

### **BUSHFIRE PROTECTION ASSESSMENT**

Proposed Redevelopment Salamander Shores Hotel, 147 Soldiers Point Road, Soldiers Point

BE

Prepared for **SAKE Developments** 

09 June 2010





# **Bushfire Protection Assessment**

**Proposed Redevelopment:** 

Salamander Shores Hotel, 147 Soldiers Point Road, Soldiers Point

PREPARED FOR	SAKE Developments				
PROJECT NO	0161-0002				
DATE	June 2010				

#### **DOCUMENT TRACKING**

ITEM	DETAIL
Project Name	Bushfire Protection Assessment, Proposed Redevelopment, Salamander Shores, 147 Soldiers Point Road, Soldiers Point
Project Number	0161-0002
File location	H:\Synergy\Projects\Old Projects\0161\0002 Salamander Shores Hotel Part 3A\Reports\Final Reports
Prepared by	Josh Calandra
Reviewed by	David Peterson
Approved by	David Peterson
Status	FINAL
Version Number	V1
Last saved on	09 June 2010

#### ACKNOWLEDGEMENTS

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### 1 Property and proposal

Name:	Salamander Shores Hotel		
Street or property Name:	147 Soldiers Point Road		
Suburb, town or locality:	Soldiers Point, NSW	Postcode:	2317
Lot/DP no:	Lot 31 DP529002		
Local Government Area:	Port Stephens Council		
Type of area:	Non-residential/Commercial		
Type of development:	Infill Redevelopment		

#### **1.1 INTRODUCTION**

Salamander Shores Hotel commissioned Eco Logical Australia Pty Ltd (ELA) to prepare a bushfire protection assessment (BPA) for a proposed redevelopment of the existing Salamander Shore Hotel at Soldiers Point, NSW (hereafter referred to as the subject land).

This assessment has been prepared by the Bushfire Consultant, Josh Calandra.

#### 1.2 LOCATION AND DESCRIPTION OF SUBJECT LAND

The subject land covers approximately 1.22 ha and is located on the eastern side of Soldiers Point Road, Soldiers Point within the Port Stephens LGA as shown in Figures 1 and 2. The subject land is currently zoned 3A Commercial under Port Stephens Shire Council Local Environmental Plan (LEP). The subject land is currently used for tourist purposes as the Salamander Shores Hotel.

The broader area surrounding the subject land can be described as an established residential setting, and land uses in the immediate area include urban housing, sports facility and other recreational accommodation.

The nearest bush fire prone vegetation is a remnant of Nerong Smooth-barked Apple Forest which is classified as dry sclerophyll forest occurring to the south and east of the proposed redevelopment. A development site plan is shown in Figure 3.

Bushfire Protection Assessment Proposed Redevelopment Salamander Shores Hotel, 147 Soldiers Point Road, Soldiers Point



Figure 1: Aerial photograph showing location of Soldiers Point and the subject land





Figure 2: Aerial photograph showing location of bushfire prone vegetation and the subject land

Bushfire Protection Assessment Proposed Redevelopment Salamander Shores Hotel, 147 Soldiers Point Road, Soldiers Point



Figure 3: Site Plan depicting proposed development

### 1.3 DESCRIPTION OF THE DEVELOPMENT PROPOSAL FOR THE PURPOSE OF A BUSHFIRE ASSESSMENT

The proposal is for the complete redevelopment of the existing hotel. As listed in Table 1, this will comprise a new hotel, commercial space, residential flat buildings and associated parking and a Class 9 building according to 'Planning for Bushfire Protection 2006'.

Building (Figure 3)	No.	Development component
А		Serviced apartments
В		Serviced apartments/Gym/Spa/Children's Room
С		Lounge bar conference restaurant
D		Hotel rooms
E		Hotel rooms/reception
F		Hotel rooms
G		Hotel rooms
Н		Permanent apartments/carpark

#### Table 1: Proposed development

#### 1.4 LEGISLATION AND BUSHFIRE PROTECTION ASSESSMENT REQUIREMENTS

The subject land is identified as bushfire prone land by Port Stephens Council and the proposed development consists of redevelopment of an existing hotel.

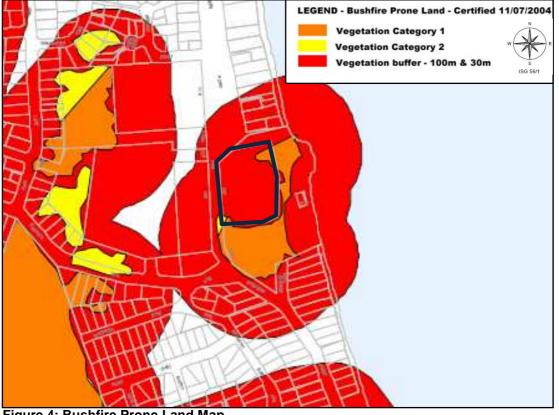


Figure 4: Bushfire Prone Land Map © ECO LOGICAL AUSTRALIA PTY LTD The site is shown as affected by a 100 metre buffer that is applied to land within 100 metres of Category 1 Bushfire Prone Land. A small portion of the site to the south west and north east are considered to be Category 1 Bushfire Prone Land (refer to Figure 4).

Due to the vegetation consisting of a corridor of vegetation to the east and a pocket of vegetation isolated from other bushland to the south of the subject land, the vegetation can be categorised as remnant vegetation. This allows it to be assessed as 'low hazard' vegetation (refer to Section 2.1).

Hotels, motels or other tourist accommodation are identified as 'Special Fire Protection Purpose' (SFPP) developments. As a Part 3A major project under Section 75U(1g) of the *Environmental Protection & Assessment Act 1979,* the subject land is not required to be assessed under Section 100B of the *Rural Fires Act 1997.* 

The NSW Department of Planning has provided the Director General's Environmental Assessment Requirements (DGRs) which outline the requirements in certain areas that need to be addressed for the proposed development to advance. The DGRs relating to the subject land stipulate in '4.4 Bushfire' that the assessment is prepared in accordance with 'Planning for Bushfire Protection 2006' herein referred to as PBP.

SFPP developments are treated and assessed differently to other developments, and they require a higher standard of bushfire protection due to one or more of the following reasons:

- Occupants may not originate from the area and therefore may be less educated in relation to bushfire impacts;
- They may have a reduced capacity to evaluate risk and respond adequately to the bushfire threat;
- They may be more vulnerable to stress arising from bushfire threat; and
- They may present logistical difficulties for evacuation, due to reduced mobility, larger numbers of people, communication barriers and the requirement for increased supervision.

SFPP developments within bushfire prone land are to be assessed under 'Planning for Bushfire Protection 2006' (NSWRFS 2006), referred to as PBP throughout this assessment. Section 4.2 of PBP lists the planning controls and specific objectives for these types of developments. The specific objectives are to:

- Provide for the special characteristics and needs of occupants. Unlike residential subdivisions, which
  can be built to withstand the fire event, enabling occupants and firefighters to provide property
  protection after the passage of fire, occupants of SFPP developments may not be able to assist in
  property protection. They are more likely to be adversely affected by smoke or heat while being
  evacuated.
- Provide for safe emergency evacuation procedures. SFPP developments are highly dependent on suitable emergency evacuation arrangements, which require greater separation from bushfire threats. During emergencies, the risk to firefighters and other emergency services personnel can be high through prolonged exposure, where door-to-door warnings are being given and exposure to the bushfire is imminent.

The development constitutes SFPP infill development, and as such can rely on the PBP infill objectives listed below:

- <u>Specific Objective 1</u> for infill developments is to "ensure that the bushfire risk to adjoining lands is not increased".
- Specific Objective 2 for infill developments is to "provide a minimum defendable space".
- <u>Specific Objective 3</u> for infill developments is to "provide a better bushfire protection, on a redevelopment site, than the existing situation. This should not result in new works being exposed to greater risk than the existing building".
- <u>Specific Objective 4</u> for infill developments is to "ensure that the footprint of the proposed building does not extend towards the hazard beyond existing building lines on neighbouring land".
- <u>Specific Objective 5</u> for infill developments is to "not result in an increased bushfire management and maintenance responsibility on adjoining land owners unless they have agreed to the development".
- <u>Specific Objective 6</u> for infill developments is to "ensure building design and construction enhance the chances of occupant and building survival"

#### 1.5 CONSULTATION WITH NSW RURAL FIRE SERVICE

The redevelopment of 'Salamander Shores' Hotel is a Part 3A Project, hence, consultation with the NSW Rural Fire Service is required. The proposal consists of the complete knock-down and re-build of the facility, and in doing so improving the level of bushfire protection from the very low threat of remnant vegetation along the waters edge.

On Thursday the 15<sup>th</sup> of May 2010 David Peterson, ELA Principal Bushfire Consultant spoke with Mark Hawkins, the NSW Rural Fire Service development control officer for Port Stephens LGA. This involved a telephone discussion accompanied by an email providing aerial imagery and concept plan. It was agreed that the proposal should be able to meet the infill objectives of 'Planning for Bushfire Protection 2006'. Mr Hawkins advised that a meeting was not essential and was he was content for the phone call to act as the consultation required under the Act.

### 2 Bushfire threat assessment

The subject land is identified as Bush Fire Prone Land by Port Stephens Council (refer to figure 4). The DGRs relating to the subject land stipulate in '4.4 Bushfire' that the assessment is prepared in accordance with PBP.

#### 2.1 VEGETATION TYPES AND SLOPES

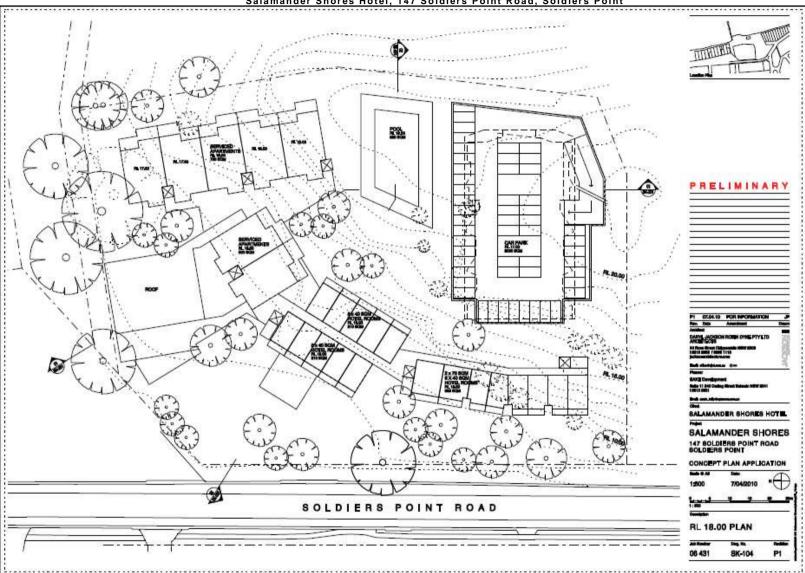
The vegetation and slope have been assessed in the direction of the bush fire prone vegetation. In accord with PBP the predominant vegetation class has been calculated for a distance of at least 140 m out from the boundary of the subject land and the slope class *"most significantly affecting fire behaviour having regard for vegetation found [on it]"* determined for a distance of at least 100 m from the boundary. The predominant vegetation and effective slope assessments are shown in Table 2.

The vegetation occurring to the south and east of the site is Nerong Smooth-barked Apple Forest which is classified as dry sclerophyll forest. This vegetation is comprised of an area under 1 hectare in size to the south and a corridor to the east that is approximately half a hectare and varies from 20 to 30 m in width. Due to the size and shape of the vegetation with respect to the subject land it may be classified as 'low hazard' vegetation.

The remnant vegetation slopes down from the subject land to the south west in the PBP slope class of 'downslope >5-10 degrees' and to the south east and north east along the length of the corridor also in the PBP slope class of 'downslope >5-10 degrees'.

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Figure 5: Site Plan depicting proposed development and existing contours

### 3 Asset Protection Zones (APZ)

Table A2.6 of PBP has been used to determine the width of any required Asset Protection Zone (APZ) for the proposed development using the vegetation and slope data identified in Section 2.

The acceptable solution for the application of an APZ for the proposed redevelopment is the establishment of 50 m of managed vegetation to the south and east (refer to Table 2 for calculation). This distance is not available within the subject land. A 10 m APZ (defendable space) has been provided along these boundaries. With a minimum 10 m APZ and inclusion of other bushfire protection provisions, the proposal complies with the PBP infill objectives as addressed below.

The subject land is already managed as an Inner Protection Area (IPA) as described by PBP. Additional tree or vegetation removal is not required.

While the proposed redevelopment does not meet the minimum APZ for SFPP development, it complies with the Specific Objectives for infill development as discussed below:

<u>Specific Objective 1</u> for infill developments is to "*ensure that the bushfire risk to adjoining lands is not increased*". The development would not increase the bushfire risk to adjoining lands and will be constructed to minimise material ignition including BCA requirements. This objective is satisfied.

<u>Specific Objective 2</u> for infill developments is to "*provide a minimum defendable space*". The proposed buildings will have a minimum defendable space of 20 metres of managed land within the proposed APZ where fire fighters could operate. Half of this is provided within the subject land. The APZ will range from 20 to 40 m. This objective is satisfied.

<u>Specific Objective 3</u> for infill developments is to "*provide a better bushfire protection, on a re-development site, than the existing situation. This should not result in new works being exposed to greater risk than the existing building*". The proposal involves the replacement of an existing hotel building with six buildings that will involve the improvement of the APZ and compliance with building construction standards under AS 3959 'Construction of Buildings in Bushfire Prone Areas'. This objective is satisfied.

<u>Specific Objective 4</u> for infill developments is to "*ensure that the footprint of the proposed building does not extend towards the hazard beyond existing building lines on neighbouring land*". The proposed development will not be located closer to the hazard than the existing buildings. The development will be setback from the hazard an additional 10 m than the existing situation. This objective is satisfied.

<u>Specific Objective 5</u> for infill developments is to "not result in an increased bushfire management and maintenance responsibility on adjoining land owners unless they have agreed to the development". The development does not increase or offset bushfire management onto neighbouring lands. An area of managed land (up to 20 m) exists within the neighbouring reserve that complements the 10 m APZ to be provided within the subject land. This objective is satisfied.

<u>Specific Objective 6</u> for infill developments is to "*ensure building design and construction enhance the chances of occupant and building survival*". Section 5 outlines the requirement to comply with construction standards for bushfire protection. This objective is satisfied.

Table 2: Asset Protection Zone (APZ) requirements
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Building elevation	Slope <sup>1</sup>	Vegetation <sup>2</sup>	PBP required APZ <sup>3</sup>	Proposed APZ	Radiant Heat Flux (kW/m²)⁵	AS3959-2009 Construction Standard⁴	
A. Serviced Apartments							
North east	>5-10° downslope	Low hazard vegetation	50 m	10 m + 20 m in adjacent reserve.	11.33	BAL-12.5 and PBP A3.7 Additional Construction Requirements	
East	>5-10° downslope	Low hazard vegetation	50 m	10 m + 25 m in adjacent reserve.	9.33	BAL-12.5 and PBP A3.7 Additional Construction Requirements	
South	>5-10° downslope	Low hazard vegetation	50 m	10 m + 25 m in adjacent reserve.	9.33	BAL-12.5 and PBP A3.7 Additional Construction Requirements	

achieve a construction level of BAL-12.5 AS3959-2009 and PBP A3.7 Additional Construction Requirements.. The bushfire threat to the south will be buffered by proposed managed land and Building H.

#### B. Serviced Apartments/Gym/Spa/Games Room

east	>0-5° downslope	Low hazard vegetation	40 m	40 m + 25 m in adjacent reserve	2.99	BAL-12.5 and PBP A3.7 Additional Construction Requirements
south	>0-5° downslope	Low hazard vegetation	40 m	65 m + 15 m in adjacent reserve	2.11	BAL-12.5 and PBP A3.7 Additional Construction Requirements

Comment: The bushfire threat to the south and east will be buffered by proposed managed land and other proposed buildings.

#### C. Lounge Bar Conference Restaurant

				-	-	
east	>0-5° downslope	Low hazard vegetation	40 m	45 m + 25 m in adjacent reserve	2.65	BAL-12.5 and PBP A3.7 Additional Construction Requirements
south	upslope	Low hazard vegetation	30 m	75 m + 25 m in adjacent reserve	1.25	BAL-12.5 and PBP A3.7 Additional Construction Requirements

Comment: The bushfire threat to the south and east will be buffered by proposed managed land and other proposed buildings.

Building elevation	Slope <sup>1</sup>	Vegetation <sup>2</sup>	PBP required APZ <sup>3</sup>	Proposed APZ	Radiant Heat Flux (kW/m²) <sup>5</sup>	AS3959-2009 Construction Standard <sup>4</sup>			
D. Hotel Rooms & E. Hotel Rooms/Reception									
east	>0-5° downslope	Low hazard vegetation	40 m	55 m + 25 m in adjacent reserve	2.65	BAL-12.5 and PBP A3.7 Additional Construction Requirements			
south	upslope	Low hazard vegetation	30 m	50 m + 15 m in adjacent reserve	2.11	BAL-12.5 and PBP A3.7 Additional Construction Requirements			
Comment: The buildings.	bushfire threat t	o the south and e	ast will be b	uffered by prop	bosed managed l	and and other proposed			
F. Hotel Roor	ns & G. Hotel I	Rooms							
east	upslope	Low hazard vegetation	30 m	70 m + 15 m in adjacent reserve	1.34	BAL-12.5 and PBP A3.7 Additional Construction Requirements			
south	upslope	Low hazard vegetation	30 m	10 m + 15 m in adjacent reserve	7.9	BAL-12.5 and PBP A3.7 Additional Construction Requirements			
	ding F and G are Construction Re		ding. The cor	nstruction can a	achieve BAL-12.5	AS3959-2009 and PBP			
H. Permanen	t Apartments/C	arpark							
east	>5-10° downslope	Low hazard vegetation	50 m	10 m + 15 m in adjacent reserve	13.28	BAL-19 and PBP A3.7 Additional Construction Requirements			
south	>5-10° downslope	Low hazard vegetation	50 m	10 m + 15 m in adjacent reserve	13.28	BAL-19 and PBP A3.7 Additional Construction Requirements			
Comment: The	construction can	achieve BAL-19 A	S3959-2009	and PBP A3.7	Additional Constru	uction Requirements.			
Slope most significantly influencing the fire behaviour having regard to vegetation found. Slope classes are according to PBP.									

<sup>1</sup> Slope most significantly influencing the fire behaviour having regard to vegetation found. Slope classes are according to PBP.

<sup>2</sup> Predominant vegetation is identified according to PBP. More hazardous vegetation type predominates.

<sup>3</sup> Assessment according to PBP Table A2.6

<sup>4</sup> Assessment according to PBP. Building construction standard applied as per AS 3959-2009.

<sup>5</sup> Assessed using NSW RFS Bushfire Attack Assessor (2006).

### ₄ APZ maintenance plan

The recommendations for fuel management and future maintenance within the existing APZs are outlined below. The hotel proposal includes landscaped garden beds which are consistent with managed lands. An APZ of 10 metres has been proposed to the eastern and southern boundaries. Portions of the adjoining land are maintained in a manner consistent with an APZ. Where landscaping is proposed within the subject land, care has been taken to reduce the risk of the landscaping significantly increasing the bushfire risk to nearby existing buildings.

The proposed 10 metre APZ is intended to form a defendable perimeter providing access for category 1 bush fire fighting vehicles.

APZs are to be managed as an Inner Protection Area (IPA) as described by PBP, as follows:

- Mature trees may be within the APZ providing they;
  - Do not occur within 2 metres of a building (including crowns);
  - Have a separation between crowns or clumps of crowns (e.g. a small group of trees) so that the canopies are discontinuous between the hazard and a building;
- Smaller trees and all understorey shrubs and vegetation are not to be within the APZ unless the trees and shrubs are well spread out and do not form a contiguous pathway to the development;
- A minimal ground fuel is to be maintained to include either mown/slashed grass, mulch, managed groundcovers, organic matter, bare or sealed ground, providing the final groundcover equals less than 4 tonnes per hectare of fine fuel (*i.e.* material less than 6 millimetres in diameter);
- Landscaping features such as garden beds of native shrubbery are permitted with sensitive design on a case by case basis, and must consider issues such as size of the APZ and proximity to vulnerable building elements.

### 5 Construction standard

The calculation of building construction standards under AS 3959-2009 'Construction of Buildings in Bushfire Prone Areas' (Standards Australia 2009) are based on the bushland separation distance (or APZ), vegetation type and slopes. The calculation of the standard required for specific development components are tabulated within Table 2.

The level of bushfire attack and required building construction standard as per Australian Standard AS 3959-2009 'Construction of buildings in bushfire-prone areas' for each proposed building is BAL-12.5 with PBP A3.7 Additional Construction Requirements. Except Building H Permanent Apartments/Carpark which

requires to the east and south facades BAL-19 under Australian Standard AS 3959-2009 'Construction of buildings in bushfire-prone areas' (Standards Australia, 2009) and PBP A3.7 Additional Construction Requirements. The additional measures outlined in PBP (within the 2010 Appendix 3 Addendum) and as applicable to the proposed development are:

#### <u>"Sarking</u>

Any sarking used for BAL-12.5, BAL-19, BAL-29 or BAL-40 shall be:

- a. Non-combustible; or
- b. Breather-type sarking complying with AS/NZS4200.1 and with a flammability index of not more than 5 (see AS1530.2) and sarked on the outside of the frame; or
- c. An insulation material conforming to the appropriate Australian Standard for that material.

#### Subfloor supports

For BAL-12.5 and BAL-19, Clause 5.2 and 6.2 shall be replaced by the provisions of Clause 7.2. In this regard, Clause 7.2 states:

#### *"7.2 SUBFLOOR SUPPORTS"*

This Standard does not provide construction requirements for subfloor supports where the subfloor space is enclosed with—

- a. a wall that complies with ..... (Clause 5.4 or 6.4 as appropriate); or
- b. a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion resistant steel, bronze or aluminium; or
- c. a combination of Items (a) and (b) above.

Where the subfloor space is unenclosed, the support posts, columns, stumps, piers and poles shall be-

- (i) of non-combustible material; or
- (ii) of bushfire-resisting timber (see Appendix F); or
- (iii) a combination of Items (i) and (ii) above.

NOTE: This requirement applies to the principal building only and not to verandas, decks, steps, ramps and landings (see Clause 7.7)."

#### ELEVATED FLOORS

For BAL-12.5 and BAL-19, Clause 5.3 and 6.3 shall be replaced by the provisions of clause 7.3. In this regard, clause 7.3.2 states:

"7.3.2 Elevated floors

7.3.2.1 Enclosed subfloor space

This Standard does not provide construction requirements for elevated floors, including bearers, joists and flooring, where the subfloor space is enclosed with—

- a. a wall that complies with ..... (Clause 5.4 or 6.4 as appropriate); or
- b. a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion resistant steel, bronze or aluminium; or
- c. a combination of Items (a) and (b) above.
- 7.3.2.2 Unenclosed subfloor space

Where the subfloor space is unenclosed, the bearers, joists and flooring, less than 400 mm above finished ground level, shall be one of the following:

- a. Materials that comply with the following:
  - (i) Bearers and joists shall be—
    - A. non-combustible; or
    - B. bushfire-resisting timber (see Appendix F); or
    - C. a combination of Items (A) and (B) above.
  - (ii) Flooring shall be-
    - A. non-combustible; or
    - B. bushfire-resisting timber (see Appendix F); or
    - C. timber (other than bushfire-resisting timber), particleboard or plywood flooring where the underside is lined with sarking-type material or mineral wool insulation; or
    - D. combination of any of Items (A), (B) or (C) above;

or

b. A system complying with AS 1530.8.1

This Standard does not provide construction requirements for elements of elevated floors, including bearers, joists and flooring, if the underside of the element is 400 mm or more above finished ground level." (RFS 2010).

### 6 Water supply

The subject land is to be serviced by reticulated water using a hydrant system with hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005.

### 7 Gas and electrical supplies

The electrical transmission line to the subject land is above ground. No part of a tree will be closer than 0.5 m of the powerline conductors. Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2008 (Standards Australia 2008).

### 8 Access

#### 8.1 CAPABILITY OF PUBLIC ROADS

In the event of a bush fire emergency, Soldiers Point Road, which services the subject land has the capacity to handle the increased volume of traffic associated with the subject land.

#### 8.2 ACCESS AND EGRESS

The access and egress system and design standard is shown in Figure 3. This involves two access and two egress points on looped driveways attached to Soldiers Point Road. Additionally, perimeter access should be incorporated into the 10 metre wide APZ area; this is to be a minimum of 4 metres wide and able to support a category 1 firefighting vehicle.

### Assessment of environmental issues

A Flora and Fauna Assessment has been prepared by ELA dated June 2010 for the subject land. For all threatened species that are considered likely to or potentially occurring within the subject land, the assessment determined that the proposed redevelopment is unlikely to have significant impact on any threatened species, populations, ecological communities on migratory species.

The Minister for Planning is the consent authority as the development is a Major Project under Part 3A.

### <sup>10</sup> Summary of protection provisions and conformity with PBP

The subject land has been assessed based on vegetation and slope to determine the required APZs. The APZs are not all sufficient yet the infill objectives can be satisfied. The construction standards have been determined based on this information as BAL-12.5 with A3.7 Additional Construction Requirements from the amended Appendix 3 (2010) of PBP. The proposed access and services are consistent with the requirements of PBP.

#### **10.1 CONCLUSION**

In the author's professional opinion the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development, a standard that is consistent with 'Planning for Bushfire Protection' (RFS 2006) and appropriate for the issue of a Bush Fire Safety Authority.

Josh Calandra Bushfire Consultant

### 11 References

Energy Australia. 2002. Network Standard NS 179 (Vegetation Safety Clearances), Sydney.

NSW Rural Fire Service (RFS). 2006. *Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners, and Addendum 3 2010.* Australian Government Publishing Service, Canberra.

Standards Australia. 2000. *Construction of buildings in bushfire-prone areas*, AS 3959, Second edition 1999 and Amendment 1, 2000, Standards Australia International Ltd, Sydney

Standards Australia. 2005. *Fire hydrant installations - System design, installation and commissioning,* AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2008. *The storage and handling of LP Gas,* AS/NZS 1596:2008, Fourth edition 2005, Standards Australia International Ltd, Sydney.

### 12 Photographs

Photo 1: Existing managed land to the south of the development



Photo 3: View south from the north east corner of the subject land



Photo 2: Bushland adjacent the subject land to the south



Photo 4: Bushland adjacent the subject land to the east





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