

Tallawarra Lands Concept Plan  
Approval Modification

APPENDIX

H

BUSH FIRE ASSESSMENT



## **Bushfire Assessment**

**Section 75W Modification**

**Tallawarra Concept Plan**

**Cardno**

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# Executive summary

Cardno commissioned Peterson Bushfire to prepare this bushfire assessment to inform the development of an Environmental Impact Statement (EIS) for the proposed modification of the approved Tallawarra Concept Plan (MP09-0131). It is proposed to increase the footprint and density of residential lots in the 'North Shore' and 'Central' Precincts..

This assessment addresses the Secretary's Environmental Assessment Requirements (SEARs) Key Issue No. 14: *"Bushfire: the modification request shall demonstrate compliance with the relevant provisions of Planning for Bushfire Protection 2006."* Table 1 below summarises how the SEARs have been addressed.

The Concept Plan was approved upon consideration of the bushfire assessment report prepared by Eco Logical Australia (ELA 2011). This bushfire assessment focuses on the areas of the Concept Plan under proposed modification, being some boundary locations of the North Shore and Central Precincts only (see Figures 2 and 3 in the report).

The proposed modification does not alter the hazard assessment presented within ELA (2011). The majority of the modified boundary will be adjacent cleared open space whereby an APZ will not be required. Only one new APZ was identified; being for the north-east corner of the Central Precinct where an extension of R5 zone large lots are proposed adjacent remnant vegetation on steep slopes below Mount Brown. The proposed access throughout both Precincts comply.

In conclusion, this assessment demonstrates that the proposed modifications comply with *Planning for Bushfire Protection 2006*.

**Table 1: Addressing the SEARs**

Requirement	Relevance to report
<u>Secretary's Environmental Assessment Requirements (SEARs)</u>	
Key Issue No. 14: <i>"Bushfire: the modification request shall demonstrate compliance with the relevant provisions of Planning for Bushfire Protection 2006."</i>	Section 3 details how the proposed modification complies. Conclusive statements on compliance and satisfying SEARs provided in Section 4.
<u>Agency comments in response to SEARs</u>	
NSW Rural Fire Service (RFS)	N/A
None	

# 1 Introduction

## 1.1 Background

Cardno commissioned Peterson Bushfire to prepare a bushfire assessment to inform the development of an Environmental Impact Statement (EIS) for the proposed modification of the approved Tallawarra Concept Plan. This report presents the assessment and recommendations to ensure compliance with the relevant bushfire protection legislation and policy.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

## 1.2 Location and description of proposal

The lands subject to the existing approved Concept Plan (MP09-0131) are located between Koonawarra/Dapto and Haywards Bay south of Wollongong as shown on Figure 1. The Concept Plan includes a mix of uses including residential, employment/retail, conservation and open space.

The proposal assessed within this bushfire assessment is the Section 75W modification to the existing approved Concept Plan to increase the footprint and density of residential lots in the 'North Shore' and 'Central' Precincts. The location of the Precincts is shown on Figure 1. The proposed modification in precinct size and density will result in an increase in residential lots from 350 to 588 in the Central Precinct and 310 to 542 in the North Shore Precinct. The increase will be achieved by modifying the zoning boundaries as follows:

- North Shore Precinct:
  - Proposal to expand the R2 zone (for low density residential development) south into the E3 Environmental Management zone up to approximately the ridge.
  - Proposal to alter the composition of lots to provide for smaller lots along the foreshore.
- Central Precinct:
  - Proposal to expand the R2 zone (for low density residential development) east into the E3 Environmental Management zone.
  - Proposal to alter the R2 zone boundary slightly at some locations.
  - Proposal to alter the composition of lots to provide for smaller lots along the riparian zone.

The proposed boundary modifications are shown on Figures 2 and 3 for the North Shore and Central Precincts, respectively.

## 1.3 Purpose and objectives

The purpose of this bushfire assessment is to address the Secretary's Environmental Assessment Requirements (SEARs) as they relate to bushfire protection for the boundaries of the Northern and Central Precincts that will be modified. The objectives are as follows:

- Identify the bushfire hazard affecting the proposal;
- Identify the bushfire protection measures required for the proposed modifications; and
- Inform the preparation of the EIS.

#### 1.4 Secretary's Environmental Assessment Requirements (SEARs)

This assessment has been prepared to inform the preparation of an EIS of the proposed modification to the Concept Plan. Secretary's Environmental Assessment Requirements (SEARs) have been issued under Section 75F of the *Environmental Planning and Assessment Act 1979*, listing 'bushfire' as a Key Issue at item No. 14. This technical report addresses Item No. 14 of the SEARs:

*SEAR Application Number MP09\_0131 MOD 1 (Issued 23 January 2017):*

*Key Issue No. 14*

- *Bushfire: the modification request shall demonstrate compliance with the relevant provisions of Planning for Bushfire Protection 2006.*

The NSW Rural Fire Service (RFS) document *Planning for Bushfire Protection 2006* (referred to as PBP throughout this report) prescribes bushfire protection measures for development proposals on bushfire prone land. Future residential subdivision and development of dwellings are to comply with the provisions of PBP which include the provisions of asset protection zone building setbacks from any identified bushfire hazards and adequate access for fire-fighters.

#### 1.5 Concept Plan Bushfire Assessment (ELA 2011)

The Concept Plan was approved upon consideration of the bushfire assessment report prepared by Eco Logical Australia (ELA 2011). The ELA (2011) report addressed the bushfire hazard and corresponding bushfire protection measures for the entire Tallawarra Lands including the North Shore and Central Precincts.

This bushfire assessment focuses on the areas of the Concept Plan under proposed modification, being some boundary locations of the North Shore and Central Precincts only (see Figures 2 and 3). The ELA (2011) report has been reviewed and remains the technical bushfire assessment for the overall approved Concept Plan. This report provides the additional technical assessment for the areas of proposed modification and is consistent with the findings of the ELA (2011) report.





**Figure 1: Location of Tallawarra Lands subject to the approved Concept Plan**





**Figure 2: Proposed modifications to the North Shore Precinct showing existing zoning boundaries and Asset Protection Zones required**





**Figure 3: Proposed modifications to the Central Precinct showing existing zoning boundaries and Asset Protection Zones required**

## 2 Bushfire hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone location and dimension. The following sub-sections provide a description of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at each precinct. Figures 2 (North Shore Precinct) and 3 (Central Precinct) indicate the location of the hazard.

### 2.1 North Shore Precinct

As reported by ELA (2011) there are two areas of bushfire hazard identified adjacent the North Shore Precinct. The proposed modification consists of the extension of residential lands upslope to the south towards the ridgeline. The modification does not alter the hazard assessment presented within ELA (2011). The primary bushfire hazard lies at the western end of the Precinct, being dry sclerophyll forest grading into wet sclerophyll forest and patches of dry rainforest in the sheltered gullies and aspects of the higher slopes of Mount Brown. The vegetation is therefore classified as 'forest' in accordance with PBP. Outside of the forest areas the adjoining land consists of cleared pasture that will remain cleared as open space as the development progresses. The pasture grass does not contain enough representation of native species (such as those present within the Mount Brown nature reserve) for it to be classified as a grassland hazard.

The forest hazard is situated on land falling away towards Barrons Gully to the west and rising towards Mount Brown to the south. Both slopes are classified within the PBP slope classes of 'downslope 0-5°' and 'upslope/flat', respectively.

A secondary bushfire hazard extends along the foreshore of Lake Illawarra at the northern boundary of the Precinct. The vegetation consists of remnant patches of lake-side *Casuarina glauca* (She Oak) connected by extensive, advanced revegetation of open forest. The ELA (2011) report classified the foreshore vegetation as 'low hazard' due to the constrained width of the corridor and disconnection with the other bushfire hazards of the Tallawarra Lands. The final hazard classification will depend on the treatment of the foreshore lands, to be determined at stage of subdivision application. Conservation and enhancement of the existing vegetation would produce a corridor wider than 50 m and therefore constitute a forest hazard. The Precinct boundary is not proposed to be modified adjacent the foreshore hazard.

### 2.2 Central Precinct

The residential lands in the Central Precinct will be exposed to bushfire hazard to the north-east, south and west, as well as a potential introduced hazard along a narrow riparian corridor within the centre of the Precinct.

The largest proposed modification to the boundary alignment is on the eastern side of the Precinct where low density residential lands (R2 zone) and large lot residential lands (R5 zone) will push eastwards into cleared areas. Only large lots will be adjacent a bushfire hazard in the

north-east direction, being a mixture of Acacia Scrub, Weeds and Exotics and Dry Rainforest exist on the steep (downslope 15-18°), south-facing slopes of Mount Brown.

Minor boundary modifications are proposed along the proposed riparian corridor within the centre of the Precinct and adjoining open space in the south-western corner. The modification does not alter the hazard assessment presented within ELA (2011). The riparian corridor can be classified low hazard and the western and southern boundaries of the residential lands adjoin cleared lands, beyond which is forest on slopes within the class of 'downslope 0-5°'.



### 3 Bushfire protection measures

The proposed modifications have been assessed against the provisions of PBP to ensure that compliance can be achieved. PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for residential development. The measures required to be assessed at the Concept Plan stage are listed in Table 2 below and are discussed in detail in the remainder of this section. PBP specifies other measures such as vegetation management and landscaping, the supply of water for fire-fighting, building construction standards and the installation of utilities. These other measures can be integrated into any future subdivision design and are not considered items of assessment for the preparation of an EIS for Concept Plan.

**Table 2: PBP bushfire protection measures**

Bushfire protection measures	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ building setbacks from identified hazards.
Access	Assessment to include access and egress in and out of a developable area, perimeter access and design standards of public roads.

#### 3.1 Asset protection zones

Using the vegetation and slope data discussed in Section 2, APZs suitable for residential subdivision have been calculated for those areas where the boundary of a precinct is proposed to be modified adjacent an identified bushfire hazard. These have been mapped and identified on Figures 2 and 3, and described below.

- North Shore Precinct:
  - Only the southern boundary of the Precinct will be modified, consisting of an extension southward towards the ridge. The western end of the southern boundary will be adjacent forest on an upslope requiring a minimum 20 m APZ. The remainder of the southern boundary will be adjacent cleared open space and therefore an APZ is not required. This APZ requirement is consistent with the ELA (2011) assessment.
  - The increased density in lots along the northern boundary via reduction of lot size does not alter the APZ requirements of PBP.
- Central Precinct:
  - The extension of boundary to the east will primarily be into cleared open space where an APZ is not required. The exception is the north-east corner where large lots (R5 zone) may adjoin vegetation on steep-downslopes. An APZ dimension has not been specified for the interface lots due to their large size and ability to accommodate an APZ of maximum dimension (i.e. 60 m). The final APZ dimension will depend on the location of a dwelling within the lot.

- The minor modifications to the boundary in the south-western corner do not alter the APZ assessment within ELA (2011). The minimum 10 m APZ along the low hazard corridor remains valid and the southern and western interfaces do not require an APZ due to open space adjacent.
- The increased density in lots via reduction of lot size and enlargement of the R2 zone does not alter the APZ requirements of PBP.

All required APZs can be accommodated within the proposed modified Concept Plan. As such, the proposed modification complies with PBP.

### 3.2 Access

#### ***Alternate access and egress***

PBP requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response. All bushfire prone areas should have an alternate access or egress option depending on the bushfire risk, the density of the development, and the chances of the road being cut by fire for a prolonged period.

The Concept Layout shown in Figures 2 and 3 has a logical public road configuration that will provide multiple access/egress points ensuring alternate directions of evacuation and response. As such, the Concept Layout complies with PBP.

#### ***Perimeter access***

All hazard interface locations with APZs have adequate access provided by the way of public perimeter roads. Therefore, the Concept Layout complies with PBP.

#### ***Design and construction standards***

The public roads have been designed to allow compliance with the PBP design and construction standards as repeated in Table 3. The Concept Layout is able to satisfy PBP access requirements.

**Table 3: Design and construction for public roads**

Performance Criteria	Acceptable Solutions
<ul style="list-style-type: none"> <li>• Firefighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources)</li> </ul>	<ul style="list-style-type: none"> <li>• Public roads are two-wheel drive, all weather roads</li> </ul>
<ul style="list-style-type: none"> <li>• Public road widths and design that allows safe access for firefighters while residents are evacuating an area</li> </ul>	<ul style="list-style-type: none"> <li>• Urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non perimeter roads comply with PBP Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle), which is a minimum of 6.5 metre carriageway for two-way road with inside edge curve radius &gt;100 and swept path 2.5 metres.</li> </ul>

Performance Criteria	Acceptable Solutions
	<ul style="list-style-type: none"> <li>• The perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas</li> <li>• Traffic management devices are constructed to facilitate access by emergency services vehicles</li> <li>• Public roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away from the hazard</li> <li>• Curves of roads (other than perimeter roads) are a minimum inner radius of six metres</li> <li>• Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient</li> <li>• There is a minimum vertical clearance to a height of four metres above the road at all times</li> </ul>
<ul style="list-style-type: none"> <li>• The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicated load rating</li> </ul>
<ul style="list-style-type: none"> <li>• Roads that are clearly sign posted (with easy distinguishable names) and buildings / properties that are clearly numbered</li> </ul>	<ul style="list-style-type: none"> <li>• Public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression</li> <li>• Public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression</li> </ul>
<ul style="list-style-type: none"> <li>• There is clear access to reticulated water supply</li> </ul>	<ul style="list-style-type: none"> <li>• Public roads up to 6.5 metres wide provide parking within parking bays and located services outside of the parking bays to ensure accessibility to reticulated water for fire suppression</li> <li>• One way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and located services outside of the parking bays to ensure accessibility to reticulated water for fire suppression</li> </ul>
<ul style="list-style-type: none"> <li>• Parking does not obstruct the minimum paved width</li> </ul>	<ul style="list-style-type: none"> <li>• Parking bays are a minimum of 2.6 metres wide from kerb to kerb edge to road pavement. No services or hydrants are located within the parking bays</li> <li>• Public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road</li> </ul>



## 4 Conclusion

This assessment concludes that the proposed Section 75W modification to the existing approved Concept Plan to increase the footprint and density of residential lots in the North Shore and Central Precincts complies with the provisions of *Planning for Bushfire Protection 2006*. As such, this assessment demonstrates compliance with the Secretary's Environmental Assessment Requirements (SEARs) Item No. 14 "*Bushfire: the modification request shall demonstrate compliance with the relevant provisions of Planning for Bushfire Protection 2006.*"

Those bushfire protection measures that are required to be assessed at the Concept Plan stage (APZ and access) have been integrated into the Concept Layout for those modified boundary locations of each Precinct. The findings and recommendations are consistent with the bushfire assessment report for the approved Concept Plan by Eco Logical Australia (ELA 2011) for the areas where the Precinct boundaries are proposed to be modified. This assessment identifies one additional APZ requirement for the proposed extension of R5 zone in the north-east corner of the Central Precinct.



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# References

Eco Logical Australia (ELA) 2011. *Tallawarra Lands Part 3A Application Bushfire Planning Assessment*. A report prepared for TRUenergy, February 2011.

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

