

BUSHFIRE PROTECTION ASSESSMENT

FOR THE

CONCEPT PLAN & PROJECT APPLICATION

ON

**LOT 4 in DP 615261 & LOT 1 in DP 374315,
OCEAN DRIVE,
LAKE CATHIE,**

FOR SEAWIDE PTY LTD / MILLAND PTY LTD.



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EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited, at the request of King & Campbell and on behalf of Seawide Pty Ltd/Milland Pty Ltd, has undertaken the bushfire consultancy to inform the Concept Plan for a residential/tourist & commercial development and Project Application, comprising revegetation & rehabilitation works, under Part 3A [State Environmental Planning Policy – Major Projects SEPP] of the *Environmental Planning & Assessment Act 1979*, on Lot 4 in DP 615261 and Lot 1 in DP 374315, Ocean Drive, Lake Cathie.

The site is located between Ocean Drive and Rainbow Beach, south of the village of Lake Cathie.

The northern portion of the site has frontage to Ocean Drive and the site extends to the south, running parallel with the coastline. The western portion of the site adjoins Lot 63 in DP 845590, which is zoned for residential development within the Greater Lake Cathie & Bonny Hills Urban Design Master Plan. The eastern aspect adjoins a narrow strip of Coastal SEPP-26 Littoral Rainforest that occupies the hind-dune of Rainbow Beach and the southern aspect adjoins Lot 6 in DP 25886 which is zoned for residential development within the Greater Lake Cathie & Bonny Hills Urban Design Master Plan.

Areas of existing vegetation buffers planted in 1996 extend beyond the Littoral Rainforest with further planting proposed to extend Littoral Rainforest to a width of approximately 40 metres beyond the edge of the existing Littoral Rainforest corridor.

The Port Macquarie/Hastings Council Bushfire Prone Land Map identifies the Littoral Rainforest corridor along Rainbow Beach as Category 2 Bushfire Prone Vegetation whilst the area of Swamp Sheoak Forest within the south-western corner and on the adjoining land to the west, is not recorded as being Bushfire Prone Vegetation.

The Director General's Environmental Assessment Requirements for the Part 3A Concept Plan includes, under No. 6.4 of the Key Assessment Requirements, the following requirements:

- Demonstrate compliance with *Planning for Bushfire Protection 2006*.

The DGRs for the Project Application require, under 'Consultation', an appropriate and justified level of consultation should be undertaken with the NSW Rural Fire Service during the preparation of the environmental assessment.

Advice has been sought from the NSW Rural Fire Service on the provision of bushfire protection measures (Asset Protection Zones), between the inter-faces of future residential/tourist development and the area of bushfire prone vegetation to the east.

The NSW Rural Fire Service, in written advice dated 9th December 2005, (copy attached as Appendix A), accepts that the vegetation on the fore-dunes is Littoral Rainforest.

Provided that the proposed vegetation re-generation area is planted with Rainforest species and the management of the vegetation is undertaken in accordance with the management protocols of the Revegetation Management Plan prepared by King & Campbell, (Refer to Appendix B); the Rural Fire Service accepts the provision of a 20 metre wide Asset Protection Zone to the east of the future residential development within the site.

This report undertakes an assessment to address the Director General's Requirements [DGRs] issued for the Concept Plan and determines the deemed-to-satisfy bushfire protection requirements for the construction of the future residential/tourist and commercial development on the site, in accordance with the provisions of *Planning for Bushfire Protection 2006* and provides recommendations on the provision of Asset Protection Zones to the future dwellings and other building types; emergency access/egress; fire-fighting access and water supplies; construction standards to the future buildings and the management of the Asset Protection Zones.



Graham Swain,
Director,

Australian Bushfire Protection Planners Pty Limited.

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SECTION 1

INTRODUCTION

1.1 Development Proposal.

A Concept Plan Application has been made to the Department of Planning, under Part 3A of the *Environmental Planning & Assessment Act 1979* for a residential, commercial & tourist development on Lot 1 in DP 374315 and Lot 4 in DP 615261, Ocean Drive Lake Cathie, comprising:

- Low Density Residential [17.86ha] – 214 – 266 lots;
- Medium Density residential [2.76ha] – approximately 68 dwellings;
- Commercial / residential / tourist – 3 – 4 storey buildings comprising approximately 26 commercial / tourist units and 120 – 140 residential / tourist apartments; and
- Open Space.

The Part 3A Application also includes a Project Application for the removal of weeds from the vegetation on the western side of the SEPP 26 rainforest and the fencing of the revegetation area and hedging with a spiky hedge.

The Concept Plan, prepared by King & Campbell, creates a residential/tourist/commercial development precinct with access extending to the south from Ocean Drive, turning to the southeast to link with a perimeter road along the south-eastern aspect of the site. This perimeter road provides a separation to the proposed regeneration area and forms part of the recommended 20 metre wide Asset Protection Zone to the residential precinct.

Additional road links are proposed, connecting through the western and southern boundary of the site, into the road network within the adjoining residential and tourist accommodation site on Lot 63 in DP 845590 and Lot 6 in DP 25886.

Asset Protection Zones have been provided to the Littoral Rainforest vegetation along the eastern aspect and the vegetated riparian corridor on the land to the west and in the southwest corner of the site.

Figure 1 – Copy of Subdivision Concept Plan



LEGEND

- SITE BOUNDARY
- - - SEPP 26 BOUNDARY (AS GAZETTED)
- HILLTOP VILLAGE (3 - 4 STOREYS OR 14.5m)
- MEDIUM DENSITY (2 - 3 STOREYS OR 11.5m)
- RESIDENTIAL (8.5m)
- OPEN SPACE
- AREA OF REVEGETATION AND RETENTION INCLUDING EXCLUSION FENCE AND HEDGE
- STAGE ONE PROJECT APPLICATION - SEE PART B TO THIS SUBMISSION

1.2 Aim of this Assessment.

The aim of this report is to address the Directors General's Requirements [DGRs] under Part 3a of the *Environmental Planning & Assessment Act*.

The DGRs were issued on the 3rd August 2007 and amended on the 22nd July 2009 under Application No. MP 07_0010 and include, under Key Issues – Hazard Management & Mitigation:

- Demonstrate compliance with *Planning for Bushfire Protection 2006*;

The DGRs for the Project Application, under 'Consultation' requires an appropriate and justified level of consultation with the NSW Rural Fire Service during the preparation of the environmental assessment.

1.3 Statutory Requirements.

This report has been prepared having regard to the following legislative and planning requirements:

1.3.1 Legislation.

Environmental Planning and Assessment Act - 1979 (EPA Act)

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 1979* (EPA Act). Part 3A [Major Projects] of the Act commenced on the 1st August 2005 and consolidated the assessment and approval regime for all major projects previously addressed under Part 4 [Development Assessment] or Part 5 [Environmental Assessment] of the Act.

1.3.2 Planning Policies.

Planning for Bushfire Protection – 2006. [Rural Fire Service]

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for rural residential and residential subdivision, "*Special Fire Purpose Protection Development*" and Class 5 – 8 and 10 buildings in bushfire prone areas.

The document provides deemed-to-satisfy specifications on the provision of Asset Protection Zones to residential and "*Special Fire Protection Purpose*" developments; defensible space requirements to other developments and access/water supply provisions for developments in bushfire prone areas.

Provision for the assessment of construction standards to buildings and management / maintenance of the Asset Protection Zones/defensible space to buildings is also provided.

1.3 Documentation reviewed in this assessment.

The following documents were reviewed in the compilation of this report:

- Exhibit 5: Subdivision Concept Plan, Lot 4 in DP 615261 & Lot 1 in DP 374315, Ocean Drive, Lake Cathie prepared by King & Campbell Pty Ltd; Project Number 4898, Drawing No. 4898P. Sheet 1, Rev. B;
- Exhibit 6: Indicative Cross Section through SEPP 26 Littoral Rainforest Lot 4 in DP 615261 & Lot 1 in DP 374315, Ocean Drive, Lake Cathie prepared by King & Campbell Pty Ltd; Project Number 13922 / 13974, Drawing No. EXO6 Rev. A;
- Aerial Photograph of the site;
- Hastings Council Bushfire Prone Land Map;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service/Planning N.S.W.;
- Australian Standard AS3959 *Construction of Buildings in Bushfire Prone Areas*;
- *Rural Fires Regulation 2008*.

1.5 Site Inspection.

Graham Swain of Australian Bushfire Protection Planners Pty Limited inspected the site in June 2003 to assess the topography, slopes and vegetation classification within and adjoining the future subdivision and to validate the sites' compliance with the requisite Asset Protection Zones and access provisions.

An additional site inspection was undertaken in August 2005 to confirm the findings of the previous inspection and to inspect the status of the re-vegetation that was planted in 1996. A further site inspection was undertaken in June 2009. Adjoining properties were also inspected to determine the surrounding land use / land management.

1.6 Authority Consultation.

To address the Director General's Requirements for the preparation of the Environmental Assessment for the Project Application a discussion was convened with officers of the Development Control Division of the NSW Rural Fire Service on the 22nd March 2010.

The recommendations within this report reflect the result of the discussion with the NSW Rural Fire Service and conform to the recommendations provided by the Development Control Officers.

SECTION 2

PROPERTY DESCRIPTION

2.1 Location.

The site is located within Lot 4 in DP 615261 and Lot 1 in DP 374315, Ocean Drive, Lake Cathie. Lot 4 is the northern allotment and has frontage to Ocean Drive, with Lot 1 adjoining the southern boundary of Lot 4. The site is bounded to the north by Ocean Drive and the village of Lake Cathie. To the east, the site is bounded by the dunes and foreshore of Rainbow Beach and to the west by private residential zoned land within Lot 63 in DP 845590. Lot 6 in DP 25886 adjoins the southern aspect of the site.

Figure 2 – Location of Lot 4 in DP 615261 & Lot 1 in DP 374315.



2.2 Existing Land Use.

The site consists of previously cleared land which has been fenced into paddocks and used for grazing.

2.3 Surrounding Land Use.

(a) North

The existing residential development within the village of Lake Cathie adjoins the northern aspect of the site, beyond the Ocean Drive road reserve.

(b) East

The land adjoining the eastern boundary of the site consists of public open space within the dunes and foreshore to Rainbow Beach.

(c) South

The land adjoining the southern boundary of the site is vacant land, within Lot 6 in DP 25886. This land is zoned to permit future residential development.

(d) West

The land to the west of the site consists of private land within Lot 63 in DP 845590 that contains existing recreation buildings. This land is zoned to permit future residential development.

2.4 Topography.

a) Within the Site.

The land within the site is characterised by low undulating coastal flats behind the dune system of Rainbow Beach. Drainage is via several drainage lines into proposed water quality control ponds, located along the edge of the proposed perimeter road. Duchess Creek flows across the south-western corner of the site.

b) Beyond the Site.

(a) North.

The topography to the north of the site follows the contours of the land and is generally considered to be of a level aspect in relation to the site.

(b) East.

The topography to the east of the site rises above the ground levels at the site boundary, to form the higher coastal dunes which rise to R.L. 8.0 metres.

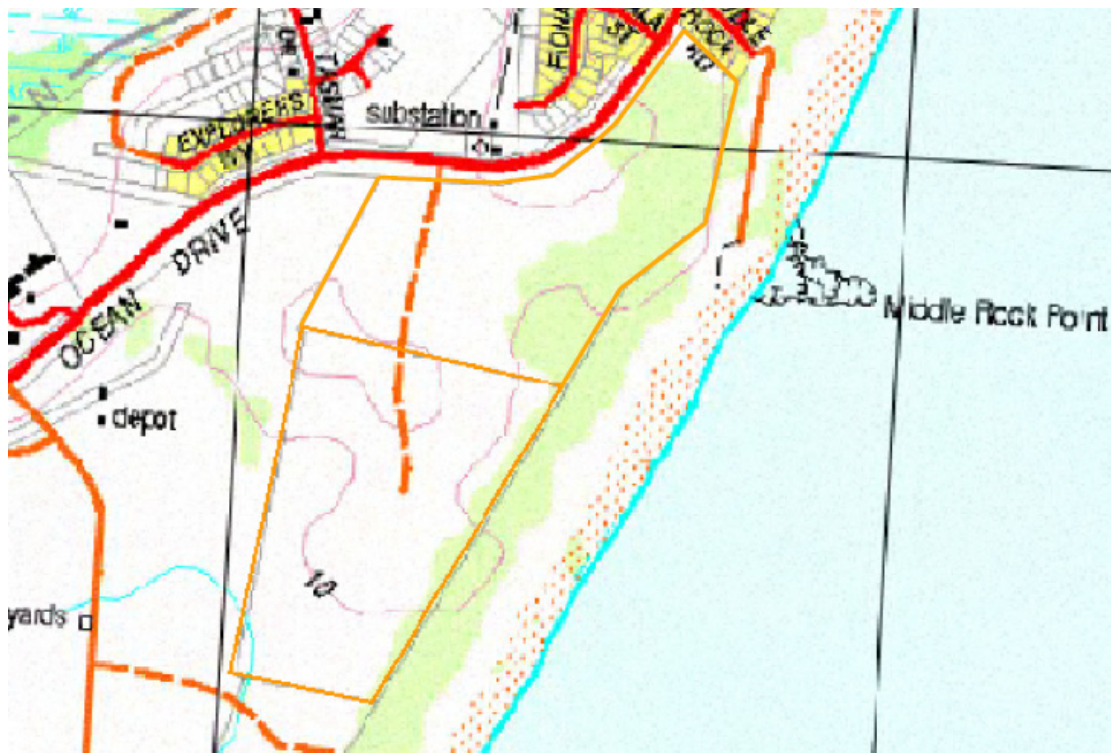
(c) South.

The topography to the south follows the contours of the land and provides a level aspect to the southern boundary.

(d) West.

The topography of the land within the adjoining land falls to the west and south-west at < 5 degrees downslope into the Duchess Creek riparian corridor.

Figure 3 – Topographic Map



2.5 Vegetation within the Site.

The site has been previously cleared and consists of grazed pastures and occasional patches of remnant vegetation scattered to the periphery. Re-vegetated Littoral Rainforest species occupy a narrow corridor of vegetation along the north-eastern boundary and northern corner of Lot 4, with a similar narrow corridor in the south-eastern corner of Lot 1.

Additional Rainforest species planting will be undertaken to increase the width of the existing Littoral Rainforest on the dunes and to infill the areas not already re-generating. Management of this re-vegetated corridor will be maintained in accordance with the Revegetation Management Plan prepared by King & Campbell. (Refer to Appendix B).

2.6 Vegetation within 140 metres of the Site.

(a) North & Northeast.

The adjoining residential development contains landscaped gardens.

(b) East.

Existing Littoral Rainforest occupies the Coastal Dunes, with Littoral Rainforest re-generation proposed within the 40 metre wide buffer zone along the eastern portion of the site.

(c) **South.**

Grazed pasture grass which is not deemed to be Bushfire Prone Vegetation.

(d) **West.**

The land to the west contains grazed pasture grass, with a narrow band of Swamp Sheoak Forest adjoining the central western boundary of Lot 1 in the site.

Figure 4 – Aerial Photograph of Lot 1 in DP 374315 & Lot 4 in DP 615261.



2.7 Significant Environmental Features within the Site.

The site does not contain areas of SEPP 14 Wetland; SEPP 44 Koala Habitat; land of geological interest; land slip areas, National Parks Estate or steep lands [> 18 degrees]. The south-western corner of the site contains the riparian corridor to Duchess Creek.

The north-eastern part of the site contains SEPP 26, Littoral Rainforest.

2.8 Known Threatened Species, population or ecological community within the Site.

SEPP 26, Littoral Rainforest occupies the north-eastern portion of the site and adjoins the eastern boundary. This vegetation will not be disturbed with additional planting of Rainforest species to be undertaken to extend the width of this vegetation in a corridor along the eastern aspect of the future residential site.

The Duchess Creek corridor in the south-western corner of the site contains Sheoak Swamp Forest on Coastal Floodplains which is an Endangered Ecological Community [EEC].

2.9 Details and location of Aboriginal relics or Aboriginal place.

There are no known Aboriginal relics within the site.

SECTION 3

PRECINCT LEVEL ASSESSMENT

3.1 Certified Bushfire Prone Land Map

The following Figure 5 is a copy of an extract of the Certified Port Macquarie/Hastings Bushfire Prone Land Map showing the extent of the Category 2 Bushfire Prone Vegetation on the coastal dune system and within the eastern portion of the site.

Figure 5 – Plan of Bushfire Prone Land.



3.2 Site Level Assessment of Bushfire Prone Vegetation.

Planning for Bushfire Protection 2006 provides the following procedure for assessing a development at a refined site level in order to determine whether the development is bushfire prone and if so, be the need to provide appropriate setbacks [Asset Protection Zones]:

- (a) *Determine vegetation distance, type and class as follows:*
Identify all vegetation in each direction from the site for a distance of at least 140 metres, and then consult Table A2.1 to determine the vegetation formation which predominates;
- (b) *Determine the average slope of the land between the predominant vegetation class and the development.*

Table 1 summarises the information provided in Section 2 of this report and undertakes a precinct level assessment to determine those aspects of the development that require the provision of Asset Protection Zones.

Table 1. Assessment of Bushfire Prone Vegetation

Aspect	Existing Land Use	Predominant Vegetation within 140 m of Development	Predominant vegetation class from Table A2.1 of <i>PfBFP 2006</i>	Effective Slope of land.	Comments
North	Ocean Drive, Residential Development	Managed gardens	Nil	Level	The adjoining land is not Bushfire Prone
East	Coastal Dunes	Littoral Rainforest	Category 2 vegetation (Refer to Note 1)	< 5 degrees upslope on dunes	The adjoining vegetation is bushfire prone.
South	Vacant Land	Pasture Grass	Nil	Level	The adjoining vegetation is not bushfire prone.
West	Vacant Residential Zoned land	Pasture Grass/She Oak Forest	Pasture Grass - Nil. Group 3 for narrow band of Sheoak Forest along Duchess Creek (Refer to Note 1)	< 5 degrees downslope	The Sheoak vegetation to the west of the site is bushfire prone.

Note 1:

The Hastings Bushfire Prone Land Map indicates that the Littoral Rainforest on the Coastal Dune system and within the eastern portion of the site is Category 2 Bushfire Prone Vegetation. The site inspection confirmed this classification.

The Bushfire Prone Land Map does not, however, classify the Sheoak vegetation along the Duchess Creek corridor and within the adjoining land to the west of the site as bushfire prone vegetation.

Site validation of this vegetation community has confirmed that the potential exists for fire to occur within this vegetation. Therefore, Table 1 represents a precinct level assessment of the extent of the bushfire prone vegetation likely to impact future development within the site.

SECTION 4

BUSHFIRE PROTECTION ASSESSMENT

4.1 Introduction.

The Directors General's Environmental Assessment Requirements for the Concept Plan Application must address the requirements as provided in the [DGRs] which were issued, under Application No. MP 07_0010, on the 3rd August 2007 and amended on the 22nd July 2009. Section 6 – Hazard Management & Mitigation, Sub-section 6.4 requires that the Environmental Assessment:

- Demonstrate compliance with *Planning for Bushfire Protection 2006*.

The Project Application requires that an appropriate and justified level of consultation with the NSW Rural Fire Service during the preparation of the environmental assessment.

The following sections of this report examine these requirements.

4.2 Compliance with the requirements of *Planning for Bushfire Protection 2006*:

The objectives of *Planning for Bushfire Protection 2006* are:

- (i) Afford occupants of any building adequate protection from exposure to a bushfire;
- (ii) Provide for a defensible space to be located around buildings;
- (iii) Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;
- (iv) Ensure that safe operational access and egress for emergency service personnel and residents is available;
- (v) Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zones;
- (vi) Ensure that utility services are adequate to meet the needs of fire-fighters and others assisting in bushfire fighting.

The document identifies six core bushfire protection requirements. These are:

- (1) Provision of Asset Protection Zones / Defensible Spaces in accordance with the specific landuse, the predominant bushfire prone vegetation type within 140 metres of the development and the topography of the land containing the bushfire prone vegetation;

- (2) Access for fire fighting operations;
- (3) Water Supplies for fire fighting operations;
- (4) Construction standards of buildings located within 100 metres of the bushfire hazard interface, dependant on specification landuse, the predominant bushfire prone vegetation type within 140 metres of the development and the topography of the land containing the bushfire prone vegetation;
- (5) Emergency Planning;
- (6) Landscape Management – in particular the management of the Asset Protection Zones / Defendable Spaces and residual bushfire prone vegetation.

The document also identifies types of development and provides deemed-to-satisfy fire protection measures for residential development [Class 1, 2 & 3 buildings]; “*Special Fire Protection Purpose Developments*” [Hospitals, Nursing Homes / Retirement Villages / Schools / Colleges / Childcare Centres & Tourist Accommodation]; Industrial / Commercial Development and residential and Special Fire Protection Purpose “infill” development.

4.2.1 Provision of Asset Protection Zones:

Appendix 2 of *Planning for Bushfire Protection 2006* provides a methodology to determine the Asset Protection Zones for development located within, or within 100 metres of bushfire prone vegetation. This methodology includes the following matters to be assessed:

- (a) *Determine vegetation formations as follows:*
 - Identify all vegetation in all directions from the development for a distance of 140 metres;
 - Consult Table A2.1 to determine the predominant vegetation type; and
 - Select the predominant vegetation formation as described in Table A2.1.
- (b) *Determine the effective slope of the land under the predominant vegetation Class.*
- (c) *Determine the appropriate fire [weather] area in Table A2.2.*
- (d) *Consult Tables A2.4/A2.6 for residential development and Table A2.6 for Special Fire Protection Purpose developments and determine the appropriate setback [Asset Protection Zone / Defendable Space] for the assessed land use, vegetation formation and slope range.*

Table 2 provides a summary of the assessment for those aspects of the site that contains residential development and adjoin the Bushfire Prone vegetation determined in Table 1 of Section 3 of this report. The Fire Danger Index [FDI] for the site is 80.

Table 2. Bushfire Protection Assessment – Asset Protection Zones – Residential Development which adjoins Bushfire Prone Vegetation

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Recommended Width of Asset Protection Zone	Width of Asset Protection Zone Provided	Compliance with RFS deemed to satisfy requirements
East	Littoral Rainforest	Rainforest	< 5 degrees upslope	10 metres	20 metres including width of perimeter road + setback to dwellings	YES.
West of central and south western corner of site	Narrow corridor of Swamp Sheoak Forest	Rainforest [corridor less than 50 metres wide]	< 5 degrees downslope	10 metres for corridor of riparian vegetation	20 metres (road + setback to buildings)	YES.

Assessment Results.

The widths of the Asset Protection Zones recommended address the potential threat from fires that may occur within the Littoral Rainforest to the east of the site and the small area of Swamp Sheoak Forest on the adjoining land to the west and along the riparian corridor to Duchess Creek, in the south-western corner of the site. The setbacks provided exceed the deemed-to-satisfy provisions for residential development as required by *Planning for Bushfire protection 2006*.

Table 3 provides a summary of the assessment for those aspects of the site that contain Tourist Accommodation [*Special Fire Protection Purpose Development*] and which adjoins the Bushfire Prone vegetation within the coastal dune system to the east of the site.

Table 3. Bushfire Protection Assessment – Asset Protection Zones – Tourist Development [Special Fire Protection Purpose Development] which adjoin Bushfire Prone Vegetation to the east of the site

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Recommended Width of Asset Protection Zone	Width of Asset Protection Zone Provided	Compliance with RFS deemed to satisfy requirements
<i>East</i>	Littoral Rainforest	Rainforest	< 5 degrees upslope	30 metres	Minimum 30 metres	YES.

Table 4 provides a summary of the assessment for those aspects of the site that contain Commercial Development and which adjoins the Bushfire Prone vegetation to the east of the site.

Table 4. Bushfire Protection Assessment – Defendable Space requirements to Commercial Development adjacent to Bushfire Prone Vegetation to the east of the site

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Recommended Width of Defendable Space – Flame Zone width	Compliance with RFS deemed to satisfy requirements
<i>East</i>	Littoral Rainforest	Rainforest	< 5 degrees upslope	> 8 metres	YES.

4.2.2 Determination of Bushfire Attack (Construction Standards).

Appendix 3 of *Planning for Bushfire Protection 2006* provides the following procedure for determining bushfire attack at construction stage for a building within a designated bushfire prone area:

- (a) *Determine vegetation formation types and sub-formation types around the building;*
- (b) *Determine the separation distance between each vegetation formation and the building;*
- (c) *Determine the effective slope of the ground for each vegetation formation;*
- (d) *Determine the relevant FDI for the Council Area;*
- (e) *Match the relevant FDI, appropriate vegetation formation, separation distance and effective slope to determine the category of bushfire attack.*

Five categories of Bushfire Attack are determined. They are:

- Low:

Insignificant ember attack, radiation heat or is greater than 100 metres from all woody vegetation;

- Medium: (Level 1 Construction AS3959-1999).

Significant ember attack with radiation heat no greater than 12.5 KWm²;

- High: (Level 2 Construction AS3959-1999).

Significant ember attack and possible flame contact, radiation heat greater than 12.5 KWm² and no greater than 19 KWm²;

- Extreme: (Level 3 Construction AS3959-1999).

Significant ember attack and possible flame contact, radiation heat greater than 19 KWm² and no greater than 29 KWm²;

- Flame Zone:

Within the Flame Zone and / or greater than 29 KWm² (Construction outside scope of AS3959-1999).

Australian Standard A.S. 3959 -1999 is the enabling standard that provides details on the construction standards for buildings in bushfire prone areas.

Table 5 provides a summary of the level of Bushfire Attack Assessment for the future residential which adjoins the bushfire prone vegetation to the east of the site and within the Duchess Creek riparian corridor and provides recommendations on the resultant construction standards to the buildings for a Fire Danger Index [FDI] of 80.

Table 5 Bushfire Attack Assessment – Determination of Construction Standards to the future residential development which adjoins bushfire prone vegetation. Fire Danger Index [FDI] – 80

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Width of Asset Protection Zone (Inner Protection Area) provided	Category of Bushfire Attack (Table A3.4 of <i>PfBFP 2006</i>)	Level of Construction required (AS 3959 – 1999)
East	Littoral Rainforest	Rainforest	< 5 degrees upslope	Minimum 20 metres	Medium	Level 1 bushfire construction standards required
West	Narrow band of Swamp Sheoak Forest	Rainforest	< 5 degrees downslope	Minimum 20 metres	Medium	Level 1 bushfire construction requirements

Assessment Results

The dwellings located adjacent to the bushfire prone vegetation shall be provided with Asset Protection Zones to the minimum widths as detailed in Table 2, with the vegetation within the lots managed in accordance with Section 4.6.1 of this report. The risk from bushfires burning in the Littoral Rainforest and the Swamp Sheoak Forest is medium, therefore these future dwellings shall be constructed to Level 1 standards in accordance with A.S 3959 – 1999 – ‘Construction of Buildings in Bushfire Prone Areas’.

Planning for Bushfire Protection 2006 also requires that all buildings constructed within 100 metres of bushfire prone vegetation shall be constructed to comply with Level 1 standards in accordance with A.S 3959 – 1999 – ‘Construction of Buildings in Bushfire Prone Areas’.

The Asset Protection Zone widths required for the future tourist accommodation has been determined on the basis that the maximum radiant heat levels on the exterior of the tourist accommodation buildings will not exceed 10kW/m². In addition, if these buildings are located within the 100 metre setback from the bushfire prone vegetation, Level 1 construction standards shall be applied to the buildings.

4.2.3 Water Supplies for Firefighting Operations.

The future development will be connected to the Port Macquarie/Hastings reticulated water supply. Hydrants to the water service shall comply with the specifications of Australian Standard A.S 2419.2 – 2005 and have a flow rate of 10 litres / second.

Blue hydrant markers shall be provided to locate the positions of the hydrants. The markers shall be positioned on the hydrant side of the centreline of the road pavement.

4.2.4 Access for Fire Fighting Operations.

(a) Adequacy of Public Roads.

The future lots will be accessed directly off the proposed public road network which will be constructed to the specifications of Section 4.1.3(1) of *Planning for Bushfire Protection 2006*.

The new road network within the site links to Ocean Drive, to the north. This existing public road is a two lane main road constructed to a standard that adequately addresses the requirements for access for emergency vehicles.

(b) Fire Trail Access to two-way Public Roads.

No fire trails are required within the site, as perimeter roads are provided between the vegetation that poses the bushfire threat and the future residential/tourist & commercial development.

(c) Emergency Response Access / Egress.

The Concept Plan provides access/egress to the development on the site via an internal public road network that extends to the south off Ocean Drive, turning to the southeast to extend along the eastern boundary of the site as a perimeter road. A perimeter road is also provided along the southern and western aspect of the site, linking to the entry road and into the planned road network on the land to the west and south.

The new public road layout addresses the access requirements for emergency service vehicles and shall be constructed to the specifications recommended by Section 4.1.3(1) of *Planning for Bushfire Protection 2006*.

4.2.5 Adequacy of bushfire maintenance plans and fire emergency procedures.

As the Concept Plan proposal provides for all Asset Protection Zones to be located within the site and not on adjoining lands, there is no requirement for the preparation of a bushfire maintenance plans or bushfire emergency procedures.

4.2.6 Management of Asset Protection Zones.

The Asset Protection Zones and Defendable Spaces provided in Tables 2, 3 & 4 of this report represent the minimum required setbacks from the vegetation which has been determined to be bushfire prone vegetation, in order to satisfy the deemed-to-comply widths required by *Planning for Bushfire Protection 2006* and the construction standards to the future buildings.

Management of the Asset Protection Zones/Defendable Spaces shall comply with the recommendations of Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service's publication – '*Specifications for Asset Protection Zones*'.

An 88B Covenant, under the *Conveyancing Act 1919*, shall be applied to the title of those lots so burdened, to ensure the long term maintenance of the Asset Protection Zones / Defendable Spaces.

4.2.7 Performance Standards – Inner Protection Area.

The Inner Protection Area is located adjacent to the asset and ensures that the presence of combustible fuels, which could become involved in a fire, are minimised close the future dwellings. Management of the Inner Protection Area shall comply with the following:

- (1) minimal fine fuel loading at ground level (nominally 3 tonnes / hectare);
- (2) fuels are discontinuous to avoid transfer of fire to the development from fires burning in the adjoining vegetation;

- (3) Trees and shrubs are acceptable, provided that they are spread out and do not form a continuous canopy, are not species that retain dead material and are located away from the buildings to minimize radiant heat and direct flame attack.

4.2.8 Performance Standards – Landscaping.

The area of the future lots inside the Asset Protection Zones shall be maintained to the specifications of an Inner Protection Area. Landscaping shall be maintained in accordance with the following specifications:

- (1) maintenance of the areas within the Asset Protection Zone to provide maximum ground fuel loadings of 3 tonnes / hectare to 85% of the total landscaped area, with 15% maintained to a maximum of 5 tonnes / hectare.

4.2.9 Evacuation.

Safe evacuation can occur from the dwellings and other buildings within the development site, via the proposed internal access roads onto Ocean Drive, thence to the urban area of Lake Cathie.

4.2.10 Adequacy of sprinkler systems and other fire protection measures.

There are no sprinkler systems or other fire protection systems recommended.

SECTION 5

RECOMMENDATIONS

Recommendation 1:

Asset Protection Zones shall be provided to the residential and tourist development to the widths as nominated in Tables 6 & 7. (Refer to Section 7 - *“Plan of Bushfire Protection Measures”*).

Table 6. Bushfire Protection Assessment – Asset Protection Zones – Residential Development which adjoins Bushfire Prone Vegetation

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Required width of Asset Protection Zone	Width of Asset Protection Zone Provided	Compliance with RFS deemed to satisfy requirements
East	Littoral Rainforest	Rainforest	< 5 degrees upslope	10 metres	20 metres [width of perimeter road + setback to dwellings]	YES.
West of central and south western corner of site	Narrow corridor of Swamp Sheoak Forest	Rainforest [corridor less than 50 metres wide]	< 5 degrees downslope	10 metres for corridor of riparian vegetation	20 metres [road + setback to buildings]	YES.

Table 7. Bushfire Protection Assessment – Asset Protection Zones – Tourist Development [Special Fire Protection Purpose Development] which adjoin Bushfire Prone Vegetation

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Required width of Asset Protection Zone	Width of Asset Protection Zone Provided	Compliance with RFS deemed to satisfy requirements
East	Littoral Rainforest	Rainforest	< 5 degrees upslope	30 metres	Minimum 30 metres	YES.

Recommendation 2:

Defendable Spaces shall be provided to the commercial development to the widths as nominated in Table 8. (Refer to Section 7 - *“Plan of Bushfire Protection Measures”*).

Table 8. Bushfire Protection Assessment – Defendable Space requirements to Commercial Development adjacent to Bushfire Prone Vegetation

Aspect	Vegetation within 140m of development	Predominant Vegetation Class (Table A2.1 of <i>PfBFP 2006</i>)	Effective Slope of Land	Required width of Defendable Space – Flame Zone width	Compliance with RFS deemed to satisfy requirements
East	Littoral Rainforest	Rainforest	< 5 degrees upslope	> 8 metres	YES.

Recommendation 3:

The Asset Protection Zones / Defendable Spaces shall be maintained as an Inner Protection Area in accordance with Section 4.6.1 of this report; Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service's publication '*Specifications for Asset Protection Zones*

Recommendation 4:

An 88B Covenant, under the *Conveyancing Act 1919*, shall be applied to the title of those lots so burdened, to ensure the long term maintenance of the Asset Protection Zones / Defendable Spaces.

Recommendation 5:

The proposed public access roads shall be constructed to comply with the specifications of Section 4.1.3(1) of *Planning for Bushfire Protection 2006*.

Recommendation 6:

A hydrant water supply shall be installed in accordance with the specifications of Australian Standard A.S 2419.2 - 2005. Hydrants shall have a flow rate of 10 litres / second and be located on the opposite side of the road from the bushfire threat.

Blue hydrant markers shall be provided to locate the positions of the hydrants. The markers shall be positioned on the hydrant side of the centreline of the road pavement.

Recommendation 7:

Future buildings which are erected on those lots having exposure to the bushfire prone vegetation shall be constructed to Level 1 standards in accordance with A.S 3959 – 1999 – '*Construction of Buildings in Bushfire Prone Areas*'.

Planning for Bushfire Protection 2006 also requires that all buildings constructed within 100 metres of bushfire prone vegetation shall be constructed to comply with Level 1 standards in accordance with A.S 3959 – 1999 – '*Construction of Buildings in Bushfire Prone Areas*'.

SECTION 6

CONCLUSION

A Concept Plan Application has been made to the Department of Planning, under Part 3A of the *Environmental Planning & Assessment Act 1979* for a residential, commercial & tourist development on Lot 1 in DP 374315 and Lot 4 in DP 615261, Ocean Drive Lake Cathie, comprising:

- Low Density Residential [17.86ha] – 214 – 266 lots;
- Medium Density residential [2.76ha] – approximately 68 dwellings;
- Commercial / residential / tourist – 3 – 4 storey buildings comprising approximately 26 commercial / tourist units and 120 – 140 residential / tourist apartments; and
- Open Space.

The Part 3A Application also includes a Project Application for the removal of weeds from the vegetation on the western side of the SEPP 26 rainforest and the fencing of the revegetation area and hedging with a spiky hedge.

The Concept Plan, prepared by King & Campbell, creates a residential/tourist/commercial development precinct with access extending to the south from Ocean Drive, turning to the southeast to link with a perimeter road along the south-eastern aspect of the site. This perimeter road provides a separation to the proposed regeneration area and forms part of the recommended 20 metre wide Asset Protection Zone to the residential precinct.

The Port Macquarie/Hastings Council Bushfire Prone Land Map records the Littoral Rainforest on the coastal dune system and along the eastern portion of the site as Category 2 Bushfire Prone Vegetation however it does not define the area of Swamp Sheoak Forest within the south-western corner and on the adjoining land to the west, as being Bushfire Prone Vegetation.

However, the site inspection determined that this vegetation could support a fire event and it is therefore considered to be bushfire prone.

It is also proposed to re-vegetate a narrow corridor of land behind the coastal dune with Littoral Rainforest species and increase the width of the existing Littoral Rainforest along the eastern aspect of the site.

The re-vegetated corridor will be maintained in accordance with a Re-vegetation Management Plan, prepared by King & Campbell, to ensure that the planted vegetation develops into an extension of the existing Littoral Rainforest.

In recognition of the increased width of the vegetation to the east of the site, advice has been sought from the NSW Rural Fire Service on this proposal.

In correspondence from the NSW Rural Fire Service dated 9th December 2005 (copy attached as Appendix A) the NSW Rural Fire Service advised that a 20 metre wide Asset Protection Zone would be required to the Littoral Rainforest to the eastern aspect of the future residential development within the site.

The Director Generals Environmental Assessment Requirements for the Part 3A Concept Plan includes, under No. 6.4 of the Key Assessment Requirements, the following requirements:

- Demonstrate compliance with *Planning for Bushfire Protection 2006*.

This report has reviewed the proposed development against the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

Consultation has also occurred with the Development Control Officers of the NSW Rural Fire Service to obtain their advice on the provision of bushfire protection measures to the future development, including the requisite Asset Protection Zone/defendable space setbacks to the proposed residential, tourist and commercial development.

This report also assesses the requirements for the provision of access and water supplies for fire-fighting operations and construction standards to buildings which may be impacted by radiant heat and burning embers. Emergency management has also been examined and concludes that the fire safety measures incorporated into the proposed development, including the provision of deemed-to-satisfy Asset Protection Zones/Defendable Space widths, provides a safe location [from bushfire attack] from which it will not be necessary to relocate residents and others during a bushfire event in the Littoral Rainforest to the east and the Swamp Sheoak Forest in the Duchess Creek riparian corridor to the west and southwest.

Table 9 summarises the extent to which the proposed development conforms to the deemed-to-satisfy specifications of *Planning for Bushfire Protection 2006* and the specific advice provided by the NSW Rural Fire Service.

Table 9. Compliance with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

Bushfire Protection Measure	Compliance with deemed-to-satisfy provisions of <i>Planning for Bushfire Protection 2006</i>.
Asset Protection Zone/defendable space setbacks	YES – The widths of Asset Protection Zone/Defendable Space comply with Tables A2.5 & A2.6 [Residential & Special Fire Protection Purpose Development] and Section 4.3.6(f) of <i>Planning for Bushfire Protection 2006</i> .
The siting and adequacy of water supplies for fire fighting	YES – A hydrant supply is being installed in accordance with AS 2419.2 - 2005.
Design of Public Roads	YES – The existing public roads and internal public access roads comply with the specifications of Section 4.1.3(1) and Section 4.2.7 of <i>Planning for Bushfire Protection 2006</i> .
Design of Fire Trail network	No fire trail network required.
Adequacy of emergency response access and egress	YES – Existing and proposed access road network provides two-way looped road access throughout the site. The internal road network provides safe access/egress for emergency service vehicles.
Adequacy of bushfire maintenance plans and fire emergency procedures	YES – There is no requirement for the implementation of a bushfire maintenance plan for the proposed Concept Plan.
Building construction standards	YES – The ‘ <i>Special Fire Protection Purpose Development – tourist</i> ’ development shall not be exposed to radiant heat levels greater than 10kWm ² . Future residential development within 100m of bushfire prone vegetation to be constructed to Level 1 standards as defined by AS 3959 – 1999 [BAL 12.5].
Adequacy of sprinkler systems and other fire protection measures to be incorporated into the development	Not applicable.

The proposed development complies with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- *Rural Fires Regulation 2008*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2002*;
- *Bushfire Environmental Assessment Code 2003*;
- Building Code of Australia;
- Australian Standard A.S 3959-1999 “*Construction of Buildings in Bushfire Prone Areas*”.
- *Port Macquarie/Hastings Bushfire Prone Land Map*

SECTION 7 - Plan of Bushfire Protection Measures



--- 20m ASSET PROTECTION ZONE

SECTION 8 – Plan of SEPP 26 Buffer Treatment

APPENDIX A

Copy of correspondence from NSW Rural Fire Service in reference to the width of the Asset Protection Zone to the Littoral Rainforest vegetation.

All communications to be addressed to:

Head Office
NSW Rural Fire Service
Locked Mail Bag 17
Granville NSW 2142

Telephone: (02) 8741 5555

Head Office
NSW Rural Fire Service
15 Carter Street
Homebush Bay NSW 2127

Facsimile: (02) 8741 5433



ABPP Pty Ltd
RMB 3411 Dog Trap Road
Somersby NSW 2250

Our Ref: DEV/0061

Attention: Graham Swain

9 December 2005

Dear Sir,

RE: Lot 4 DP 615261 and Lot 1 DP 374315, Lake Cathie NSW

I refer to our meeting of 21 October 2005 in respect of your proposal to subdivide the property for residential purposes and your specific enquiry regarding the required Asset Protection Zone (APZ) to the east.

Based on the documentation provided, drawing number EX04 Revision A and a recent inspection of the site, it is advised that the existing vegetation to the east is identified as littoral rainforest. Planning for Bushfire Protection 2001 identifies this vegetation as Group 3 therefore requiring a 20m APZ.

At the meeting it was also identified that revegetation is proposed adjacent to this vegetation. This revegetation will be consistent with the existing vegetation and therefore maintaining the littoral rainforest classification. Should the proposed revegetation not be consistent with the littoral rainforest, these details shall be submitted to the RFS for further consideration.

Please be advised that the owner/applicant is required to obtain a Bush Fire Safety Authority under section 100B of the Rural Fires Act 1997 for the proposed subdivision. ~~This requires that such applications must comply with all the requirements and~~ specification in Planning for Bushfire Protection 2001.

For further information concerning this matter please contact Jane Jemison.

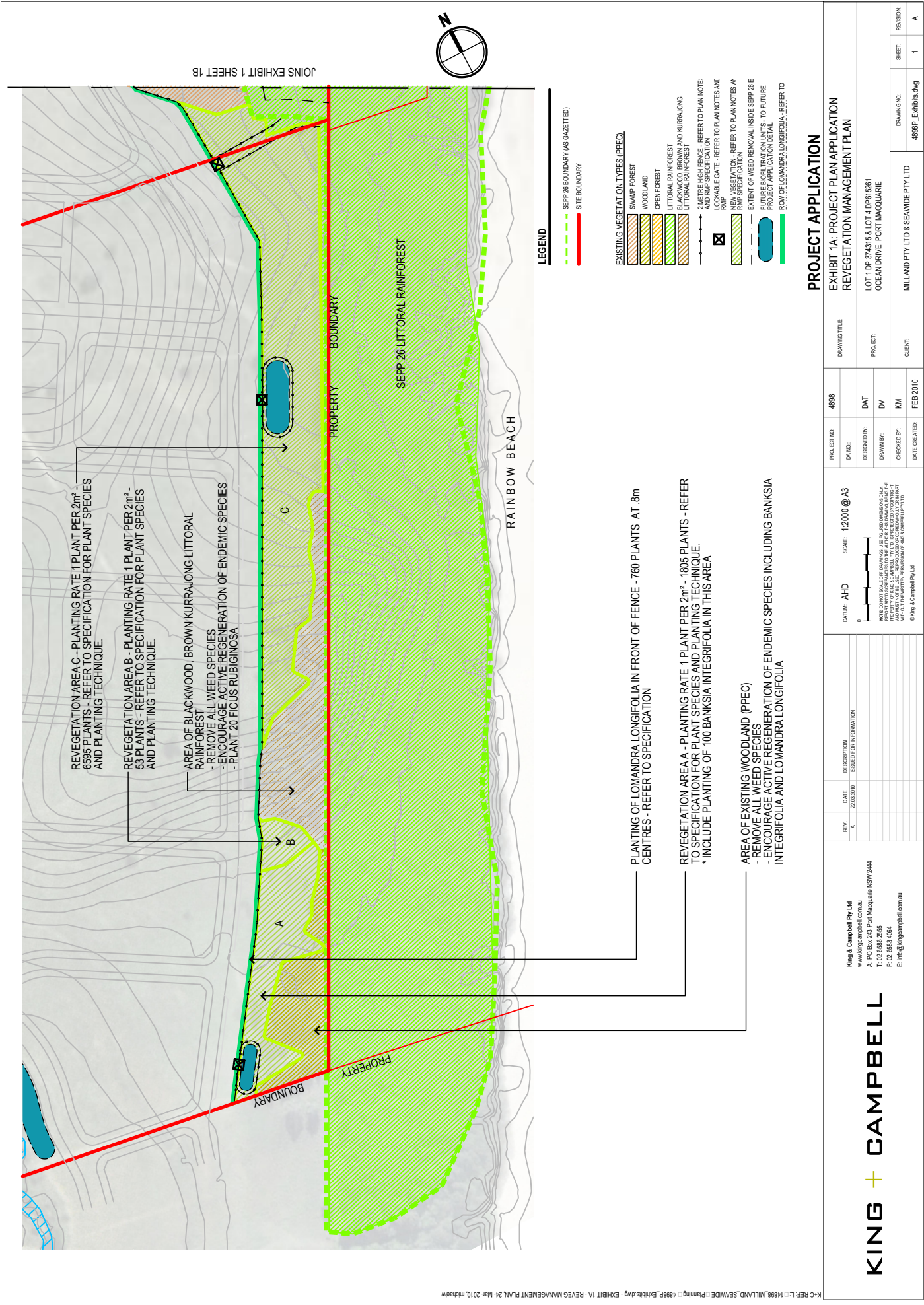
Yours sincerely


Lew Short

Manager, Development Control

APPENDIX B

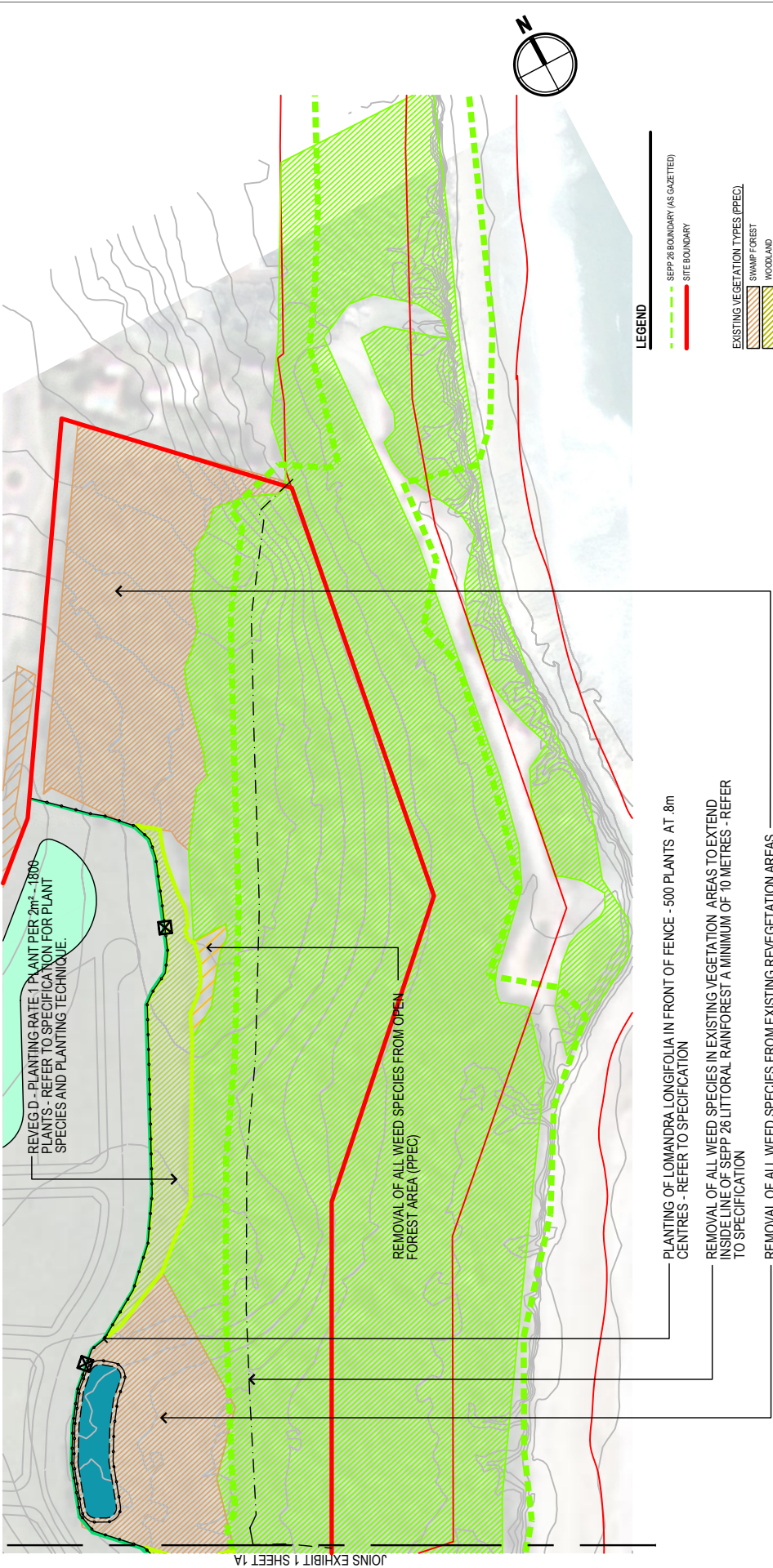
Copy of Re-vegetation Management Plan prepared by King & Campbell



PROJECT APPLICATION

KING + CAMPBELL		King & Campbell Pty Ltd www.kingandcampbell.com.au A: PO Box 245 Port Macquarie NSW 2444 T: 02 6585 2555 F: 02 6583 4084 E: info@kingandcampbell.com.au		REV	DATE	DESCRIPTION	DATE: AHD SCALE: 1:2000 @ A3		PROJECT NO	4898	DRAWING TITLE	EXHIBIT 1A: PROJECT PLAN APPLICATION REVEGETATION MANAGEMENT PLAN	
				A	22.03.2010	ISSUED FOR INFORMATION	NOTE: DO NOT SCALE OFF DRAWINGS. USE DIMENSIONS SHOWN ON DRAWINGS ONLY. REPORT ANY DISCREPANCIES TO THE AUTHOR. THIS DRAWING IS THE PROPERTY OF KING & CAMPBELL PTY LTD. ANY REPRODUCTION OF THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF KING & CAMPBELL PTY LTD IS STRICTLY PROHIBITED.		DA NO			LOT 1 DP 374315 & LOT 4 DP615281 OCEAN DRIVE, PORT MACQUARIE	
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									CHECKED BY	KM		MILLAND PTY LTD & SEAWIDE PTY LTD	
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												REVISION: A	

King & Campbell



PROJECT APPLICATION

KING + CAMPBELL		King & Campbell Pty Ltd www.kingandcampbell.com.au A: PO Box 248 Port Macquarie NSW 2444 T: 02 6585 2555 F: 02 6583 4064 E: info@kingandcampbell.com.au	REV. DATE DESCRIPTION A 22.03.2010 ISSUED FOR INFORMATION	DATE: AHD SCALE: 1:2000 @ A3 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350 1360 1370 1380 1390 1400 1410 1420 1430 1440 1450 1460 1470 1480 1490 1500 1510 1520 1530 1540 1550 1560 1570 1580 1590 1600 1610 1620 1630 1640 1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050 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