Bushfire Assessment

In relation to

Proposed Expansion to
South Coast Correctional Centre

Prepared for:
Guymer Bailey Architects

July 2016 (Revision 2)
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1. Introduction

The site is located at South Nowra and is shown at Figure 1.1 on the following page. The site contains the existing South Coast Correctional Centre (SCCC).

Works are proposed to facilitate the expansion of the existing SCCC as shown on plans by Guymer Bailey Architects at Appendix 1. In general, the proposed development includes:

- an increase in minimum and medium security accommodation facilities;
- Modular accommodation;
- Management accommodation;
- Industries building;
- Extension of the entry and visits area;
- Programs and health and officers post building; and
- Additional car parking for both staff and visitors.

The proposed expansion to the SCCC is intended to facilitate an increase in the number of offenders to be accommodated from 600 to 960 offenders (Traffix, 2016).

This assessment addresses the relevant points as listed in Clause 44 of the Rural Fires Regulation 2013. Unless otherwise stated, the bushfire protection measures identified area as per the specifications for development for special fire protection purposes as outlined in Planning for Bush Fire Protection 2006.

The land within the site is presently vacant and contains substantial areas of predominantly open forest vegetation. The site was formerly part of the Nowra State Forest.

The land within the site contains land that is mapped as bushfire prone land, including Category 1 vegetation and bushfire buffer areas. In general, the area of the site occupied by the SCCC complex proper is not mapped as bushfire prone land.

The photos in Appendix 2 show the area around the area of the site occupied by, and cleared and maintained in conjunction with, the existing SCCC.
Figure 1.1: Aerial Photograph showing the site (North to right of page)

[Source: Department of Lands, 2016]
2. Classification of Vegetation

The land within the site outside the area occupied by, and cleared and maintained in conjunction with, the existing SCCC is relatively heavily vegetated and was formerly part of the Nowra State Forest.

Vegetation within the site within 140 metres of the perimeter wall of the existing SCCC is classified as predominantly *dry sclerophyll (open) forest*, comprising mostly Spotted Gum – Ironbark Forest and Spotted Gum – Paperbark Forest.

3. Assessment of the Slope of the Land

The slope of the land most likely to influence bushfire behaviour for the purposes of calculating Asset Protection Zones has been assessed as being predominantly flat/level, varying to 2.5° downslope to the south-east.

4. Any Significant Environmental Features

A Flora and Fauna Assessment for the proposed work undertaken by Kevin Mills and Associates (May 2016) identified that the site is highly modified from its natural condition, with most of the area involved in the proposed work now being treeless, and covered in exotic mown grassland. The Flora and Fauna Assessment focussed on three (3) areas:

- **Area 1** (the area generally proposed for the construction of new Building R and staff car park);
- **Area 2** (the area to the east/north-east of Building M3 and M4); and
- **Area 3** (the area generally west/north-west of Buildings O5, O6 and O7).

Relevant to the proposed works/buildings, the Flora and Fauna Assessment recommends that clearing be minimised on the eastern side of Area 2 and the western side of Area 3 to maximise the distance between the clearing and the floodplain forest – this will have a bearing on the resultant Bushfire Attack Level for proposed building O6 and possibly W2.
5. Any Threatened Species

In terms of the potential for threatened flora and fauna species to occur on or in the vicinity of the site, the Flora and Fauna Assessment considered four (4) flora species and fifteen (15) flora species. The conclusions of the Flora and Fauna Assessment included that no threatened flora or fauna species were recorded in the project area during the surveys.

6. Any Aboriginal Relics

A cultural heritage assessment (indigenous and non-indigenous) was conducted of the SCCC site by Navin Officer Heritage Consultants when the SCCC was originally proposed for construction. The assessment concluded that there are no cultural heritage constraints to the proposed construction and operation of the SCCC. The proposed work is within the confines of the now existing SCCC.

7. Bushfire Assessment

7.1 The extent to which the development is to provide for setbacks including Asset Protection Zones

The site is located within the Shoalhaven Local Government Area, in the Illawarra/Shoalhaven Fire Weather Area, and is subject to an FDI rating of 100 according to Table A2.3 of Planning for Bush Fire Protection 2006.

Section 4.2.6 of Planning for Bush Fire Protection 2006 recognises that while buildings such as prisons are not technically defined as being development for a special fire protection purpose (SFPP) – under the provisions of Section 100B of the Rural Fires Act 1997 – they should be considered as if they were a SFPP as they accommodate a large number of persons of various physical capabilities.

In general, as the land around the SCCC has been assessed as being predominantly flat/level, APZs for a SFPP would be 60 metres, comprising an Inner Protection Area of 40 metres and an Outer Protection Area of 20 metres. Where slope increases to the south-east of the facility, nominal APZ requirements would increase to 70 metres,
comprising an Inner Protection Area of 50 metres and an Outer Protection Area of 20 metres.

Overall, the land around the existing perimeter walls of the existing SCCC is cleared for a distance of at least 50 metres which provides a substantial effective separation distance between the centre and any vegetation. In this manner, the area nominally required to be maintained as an IPA is completely clear of vegetation providing an equivalent, if not superior, outcome (in terms of function) to that of a fully compliant APZ in terms of separation from potential bushfire hazard vegetation.

In relation to the works with closest proximity to any classified vegetation, the proposed development includes the addition of:

- New maximum security accommodation (Buildings Y1 and Y2) to the southern part of the SCCC;
- Upgrades to existing medium security facilities (Buildings M2-M4 and W2);
- New minimum security accommodation (Buildings O4-O8) to the north-west of the existing overall SCCC facility; and
- Staff amenities (Building R) to the north-east of the existing visitor car park (north of proposed new staff car park).

The proposed work to buildings M2-M4 and W2 are internal renovations/refurbishments and no new external work is proposed to those buildings.

The new maximum security component (Y1 and Y2) will be contained with a new section of 5-metre-high concrete perimeter wall to be extended from the southern extent of the existing perimeter wall. This wall will extend around the southern, south-eastern and south-western perimeter of the expanded maximum security accommodation component of the SCCC. The existing and proposed perimeter walls are capable of providing significant radiant heat shielding to areas within the walls, probably superior to that which would otherwise be achieved by clearing and/or maintenance of vegetation to increase physical asset protection zones outside the perimeter wall of the facility.
7.2 The siting and adequacy of water supplies for fire fighting
In terms of water supply for fire fighting, reticulated water is available to the site. No further details are available.

7.3 The capacity of public roads to handle increased volumes of traffic in the event of a bushfire emergency
Access to the site is via an existing road from Oxford Street to the north of the site.

A Traffic Impact Assessment (TIA) prepared by Traffix (July 2016) has found that the proposed development will have negligible impacts on roads in the locality. The TIA concludes that traffic impacts associated with the development are considered acceptable, with no external upgrades required to support the increased traffic volumes.

While increased volumes of traffic would be expected in the event of a bushfire emergency, the conclusions of the TIA indicate that the public roads in the vicinity of the site will have the capacity to handle such an increase in traffic.

7.4 Whether or not public roads in the vicinity have two-way access
Public roads in the vicinity of the site have two-way access.

As the access to the site is from the Princes Highway via Central Avenue/Oxford Street to the site, travel in either a northerly or southerly direction is available via the highway.

7.5 The adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response
It is considered that the existing arrangements for access to and egress from the site for the purposes of an emergency response are appropriate. The TIA states that no changes to the access arrangements are considered to be required.
7.6 The adequacy of bushfire maintenance plans and fire emergency procedures for the development site

It is not known whether there are any bushfire management plans for the development site. If not already in place, it is appropriate that a bushfire management plan be prepared and implemented for the site to ensure that suitable mechanisms are in place for the ongoing management of the vegetated areas of the site.

7.7 The construction requirements to be used for building elements in the development

In relation to the existing areas of open forest vegetation on and around the site, the likely bushfire attack level (BAL) as per AS 3959-2009 (Construction of Buildings in Bushfire Prone Areas) for each of the proposed buildings within the proposed work is shown in the following table.

<table>
<thead>
<tr>
<th>New Work/Building</th>
<th>Approximate distance (metres) to classified vegetation</th>
<th>Direction to classified vegetation</th>
<th>Bushfire Attack Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>95</td>
<td>E/SE</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>H1</td>
<td>&gt;100</td>
<td>W</td>
<td>BAL-LOW</td>
</tr>
<tr>
<td>I</td>
<td>&gt;100</td>
<td>W</td>
<td>BAL-LOW</td>
</tr>
<tr>
<td>K1</td>
<td>85</td>
<td>S</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>M1</td>
<td>&gt;100</td>
<td>E</td>
<td>BAL-LOW</td>
</tr>
<tr>
<td>M2*</td>
<td>95</td>
<td>E</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>M3*</td>
<td>55</td>
<td>E</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>M4*</td>
<td>50</td>
<td>NE</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>M+</td>
<td>&gt;100</td>
<td>NE</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>N1+</td>
<td>&gt;100</td>
<td>E</td>
<td>BAL-LOW</td>
</tr>
<tr>
<td>N2+</td>
<td>&gt;100</td>
<td>E/W</td>
<td>BAL-LOW</td>
</tr>
<tr>
<td>N3+</td>
<td>&gt;100</td>
<td>W</td>
<td>BAL-LOW</td>
</tr>
<tr>
<td>01</td>
<td>&gt;100</td>
<td>W</td>
<td>BAL-LOW</td>
</tr>
<tr>
<td>02</td>
<td>&gt;100</td>
<td>W</td>
<td>BAL-LOW</td>
</tr>
<tr>
<td>04</td>
<td>55</td>
<td>N</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>05</td>
<td>55</td>
<td>W</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>06</td>
<td>30</td>
<td>W</td>
<td>BAL-29</td>
</tr>
<tr>
<td>07</td>
<td>50</td>
<td>NW</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>New Work/Building</td>
<td>Approximate distance (metres) to classified vegetation</td>
<td>Direction to classified vegetation</td>
<td>Bushfire Attack Level</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------------------</td>
<td>----------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>08</td>
<td>65</td>
<td>N</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>R</td>
<td>43</td>
<td>E</td>
<td>BAL-19</td>
</tr>
<tr>
<td>S+</td>
<td>&gt;100</td>
<td>E/W</td>
<td>BAL-LOW</td>
</tr>
<tr>
<td>W1*</td>
<td>70</td>
<td>W</td>
<td>BAL-12.5</td>
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<tr>
<td>W2*</td>
<td>45</td>
<td>W</td>
<td>BAL-19</td>
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<tr>
<td>W+</td>
<td>90</td>
<td>W</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>Y1</td>
<td>56</td>
<td>S</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>Y2</td>
<td>56</td>
<td>S</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>Z</td>
<td>&gt;100</td>
<td>S</td>
<td>BAL-LOW</td>
</tr>
</tbody>
</table>

(*) The proposed work to Buildings M2-M4, W1 and W2 are internal renovations/refurbishments and no new external work is proposed to those buildings. Construction to BAL-12.5 should be adopted if any new external work is proposed to those buildings in the future.

The recommendations to this Assessment include the provision of a 60 metre APZ around any new work/buildings. The provision of the APZ will enable the reduction of construction requirements for new buildings 06, and R to the standard for BAL-12.5 as per AS3959-2009.

7.8 The adequacy of sprinkler systems and other fire protection measures to be incorporated into the development

The proposed works are to be constructed of non-combustible materials and services and equipment are to be provided to the development in accordance with Part E of the Building Code of Australia. The precise details of the fire protection measures to be incorporated in the development are outside the scope of this bushfire assessment.

7.9 Identification of evacuation measures/strategies to be implemented in a bushfire event

There are no details of any evacuation measures/strategies either in place or proposed in conjunction with the proposed works.
8. Conclusion/Recommendations

The following recommendations are made in relation to the bushfire protection measures for the proposed works to facilitate expansion of the existing South Coast Correctional Centre, South Nowra, and are based on the relevant provisions of the NSW Rural Fire Service guideline entitled Planning for Bush Fire Protection 2006.

Asset Protection Zones

(a) Asset Protection Zones are to be maintained in accordance with the requirements of the NSW Rural Fire Service document entitled Standards for Asset Protection Zones (2005).

(b) A minimum 60 metre Asset Protection Zone (APZ) is to be provided between any new work/buildings (except the proposed expansion of the maximum security component) and adjacent classified vegetation. The APZ is to comprise an Inner Protection Area (IPA) of 40 metres and an Outer Protection Area (OPA) of 20 metres.

Bushfire Management Plan

(c) If not already in place, a bushfire management plan (BMP) should be implemented for the site and SCCC facility.

(d) The BMP should address the ongoing management of the vegetated areas of the site so as to minimise the overall bushfire risk to the SCCC.

(e) If a BMP is already in place, procedures outlined in the BMP should be observed and adhered to in relation to any activities associated with the ongoing management of the vegetated areas in the northern part of the site in general so as to minimise the overall bushfire risk to the Correctional Centre complex.

Construction of Buildings

(f) Subject to the provision of an APZ as required in (a) above, construction of the following new works/buildings is to comply with (as a minimum
standard), the requirements for construction to the standard for BAL-12.5 as per AS3959-2009 (Construction of buildings in bushfire prone areas):

<table>
<thead>
<tr>
<th>New Work/Building</th>
<th>Bushfire Attack Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td></td>
</tr>
<tr>
<td>K1</td>
<td></td>
</tr>
<tr>
<td>M2*</td>
<td>BAL-12.5</td>
</tr>
<tr>
<td>M3*</td>
<td></td>
</tr>
<tr>
<td>M4*</td>
<td></td>
</tr>
<tr>
<td>M+</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td></td>
</tr>
<tr>
<td>W1*</td>
<td></td>
</tr>
<tr>
<td>W2*</td>
<td></td>
</tr>
<tr>
<td>W+</td>
<td></td>
</tr>
<tr>
<td>Y1</td>
<td></td>
</tr>
<tr>
<td>Y2</td>
<td></td>
</tr>
</tbody>
</table>

(*) The proposed work to Buildings M2-M4, W1 and W2 are internal renovations/refurbishments and no new external work is proposed to those buildings. Construction to BAL-12.5 should be adopted if any new external work is proposed to those buildings in the future.

(g) In the event that the APZ required by (a) cannot be provided for whatever reason, the construction of the following buildings shall be increased to comply with the construction requirements for the BAL as per AS3959-2009 (Construction of buildings in bushfire prone areas) as nominated in the following table. All other buildings nominated in the Table to (f) shall be constructed to the requirements for BAL-12.5.

<table>
<thead>
<tr>
<th>New Work/Building</th>
<th>Bushfire Attack Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>BAL-19</td>
</tr>
<tr>
<td>O6</td>
<td>BAL-29</td>
</tr>
</tbody>
</table>
Access

(h) Any alterations to Internal access roads for the site and SCCC are to comply with Section 4.2.7 of Planning for Bush Fire Protection 2006.

(i) Car parking is to be restricted to the main car parking areas to the facility to ensure that parking does not obstruct the paved width of the access road(s).

Services

(j) Services and equipment (fire protection measures) are to be provided to and within the proposed new work/buildings in accordance with Part E of the Building Code of Australia.

(k) Any new electricity supply lines are to be installed underground.

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Graduate Diploma in Design for Bushfire Prone Areas
Graduate Diploma in Building Fire Safety & Risk Engineering
Bushfire Planning and Design Accredited Practitioner: Level 3 – NSW
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NOTE & DISCLAIMER:

1. This Assessment has been based on bushfire protection guidelines as outlined in Planning for Bush Fire Protection 2006 (PBP). As noted by PBP, notwithstanding the precautions recommended, it should always be remembered that bushfires burn under a range of conditions and an element of risk, no matter how small, always remains.

2. The adoption of bushfire protection measures cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the unpredictable behaviour and nature of fire and the difficulties associated with extreme weather and fire weather conditions.

3. This assessment does not imply or infer any approval for the removal and/or thinning of vegetation for Asset Protection or other purposes. It is the
responsibility of the client/land owner to obtain any and all necessary approvals in this regard.

REFERENCES

Kevin Mills & Associates (2016)
_Flora and Fauna Assessment, Expansion of the South Coast Correctional Centre, South Nowra, City of Shoalhaven_

NSW Rural Fire Service (2006)
_Planning for Bushfire Protection 2006_

Standards Australia (2009)
_AS3959-2009 Construction of buildings in bushfire-prone areas_

Traffix (2016)
_Traffic Impact Assessment: South Coast Correctional Centre, 55 The Links Road, Nowra Hill_
APPENDIX 1 – PLANS
APPENDIX 2 – PHOTOS

Overview of Photo Points relating to photos in Appendix 1
Photo Point 1 (ENE)

Photo Point 1 (N)
APPENDIX 2 – PHOTOS (continued)

Photo Point 1 (NW)

Photo Point 1 (SW)
APPENDIX 2 – PHOTOS (continued)

Photo Point 1 (S)

Photo Point 2 (N)
APPENDIX 2 – PHOTOS (continued)

Photo Point 2 (NW)

Photo Point 2 (SW)
APPENDIX 2 – PHOTOS (continued)

Photo Point 2 (S)

Photo Point 3 (W)
APPENDIX 2 – PHOTOS (continued)

Photo Point 3 (SW)

Photo Point 3 (SE)
APPENDIX 2 – PHOTOS (continued)

Photo Point 3 (E)

Photo Point 4 (W)
APPENDIX 2 – PHOTOS (continued)

Photo Point 4 (SW)

Photo Point 4 (SE)
APPENDIX 2 – PHOTOS (continued)

Photo Point 5 (SW)

Photo Point 5 (SE)
APPENDIX 2 – PHOTOS (continued)

Photo Point 5 (E)

Photo Point 5 (N)
APPENDIX 2 – PHOTOS (continued)

Photo Point 6 (E)

Photo Point 6 (N)
APPENDIX 2 – PHOTOS (continued)

Photo Point 7 (W)

Photo Point 7 (NW)
APPENDIX 2 – PHOTOS (continued)

Photo Point 7 (N)

Photo Point 7 (SE)
APPENDIX 2 – PHOTOS (continued)

Photo Point 7 (S)

Photo Point 7 (E)
APPENDIX 2 – PHOTOS (continued)

Photo Point 8 (NNE)

Photo Point 8 (E)
APPENDIX 2 – PHOTOS (continued)

Photo Point 8 (N)

Photo Point 8 (W)