



# BUSHFIRE HAZARD ASSESSMENT

## PROPOSED URBAN SUBDIVISION

LOT 1, DP 871039

BAYSIDE WAY,

BRUNSWICK HEADS

PREPARED BY

**BUSHFIRE SAFE**

(AUST) PTY LTD

NOVEMBER 2012

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## EXECUTIVE SUMMARY

Bushfiresafe (Aust) P/L has been engaged by Codlea Pty Ltd to undertake a complete Bushfire Hazard Assessment for the proposed subdivision at Bayside Way, Brunswick Heads. A preliminary assessment report was prepared by Land Partners Ltd in 2011 as part of the Environmental Assessment (EA) report to address the Director General's Requirements for the development (released 14 October, 2010). Specifically, item 5.4 of the Director General's Requirements states that: the provisions in *Planning for Bushfire Protection* must be satisfied for approval to be granted under Part 3A of the *Environmental Planning and Assessment Act* (1979).

### **Property Description**

The subject property is located at the end of Bayside Way, approximately 2km south of the Brunswick Heads town ship. The property is an unimproved parcel of land that is generally cleared of over storey vegetation and maintained as grassland in preparation for future residential development. The property is approximately 31Ha in area; bordered to the east by Simpsons Creek, to the south by coastal heath and scrub within general rural lands, to the west by the buffer to the Pacific Highway and to the north by existing residential developments. The land form is generally flat with a slight fall (<1°) towards Simpsons Creek.

The concept layout for the development consists of a perimeter road and internal road network with multiple connections to the existing road network within the developed residential areas to the north as shown in the Attached Plan. The vegetation within the eastern portion of the subject land and generally within the 7(b) Coastal Habitat land use zoning shall be dedicated as a public reserve and excluded from development. Similarly, areas of mature over-storey or significant vegetation identified in the flora and fauna assessment shall also be retained with proposed conservation areas along the western boundary and excluded from development. A north-south flowing drainage channel through the central portion of the property connects with an open drain to the south of the subject property and then flows into Simpson creek. This drainage channel through the property shall form part of the stormwater management and shall be dedicated as a Drainage Reserve.

### **Vegetation assessment**

This Bushfire Risk Assessment was conducted through an on-site inspection undertaken on 27<sup>th</sup> January, 2012 using the methodology set out in *Planning for Bushfire Protection* manual (RFS,2006). The on-site assessment included traversing the subject property and all lands within 140 metres from the proposed subdivision. The property inspection identified areas of Forest vegetation surrounding the proposed dwelling location that was assessed as bushfire prone vegetation within 140m of the proposed development. The table below summarises the slope assessments for each vegetation community observed over the subject land.

| Aspect               | Vegetation       | Classification<br>(PBP / AS 3959-2009) | Slope     | Comments                |
|----------------------|------------------|--|-----------|-------------------------|
| <b>East Precinct</b> |                  |  |           |                         |
| N                    | Residential      | Not Classified                         | Flat      | Not bushfire prone veg. |
| E                    | Forest           | Forest                                 | 0-5° Down | Bushfire prone veg.     |
| S                    | Tall Heath       | Scrub                                  | 0-5° Down | Bushfire prone veg.     |
| W                    | Drainage Reserve | Not Classified                         | Flat      | Not bushfire prone veg. |
| <b>West Precinct</b> |                  |  |           |                         |
| N                    | Residential      | Not Classified                         | Flat      | Not bushfire prone veg. |
| E                    | Drainage Reserve | Not Classified                         | Flat      | Not bushfire prone veg. |
| S                    | Tall Heath       | Scrub                                  | 0-5° Down | Bushfire prone veg.     |
| W                    | Forest           | Forest                                 | Upslope   | Bushfire prone veg.     |

Based on the assessment of the vegetation communities and slopes present on and adjacent to the subject property; and in accordance with Appendix 2 Table A2.5, Planning for Bushfire Protection (RFS 2006); this Bushfire Hazard Assessment recommends that all of the allotment shall be managed as an Asset Protection Zone (APZ). The Table below lists the required APZ according to Planning for Bushfire Protection and AS3959-2009 Construction of buildings in bush fire prone areas and is illustrated in Attachment 1

| Elevation               | Vegetation       | APZ | IPA | OPA | Compliance with PBP | Comment   |
|-------------------------|------------------|-----|-----|-----|---------------------|---|
| <b>Eastern Precinct</b> |                  |     |     |     |                     |   |
| N                       | Residential      | 0m  | 0m  | 0m  | YES                 | Not bushfire prone veg.   |
| E                       | Forest           | 27m | 27m | 0m  | YES                 | Provided by perimeter road  |
| S                       | Scrub            | 15m | 15m | 0m  | YES                 | Provided by perimeter road  |
| W                       | Drainage Reserve | 0m  | 0m  | 0m  | YES                 | Ecological Buffer to drainage channel maintained to standard of APZ |
| <b>Western Precinct</b> |                  |     |     |     |                     |   |
| N                       | Residential      | 0m  | 0m  | 0m  | YES                 | Not bushfire prone veg.   |
| E                       | Drainage Reserve | 0m  | 0m  | 0m  | YES                 | Ecological Buffer to drainage channel maintained to standard of APZ |
| S                       | Scrub            | 15m | 15m | 0m  | YES                 | Provided by perimeter road  |
| W                       | Forest           | 21m | 21m | 0m  | YES                 | Bushfire prone veg.   |

### Services

All services shall be installed underground. Reticulated water is available to the development and will be supplied to each allotment through the town mains system in accordance with local water authority; council development control plans (DCPs); or any other policies and procedures.

- External fire hydrants will be installed and located in accordance with Australian Standard 2419-1, the hydrants shall be installed so as a clear unobstructed path to each designated building envelope, and
- The fire hydrants shall be installed at a maximum distance of 80m from the furthest extremity of the building/s, and
- The location of fire hydrants shall be delineated by blue pavement markers in the centre of the road, and

### Bush Fire Attack Level

An assessment of the bushfire attack level applicable to the proposed development was carried out using the methodology detailed in Appendix 3 of *Planning for Bushfire Protection* 2006 and Appendix B of AS 3959-2009 to ascertain the viability of the development in the protection of life and property in a bush fire situation. This bushfire assessment concluded the following Bushfire Attack Levels will apply to the proposed allotments in relation to the separation distances from the bushfire prone vegetation as outlined and refers to any allotment partially or completely within the higher category.

#### Eastern Precinct

| Attack Category |        | BAL-FZ                                    | BAL-40              | BAL-29 | BAL-19 | BAL-12.5 | LOW  |
|-----------------|--------|---|---------------------|--------|--------|----------|------|
|                 |        | Distance (m) from the dominant vegetation |                     |        |        |          |      |
|                 |        | Down slope 0 to 5 degrees                 |                     |        |        |          |      |
| East Elevation  | Forest | <20 <sup>1</sup>                          | 20-<27 <sup>1</sup> | 27-<37 | 37-<50 | 50-<100  | >100 |
| South Elevation | Scrub  | <11 <sup>1</sup>                          | 11-<15 <sup>1</sup> | 15-<22 | 22-<31 | 31-<100  | >100 |

## West Precinct

| Attack Category |                        | BAL-FZ                                    | BAL-40              | BAL-29 | BAL-19 | BAL-12.5 | LOW  |
|-----------------|------------------------|---|---------------------|--------|--------|----------|------|
|                 |                        | Distance (m) from the dominant vegetation |                     |        |        |          |      |
| <b>Aspect</b>   | <b>Vegetation Type</b> | <b>All upslope and flat land</b>          |                     |        |        |          |      |
| West Elevation  | Forest                 | < 16 <sup>1</sup>                         | 19-<21 <sup>1</sup> | 21-<31 | 31-<42 | 42-<100  | >100 |
|                 |                        | <b>Down slope 0 to 5 degrees</b>          |                     |        |        |          |      |
| South Elevation | Scrub                  | <11 <sup>1</sup>                          | 11-<15 <sup>1</sup> | 15-<22 | 22-<31 | 31-<100  | >100 |

### Access

The concept plan for the development provides for multiple road connections to the existing network within the residential areas to the north. The perimeter road for the development provides a buffer to the bushfire hazard. This road is connected to an internal road system that will allow residents to egress away from any bushfire hazard and then through the residential areas to the north in safety whilst emergency vehicles approach the bushfire hazard.

The access arrangements for this subdivision meet the Intent of Measures and Performance Criteria for access as outlined in Section 4.1.3 Access (2) – Property Access in *Planning for Bushfire Protection*.

### Construction Standards

The bushfire assessment undertaken in relation to the proposed subdivision concluded that the construction standard in accordance with AS 3959 (2009) *Construction of Buildings in Bushfire Prone Areas* (Standards Australia, 2009) will be assessed and nominated when development applications are submitted for the construction of dwellings on the approved allotments.

### RECOMMENDATIONS

- A minimum of 27 metres Asset Protection Zone shall be established to the east as separation from the forest vegetation within the proposed Public Reserve along Simpsons Creek; this APZ shall be provided by a 20m perimeter road reserve and 7m setback on the affected allotments.
- A minimum of 15 metres Asset Protection Zone shall be established from the Scrub vegetation along the southern boundary of the subject land; this shall be entirely provided by the perimeter road reserve.
- A minimum of 21 metres Asset Protection Zone shall be established from the forest vegetation within the two Conservation Areas along the western boundary of the development; this shall be provided by the perimeter road reserve and 4m setback for proposed allotments B120-B127 and B157-B161 or entirely within the allotments B156 and B146.
- These APZ shall be maintained to the standard described in the NSW Rural Fire Service document *Standards for Asset Protection Zones*.
- All dwellings shall be constructed to comply with AS 3959-2009 *Construction of buildings in bushfire prone areas*

### CONCLUSIONS

The proposed residential subdivision will comply with the minimum requirements in *Planning for Bushfire Protection* for:

1. The provision of a defensible space as Asset Protection Zone for the allotments exceeds that stated in section 4.1.3 (Asset Protection Zones) and meets the minimum that is required in AS 3959-2009 for Bal-29.
2. Water Supply in accordance with section 4.1-3 (Services)
3. Access arrangements in accordance with section 4.1.3-2 (Property Access)
4. Construction shall be in accordance with AS 3959-2009

## BUSH FIRE HAZARD ASSESSMENT

### 1.0 SCOPE OF THE REPORT

The Bushfire Assessment Report is a strategic document which provides detailed information in compliance with Section 44 of the Rural Fires Regulations (2008) to enable a determination of integrated development applications under section 100B of the *Rural Fires Act* and section 91A of the *Environmental Planning & Assessment Act*. In particular, the following matters must be addressed:

- a) A statement that the site is bush fire prone land, where applicable;
- b) The location, extent and vegetation type of any bushland on or within 100m of the site;
- c) The slope and aspect of the site and of any bush fire prone land within 100m of the site, which may determine the likely path of any bush fire;
- d) Any features on or adjoining the site that may mitigate the impact of a high intensity bush fire on the proposed development;
- e) A statement of the likely environmental impact of any proposed bush fire protection measures; and
- f) Whether any building complies with AS 3959-2009 in relation to the construction level for bush fire protection.

This Bushfire Hazard Assessment report shall demonstrate compliance with the bushfire protection measures and provisions for residential subdivisions outlining in *Planning for Bushfire Protection* (2006).

### 1.1 Background

Bushfiresafe (Aust) P/L has been engaged by Codlea Pty Ltd to undertake a complete Bushfire Hazard Assessment for the proposed subdivision at Bayside Way, Brunswick Heads. A preliminary assessment report was prepared by Land Partners Ltd in 2011 as part of the Environmental Assessment (EA) report to address the Director General's Requirements for the development (released 14 October, 2010). Specifically, item 5.4 of the Director General's Requirements states that: the provisions in *Planning for Bushfire Protection* must be satisfied for approval to be granted under Part 3A of the *Environmental Planning and Assessment Act* (1979).

Comments have been received by the proponents following the departmental review by State and Local Government and comments by the public during the exhibition of the EA report. As a result of those submissions a number of amendments to the Subdivision Layout have been made. This amended Bushfire Assessment Report addresses the amended Subdivision Layout and considers the recent amendments to AS 3959-2009 *Construction of buildings in*

*bushfire prone areas* and proposed changes within the new planning scheme for New South Wales.

## 1.2 Description of property

The subject property is located at the end of Bayside Way, approximately 2km south of the Brunswick Heads town ship. The property is an unimproved parcel of land that is generally cleared of over storey vegetation and maintained as grassland in preparation for future residential development. The property is approximately 31Ha in area; bordered to the east by Simpsons Creek, to the south by coastal heath and scrub within general rural lands, to the west by the buffer to the Pacific Highway and to the north by existing residential developments (Figure 1). The land form is generally flat with a slight fall (<1°) towards Simpsons Creek.



**Figure 1: Location of subject property to south of existing residential development and surrounded by Simpsons creek to the east, vegetated rural land to the south and Pacific Highway to the west**

The area of the property subject to the proposed residential development is zoned 2(a) Residential Zone in the Byron Shire Council LEP and is a continuation of the land use zoning immediately to the north of the subject property. The area of existing vegetation to the east of an unformed crown road and continuing towards Simpsons Creek is within the 7(b) Coastal Habitat land use zone. Byron Shire Council is presently updating their Local Environmental Plan; the subject land has a deferred zoning category in the draft whilst this development application is considered by Department of Planning and Infrastructure. Consequently, for this assessment, the residential zone shall be applied given that the subject land is a



continuation of the residential development along the southern approach to Brunswick Heads from the Pacific Highway in an area identified for future residential living.

### **1.3 Proposal**

The concept layout for the development consists of a perimeter road and internal road network with multiple connections to the existing road network within the developed residential areas to the north as shown in the Attached Plan. The vegetation within the eastern portion of the subject land and generally within the 7(b) Coastal Habitat land use zoning shall be dedicated as a public reserve and excluded from development. Similarly, areas of mature over-storey or significant vegetation identified in the flora and fauna assessment shall also be retained with proposed conservation areas along the western boundary and excluded from development. A north-south flowing drainage channel through the central portion of the property connects with an open drain to the south of the subject property and then flows into Simpson creek. This drainage channel through the property shall form part of the stormwater management and shall be dedicated as a Drainage Reserve.

For clarity in the following assessment, the layout shall be considered as two development precincts.

- 1) **Eastern Precinct:** consists of 102 residential lots to the east of the Drainage Reserve and roads 3 to 8.
- 2) **Western Precinct:** consists of 65 residential lots to the west of the Drainage Reserve including roads 1, 2, 9 & 10.

### **2.0 VEGETATION CLASSIFICATION**

The vegetation of the subject property and adjacent properties up to 140m (where practicable) from the proposed subdivision was assessed during a site visit on 27<sup>th</sup> of January, 2012. The vegetation communities present were identified and classified into formations as described in Keith (2004).

Appendix A2.3 of *Planning for Bushfire Protection* (PBP) manual (RFS, 2006) outlines the methodology for determining the predominant bushfire prone vegetation to the distance of at least 140 metres in all directions from the site of the proposed development. Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection* 2006, which classifies vegetation types into the following groups:

- |  |                            |
|--|----------------------------|
| (a) Forests [wet & dry sclerophyll forests];                         | (g) Freshwater Wetlands;   |
| (b) Woodlands;   | (h) Saline Wetlands        |
| (c) Plantations – being pine plantations but not native plantations; | (i) Alpine Complex;        |
| (d) Forested Wetlands;   | (j) Semi – arid Woodlands; |
| (e) Tall Heath lands;  | (k) Arid Woodlands; and    |
| (f) Short Heath lands;   | (l) Rainforests            |

## 2.1 Vegetation communities present on the Property

*Community 1 Low Closed Grassland:* The majority of the property is managed as either grassland (Figure 2).



**Figure 2: view to southeast showing flat grassland typical of the developable part of the land (Photograph, S. Cotter).**

*Community 2 Forest:* The vegetation within the zone 7(b) Coastal Habitat land in the eastern portion of the property consists of a low open forest with heath understorey (Figure 3). This vegetation is disturbed through past land uses, illegal rubbish dumping and recreational activities but shall be regenerated as part of the habitat restoration plan for the development; the forest vegetation classification therefore reflects the likely future condition of this vegetation.

Forest vegetation is also applied to areas of significant habitat trees along the western boundary; particularly where compensatory planting is proposed within a habitat restoration plan for the development (Figure 4).



**Figure 3: view of open forest vegetation in eastern portion of the subject land, consisting of low trees with a heathy understorey, note the unformed crown road in the right foreground of the image (Photograph, S. Cotter).**



**Figure 4: view of closed forest vegetation that will be retained within the conservation areas in the western portion of the property and excluded from development (Photograph, S. Cotter).**

## **2.2 Vegetation within 140m from the subject land boundary**

*Community 3 Scrub:* The vegetation along the southern boundary consists of tall heath community using the classification provided by Keith (2004) in *Planning for Bushfire Protection*. This vegetation is typical of coastal environments and comprises Tea-tree, Banksia, Melaleuca, Hakea Grevillea and Geebung with other fire tolerate species adapted

to low nutrient sandy environments (Figure 5). After application of the methodology contained in *Appendum: Appendix 3 of Planning for Bushfire Protection*, this vegetation classification is more accurately described as Scrub using the Specht (1970) system as listed in AS 3959-2009 *Construction of buildings in bushfire prone areas*. The Scrub vegetation classification is applied in this bushfire assessment.



**Figure 5: Tea-tree dominated coastal heath vegetation (Scrub vegetation classification) along the southern boundary of the property (Photograph, S. Cotter).**

*Community 4 Forest:* The conservation area in the north western portion of the subject land adjoins forest vegetation within the buffer to the Pacific Highway; this area of vegetation is unmanaged and therefore may impact on the development.

*Community 5 Low Closed Grassland:* The majority of the residential areas to the north of the subject land contains managed gardens and lawns and is low threat vegetation (Figure 6).



**Figure 6: Residential development to the north of the subject property (Photograph, S. Cotter).**

### 2.3 Assessed Bushfire Vegetation in Relation to the Proposed Development

The subject land is assessed as being category 2 bushfire prone land in the Byron Shire Council bushfire prone lands map, surrounded by category 1 bushfire prone vegetation to the east, south and partly to the west. This assess was reinforced in recent mapping as part of the Brunswick Local Environmental Study (Byron Shire Council, 2012). Residential development of the subject property is likely to be affected by bushfires such that in accordance with the Director General's Requirements for the development, this bushfire hazard assessment must satisfy the Intent of Measures through provision of acceptable solutions to the performance criteria for residential subdivisions listed in *Planning for Bushfire Protection*.

### 3.0 LANDFORM ASSESSMENT

Inspection of published topographic maps and an on-site assessment using a clinometer verified the following land forms were present over the subject land. The land is generally flat with low lying areas within a disrupted ridge and swale dune system.

#### 3.1 Assessed Dominant Slope in relation to identified bushfire prone vegetation

Appendix 2 of Planning for Bushfire Protection (RFS, 2006) recommends that slopes should be assessed, over a distance of at least 100m from a development site and that the dominant gradient of the land should be determined on the basis of which will most significantly influence the fire behaviour at the site.

Table 1 summarises the slope assessments for each vegetation community observed over the subject land. This information will be used as the basis for determining those aspects of the proposed development that may require provisions for, and implementation of appropriate Asset Protection Zones.

**Table 1: Site Assessment Summary – vegetation communities**

| Aspect               | Vegetation       | Classification<br>(PBP / AS 3959-2009) | Slope     | Comments                |
|----------------------|------------------|--|-----------|-------------------------|
| <b>East Precinct</b> |                  |  |           |                         |
| N                    | Residential      | Not Classified                         | Flat      | Not bushfire prone veg. |
| E                    | Forest           | Forest                                 | 0-5° Down | Bushfire prone veg.     |
| S                    | Tall Heath       | Scrub                                  | 0-5° Down | Bushfire prone veg.     |
| W                    | Drainage Reserve | Not Classified                         | Flat      | Not bushfire prone veg. |
| <b>West Precinct</b> |                  |  |           |                         |
| N                    | Residential      | Not Classified                         | Flat      | Not bushfire prone veg. |
| E                    | Drainage Reserve | Not Classified                         | Flat      | Not bushfire prone veg. |
| S                    | Tall Heath       | Scrub                                  | 0-5° Down | Bushfire prone veg.     |
| W                    | Forest           | Forest                                 | Upslope   | Bushfire prone veg.     |

#### 4.0 ENVIRONMENTAL ATTRIBUTES

The flora and fauna of the subject property and adjoining lands has been assessed as part of this environmental assessment for this development. Significant areas of habitat value shall be retained within Conservation Areas as shown in the concept plan for the development. Where additional planting as part of a habitat restoration plan for the development is proposed, these Conservation Areas are assessed as containing mature forest vegetation as the worst-case vegetation community likely to be present into the future.

#### 5.0 BUSHFIRE ASSESSMENT FOR PROPOSED DEVELOPMENT

The following bushfire assessment follows the methodology outlined in AS 3959-2009 *Construction of buildings in bushfire prone areas*.

#### 5.1 Asset Protection Zones

Based on the assessment of the vegetation communities and slopes present on and adjacent to the subject property; this Bushfire Hazard Assessment recommends that the following Asset Protection Zones (APZ) be implemented as part of the bushfire protection measures for the residential subdivision in accordance with Appendix 2 Table A2.5, *Planning for Bushfire Protection* (RFS 2006) and AS 3959-2009 *Construction of buildings in bush fire prone areas*.

**Table 2: Asset Protection Zone summary**

| Elevation        | Vegetation       | APZ | IPA | OPA | Compliance with PBP | Comment   |
|------------------|------------------|-----|-----|-----|---------------------|---|
| Eastern Precinct |                  |     |     |     |                     |   |
| N                | Residential      | 0m  | 0m  | 0m  | YES                 | Not bushfire prone veg.   |
| E                | Forest           | 27m | 27m | 0m  | YES                 | Provided by perimeter road  |
| S                | Scrub            | 15m | 15m | 0m  | YES                 | Provided by perimeter road  |
| W                | Drainage Reserve | 0m  | 0m  | 0m  | YES                 | Ecological Buffer to drainage channel maintained to standard of APZ |
| Western Precinct |                  |     |     |     |                     |   |
| N                | Residential      | 0m  | 0m  | 0m  | YES                 | Not bushfire prone veg.   |
| E                | Drainage Reserve | 0m  | 0m  | 0m  | YES                 | Ecological Buffer to drainage channel maintained to standard of APZ |
| S                | Scrub            | 15m | 15m | 0m  | YES                 | Provided by perimeter road  |
| W                | Forest           | 21m | 21m | 0m  | YES                 | Bushfire prone veg.   |

The Asset Protection Zones for all aspects of the development shall be measured from the foliage drip line to the gutter or fascia (if a gutterless roof is used) of any proposed dwelling, and shall be implemented and maintained to the specifications as outlined below after the NSW Rural Fire Service document '*Standards for Asset Protection Zones*'.

The Inner Protection Area (IPA) shall be maintained in such a manner that;

- minimal fire fuel that could be set alight by bushfire (e.g. long grass, tree branches etc.) is present at ground level;
- vegetation does not provide a path for the transfer of fire to the development;
- trees are a minimum of 5 metres away from any building, measured from the edge of the foliage to the roof line or any open balconies;
- bark chips and the like are not present within 5 metres of any building;
- any trees present have a minimum canopy separation of 2 metres; and
- any trees present are not species that retain dead material or deposit excessive amounts of ground fuel in a short time

The perimeter road provides the required APZ along the southern boundary of east Precinct; and for those allotments:

- i) within the Eastern Precinct and fronting the Public Reserve; and
- ii) within the Western Precinct and fronting the Conservation Areas,

the required APZ is satisfied by the perimeter road reserve and the setback for any future dwellings from the front boundary of these allotments as required in the Development Control Plan for Brunswick Heads.

The ecological buffer along the drainage channel within the central Drainage Reserve shall be planted to the standard of an APZ and managed as low threat vegetation; no additional bushfire protection measures are required from this Drainage Reserve.

## **5.2 Services (Electricity Supply, Water, Gas)**

All services shall be installed underground.

Reticulated water is available to the development and will be supplied to each allotment through the town mains system in accordance with local water authority; council development control plans (DCPs); or any other policies and procedures.

- d) External fire hydrants will be installed and located in accordance with Australian Standard 2419-1, the hydrants shall be installed so as a clear unobstructed path to each designated building envelope, and
- e) The fire hydrants shall be installed at a maximum distance of 80m from the furthest extremity of the building/s, and
- f) The location of fire hydrants shall be delineated by blue pavement markers in the centre of the road, and

- g) All delivery water lines shall be installed underground to a minimum depth of three hundred millimetres (300mm), with all points above ground using metal pipes or raisers with a minimum internal diameter of nineteen millimetres (19mm).

### 5.3 Public Road Capacity to Handle Increased Volumes of Traffic during a Bushfire Emergency

The public road (Bayside Way) in the vicinity of the subject property is adequate to handle increased volumes of traffic in a bushfire emergency. This road;

- has an all-weather surface;
- is two-way, allowing traffic to pass in opposite directions; and
- has the capacity to carry fully loaded fire fighting vehicles

### 5.4 Adequacy of Access and Egress in Bushfire Situations

The concept plan for the development provides for multiple road connections to the existing network within the residential areas to the north. The perimeter road for the development provides a buffer to the bushfire hazard. This road is connected to an internal road system that will allow residents to egress away from any bushfire hazard and then through the residential areas to the north in safety whilst emergency vehicles approach the bushfire hazard.

The access arrangements for this subdivision meet the Intent of Measures and Performance Criteria for access as outlined in Section 4.1.3 Access (2) – Property Access in the document ‘*Planning for Bushfire Protection*’.

### 5.5 Assessed Bushfire Attack Level

An assessment of the bushfire attack level applicable to the proposed development was carried out using the methodology detailed in Appendix 3 of *Planning for Bushfire Protection* 2006 and Appendix B of AS 3959-2009 to ascertain the viability of the development in the protection of life and property in a bush fire situation. This bushfire assessment concluded the following Bushfire Attack Levels will apply to the proposed allotments in relation to the separation distances from the bushfire prone vegetation as outlined and refers to any allotment partially or completely within the higher category.

#### *Eastern Precinct*

| Attack Category |        | BAL-FZ                                    | BAL-40              | BAL-29 | BAL-19 | BAL-12.5 | LOW  |
|-----------------|--------|---|---------------------|--------|--------|----------|------|
|                 |        | Distance (m) from the dominant vegetation |                     |        |        |          |      |
|                 |        | Down slope 0 to 5 degrees                 |                     |        |        |          |      |
| East Elevation  | Forest | <20 <sup>1</sup>                          | 20-<27 <sup>1</sup> | 27-<37 | 37-<50 | 50-<100  | >100 |
| South Elevation | Scrub  | <11 <sup>1</sup>                          | 11-<15 <sup>1</sup> | 15-<22 | 22-<31 | 31-<100  | >100 |



*West Precinct*

| Attack Category |                 | BAL-FZ                                    | BAL-40              | BAL-29 | BAL-19 | BAL-12.5 | LOW  |
|-----------------|-----------------|---|---------------------|--------|--------|----------|------|
|                 |                 | Distance (m) from the dominant vegetation |                     |        |        |          |      |
| Aspect          | Vegetation Type | All upslope and flat land                 |                     |        |        |          |      |
| West Elevation  | Forest          | < 16 <sup>1</sup>                         | 19-<21 <sup>1</sup> | 21-<31 | 31-<42 | 42-<100  | >100 |
|                 |                 | Down slope 0 to 5 degrees                 |                     |        |        |          |      |
| South Elevation | Scrub           | <11 <sup>1</sup>                          | 11-<15 <sup>1</sup> | 15-<22 | 22-<31 | 31-<100  | >100 |

<sup>1</sup> BAL-FZ and BAL-40 classifications are not allowed for subdivisions within NSW.

**6.0 BUSHFIRE CONSTRUCTION STANDARDS**

The bushfire assessment undertaken in relation to the proposed subdivision concluded that the construction standard in accordance with AS 3959 (2009) *Construction of Buildings in Bushfire Prone Areas* (Standards Australia, 2009) will be assessed and nominated when development applications are submitted for the construction of dwellings on the approved allotments.

**7.0 LANDSCAPING AND PROPERTY MAINTENANCE – BUSHFIRE PROVISIONS**

According to the PBP manual, the principles of landscaping for bush fire protection are to: prevent flame impingement on the dwelling; provide a defensible space for property protection; reduce fire spread; deflect and filter embers; provide shelter from radiant heat; and reduce wind speed. Careful consideration of the species selection, their location relative to their flammability, and on-going maintenance to readily remove flammable fuels (leaf litter, twigs and debris) is critical to providing for bushfire protection (RFS, 2006).

**8.0 EXTENT OF COMPLIANCE AND/OR DEVIATION FROM SPECIFICATIONS**

The proposed residential subdivision will comply with the minimum requirements for:

1. The provision of a defensible space as Asset Protection Zone for the allotments exceeds that stated in section 4.1.3 (Asset Protection Zones) in *Planning for Bushfire Protection* and meets the minimum that is required in AS 3959-2009 for Bal-29.
2. Water Supply in accordance with section 4.1-3 (Services) in *Planning for Bushfire Protection* (RFS, 2006).
3. Access arrangements in accordance with section 4.1.3-2 (Property Access) in *Planning for Bushfire Protection* (RFS, 2006)
4. Construction shall be in accordance with AS 3959-2009 *Construction of buildings in bushfire prone areas*.

## 9.0 RECOMMENDATIONS

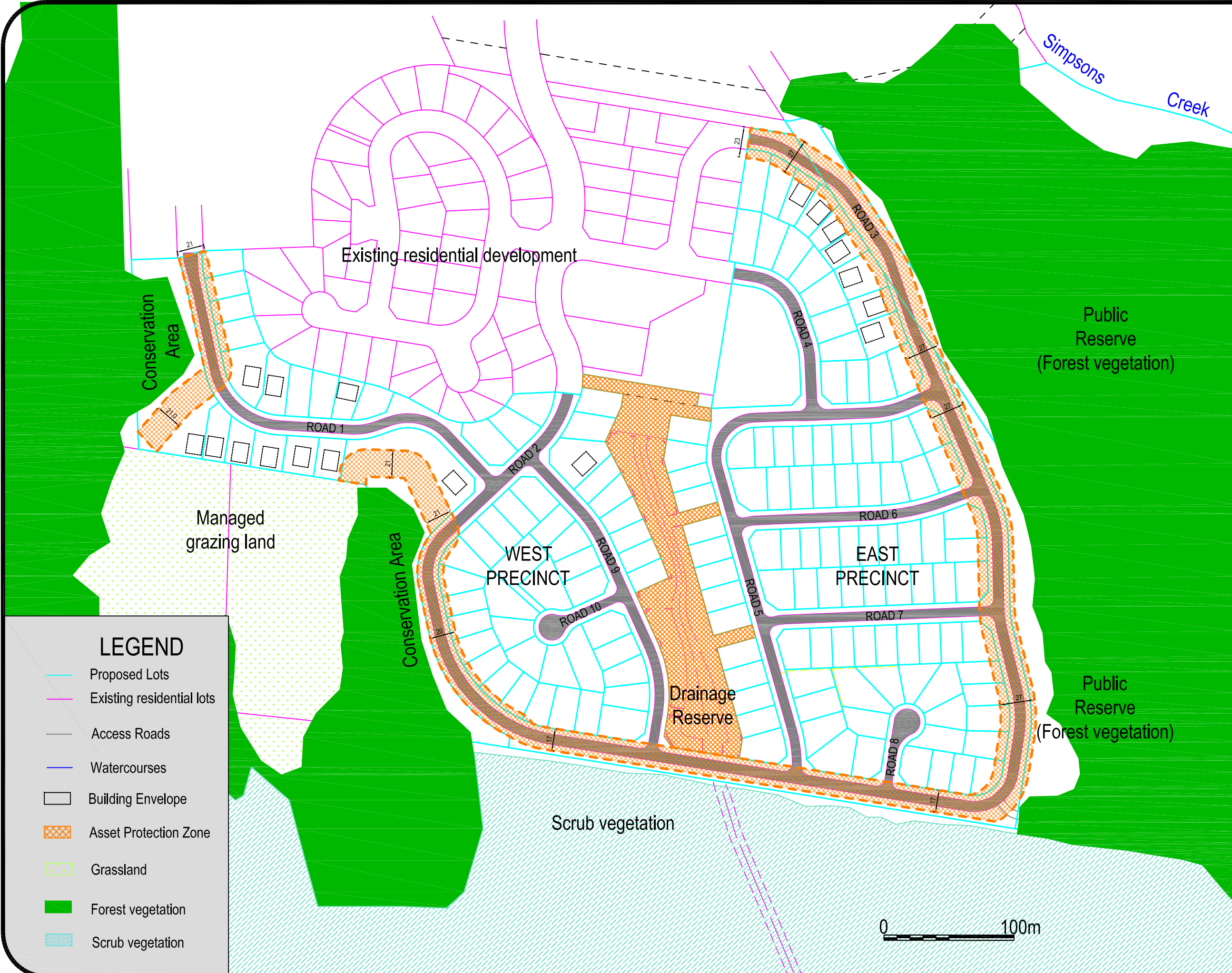
- A minimum of 27 metres Asset Protection Zone shall be established to the east as separation from the forest vegetation within the proposed Public Reserve along Simpsons Creek; this APZ shall be provided by a 20m perimeter road reserve and 7m setback on the affected allotments.
- A minimum of 15 metres Asset Protection Zone shall be established from the Scrub vegetation along the southern boundary of the subject land; this shall be entirely provided by the perimeter road reserve.
- A minimum of 21 metres Asset Protection Zone shall be established from the forest vegetation within the two Conservation Areas along the western boundary of the development; this shall be provided by the perimeter road reserve and 4m setback for proposed allotments B120-B127 and B157-B161 or entirely within the allotments B156 and B146.
- These APZ shall be maintained to the standard described in the NSW Rural Fire Service document *Standards for Asset Protection Zones*.
- All dwellings shall be constructed to comply with AS 3959-2009 *Construction of buildings in bushfire prone areas*

## REFERENCES

- Byron Shire Council, 2007 Byron Shire Council Bushfire Prone Lands Map
- Byron Shire Council, 2000. Byron Shire Council Local Environment Plan
- Byron Shire Council, 2012. Brunswick Local Environmental Study (draft report)
- Keith, D., 2004. *Ocean shores to Desert Dunes*. Department of Environment and Conservation, Sydney
- RFS, 2006. *Planning for Bushfire Protection, New South Wales Rural Fire Service*. NSW, Sydney
- Specht, R., 1970. Vegetation, in Leeper, G.W., *The Australian Environment*, Melbourne University Press, 4<sup>th</sup> Edition
- Standards Australia, 2009. *Australian Standard 3959-2009 Construction of Buildings in Bushfire-prone Areas*. Standards Australia, Sydney

## GLOSSARY

|         |   |
|---------|---|
| AHIMS   | Aboriginal Heritage Information Management System                 |
| APZ     | Asset Protection Zone   |
| BFRMP   | Bushfire Risk Management Plan                                     |
| TSCBPL  | Tweed Shire Council Bushfire Prone Lands map                      |
| EEC     | Endangered Ecological Community                                   |
| EP&A    | Environmental Planning and Assessment Act                         |
| EPBC    | Environmental Protection and Biodiversity Conservation Act (1999) |
| IPA     | Inner Protection Area   |
| KPoM    | Koala Plan of Management  |
| LGA     | Local Government Area   |
| OPA     | Outer Protection Area   |
| PBP     | Planning for Bushfire Protection manual                           |
| PHACS   | Primary Habitat and Corridors Strategy                            |
| RFS     | Rural Fire Service of New South Wales                             |
| SEPP    | State Environmental Planning Policy                               |
| TSC Act | Threatened Species Conservation Act (1995)                        |



**General Notes**

This drawing was prepared by Bushfiresafe (Aust) P/L to demonstrate the identified bushfire prone vegetation and required asset protection zones for the proposed development and should not be used for any other purpose.

**ATTACHMENT 1  
APZ & VEGETATION  
COMMUNITIES**

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CLIENT:  
CODLEA Pty Ltd

Project  
Bushfire Assessment  
Urban Subdivision  
Bayside Way  
Brunswick Heads

|                      |            |
|----------------------|------------|
| Date: NOVEMBER, 2012 | Ref# 12046 |
| Scale: @A3           |            |

**LEGEND**

- Proposed Lots
- Existing residential lots
- Access Roads
- Watercourses
- Building Envelope
- Asset Protection Zone
- Grassland
- Forest vegetation
- Scrub vegetation