

Technical Paper

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Bushfire Hazard Assessment

BUSHFIRE HAZARD ASSESSMENT

FOR

.

NORTH BYRON PARKLANDS

CULTURAL EVENTS SITE

TWEED VALLEY WAY/JONES ROAD, YELGUN
BYRON SHIRE COUNCIL AREA

10 June 2010

Version B

BUSH FIRE PROTECTION MEASURES

Asset Protection Zones	All proposed activities comply with PBP and/or RFS requirements	
Access Public Roads	Comply	
Access Property Access	Comply with the exception of alternative access to sites beyond 200m from a through public Road	Due to the area of the site and being land-locked with predominantly grassland vegetation and larger than required APZ's an alternative access is not considered necessary in the circumstance.
Fire Trails	Not required	Not proposed nor considered necessary in this circumstance as the APZ's can be managed from each individual building
Water	Will comply with RFS Fast Fact 3/08	
Electricity	Can only be provided above ground and will comply	
Gas	Comply	
Evacuation and Emergency Management	Comply	

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PREFACE

Readers of this report must be aware that the bushfire mitigation recommendations described in this report will not completely remove the risk of bushfire impacting the development site. Recommendations contained herein are designed to improve the bushfire related issues for the proposed development. With regard to the application the implementation of recommendations in their entirety, together with the diligent maintenance of Asset Protection Zones, will provide for a reduction of the bushfire threat and the associated risk.

This report caters specifically for the requirements of this project and the Client. No warranty is intended or implied, or responsibility undertaken by Barry Eadie Consulting Pty Ltd for its use on any other project or by any third party.

This report does not include an environmental assessment, Aboriginal heritage assessment or identify endangered species in the area.

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1 INTRODUCTION

1.1 Report Purpose

This report assesses the bushfire impact on use of the site as a cultural events site. This report is prepared in respect of a concurrent Concept Plan and Project Application Environmental Assessment report (EA) for the North Byron Parklands (Parklands) project. This EA has been prepared on behalf of Billinudgel Property Trust (Billinudgel Property Pty. Ltd.)

The project is to establish a world class sustainable cultural events site within an enhanced ecological setting.

Cultural events involving music, arts, food, leisure and technology are proposed.

The report will form part of the supporting documentation for a submission to the Department of Planning (DOP) under Part 3A of the EP&A Act. The proposed development is classified as Integrated Development under the provisions of '*Planning for Bushfire Protection*', and is therefore may be referred to the Commissioner of the NSW Rural Fire Service for consideration. A Bushfire Hazard Assessment has been undertaken to determine the necessary requirements for the development in accordance with:

- NSW Rural Fire Service, Planning NSW, *Planning for Bushfire Protection*, 2006; and
- AS 3959-2009: *Construction of Buildings in Bush Fire Prone Areas*.

Barry Eadie Consulting Pty Ltd has been engaged by Billinudgel Property Pty. Ltd. to prepare the Bushfire Hazard Assessment as part of the application for the proposal.

1.2 Bushfire Legislation in NSW

The *Environmental Planning and Assessment Act 1979* and the *Rural Fires Act 1997* were amended recently via the *Rural Fires and Environmental Assessment Legislation Amendment Act 2002*.

The amendments to the legislation are not retrospective and consequently will not usually apply to development applications which were made, but not necessarily finally determined, before 1 August 2002.

With regard to the *Environmental Planning and Assessment Act 1979*, the amendments:

- a) Require local government councils to record on maps land identified by the Commissioner of the NSW Rural Fire Service as bushfire prone land; and
- b) Prevent development consent being granted for the carrying out of development for certain purposes on bushfire prone land unless the consent authority is satisfied that the development conforms to certain documented bushfire protection specifications and requirements (*Planning for Bushfire Protection and AS 3959 – Construction of Buildings in Bushfire-Prone Areas*) or has consulted with the Commissioner; and

Planning for Bushfire Protection, defines bushfire prone areas as an area that can support a bushfire or is likely to be subject to bushfire attack. In general, a bushfire prone area is an area containing a high, medium or low bushfire hazard, or any area within 100m of a high or medium bushfire hazard, or within 30m of a low bushfire hazard. Bushfire hazard areas do not include existing urban areas or water bodies (other than wetland vegetation), and are identified by bushfire hazard mapping produced under an approved Bushfire Risk Management Plan, or other such map certified by the Commissioner of the NSW Rural Fire Service for this purpose.

Applications assessed under Part 3A do not require integrated Approvals under Section 91 of the EP&A Act which falls under Part 4. If bush fire is considered an issue with the development, the NSW Rural Fire Service (RFS) is involved as an advisory role only and not as a concurrence.

In correspondence dated 5 October 2007 the NSW Rural Fire Service (RFS) issued a Bush Fire Safety Authority in respect of an application for a single festival event with camping on the site subject to the following conditions:

Asset Protection Zones

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, occupants and others assisting fire fighting activities.

1. *Stages/facilities/camping areas shall be set back a minimum of 10 metres from areas of unmanaged bushland with this area kept clear of obstructions at all times during site occupation.*

Water and Utilities

The intent of measures is to provide adequate services of water for the protection buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

2. *In recognition that no reticulated water supply exists, a 10,000 litre dedicated water supply shall be provided during periods of occupation for each stage and camping area.*

Access

The intent of measures for access roads is to provide safe operational access for emergency services personnel in suppressing a bush fire, while occupants are accessing or egressing an area. To achieve this, the following conditions shall apply:

3. *Access shall be available to the site and to dwellings on Jones Road for emergency vehicles at all times.*

Evacuation and Emergency Management

The intent of measures is to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments.

4. *An Emergency/Evacuation Plan is to be prepared detailing the following:*
 - (a) *under what circumstances will the complex be evacuated;*
 - (b) *where will all persons be evacuated to;*
 - (c) *roles and responsibilities of persons co-ordinating the evacuation;*
 - (d) *roles and responsibilities of persons remaining with the complex after evacuation; and*
 - (e) *a procedure to contact the NSW Rural Fire Service District Office / NSW Fire Brigade and inform them of the evacuation and where they will be evacuated to.*

2 SITE ASSESSMENT

Barry Eadie Consulting conducted an inspection of the subject site and the surrounding area on 17 February 2009 and 10 February 2010. The following assessment has been undertaken in accordance with the requirements of *Planning for Bushfire Protection*, 2006.

The accompanying illustration Event Area and Landuse Structure, depicts the primary landuses within the application area as being:

- event area
- carparking
- conference centre uses
- cultural centre/administration uses

The application comprises a concurrent Concept Plan and Project Application. The event uses are proposed in the Project Application with the Conference Centre and Cultural Centre, within the Concept Plan, to be built at a later stage and subject to further applications.

The primary purpose of the project is to utilise the site for a limited number of occasions per year for a range of cultural events.

The events can be characterised within the following categories:

- Minor event – less than 300 patrons
- Small event – 300 patrons to 3000 patrons
- Moderate event – 3000 patrons to 10,000 patrons
- Major event – greater than 10,000 patrons

The overall project is intended to be carried out in 3 stages.

Stage 1 - Low Scale Infrastructure Implementation & Environmental Repair Works Commenced:

Within Stage 1, the Spine Road and underpass will be built. With respect to events it is only intended to construct the required amount of infrastructure such as event laneways to cater for the few years of usage with the remainder of the event laneways being built over time.

Stage 2 - Advanced Infrastructure Installation and Environmental Repair/Habitat Protection Plan Works Implemented:

In Stage 2, it is intended to institute the on-site water supply and waste water scheme proposals.

Stage 3 - Finalisation of all Site Infrastructure/Environmental Repair and development of dedicated Conference Facilities:

Stage 3 sees the finalisation of site infrastructure with the intended construction of the cultural centre and the conference facility.

Operation and management of the site will be subject to the Management Manual. The Management Manual is based on ISO14001:2004 Environmental Management Systems and will provide the framework for managing all identified constraints. As such consultants will

need to provide specific recommendations for possible inclusion in the Management Manual to avoid and/or mitigate environmental and community impacts.

Such recommendations will be incorporated into the Management Manual in the form of policies, procedures and work instructions and will be used to monitor, measure and review the success or otherwise of hosting specific events. It will also become the instrumentality by which the Department of Planning will use to determine its support for the evolution of the project and the hosting of future events.

The Site

The site is located in the north east corner of Byron Shire, NSW as depicted within Illustration 1- Locality Context. The application area is within an overall site containing some 256 ha of land of which approximately 67% is pasture land used for grazing while some 33 % of the site is identified within Council mapping as High Conservation Vegetation.

The site is located in close proximity to the Yelgun Interchange which forms part of the recently upgraded Pacific Highway providing excellent access to south east Queensland and the Northern Rivers region.

Parts of the site adjoin the Billinudgel Nature Reserve along Marshalls Ridge and within the portion of the site south of Jones Road. These portions of the site form part of the Marshalls Ridge Wildlife corridor which connects large forest areas to the east and southeast, in Billinudgel Nature Reserve; and to the northwest, including Mt Jerusalem National Park and forested lands extending to Mt Warning and ultimately to the Border Ranges.

Project Application Area – Lots/Areas

Lot/DP Description	Area (ha.)
Lot 403 and Part Lots 402,404 DP 755687	104.71
Lot 1 DP 1145020*	2.47
Part Lot 46 DP 755687	8.43
Part Lot 10 DP 875112	4.29
Part Lot 2 DP848618	8.9
Part Lot 30 DP880376	9.89
Part Lot 102 DP1001878	15.17
Part Lot 12 DP848618	2.05
TOTAL of APPLICATION AREA	155.91

Illustration 1 – Locality Context

Illustration 2 – Event Area and Landuse Structure

3. BUSHFIRE RISK ASSESSMENT

The bushfire risk assessment is based on the following:

Identifying the future management regimes for any areas of hazard within the subject area. This should focus on the level of hazard posed to future development by the land or adjacent land and how the hazard may change as a result of development.

Identifying required asset protection zones for future development in order to minimise the impact of radiant heat and direct flame contact by separating development from any bushfire hazard.

☐ Identifying appropriate evacuation measures / strategies to be implemented in a bushfire event.

3.1 Vegetation

The vegetation has been assessed within the Ecological Assessment report by Mark Fitzgerald and describes the vegetation communities as follows:

Vegetation summary

Vegetation of the site varies from: aquatic and fringing vegetation of drains, closely grazed pasture and various coastal floodplain forest communities. More elevated parts of the NBSP property support eucalypt and rainforest communities. The composition and condition of grassland communities reflect pastoral activities and management. In the north of the site management has resulted in a dense low and even sward of exotic pasture grasses. In the central property pasture is less intensively managed and comprises variable stands of exotic pasture species, the composition of which has been influenced by grazing pressure, groundwater levels and drainage. During the current survey grassland habitats were affected by drought, frost and grazing pressure, across the property.

A mosaic of remnant forest patches is present within the pasture matrix and includes the following associations listed as endangered ecological communities under the NSW *Threatened Species Conservation Act 1995*:

- Swamp sclerophyll forest on coastal floodplains of the NSW north coast bioregion;
- Sub-tropical floodplain forest of the NSW north coast bioregion;

Swamp Oak elements are present within some patches of the Swamp Sclerophyll Forest, but are localised minor or sub-dominant components of the upper stratum. Forest communities within the event footprint vary considerably in their canopy species dominance, species composition and groundlayer characteristics according to diverse environmental influences. However, they share several characteristics: all are regenerating communities, few or no old growth trees are present, large hollows are rare and very large trees are also rare or absent from all patches within the event site footprint. Cattle are currently using all unfenced forest patches within the event footprint and this has clearly affected the stature and species composition of groundlayer plant communities, the substrate, and terrestrial habitat values.

3.2 Slope

Based on the site inspection, the slope of the land over a distance of 140 m from the external site boundaries in all directions has been assessed. In accordance with *Planning for Bushfire Protection 2006*, the slope has been assessed based on the gradient that will most significantly influence the fire behaviour of the site.

3.3 Asset Protection Zone

The Asset Protection Zone (APZ) acts as a buffer zone between the development and the hazard. The primary purpose of an APZ is to ensure that a progressive reduction of bushfire fuels occurs between the bushfire hazard and any habitable structures. The APZ consists of an Inner Protection Area (IPA) and an Outer Protection Area (OPA).

The RFS in correspondence dated 5 October 2007, which has been confirmed by phone in March 2010, stated:

Asset Protection Zones

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, occupants and others assisting fire fighting activities.

3. *Stages/facilities/camping areas shall be set back a minimum of 10 metres from areas of unmanaged bushland with this area kept clear of obstructions at all times during site occupation.*

Tables A2.4 to A2.7, within ***Planning for Bushfire Protection***, specify the minimum APZ required in bushfire-prone areas with Table A2.6 being relevant in this instance for the Conference Centre and the Cultural Centre both of which include accommodation facilities.

Therefore the required Asset Protection Zones for the various areas is as follows:

Stages/facilities/camping areas will comply with the recommendations of the RFS as follows:

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, occupants and others assisting fire fighting activities.

4. *Stages/facilities/camping areas shall be set back a minimum of 10 metres from areas of unmanaged bushland with this area kept clear of obstructions at all times during site occupation.*

A minimum 10 metres from areas of unmanaged bushland.

The Conference Centre and the Cultural Centre both involve accommodation facilities. The APZ requirements for the accommodation components of these facilities will comply with Table A2.6 of *Planning for Bush Fire Protection 2006*.

The proposed location of the Conference Centre is to the South-west of the large dam where the vegetation is scattered trees and grassland and down-slope which will require a minimum of 10 metre APZ with the management of the ground fuel under the trees. Should the Conference Centre be constructed near areas of unmanaged vegetation then the APZ will comply with Table A2.6 of Planning for Bush Fire Protection 2006.

The proposed location of the Cultural Centre is predominantly in pasture/grassland which will require a minimum 10 metre APZ. Should the Cultural Centre be constructed near areas of unmanaged vegetation then the APZ will comply with Table A2.6 of Planning for Bush Fire Protection 2006.

During periods where major events are not being conducted which involve the whole or most of the site the site will be used for pasture land as a means of managing the site. This method of management will also apply to the Conference Centre and the Cultural Centre locations and will make any further management for activities much simpler whilst maintaining a level of management at all times.

3.4 Level of Construction

Tables A3.3 and A3.4 of *Planning for Bushfire Protection 2006* allow the determination of the relevant level of construction in accordance with AS 3959-1999: *Construction of Buildings in Bushfire-Prone Areas*.

As the facilities will comply with the requirements of the RFS and Planning for Bush Fire Protection 2006 there will be no construction requirements.

3.5 Fire Fighting Personnel Access

3.5.1 PUBLIC ROAD ACCESS

Access is provided to the Site via the existing roads, Jones Road and Tweed Valley Way, both of which are capable of supporting fully loaded fire fighting vehicles.

3.5.2 PROPERTY ACCESS

Property access roads will be provided throughout the site which will provide access for vehicles including trucks for the delivery of goods and equipment.

The RFS in correspondence dated 5 October 2007 state:

Access

The intent of measures for access roads is to provide safe operational access for emergency services personnel in suppressing a bush fire, while occupants are accessing or egressing an area. To achieve this, the following conditions shall apply:

3. *Access shall be available to the site and to dwellings on Jones Road for emergency vehicles at all times.*

The Spine Road connecting the northern property with the southern property and with Wooyung Road to be used for “road” purposes relevant to the continuing use of the land for agriculture and the efficient operation of the 2 existing farms and for connection to Wooyung Road. This road will also be used to provide access to place of assembly;

Additionally Event Laneways will provide all other internal minor access roads and will be clearly sign posted. Bridges should clearly indicate load ratings.

During all major events members of the RFS will be available on-site during the course of the whole event at the cost of the event organisers.

3.6 Electricity Supply

It is preferable that transmission lines providing power to the proposed development should be installed underground. However due to the size and topography of the site underground transmission lines are not possible. All electrical transmission lines will be installed in accordance with the local electrical supply authority.

3.7 Gas

Reticulated or bottled gas shall be installed and maintained in accordance with AS/NZS 1596-2002: ***Storage and Handling of LP Gas*** and the requirements of the relevant authorities. If gas cylinders are to be kept close to buildings, the release valve must be directed away from the building and away from any hazardous materials such as firewood, so that it does not act as a catalyst to combustion.

3.8 Water Supply

The RFS in correspondence dated 5 October 2007 state:

Water and Utilities

The intent of measures is to provide adequate services of water for the protection buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

5. *In recognition that no reticulated water supply exists, a 10,000 litre dedicated water supply shall be provided during periods of occupation for each stage and camping area.*

Water supplies will comply with the requirements of the RFS Fast Facts 3/08 *Water Supply for Fire Fighting Purposes*.

4 RECOMMENDATIONS

The proposal meets with the requirements of the NSW Rural Fire Service in correspondence dated 5 October 2007 and includes the requirements for the Conference Centre and the Cultural Centre.

Based on the site inspection and assessment, the following recommendations would be required for future development of the site:

- (a) APZ's are required to be in accordance with Section 3.3 of this report.
- (b) If any trees are to be located within the envisaged APZs, this is considered acceptable, providing the following conditions are met
 - (i) Vegetation is not to touch or overhang buildings (canopy vegetation must not be within 5 metres of any building/dwelling);
 - (ii) Vegetation is well spread out and does not form a continuous canopy (separated by a minimum of 2 metres), especially within the IPA;
 - (iii) Vegetation is not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
 - (iv) Vegetation is located far enough away from buildings so that it will not ignite the building by direct flame contact or radiant heat emission.
- (c) Woodpiles, combustible material storage sheds, large areas/quantities of garden mulch and stacked flammable building materials should not be located within IPA of buildings;
- (d) Reticulated or bottled gas shall be installed and maintained in accordance with AS/NZS 1596-2002: *Storage and Handling of LP Gas* and the requirements of the relevant authorities.
- (e) Water supply shall be as outlined in Section 3.8 of this report.
- (f) An Evacuation and Emergency Management Plan will be prepared in accordance with the RFS requirements.

5 CONCLUSIONS

Barry Eadie Consultancy Pty Ltd has conducted a site inspection and assessment of the Tweed Valley Way/Jones Road, Yelgun. The assessment has been undertaken in accordance with *Planning for Bushfire Protection 2006* and the requirements of the RFS in correspondence dated 5 October 2007.

Provided the recommendations stated above are implemented in full, Barry Eadie Consulting Pty Ltd is of the opinion that the proposal will comply with the relevant legislation and the requirements of the NSW Rural Fire Service.

6 REPORT BASIS INFORMATION

The report is based on the following:

- (i) Site inspections carried out on 17 February 2009 by Barry Eadie
- (ii) Relevant site plans;
- (iii) Ecological Assessment report by Mark Fitzgerald dated 2010

7 REFERENCES

NSW Rural Fire Service, Planning NSW, 2006, *Planning for Bushfire Protection*.

NSW Rural fire Service correspondence dated 5 October 2007.

Appendix A

All communications to be addressed to:

Headquarters
NSW Rural Fire Service
Locked Mail Bag 17
GUTHRIEVILLE NSW 2142

Telephone: (02) 8741 5555
e-mail: developmentcontrol@rfs.nsw.gov.au

Headquarters
NSW Rural Fire Service
15 Carter Street
HOMEBUSH BAY NSW 2127

Facsimile: (02) 8741 5550



RECEIVED
17 OCT 2007
BY 21:00

Your Ref: 10/2007/452.1
Our Ref: D97/1659
D97/2681
D97/590343779 C6

The General Manager
Byron Shire Council
PO Box 219
Mullumbimby NSW 2482

Attention: Joe Davidson

05 October 2007

Dear Mr Davidson,

Integrated Development: Pacific Highway & Jones Road, Wooyung NSW

I refer to your letter dated 24-Aug-2007 seeking the NSW Rural Fire Service general terms of approval for the above integrated development proposal under section 91 of the *Environmental Planning and Assessment Act 1979*.

This response is to be deemed a bush fire safety authority as required under section 100B of the *Rural Fires Act 1997* and is issued subject to the following numbered conditions:

Asset Protection Zones

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, occupants and others assisting fire fighting activities.

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1 of 2

Access

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4. An Emergency/Evacuation Plan is to be prepared detailing the following:
 - a) under what circumstances will the complex be evacuated;
 - b) where will all persons will be evacuated to;
 - c) roles and responsibilities of persons co-ordinating the evacuation;
 - d) roles and responsibilities of persons remaining with the complex after evacuation; and
 - e) a procedure to contact the NSW Rural Fire Service District Office / NSW Fire Brigade and inform them of the evacuation and where they will be evacuated to.

General Advice – Council to Note

- No open fires shall be permitted on TOBAN days.
- Fire Permits are required during the Bush Fire Danger Period from 1st October – 31st March.

For any enquiries regarding this correspondence please contact Garry Shashketon on 8741 5555.

Yours faithfully,



Nika Forin
Development Control Co-ordinator

The RFB has made getting additional information easier. For general information on Planning for Bush Fire Protection 2006, visit the RFB web page at www.rfb.nsw.gov.au and search under Planning for Bush Fire Protection 2006.

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