approval and specifically an examination of consideration pertaining to the State policy for planning in bushfire areas.

Other approvals administered through separate legislation will need to be satisfied prior to operation of the facility and will be subject to further detail.

These approval processes include (but are not necessarily limited to):

- Works approval and licence pursuant to Part V of the Environmental Protection Act 1986 (and associated regulations). This includes completion of a risk assessment to ensure risks to people and the environment are minimised and appropriately managed through the construction and ongoing operation of a facility.
- Dangerous goods site licence pursuant to the Dangerous Goods Safety Act 2004 (and associated regulations). This will include consideration of the appropriate storage and handling of the materials proposed to be kept within the site, fire protection appropriate to the materials stored, and ongoing operation and management of the infrastructure associated with the ~~service station~~,
- Australian Standard 1940-2017 The storage and handling of flammable and combustible liquids (AS 1940-2017). In particular, Section 11 of AS 1940-2017 sets out the requirements and recommendations relating to the protection of flammable and combustible storage areas from fire, and for fighting any fire that may threaten infrastructure.

Note: this proposal does not intend to provide the sale of LP Gas, otherwise AS 1596-2014, would also apply.

These further studies affect the affect the assumptions of this report, that these requirements will be satisfied and they contribute directly to reducing the risk of ignition and spread of fire at the site, as well as a resistance to ignition from an external source ie bushfire.

This report as required by State Planning Policy 3.7 as it relates to service stations as a high risk land use is an outward looking exercise that can initially be considered in broad terms, the context of the proposal in its location, and the inherent risk it presents.

A land use which may lead to the potential ignition, prolonged duration and/ or increased intensity of a bushfire. Such uses may also expose the community, fire fighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event.

This report, in its risk assessment, has made assumptions about the normal outcomes these approvals and standards achieve. That appropriate designs and procedures have been put in place to avoid the risk of ignition and appropriate and rapid responses are in place and tested including the treatment of spills and flammable materials to ensure there is no ignition.

1.2 Background

The *Proposal* is convenience store/service station to be located at Lot 11 Yanchep Beach Road.

The site is 1.808m² site although a right of way from the surrounding lot 12 will increase its overall areas to 2326m². Lot 11 is identified as Urban Business Zone, and the surrounding Lot 12 is zoned Commercial.

The site has a slope upwards of 5.4 degree from Yanchep Beach Road (upwards in a south westerly direction) and a 1.2 degree slope downward from east to west, although the west portion is a low point in a gentle gully rising equally to Brazier Road

Site attribute locations



Indicative building components of the new proposal are:

- 6 bowsers servicing 12 vehicles under a 390m² canopy,
- 170m² - convenience store
- Showroom 1 - 72m²
- Showroom 2 - 75m²
- 15 Carparking spaces
- Fuel storage tanks are position under ground toward Yanchep Beach Road
- No breathers for the fuel tanks are shown, but assumed to be toward Yanchep Road

Site plan



1.3 Stakeholders

The applicants requirements are:

- To comply with State Planning Policy 3.7.
- To minimise the risk of initiating a bushfire from the site.
- To accept superficial damage to buildings and grounds will occur during a bushfire event.

1.4 Regulatory Compliance Requirements

Planning and Development Act 2005 - SPP 3.7

On 7 December 2015 the State Government introduced by Gazette, a state map of Bushfire prone areas by order under the *Fire and Emergency Services Act 1998* and introduced development controls in Bushfire prone areas through the *Planning and Development Act 2005*. These controls were authorised by State Planning Policy 3.7 (Planning in Bushfire Prone Areas) regulations introduced under Part 10A Schedule 2 of the *Planning and Development (Local Planning Scheme) Regulations 2015* and guided by the *Guidelines for Planning in Bushfire Prone Areas*.

The State Planning Policy, Regulations, and Guidelines now form the foundation for fire risk management planning in WA at a community and land development level. The Policy Intent of SPP 3.7 is ***to preserve life and reduce the impact of bushfire on property and infrastructure.***

“High-risk land use: A land use which may lead to the potential ignition, prolonged duration and/ or increased intensity of a bushfire. Such uses may also expose the community, fire fighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event. Examples of what constitutes a high-risk land use are provided in the Guidelines.”

SPP 3.7 recognises that vegetation is not necessarily the only fuel in a bushfire event and that certain land uses may potentially ignite a bushfire, prolong its duration, or increase its intensity

“Highrisk land uses may include, but are not limited to: service stations, landfill sites, bulk storage of hazardous materials, fuel depots and certain heavy industries as well as military bases, power generating land uses, saw-mills, highways and railways, among other uses meeting the definition”

Suggested guidance includes:

This may include establishing an appropriate Asset Protection Zone or Hazard Separation Zone, and should be supported by a risk management plan that addresses bushfire risk management measures for any flammable on-site hazards. It may determine that a reduction in on-site flammable material or appropriate storage of such material, would be required to reduce the threat, among other considerations

The Building Act 2011

The *Building Act 2011*, applies the construction standards of the Building Code of Australia where it relates to an ‘applicable’ building. For residential buildings Classes 1-3 and 10. The proposed convenience store falls within the definitions of class 6 or 7, the BCA code requirements do not apply AS3959, but have a requirement to be constructed to reduce the rate of ignition. This is because the fire design compliance applied to Class 1-9 buildings generally represent a high level of resistance to fire.

At planning however, contextually AS3959 is used as a measure to determine the risk of bush fire attack.

Bushfires Act 1954

Section 33 of the Bushfires Act 1954 recognises the responsibility of all land owners to prevent the spread of bushfire. Local government at any time, may give notice in writing to an owner or occupier of land within the district of the local government. The Notice may specify works to be undertaken including the provision of a firebreak and the management of grasses on the property usually to be maintained at less than 10cm during the fire season. It also provides that the identified works can be undertaken as a separate operation or in coordination with the neighbouring land.

Synthesis of Bushfire Regulatory Requirements

The matter of this report is a high risk land use. Whilst the Building Act will not apply specific construction requirements for bushfire, the convenience store/service station can be expected to be a standard resistant to ignition. This report therefore will not recommend a bushfire construction level for the buildings.

It is however to place the use within a context of bushfire risk as a planning consideration and in that it is required that a risk assessment be undertaken specific to those aspect may also expose the community, fire fighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event.

There is a requirement under SPP 3.7 and the Guidelines for development applications located within declared bushfire prone areas, regardless of the building classification should not be exposed to a BAL rating greater than BAL-29.

A method 1 BAL assessment will be used to determine the expected BAL rating and provide a starting point from which to determine the merit of the proposal, notwithstanding the initial determination pre interventions may be BAL 40 -FZ.

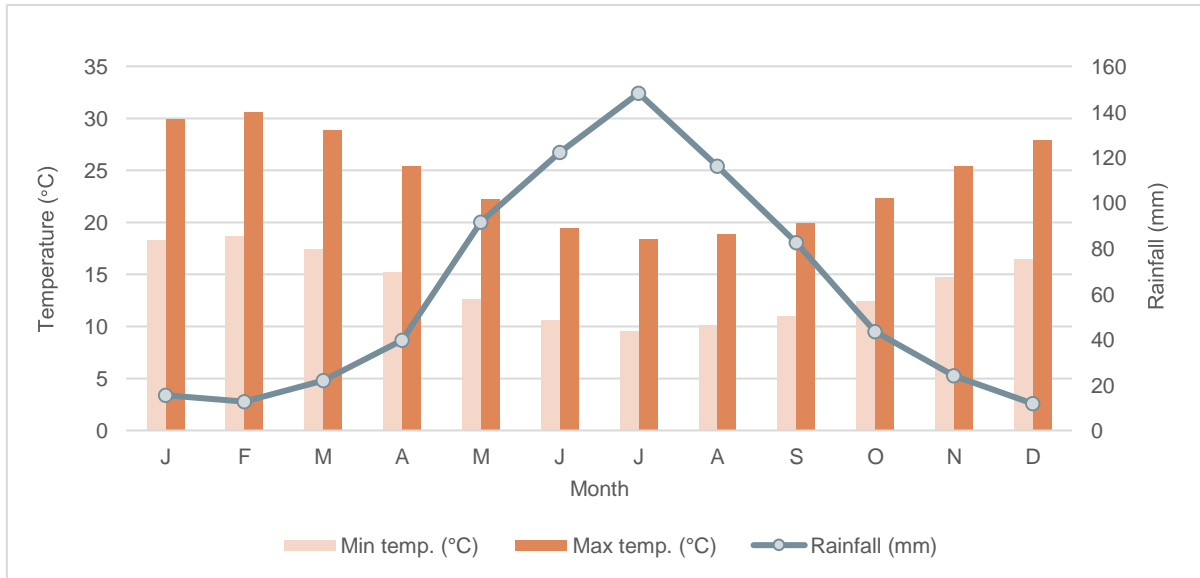
Should the land be identified BAL-40 or BAL-Flame Zone (FZ) it will necessitate it can satisfy policy measure 6.7.2.

1.5 Climate and fire weather

The intensity of a Bushfire is affected by conditions that make up the Fire Danger Index. Which is a grading of conditions ranging from moderate to catastrophic. DFES issue a daily warning during summer either 'moderate', 'high', 'very high', 'severe', 'extreme' or 'catastrophic'.

High temperatures, strong winds and dry available fuels represent the catastrophic conditions and belie the complacency that the public may develop from witnessing fires on less severe days. It's the worst conditions that is planned for and unfortunately most fires are the result of human actions inadvertent or deliberate and the propensity increases with an increasing population. The propensity for thunderstorms in the summer months is another source.

Data from Swanbourne weather station (Bureau of Meteorology (BoM) station 9215, located 39 km south of the subject land confirms the region is typified as a Mediterranean climate with hot dry summers and cool wet winters.



Average climate statistics recorded at BoM Swanbourne weather station (9215) (BoM 2017)

Typically the most severe weather is expected at the hottest part of the day, in the afternoon during summer. Wind rose data from the Swanbourne weather station, indicates in the summer months there is a high frequency of strong winds in the afternoons from a south-west direction



http://www.bom.gov.au/cgi-bin/climate/cgi_bin_scripts/windrose_selector.cgi?period=Mar&type=3&location=09021&Submit=Get+Rose

A key consideration in planning for the convenience store /service station is to expect a fire is most likely to come from the south southwest driven by strong winds from that direction. The subject land is located in the north east corner of an extent of native vegetation and down slope.

2.0 ENVIRONMENTAL CONSIDERATIONS

2.1 Native vegetation - modification and clearing

The proposal is for a change to an existing building from a residential building to a holiday home. No removal of native vegetation is proposed.

Is the land affected by:	No	Yes - describe
Conservation Covenant	No	Nil
Bushforever	No	Nil
Conservation Wetland or buffer	No	Nil
Threatened Ecological Communities		<ul style="list-style-type: none">• Banksia may occur• Carnaby Black Cockatoo roosting and breeding confirmed and potential feeding area
Declared rare flora	No	Nil
Environmentally Sensitive Area	No	Nil
Significant for conservation Local Strategy	No	Nil

The Review of the State databases (SLIP) has identified the subject land is within a threatened ecological community for Banksia, identified as where a threatened ecological community may occur and the Carnaby's Black Cockatoo Habitat for Roosting and Potential Feeding.

Banksia was not evident in or immediate to the subject site which also evidenced historic ground disturbance. A building had previously existed on the site, which has now largely been overgrown. Mounds of spoil are evident on the site as well as introduced vegetation associated with a garden at one time.

Schedule 6 of the *Environment Protection Act 1986* lists exemptions. The construction of a building in accordance with the *Planning and Development Act 2005* is exempt. Clearing associated with a direction under *Bushfires Act 1954* is also exempt.

The habitat quality of the site is diminished due to the presence of weeds and previous interference. Disturbance to threatened communities may require referral to the Federal Department of Environment and Energy but generally only if more than 0.5ha **high** community is affected.

In this instance the affected land is not high quality and the area is less than 0.5 ha.

In conclusion the building and site development area, is not to the extent/size requiring approval under Western Australia Environmental Protection Act 1986 or usually requiring referral under the Commonwealth's *Environment Biodiversity and Conservation Act 1999*.

2.2 Re-vegetation /Landscape Plans

Other than a managed garden, adjacent Newman Road and Yanchep Beach Road the site will not be vegetated, it will be a paved surface.

3.0 BUSHFIRE ASSESSMENT

3.1 Bushfire Attack Level Assessment (Inputs)

See Appendix 1

3.2 Determined Bushfire Attack Level (Outputs)

The Determined Bushfire Attack Level (highest BAL) for the site / proposed development has been determined in accordance with clause 2.2.6 of AS 3959-2009. The Determined BAL using Method 1 is BAL-FZ, due to the present condition of the site and the adjoining lot 12.

This matter is subsequently addressed at section 5.2 of this Report.

4.0 BUSHFIRE PROTECTRION CRITERIA ASSESSMENT

4.1 Bushfire Protection Criteria (Guide Lines for Planning in Bushfire Prone areas Appendix 4)

ELEMENT 1: LOCATION

Intent: To 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

Acceptable Solution

A1.1 Development location.

The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.

Compliance

The proposed convenience store/service station will be within the vicinity of areas of moderate and extreme bushfire hazards.

The convenience store /service station is located within a designated Business Zone, within an urban area.

To the greatest extent possible key elements are located away from a potential bushfire direction. The site will be entirely paved, with the exception of a garden at the northern and eastern portion of the site. (facing Newman Road residents), which is excluded vegetation.

The storage tanks will be located below ground to the north of the site.

ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

Intent: To ensure that the siting and design of development minimises the level of bushfire impact

Acceptable Solution

A2.1 Asset Protection Zone

Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements: – **Width:** Measured from any external wall or supporting post or column of the proposed building, of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29kW/m² (BAL-29) in all circumstances. – **Location:** the APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes). – **Management:** the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones'. (see Schedule 1)

Compliance

The habitable building is the convenience store component which will be set within a paved area.

ELEMENT 3: VEHICULAR ACCESS

Intent: Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

Acceptable Solution

A3.1 Two access routes

Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.

A3.2 Public road

Compliance

Public road

The site connects directly to Yanchep Beach Road offering alternate destination to the east, north and to the beachfront.

The subject lot is a corner site and a paved surface providing ready access for fire fighting services suppressing a fire on site or defending the site from an external fire.

A public road is to meet the requirements in Table 4, Column 1.

- 500 metres (i.e. kerb to kerb 17.5 metres) and within 50 metres of a house; and
- Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes.
- All-weather surface (i.e. compacted gravel, limestone or sealed).
- Requirements in Table 6, Column 4;
- No further than 600 metres from a public road;
- Provided as right of way or public access easement in gross to ensure accessibility to the public and fire services during an emergency; and
- Must be signposted

ELEMENT 4: WATER

Intent: To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire

Acceptable Solution

A4.3 Individual lots within non-reticulated areas (Only for use if: creating 1 additional lot and cannot be applied cumulatively)

Single lots above 500 square metres need a dedicated static water supply on the lot that has the effective capacity of 10,000 litres.

Compliance

The site is able to be supplied with a reticulated water supply. In addition, as part of the construction and operation of the fuel terminal, additional fire-fighting equipment will be installed within the site to a standard requirement of the Dangerous Goods Safety Act 2004.

A fire hydrant is located on Newman Road within 50m south of the site.

5.0 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

5.1 RISK MANAGEMENT PLAN

The risk assessment undertaken within this BMP is based on the methodology of AS/NZS ISO 31000-2009, the risk assessment guidelines, and the OBRM Guidelines

“In partnership with agencies such as Parks and Wildlife, DFES and Local Government, OBRM is working to ensure that bushfire related risk in Western Australia is managed in accordance with Australian Standard ISO 31000 -2009 Risk management – Principles and guidelines”.

The application of the OBRM risk management approach is to examine the potential risk to community assets considered part of the function and values of the community. The assets are categorised as Human settlement (protecting social function), Economic assets (protecting the economic function of the community), Environmental (protecting areas of ecological significance) and Cultural (protecting Aboriginal and European heritage).

The consideration of a high risk development is framed within its potential to adversely community Assets.

The risk assessment undertaken within this Bushfire Management Plan is based AS/NZS ISO 31000- 2009.

1. Establishing Context
2. Risk identification
3. Risk Analysis /Risk Evaluation
4. Risk Treatment

5.1.1 Establishing the context

From this proposal's perspective it's the consequence of a fire either:

1. impacting upon the site and causing ignition of structures and buildings and potentially explosive materials: or
2. a fire at the site escaping to surrounding land jeopardising surrounding houses. The propensity for ignition being escalated because of the nature of human behaviour dealing with highly flammable materials.

Risk Rating \ Asset Category	Low	Medium	High	Very High	Extreme
Human Settlement	✓				
Economic	✓				
Environmental		✓			
Cultural	✓				

Bushfire History

It is an important fact that most bushfires are a consequence of human action and the propensity for a fire to occur increases with the increase of population within an area. Yanchep is a rapidly developing area and the foreshore south southwest from the site is a popular destination. The risk of deliberate or inadvertent human interaction causing a fire in this location is increasing. The most likely cause of a fire would be a human interaction close to the beach traveling in a south westerly direction 500m towards the site.

Assessed Bush fire Hazard

The subject land adjoins to south scrub with an upward slope under vegetation of 5.5°. A six meter wide right of carriage, surrounds Lot on 11 on the west and south sides. The southern wall of the convenience store is the closest building component, at 11.47m from the south boundary - narrowly ahead of the bowser canopy at 12m.

The remainder of lot 12, on the west side, is vacant private land and is zoned commercial. The risk from the west is therefore expected to be temporary, until the land is developed. Section 33 of the *Bushfire Act 1954* enables the local government to direct an owner of land to maintain it in a condition that would not support the spread of bushfire. This is a particularly useful solution for temporary situations that avoids an unreasonable burden being place upon the first developer.

5.1.2. Risk Assessment

5.1.2.1 Risk identification

Impact of Bushfire on the site

Potential Bushfire impact upon flammable sources may include:

- Bowsers
- Storage tanks
- Breather pipes
- Merchandise on display
- Building ignition

Potential for a fire at the site to escape

- The fuel spill potentially arising from:

Malfunctions

- Pump malfunction
- Tanker fuel transfers
- Storage tank failure
- Vapour entrapment

Human factors

- Car breakdown – spill of fuel
- Client filling mishaps, over fill, spilling between container.

- Mechanical services provided, welding grinding

A fuel spill, vaporisation and contact with an ignition source, ie hot exhaust, a poorly maintained vehicle, cigarette coincidence with an electrical failure or undertaking of building maintenance/works involving welding/grinding.

5.1.3. Risk Analysis/Evaluation

The Risk analysis has been identified utilising the categorisations provided in the Office of Bushfire Risk Management (OBRM), Bushfire Risk Management (BRM) Plan Guidelines. These are attached in Appendix 2

5.1.3.1. Bushfire affecting the site

Assessed: Possible – Moderate = Medium

The bush fire hazard extends from the south west and effectively ends at the convenience store/service station. A fire is most likely to arrive from the south west, blown by south westerly winds in the afternoon on Extreme days.

Human intervention deliberate or unavoidable is the most likely occurrence. The likelihood is classed as Possible.

Should a fire arrive at the site the building materials and structures are fire resistant and the ground surface is paved. The consequence is therefore only likely to be superficial damage, and any disruption to operation would be only for a short period, ie a week. The consequence is classed as Moderate.

The overall risk, considering likelihood and consequence is classed as Medium.

Consequence Likelihood	Minor	Moderate	Major	Catastrophic
Almost certain	3D (High)	2C (Very High)	1C (Extreme)	1A (Extreme)
Likely	4C (Medium)	3A (High)	2A (Very High)	1B (Extreme)
Possible	5A (Low)	4A ✓ (Medium)	3B (High)	2B (Very High)
Unlikely	5C (Low)	5B (Low)	4B (Medium)	3C (High)

Risk Treatment

- Building ignition – construction standards commensurate with a determined BAL rating. The Bowser canopy to be constructed of non-combustible materials.
- Merchandise on display – site management practices avoid location of potentially flammable materials against buildings and remove from external display on extreme or catastrophic FDR days.
- Gardens – maintain gardens in an excluded state AS3959-2009 s.2.2.3.2(f)

5.1.3.2 Threat to adjacent housing

Assessed: Possible– Moderate= Medium

It would require a confluence of site management failure, and ignition, a failure to suppress the fire by onsite systems and methods, and climatic conditions. The likelihood is classed as Possible.

A fire starting at the convenience store /service station running up slope, could threaten houses adjoining the area designated private club and recreation, classed as Scrubland. The fire would run with the slope which is tangential to the houses (the houses are level with the vegetation), and the houses are separated by a road that would provide a working space. If a fire was to travel from the convenience store /service station it would mostly occur in moderate/mild conditions (morning conditions), availing the local emergency services to be effective to protect the residential properties. The consequence is classed as Moderate. Superficial damage may occur but continued operation is not expected to be affected.

The overall risk, considering likelihood and consequence is classed as Medium

Consequence Likelihood	Minor	Moderate	Major	Catastrophic
Almost certain	3D (High)	2C (Very High)	1C (Extreme)	1A (Extreme)
Likely	4C (Medium)	3A (High)	2A (Very High)	1B (Extreme)
Possible	5A (Low)	4A ✓ (Medium)	3B (High)	2B (Very High)
Unlikely	5C (Low)	5B (Low)	4B (Medium)	3C (High)

Risk Treatment

- Bowsers – regulated solution including isolation and cut off from fuel supply, emergency control from office. Generally constructed of no flammable materials. Exposed plastic, advertising display should be avoided.
- Storage tanks – regulated stored underground.
- Breather pipes – regulated to be located at Yanchep Beach Road, furthest from bushfire.
- Tanker fuelling – procedures HAZMAT, firefighting facility and training.
- Vapour entrapment – Building design, open structures ie bowser canopy, regulated ventilation for the storage of flammable materials.
- Client filling mishap – staff training, staff vigilance, HAZMAT training
- Mechanical services – no mechanical services are proposed to be undertaken on site.

5.1.4 Risk Treatment

5.1.4.1. Residual Risks

The context does consider onsite risks associated with the fuels proposed to be stored, and the likelihood of ignition / fire from activities and sources within the site, which is relevant for understanding how the facility could be managed to minimise the potential for flammable materials to ignite or exacerbate a bushfire.

By implementing the range of control measures outlined in the controls the risk of bushfire impacting on the site or vice versa can be reduced. However, in many instances the management of the hazard, to either avoid or minimise the associated risk, will be addressed by satisfaction of other legislation including:

- Environmental Protection Act 1986 (and associated regulations).
- Dangerous goods site licence pursuant to the Dangerous Goods Safety Act
- Australian Standard 1940-2017 The storage and handling of flammable and combustible liquids (AS 1940-2017).
- Australian Standard 1596-2014 - The storage and handling of LP Gas (AS 1596-2014). (no LPG tank is proposed)

These measures ensure that engineered solutions are in place to minimise the ignition and propagation of fire and ensure responsive facilities for fire suppression are in place. In short the consideration to minimise fire occurring or likely to spread, is more stringently controlled than for most other land uses, to the degree the convenience store /service station component, has a **low residual risk**.

These measures will also ensure that during a bushfire the service station component should not present any elevated challenges compared to other land use types.

5.1.4.2 Assets at risk

The adjoining land, reserved for private club and recreation. It presents no high priority features in terms of:

- Human settlement Asset: The land is vacant
- Economic Asset: The land is not used for a productive purpose that contributes to the economy
- Environmental Asset: The land has an environmental function in providing for Banksia flora and roosting and breeding for the Carnaby Black Cockatoo fauna. The site however, is designated for private club and recreation, not as a conservation asset.
- Cultural Asset: There are not cultural artefacts identified above ground that would be affected by a bushfire.

5.1.4.3 Acceptable Risk

It is concluded that having regard to the methodology of Australian Standard ISO 31000 -2009 Risk management – Principles and guidelines and the OBRM Guidelines in consideration of both impact upon community assets and a concern to present no elevated complication to bushfire response actions, that the convenience store /service station function in the context of the locality, is not without risk, but is within an acceptable range.

The buildings and site has a high inherent resistance to ignition due to engineering solutions and operational requirements directed by specific legislation for the storage and handling of dangerous goods. Globally there are a large number of service stations and these requirements are have been extensively developed and are considered reliable.

5.2 HIGH-RISK LAND USES WHERE BAL-40 OR BAL-FLAME ZONE (FZ) APPLIES

The determine BAL provided an initial assessment of BAL FZ due to the condition of the adjacent commercial land Lot 12. This can be made subject to management by the City by Notice and direction made under the *Bushfires Act*

1954, which is a fair response to addressing temporary risks. It would otherwise be unfair to expect the applicant to undertake consideration and expense for a risk that might soon be eliminated by the reasonable expectation of development of the site. On this basis the site can be considered excluded, but noting an action will be to bring this to the attention of the City. To be included in explicitly under Local Government Responsibilities.

The land reserved for private club and recreation is determined to be BAL 40 at the bowser canopy, the setback being 12.45m from the boundary. In this instance a construction response would be appropriate, that the canopy be constructed to BAL 40. This is not considered an impost as most canopies are steel framed and metal clad.

a) the landowner/proponent has provided sufficient reason for why the proposal is considered to represent exceptional circumstances which adequately justifies a deviation from the policy measures;

The proposed development is compatible with its zoning. It constitutes a 'convenience store' as defined by the District Planning Scheme which is identified as a permitted land use in a Business Zone, which is the classification for the site.

b) it greatly improves the bushfire management of the site and surrounding area through the provision of a demonstrably significant reduction in the bushfire-related risk level to the community and property;

The site is presently in an unmanaged condition. The proposal will be a paved surface with 'excluded' category landscaping. Strict regulation for the design and operation of service stations will reduce the potential of ignition from the site.

c) the benefits of the proposal going ahead in the area outweigh the costs to adjacent landowners, government and the general community; and

The proposed development is positively identified as Permitted, with its zoning which follows a democratic process of determining the community benefit both broadly and narrowly for the allocation of land use. The site has been determined Business, for community convenience and benefit and the proposal will realise that purpose.

d) it is accompanied by a Bushfire Management Plan, jointly endorsed by the relevant local government and the State authority responsible for emergency services. The Bushfire Management Plan should demonstrate ongoing management measures that will improve the bushfire management of the site and/or surrounding area by minimising the level of bushfire impact

This Bushfire Management plan has included a risk management assessment in accordance with AS 31000-2009. It has determined due to the regulation that controls the facility and operation of a service station, the location of the site in relation to the hazard, being down slope and down wind of prevailing strong winds through summer, that the proposal presents a low risk to the propagation of bushfire that might potentially affect any residential property or result in the destruction of an environmental or economic asset. The design of the convenience store /service station provides an accessible working space for fire fighting and the design standard, storage of flammable materials underground and isolation valves ensure bush fire fighting operations would be no more extraordinary than any other land use.

5.3 Conclusion

This BMP has been able to demonstrate that the proposed convenience store /service station at lot 11 Yanchep Beach Road can satisfy the land use planning bushfire framework, and that the bushfire protection criteria can be achieved through an acceptable solution approach, while onsite flammable risks can be appropriately mitigated through separate regulatory processes.

6.0 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT

6.1 Land Owner Responsibility

1. The bowser canopy should be constructed of non-combustible materials.
2. The landowner acknowledges that no mechanical works will be undertaken on the site with out review of the basis for the assumptions made in this BMP.
3. That contractors undertaking any maintenance works should receive induction briefing regarding practices to avoid bush fire propagation, and any external works with the potential to create sparks of fire should be avoided on Severe plus FDR declared days.

6.2 Local Government

The City Wanneroo is responsible for:

4. Developing and maintaining district bushfire fighting services and facilities.
5. Administer the *Bushfire Act 1954* and monitor land owner compliance – specifically the City of Wanneroo has a responsibility to ensure the land at lot 12 is not conducive to the initiation or spread of bushfire.
6. Promoting education and awareness of bushfire prevention and preparation measures though the community.
7. Administering the requirements of the *Planning and Development Act 2005* and the *Building Act 2011*.

6.3 Acknowledgement

Acknowledgement - Proponent

I hereby understand the purpose of the requirements and accept the responsibilities of the Proponent/Owner as listed above, and acknowledge I will ensure by the transfer of any land from myself to a new owner, that they are aware of BMP and their ongoing responsibility.

APPENDIX 1 - BAL ASSESSMENT

AS 3959 Bushfire Attack Level (BAL) Assessment Report

Site Details

Address: 11 Yanchep Beach Road

Suburb: Yanchep **State:** WA

Local Government Area: Wanneroo

Description of Building Works: Convenience store fuel sales facility

Report Details

Report / Job Number: 18-147 **Report Version:** V2

Assessment Date: 14 July 2018 **Report Date:** 24 July 2018

Site Assessment & Site Plans

The assessment of this site / development was undertaken on **14 July 2018** by a Level 3 BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 - 2009 Simplified Procedure (Method 1)

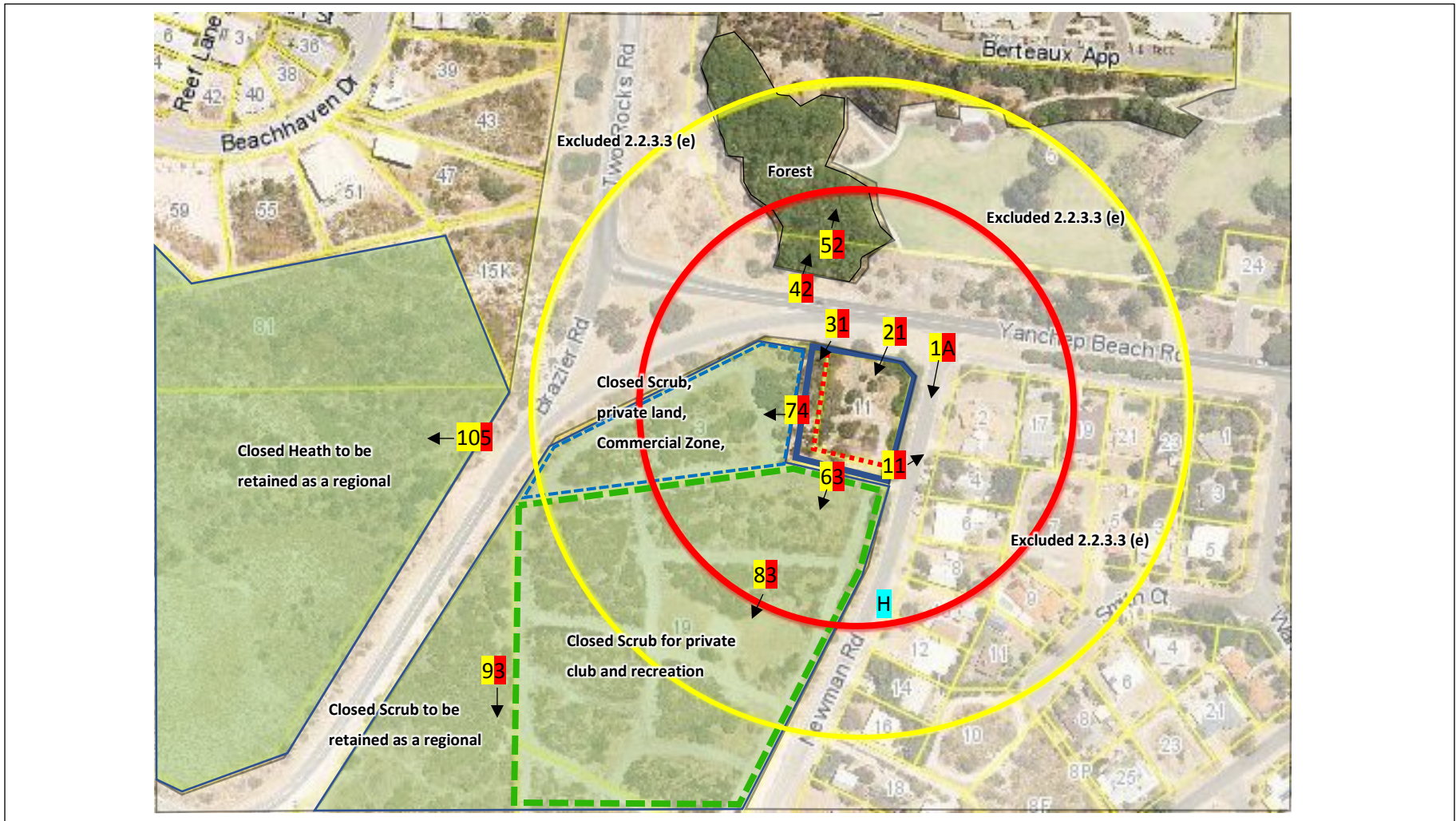


Figure
Vegetation Classification

Prepared by: Anthony Rowe
 Accreditation Level: L3
 Accreditation Number: 36690
 Date:
 Version:

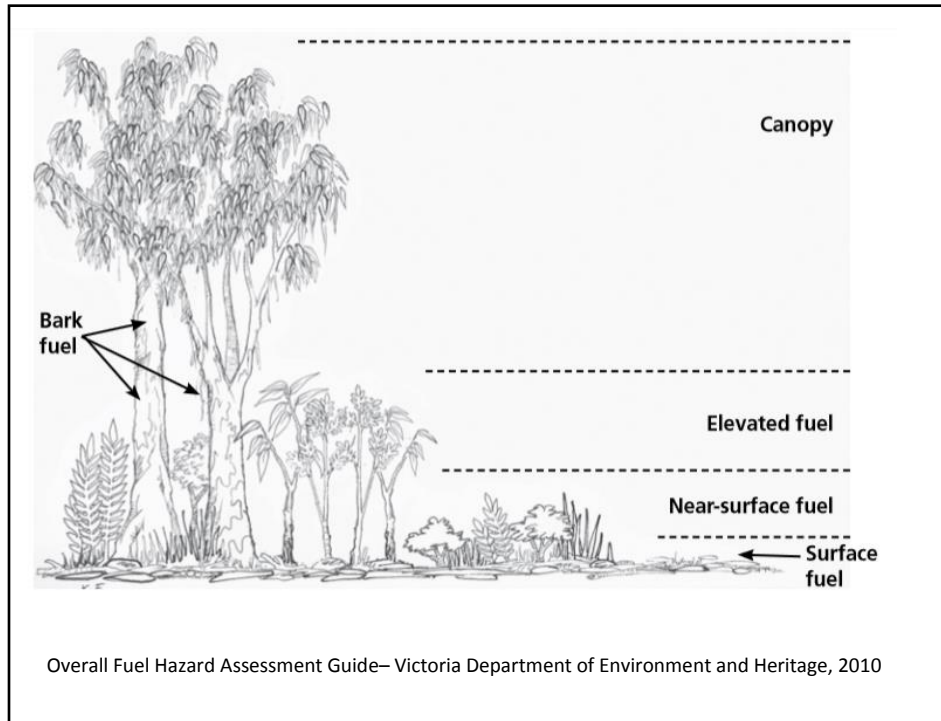
Legend		Vegetation Class	
	Vegetation Assessment Area		Forest
	BAL Assessment Area		Woodland
	Subject land		Shrubland
	Access way		Scrub
	Photo point		Grassland
	Plot		Excluded 2.2.3.2 (e) or (f)



ENVISION Bushfire Protection
 Hazard planning for resilience

Vegetation Classification

All vegetation within 150m of the site / proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2009. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below.



BUSHFIRE ATTACK LEVEL ASSESSMENT EXPLAINED

The methodology used for the determination of the BAL rating, and subsequent building construction standards, are directly referenced from Australian Standard AS 3959 – 2009 Construction of Buildings in Bushfire Prone Areas.

The BAL rating is determined through identification and assessment of the following parameters:

- Fire Danger Index (FDI) rating; assumed to be FDI - 80 for Western Australia;
- All classified vegetation **within 100 and 150m (context)** of the subject building;
- Separation distance between the building and the classified vegetation source(s); and

Slope of the land under the classified vegetation

Photo 1 Plot N/A

Classification: Excluded 2.2.3.2 (e)

Slope: 5.5 up

Justification: % cover

Surface NA

Near surface NA

Elevated NA

Canopy NA

Bark

Observation:

Newman Road, residential excluded left of photo and sight to the right. Phot shows the land rise

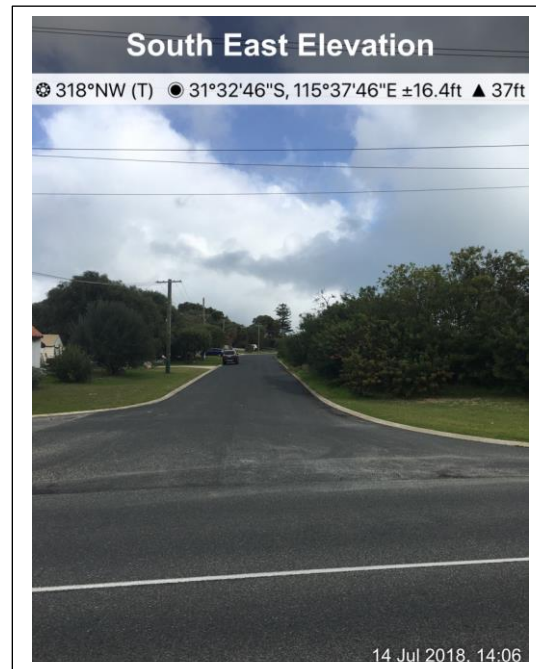


Photo 2 Plot 1

Classification: Low woodland

Slope:

Justification: % cover

Surface 30

Near surface 30

Elevated 20

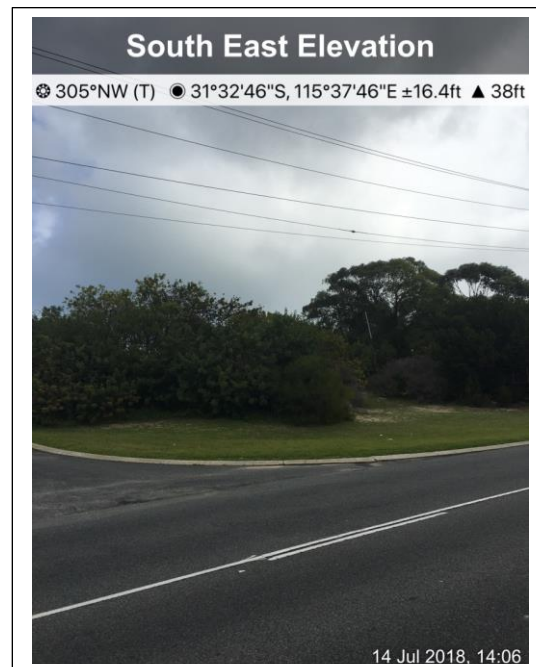
Canopy 20

Bark

Observation:

Compound and proposed building location.

Centre of site is evidenced by clearing of vegetation and near surface regrowth



Photo

3

Plot

1

Classification: Low woodland

Slope: 3.0 up

Justification: % cover

Surface 30

Near surface 30

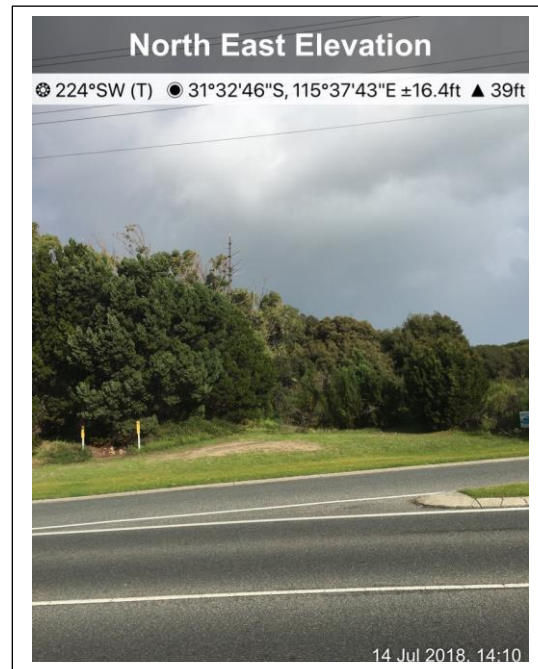
Elevated 20

Canopy 20

Bark

Observation:

Trees upto 10m high, 30-70% foliage cover low trees and shrubs.



Photo

4

Plot

2

Classification: Open Forest

Slope: 1.5 dn

Justification: % cover

Surface 10

Near surface 10

Elevated 20

Canopy 60

Bark

Observation:

Trees 10-30m high, 30-70% foliage cover low trees and shrubs.

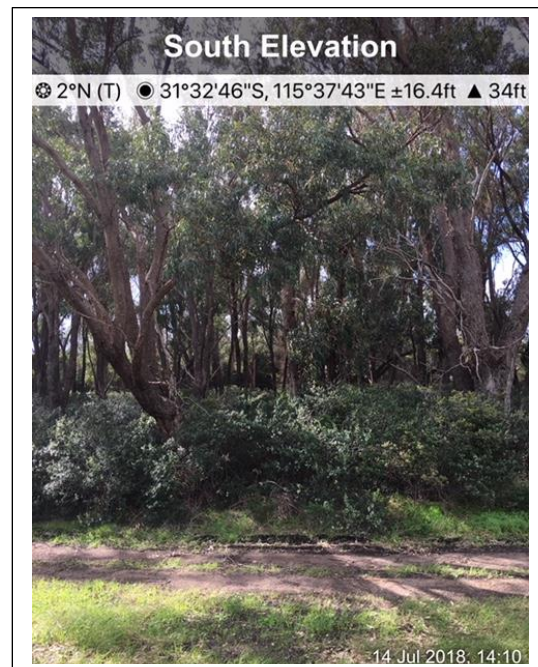


Photo 5 Plot 2

Classification: Open Forest

Slope: 1.5 dn

Justification: % cover

Surface 10

Near surface 10

Elevated 20

Canopy 60

Bark

Observation:

Trees 10-30m high, 30-70% foliage cover low trees and shrubs.



Photo 7 Plot 3

Classification: Closed Scrub

Slope: 5.0up

Justification: % cover

Surface 20

Near surface 20

Elevated 30

Canopy 30

Bark

Observation:

Trees in foreground gives way to Scrub
>30% foliage cover low trees and shrubs. Trees up to 4m high distinguish it from closed heath.

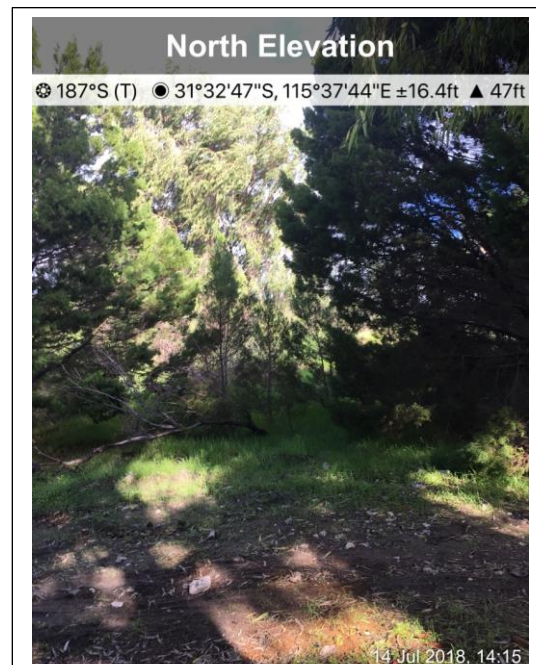


Photo 8 Plot 4

Classification: Closed Scrub

Slope: 0

Justification: % cover

Surface 20

Near surface 30

Elevated 30

Canopy 30

Bark

Observation:

Disturbed foreground.

>30% foliage cover low trees and shrubs. Trees up to 4m high distinguish it from closed heath.



Photo 9 Plot 3

Classification: Closed Scrub

Slope: 5.4up

Justification: % cover

Surface 20

Near surface 20

Elevated 30

Canopy 30

Bark

Observation:

Heavily dissected by earth tracks

Disturbed foreground

>30% foliage cover low trees and shrubs. Trees up to 4m high distinguish it from closed heath



Photo

10

Plot

3

Classification: Excluded

Slope: 0

Justification: % cover

Surface NA

Near surface NA

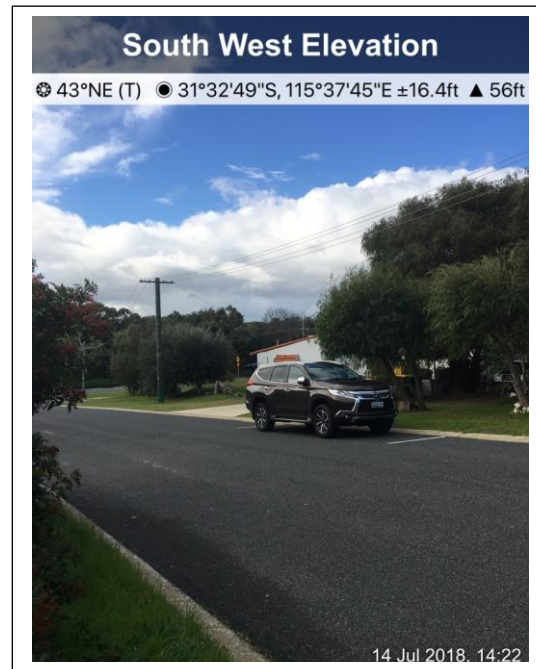
Elevated NA

Canopy NA

Bark

Observation:

Outward view from site to residential development.



Photo

11

Plot

3

Classification: Closed Scrub

Slope:

Justification: % cover

Surface 10

Near surface 10

Elevated 40

Canopy 40

Bark

Observation:

>30% foliage cover low trees and shrubs. Trees up to 4m high distinguish it from closed heath.



Photo

12

Plot

5

Classification: Closed Shrubland

Slope:

Justification: % cover

Surface 10

Near surface 20

Elevated 70

Canopy

Bark

Observation:

Shrubs 1-2m high, 30% -70% foliage cover.



Relevant Fire Danger Index

The fire danger index for this site has been determined in accordance with Table 2.1 or otherwise determined in accordance with a jurisdictional variation applicable to the site.

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

Potential Bushfire Impacts

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below.

Note. Given the site will be paved, excluded, the distances to vegetation are taken from the proposed building face, ie the bowser canopy.

Plot	Vegetation Classification	Effective Slope	Separation (m)	BAL
1	Group A – Low Woodland	1.5 ⁰ up	Site	N/A
2	Group A - Open forest	1.5 ⁰ down	38m	BAL-19
3	Group D – Closed Scrub	5.5 ⁰ up	12.45m	BAL-40
4	Group D - Closed Scrub	1.0 ⁰ down	6m	BAL-FZ*
5	Group C - Shrubland	6.4 ⁰ up	137m	BAL-Low

Table 1: BAL Analysis

*Adjacent land zoned commercial will be developed and will remove the risk into the future at this side, in the meantime as private land it is subject to s. 33 of the *Bush Fires Act 1954* and direction from the City on the owner to maintain the site to restrict the spread of bushfire.

Determined Bushfire Attack Level (BAL)

The Determined Bushfire Attack Level (highest BAL) for the site / proposed development has been determined in accordance with clause 2.2.6 of AS 3959-2009 using the above analysis.

Determined Bushfire Attack Level	BAL - FZ
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APPENDIX 2 - OBRM PLAN GUIDELINES

Description of Likelihood and consequences from the Office of Bushfire Risk Management (OBRM), Bushfire Risk Management (BRM) Plan Guidelines.

Likelihood Rating	Description
Almost Certain (Sure to Happen)	<ul style="list-style-type: none"> • Is expected to occur in most circumstances; • High level of recorded incidents and/or strong anecdotal evidence; and/or • Strong likelihood the event will recur; and/or • Great opportunity, reason or means to occur; • May occur more than once in 5 years.
Likely (Probable)	<ul style="list-style-type: none"> • Regular recorded incidents and strong anecdotal evidence; and /or • Considerable opportunity, reason or means to occur; • May occur at least once in 5 years.
Possible (feasible but < probable)	<ul style="list-style-type: none"> • Should occur at some stage; and/or • Few, infrequent, random recorded incidents or little anecdotal evidence; and/or • Some opportunity, reason or means to occur.
Unlikely (Improbable, not likely)	<ul style="list-style-type: none"> • Would only occur under exceptional circumstances.

Consequence Rating	Descriptions
Minor	<ul style="list-style-type: none"> • No fatalities. • Near misses or minor injuries with first aid treatment possibly required. • No persons are displaced. • Little or no personal support (physical, mental, emotional) required. • Inconsequential or no damage to an asset, with little or no specific recovery efforts required beyond the immediate clean-up. • Inconsequential or no disruption to community. • Inconsequential short-term failure of infrastructure or service delivery. (Repairs occur within 1 week, service outages last less than 24 hours.) • Inconsequential or no financial loss. Government sector losses managed within standard financial provisions. Inconsequential business disruptions.
Moderate	<ul style="list-style-type: none"> • Isolated cases of serious injuries, but no fatalities. Some hospitalisation required, managed within normal operating capacity of health services.

Consequence Rating	Descriptions
	<ul style="list-style-type: none"> • Isolated cases of displaced persons who return within 24 hours. • Personal support satisfied through local arrangements. • Localised damage to assets that is rectified by routine arrangements. • Community functioning as normal with some inconvenience. • Isolated cases of short to mid-term failure of infrastructure and disruption to service delivery. (Repairs occur within 1 week to 2 months, service outages last less than 1 week.) • Local economy impacted with additional financial support required to recover. Government sector losses require activation of reserves to cover loss. Disruptions to businesses lead to isolated cases of loss of employment or business failure. • Isolated cases of damage to environmental or cultural assets, one-off recovery efforts required, but with no long term effects to asset.
Major	<ul style="list-style-type: none"> • Isolated cases of fatalities. • Multiple cases of serious injuries. Significant hospitalisation required, leading to health services being overstretched. • Large number of persons displaced (more than 24 hours duration). • Significant resources required for personal support. • Significant damage to assets, with ongoing recovery efforts and external resources required. • Community only partially functioning. Widespread inconvenience, with some services unavailable. • Mid to long-term failure of significant infrastructure and service delivery affecting large parts of the community. Initial external support required. (Repairs occur within 2 to 6 months, service outages last less than a month.) • Local or regional economy impacted for a significant period of time with significant financial assistance required. Significant disruptions across industry sectors leading to multiple business failures or loss of employment. • Significant damage to environmental or cultural assets that require major rehabilitation or recovery efforts. • Localised extinction of native species. This may range from loss of a single population to loss of all of the species within the BRM Plan area (for a species which occupies a greater range than just the BRM Plan area).
Catastrophic	<ul style="list-style-type: none"> • Multiple cases of fatalities.

Consequence Rating	Descriptions
	<ul style="list-style-type: none"> • Extensive number of severe injuries. • Extended and large number requiring hospitalisation, leading to health services being unable to cope. • Extensive displacement of persons for extended duration. • Extensive resources required for personal support. • Extensive damage to assets that will require significant ongoing recovery efforts and extensive external resources. • Community unable to function without significant support. • Long-term failure of significant infrastructure and service delivery affecting all parts of the community. Ongoing external support required. (Repairs will take longer than 6 months, service outages last more than 1 month.) • Regional or State economy impacted for an extended period of time with significant financial assistance required. Significant disruptions across industry sectors leading to widespread business failures or loss of employment. • Permanent damage to environmental or cultural assets. • Extinction of a native species in nature. This category is most relevant to species that are restricted to the BRM Plan area, or also occur in adjoining areas and are likely to be impacted upon by the same fire event. 'In nature' means wild specimens and does not include flora or fauna bred or kept in captivity.

APPENDIX 3 - REFERENCES

General references

Department of Mines, Industry Regulation and Safety *Code of Practice: Storage and handling of dangerous goods (2nd edition)*

Standards Australia 2017, *Australian Standard 1940-2017 The storage and handling of flammable and combustible liquids*

Standards Australia 2012, *Australian Standard 2885.1-2012 Pipelines - Gas and liquid petroleum design and construction*

Standards Australia 2010, *Australian Standard AS 3745:2010 Planning for emergencies in facilities*

Standards Australia 2009, *AS 3959-2009 Construction of buildings in bushfire-prone areas*, Sydney.

Standards Australian and Standards New Zealand 2009, *Australian Standard / New Zealand Standard ISO 31000:2009 Risk management – principles and guidelines*

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

Western Australian Planning Commission and Department of Fire and Emergency Services (WAPC and DFES) 2017, *Guidelines for Planning in Bushfire Prone Areas Version 1.3*, Western Australia.

Online references

Office of Bushfire Risk management (OBRM) 2017, Map of Bush Fire Prone Areas, viewed July 2018, <
<https://maps.slip.wa.gov.au/landgate/bushfireprone/>>

Office of Bushfire Risk Management (OBRM), Bushfire Risk Management (BRM) Plan Guidelines, viewed 24 July 2018,