Bushfire Safety Authority

PLANIT
CONSULTING

For

Proposed Staged Subdivision
One Hundred and Seventy Eight (178) Lots
over Four (4) Stages

At

Lot 163 DP 831052
Lots 276 and 277 DP 755624
Iron Gates Road,
Evans Head, NSW

Prepared for

Gold Coral Pty Ltd

By

Planit Consulting Pty Ltd

September 2014

Copyright / Usage Note

The content of this report was prepared for the exclusive use of the proponent for an application to Richmond Valley Council for a proposed stages subdivision. The subdivision will result in one hundred and seventy eight (178) lots over four (4) stages.

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This report represents an assessment of the surrounding bushfire threat and details compliance with PFBP2006 and AS-3959-2009 at the time of engagement.

The report should not be seen as an exhaustive study of all the factors that may influence bushfire. In the event of a bushfire attack the recommendations contained within this report relating to the construction must be carried out and maintained for the life of the development.

Notwithstanding the adoption of the recommendations contained within this report, Planit Consulting Pty Ltd cannot guarantee that future development will not suffer damage as a result of a bushfire attack.

Should any of the factors outlined within this report change; a reassessment for compliance with AS-3959-2009 and Planning for Bushfire Protection 2006 is required.

This report is current as at time of production and it is acknowledged standards and site conditions alter.

Planit Consulting declares that it does not have, nor expects to have, a beneficial interest in the subject project.

Planit Consulting Pty Ltd
September 2014

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SECTION 1

Introduction

1.1 Brief

Planit Consulting has been commissioned by Gold Coral P/L to prepare and submit an application for a Bushfire Safety Authority to accompany a development application for a proposed staged subdivision. The subdivision will result in a total of one hundred and seventy eight (178) lots over four (4) stages.

1.2 Approvals Sought

This report has been compiled to satisfy the integrated development component of the application to be lodged with both Richmond Valley Council and the NSW Rural Fire Service. Subdivision of residential land is considered integrated development pursuant to Section 100B of the Rural Fires Act 1997. A Bushfire Safety Authority and General Terms of Approval are sought from the NSW Rural Fire Service.

Figure 1 – Aerial Photograph – Source; Google Earth

1.3 The Site & Surrounds

The subject site is described as Lot 163 in Deposited Plan 831052 and Lots 276 and 277 in Deposited Plan 755624, Iron Gates Road, Evans Head NSW. The site represents urban zoned land to the west of the Evans Head town centre. The site has direct frontage to the Evans River to the south and is surrounded by native vegetation on all other compass bearings. Access is granted by Iron Gates Road and Blue Pools Road. The site is zoned R1 – General Residential zone pursuant to the Richmond Valley Local Environmental Plan 2012.

1.3 Bushfire Prone Land

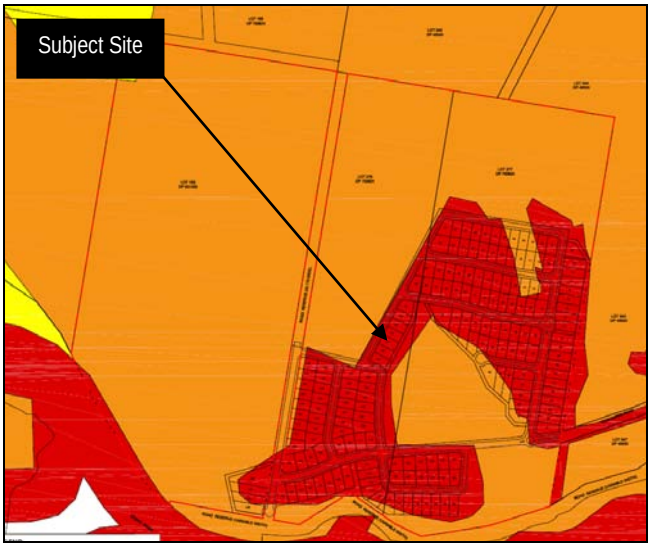

Figure 2 – Bushfire Prone Land Mapping – Source; RVC Bushfire Mapping

In accordance with Council's Bushfire Prone Land mapping, the site contains Category 1 bushfire prone vegetation and buffer zone (See Fig. 2). An assessment of the proposed developments design response to the surrounding bushfire threat is included within Section 3 – Bushfire Safety Authority Application.

1.4 Surrounding Vegetation

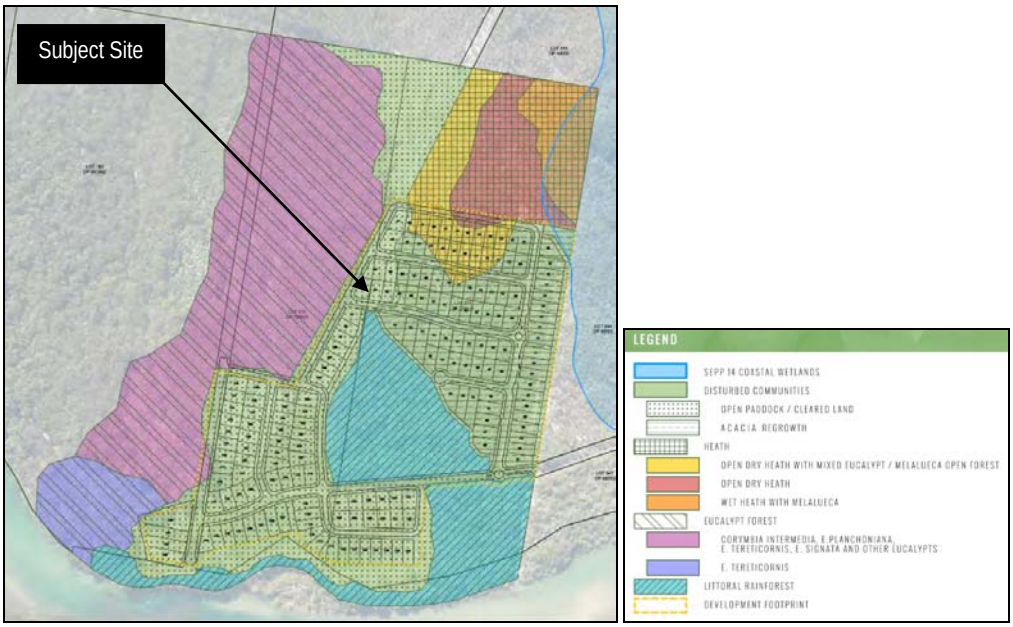

Figure 3 – Vegetation Communities Mapping – Source; F&F Report

A Flora and Fauna Assessment has been completed for the proposed development by the project ecologist. The vegetation communities surrounding the development have been classified as per Figure 3. Detail regarding the surrounding vegetation and its impact upon the proposed development has been included within Section 3 – Bushfire Safety Authority Application.

SECTION 2

Further Information

Should Council or the NSW RFS require any additional information, or wish to clarify any matter raised by this proposal or submission made to same, it is requested that Planit Consulting is contacted prior to determination of this application.

The relevant contact details are listed below:-

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Offices also at Nobby's Beach and Darwin

SECTION 3

Bushfire Safety Authority Application

The following provides an assessment of the proposed development in accord with the matters under Clause 44 of the Rural Fires Regulations 2008 and the relevant controls of Planning for Bushfire Protection 2006 and AS 3959-2009 applying to the subject site.

NSW Rural Fires Regulations 2008

Clause 44 – Application for a bush fire safety authority

a) a description (including the address) of the property on which the development the subject of the application is proposed to be carried out,

Address: Iron Gates Road, Evans Head NSW

Lot/DP: Lot 163 DP 831052 and Lots 276 and 277 DP 755624

Current Use: Single dwelling, shed and landscaped garden.

Proposed Development:

This application seeks development consent for one hundred and seventy eight (178) lots to be carried out over four (4) stages. Internal roads will be constructed to provide access to the created allotments and essential services provided. Alternate emergency access will be provided by Blue Pools Road to the sites north west.

b) a classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in Planning for Bush Fire Protection (PFBP 2006),

The vegetation surrounding the development site has been identified by the project ecologist as four (4) different communities (See Figure 3). For the purposes of bushfire planning assessment, each of these formations have been defined so as to correspond with the vegetation classifications contained within Planning for Bushfire Protection 2006 and AS-3959-2009.

Using the definitions outlined within the NSW RFS document 'Planning for Bushfire Protection 2006' as well as the classifications demonstrated by David Keith in his book 'Desert Dunes to Ocean Shores', the surrounding bushfire prone vegetation is classified as the following:

Northern Vegetation

Heathlands (Scrublands) – Tall Heath (Shrub)
Heathlands greater than 2 metres tall. Includes Hawkbury Sandstone vegetation with overstorey trees and predominantly healthy understory and coastal heath. May include some mallee eucalyptus in coastal locations

Heathlands (Scrublands) – Short Heath (Open Shrub)
Heathlands less than 2m in height. Often more open in canopy. Sparsely connected.

Eastern Vegetation

Forested Wetlands
Restricted to riverine corridors and floodplains subject to periodic inundation. Dominated by eucalypts, tea-trees and paperbarks or sheoaks. Distinguished by presence of hydrophytes, woody plants that can live in flooded environments e.g. sedges, rushes, buttercups, knot weeds, lignum, ferns and grasses. Found generally low altitudes. Soils vary from peaty and semi-humic loam soils to mineral clays and sandy loams. Coast, tablelands and inland.

Southern and Central Vegetation

Rainforests (Closed Forest)
Closed and continuous tree canopy composed of relatively soft, horizontally held leaves. Generally lacking in eucalypts. Understorey typically includes ferns and herbs. Vines often present in canopy or understorey. Occur mainly in areas that are reliably moist, mostly free of fire and have soils of moderate to high fertility. Typically coastal and escarpment locations.

Western Vegetation

Dry sclerophyll forests (Open Forest)

Dominated by eucalypts 10-30m tall with crowns that touch or overlap (i.e. foliage cover of 20-50%). Prominent layer of hard-leaved shrubs. Infertile soils. Rainfall >500mm. Coast, tablelands and western slopes.

As a result of this classification, the design responses and separation distances employed throughout this report use the 'Scrub', 'Rainforest' and 'Forest' controls that are applicable within PFBP 2006 and AS 3959-2009. Tall heath is noted within Table A3.5.1 of Addendum: Appendix 3 – PFBP 2006 to be considered as 'Scrub' when using AS-3959-2009. Forested wetlands are noted within Table A3.5.1 of Addendum: Appendix 3 – PFBP 2006 to be considered as 'Forest' when using AS-3959-2009.

c) *an assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property),*

The subject site is predominantly flat in topography. The western extent of the property rises from flat to an elevation of approximately 30m AHD (See Appendix A – Bushfire Safety Authority Plan).

d) *identification of any significant environmental features on the property,*

A Terrestrial Flora and Fauna Assessment has been prepared for the proposed development. Endangered ecological communities prescribed under the Threatened Species Conservation Act 1995 exist on-site. Potential impacts of the development on these communities have been discussed and protection measures have been recommended.

e) *the details of any threatened species, population or ecological community identified under the Threatened Species Conservation Act 1995 that is known to the applicant to exist on the property,*

A Terrestrial Flora and Fauna Assessment has been prepared for the proposed development. Endangered ecological communities prescribed under the Threatened Species Conservation Act 1995 exist on-site. Potential impacts of the development on these communities have been discussed and protection measures have been recommended.

f) *the details and location of any Aboriginal object (within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property,*

A Cultural Heritage Assessment has been prepared for the proposed development. Aboriginal heritage items and places exist on the subject property. Potential impacts of the development on these items and mitigation measures have been set out within the report which is attached to the foregone SEE.

g) a bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters:

i. the extent to which the development is to provide for setbacks, including asset protection zones,

Upon site inspection, the property already provides setbacks from the nominated bushfire prone vegetation. Subdivision design has utilised these existing cleared setback areas and incorporated perimeter roads and fire trails so as to provide sufficient distance between an indicative building envelope on each lot and the surrounding fire threat.

The proponent commits to the ongoing maintenance of all created allotments by way of routine mowing of grass cover and the removal of fuel loads such as fallen leaves and branches up until contracts of sale are exchanged for each lot. The ongoing maintenance of each allotment will then become the responsibility of the landowner. As the proposed development will be a low density urban subdivision, all lots will be maintained by the future owners as managed landscaped gardens. These highly managed areas are considered to be in keeping with Inner Protection Areas (IPA's) as prescribed within the '*NSW RFS Standards for Asset Protection Zones'*. It is considered that all lots will have sufficient space outside of the building envelope to establish an APZ. The APZ's will in most cases be formed by the entirety of each allotment as an IPA.

The setback of the building envelopes in closest proximity to fire threats have been illustrated within Appendix A – Bushfire Safety Authority Plan.

ii. the siting and adequacy of water supplies for fire fighting,

The subdivision is to be serviced by reticulated water. Reticulated hydrants are to be located along all proposed internal roads and have been adequately spaced to ensure the hose distance from the hydrants is capable of reaching the furthest extent of each of the building envelope illustrated within Appendix A. The location of all hydrants has been illustrated within the Engineering Impact Assessment within the foregone SEE. As a state BASIX requirement, each dwelling erected on the created lots will need to include an ancillary rainwater tank to capture roofwater. Ancillary tanks generally range between 3000L-5000L in capacity and will provide for a secondary water supply to each dwelling. The S79BA process will ensure that all dwellings provide ancillary water supply. The subject site is considered adequately serviced with water supplies for fire fighting purposes.

iii. the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency,

Iron Gates Road is a two-way, bitumen sealed road which will be dedicated to Richmond Valley Council. The existing fire trail access illustrated within Appendix A – Bushfire Safety Authority Plan connects to the public Blue Pools Road. Blue Pools Road is a two-way, gravel sealed road maintained by Richmond Valley Council. Iron Gates Road will be the primary site access point as well as the primary site egress point in an emergency event. The surrounding public road network is considered to be of an appropriate standard to accommodate increased traffic volumes in the event of a bushfire. Emergency services will have all weather access to the site and the proposed internal roads have been designed for compliance with the controls prescribed within PFBP2006. The internal roads will be dedicated to Council after construction and become public roads. Existing and proposed public roads are considered to provide sufficient manoeuvrability for emergency vehicles throughout the site.

iv. whether or not public roads in the vicinity that link with the fire trail network have two-way access,

As detailed within Appendix A of the foregone SEE, four (4) fire trails will be dedicated to Richmond Valley Council as part of the proposed development. These fire trails will meet the dimensions set out within Planning for Bushfire Protection 2006 with a 4m hardstand seal, 1m cleared turf verge either side

and an access gate located at all entry points with keys provided to the local Rural Fire Service. This will be complemented by the dedication of the waterfront open space area at the southern extent of the site. An informal emergency vehicle access track will be located in this area. As this area will form the predominant public open space for the development, the emergency vehicle access in this area is proposed to be made up of a 4m wide shared bicycle and pedestrian footpath with fold down bollards erected at entry points. The keys to these bollards will be provided to the NSW RFS and other emergency services.

v. the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response,

The subdivision design incorporates perimeter roads, fire trail access and a secondary access to Blue Pools Road, northwest of the site (See Appendix A – Bushfire Safety Authority Plan). Access and egress throughout the proposed subdivision for emergency response is considered to be adequately provided for.

Alternate Solution; Two (2) 10m radius cul-de-sacs are proposed as part of the development. The culdesac head adjoining Lots 42 and 43 is at the end of a 95m length of road. Connection to the fire trail is provided at the end of the cul-de-sac which will provide emergency services with through access should it be required and the short run of the road section will provide road users with sight lines to the cul-de-sac head in order to negotiate vehicle manoeuvres. The cul-de-sac head is to be marked with a yellow line and sign posted stating 'No Parking' to ensure that sweeping and three point turns can be carried out be emergency vehicles.

A 10m radius cul-de-sac head has been incorporated into the design as part of Stage 4. This will allow for retention of the hardstand road surface within the dedicated road reserve without cutting into the nearby lots. Connection to the fire trail and informal access to the public open space is provided at the end of the cul-de-sac which will provide emergency services with through access should it be required. The cul-de-sac head is to be marked with a yellow line and sign posted stating 'No Parking' to ensure that sweeping and three point turns can be carried out be emergency vehicles.

vi. the adequacy of bush fire maintenance plans and fire emergency procedures for the development site,

The subject site is currently in a semi-managed low fuel state with the existing cleared areas routinely slashed and fuel loads removed upon sighting. The proponent commits to the ongoing maintenance of all stages by way of routine mowing and the removal of fuel loads such as fallen leaves and branches up until contracts of sale are exchanged for each lot. The ongoing maintenance of each allotment will then become the responsibility of the landowner. As the proposed development will be a low density urban subdivision, all lots will be maintained by the future owners as managed landscaped gardens. These areas are to be maintained to the required NSW RFS '*Standards for Asset Protection Zones'*. This includes but is not limited to mowing on a regular basis, saplings and encroaching shrubs will be removed upon sighting along with fuel loads such as fallen leaves, bark and branches.

As detailed within the Dedication Plan within Appendix A of the foregone SEE, Richmond Valley Council will take ownership of the fire trails and public open space on the Evans River foreshore. The E2 zoned lands will be dedicated to Council for ongoing native protection with minimal management.

vii. the construction standards to be used for building elements in the development,

AS-3959-2009 prescribes the construction requirements for buildings on bushfire prone land. As no dwellings are being erected as part of this development application, a 10m x 15m building envelope has been assessed for each lot. The Fire Danger Index (FDI) for the Richmond Valley is noted as FDI-80. The separation of each envelope from the surrounding fire threat is noted within Appendix A – Bushfire Safety Authority Plan. These BAL denominations have been tabulated as follows;

Lot 1	BAL – 29	Lot 90	BAL - 12.5
Lot 2	BAL – 29	Lot 91	BAL - 12.5
Lot 3	BAL – 29	Lot 92	BAL - 12.5
Lot 4	BAL – 29	Lot 93	BAL - 12.5
Lot 5	BAL – 29	Lot 94	BAL - 12.5
Lot 6	BAL – 29	Lot 95	BAL - 12.5
Lot 7	BAL – 29	Lot 96	BAL - 12.5
Lot 8	BAL – 29	Lot 97	BAL – 29
Lot 9	BAL – 29	Lot 98	BAL – 29
Lot 10	BAL – 29	Lot 99	BAL – 29
Lot 11	BAL – 29	Lot 100	BAL – 29
Lot 12	BAL – 29	Lot 101	BAL – 29
Lot 13	BAL – 29	Lot 102	BAL – 29
Lot 14	BAL – 29	Lot 103	BAL – 29
Lot 15	BAL – 29	Lot 104	BAL – 19
Lot 16	BAL – 29	Lot 105	BAL - 12.5
Lot 17	BAL – 29	Lot 106	BAL - 12.5
Lot 18	BAL – 29	Lot 107	BAL - 12.5
Lot 19	BAL – 29	Lot 108	BAL - 12.5
Lot 20	BAL – 29	Lot 109	BAL - 12.5
Lot 21	BAL – 19	Lot 110	BAL - 12.5
Lot 22	BAL - 12.5	Lot 111	BAL - 12.5
Lot 23	BAL - 12.5	Lot 112	BAL - 12.5
Lot 24	BAL - 12.5	Lot 113	BAL - 12.5
Lot 25	BAL - 12.5	Lot 114	BAL - 12.5
Lot 26	BAL - 12.5	Lot 115	BAL - 12.5
Lot 27	BAL - 12.5	Lot 116	BAL - 12.5
Lot 28	BAL - 12.5	Lot 117	BAL - 12.5
Lot 29	BAL - 12.5	Lot 118	BAL - 12.5
Lot 30	BAL - 12.5	Lot 119	BAL - 12.5
Lot 31	BAL - 12.5	Lot 120	BAL - 12.5
Lot 32	BAL - 12.5	Lot 121	BAL - 12.5
Lot 33	BAL - 12.5	Lot 122	BAL - 12.5
Lot 34	BAL - 12.5	Lot 123	BAL - 12.5
Lot 35	BAL - 12.5	Lot 124	BAL - 12.5
Lot 36	BAL - 12.5	Lot 125	BAL - 12.5
Lot 37	BAL - 12.5	Lot 126	BAL - 12.5
Lot 38	BAL - 12.5	Lot 127	BAL - 12.5
Lot 39	BAL - 12.5	Lot 128	BAL - 12.5
Lot 40	BAL - 12.5	Lot 129	BAL - 12.5
Lot 41	BAL - 12.5	Lot 130	BAL - 12.5
Lot 42	BAL – 29	Lot 131	BAL - 12.5
Lot 43	BAL – 19	Lot 132	BAL - 12.5
Lot 44	BAL - 12.5	Lot 133	BAL - 12.5
Lot 45	BAL - 12.5	Lot 134	BAL - 12.5
Lot 46	BAL - 12.5	Lot 135	BAL - 12.5
Lot 47	BAL - 12.5	Lot 136	BAL - 12.5
Lot 48	BAL - 12.5	Lot 137	BAL - 12.5
Lot 49	BAL - 12.5	Lot 138	BAL - 12.5
Lot 50	BAL - 12.5	Lot 139	BAL - 12.5
Lot 51	BAL – 19	Lot 140	BAL - 12.5

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Lot 52	BAL – 19	Lot 141	BAL - 12.5
Lot 53	BAL – 19	Lot 142	BAL - 12.5
Lot 54	BAL – 19	Lot 143	BAL - 12.5
Lot 55	BAL – 19	Lot 144	BAL - 12.5
Lot 56	BAL – 19	Lot 145	BAL – 19
Lot 57	BAL – 19	Lot 146	BAL - 12.5
Lot 58	BAL – 19	Lot 147	BAL – 19
Lot 59	BAL – 19	Lot 148	BAL – 29
Lot 60	BAL – 19	Lot 149	BAL – 29
Lot 61	BAL – 29	Lot 150	BAL - 12.5
Lot 62	BAL – 29	Lot 151	BAL - 12.5
Lot 63	BAL - 12.5	Lot 152	BAL - 12.5
Lot 64	BAL - 12.5	Lot 153	BAL - 12.5
Lot 65	BAL - 12.5	Lot 154	BAL - 12.5
Lot 66	BAL - 12.5	Lot 155	BAL - 12.5
Lot 67	BAL - 12.5	Lot 156	BAL - 12.5
Lot 68	BAL - 12.5	Lot 157	BAL - 12.5
Lot 69	BAL - 12.5	Lot 158	BAL - 12.5
Lot 70	BAL - 12.5	Lot 159	BAL - 12.5
Lot 71	BAL - 12.5	Lot 160	BAL – 19
Lot 72	BAL - 12.5	Lot 161	BAL – 29
Lot 73	BAL - 12.5	Lot 162	BAL – 29
Lot 74	BAL - LOW	Lot 163	BAL – 19
Lot 75	BAL - LOW	Lot 164	BAL - 12.5
Lot 76	BAL - LOW	Lot 165	BAL - 12.5
Lot 77	BAL - LOW	Lot 166	BAL - 12.5
Lot 78	BAL - LOW	Lot 167	BAL - 12.5
Lot 79	BAL - LOW	Lot 168	BAL - 12.5
Lot 80	BAL - 12.5	Lot 169	BAL - 12.5
Lot 81	BAL - 12.5	Lot 170	BAL – 29
Lot 82	BAL - 12.5	Lot 171	BAL – 29
Lot 83	BAL - 12.5	Lot 172	BAL – 29
Lot 84	BAL – 29	Lot 173	BAL – 29
Lot 85	BAL – 29	Lot 174	BAL – 29
Lot 86	BAL – 19	Lot 175	BAL – 29
Lot 87	BAL - 12.5	Lot 176	BAL – 29
Lot 88	BAL - 12.5	Lot 177	BAL – 29
Lot 89	BAL - 12.5	Lot 178	BAL – 29

The above BAL construction applies to the building envelopes as detailed within Appendix A. Future dwellings to be constructed on each of the created allotments will require reassessment to ensure that the same BAL construction applies. This will be achieved through S79BA assessment upon dwelling application lodgement.

viii. the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development,

The proposed APZ's and IPA's as part of a bushfire maintenance scheme are considered adequate bushfire protection for the proposed development. Fire hydrants have been made available throughout the proposed roadway, fire trail access has been provided for dedication to Richmond Valley Council and ancillary water supplies will be attached to each new dwelling through State BASIX requirements and S79BA. No further fire protection measures are considered to be required for subdivision consent to be issued.

h) *an assessment of the extent to which the proposed development conforms with or deviates from the standards, specific objectives and performance criteria set out in Chapter 4 (Performance Based Controls) of Planning for Bush Fire Protection.*

Chapter 4.1.2 – Standards for Bushfire Protection Measures for Residential and Rural Subdivisions

Performance Criteria	Acceptable Solutions	Comment
Asset Protection Zones		
Radiant heat levels at any point on a proposed building will not exceed 29 kW/m^2	• An APZ is provided in accordance with the relevant tables/ figures in Appendix 2 of this document	**Complies**- All of the building envelopes proposed as part of the development will not experience radiant heat levels of greater than 29kW/m^2 (See above mentioned BAL ratings). The APZ's proposed will offer ongoing maintenance and protection against the surrounding bushfire threat. The separation distances noted within Appendix A are formed by privately owned land and in some instances Council dedicated road reserve. There is not considered to be an opportunity for these levels of separation to reduce over time.
	• The APZ is wholly within the boundaries of the development site. Exceptional circumstances may apply (see section 3.3)	**Complies** - As detailed previously, all lots will be maintained as Inner Protection Areas due to the urban low density nature of the total development.
APZs are managed and maintained to prevent the spread of a fire towards the building.	• In accordance with the requirements of Standards for Asset Protection Zones (RFS, 2005) *Note: A Monitoring and Fuel Management Program should be required as a condition of development consent.*	**Complies**- The proposed APZ's will be managed and maintained in keeping with the NSW RFS *'Standards for Asset Protection Zones'.*
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated	• The APZ is located on lands with a slope less than 18 degrees.	**Complies** - All APZ's are located on generally flat land. No slopes of 18^o or greater exist across the lots.
Access (1) – Public Roads		

Firefighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources)	• Public roads are two-wheel drive, all weather roads.	Complies – The proposed internal roads will be constructed by the proponent and dedicated back to Council upon completion. As such, all roads are required to meet Council road requirements prior to dedication. The roads will be all two way, bitumen sealed and will provide all weather 2WD access.
Public road widths and design that allow safe access for firefighters while residents are evacuating an area.	• Urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non perimeter roads comply with Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle).	Complies – The perimeter roads proposed vary in kerb to kerb width from 9m to 11m and are all two way, bitumen sealed.
	• The perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas.	Complies – The road design and interconnectivity with other through roads ensures limited dead ends and a high level of urban connectivity.
	• Traffic management devices are constructed to facilitate access by emergency services vehicles.	Complies – RFS approved gates will be used for all proposed fire trails. Access to the public open space foreshore will be regulated by fold down bollards. Keys to all gates and bollards will be circulated to local emergency services and the RFS.
	• Public roads have a cross fall not exceeding 3 degrees.	Complies – The proposed roads do not have a crossfall of greater than 3 degrees. This is illustrated within the Engineering Impact Assessment report attached within the foregone SEE.
	• All roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away from the hazard.	Part Complies – The proposed road is a cul-de-sac design. A through road arrangement is considered to be unachievable. The roadway is 145m long and therefore complies with the maximum length requirement. Alternate Solution – Two (2) 10m radius cul-de-sacs are proposed as part of the development. The culdesac head adjoining Lots 42 and 43 is at the end of a 95m length of road. Connection to the fire trail is provided at the end of the cul-de-sac which will provide emergency services with through

		access should it be required and the short run of the road section will provide road users with sight lines to the cul-de-sac head in order to negotiate vehicle manoeuvres. The cul-de-sac head is to be marked with a yellow line and sign posted stating 'No Parking' to ensure that sweeping and three point turns can be carried out be emergency vehicles. Alternate Solution - A 10m radius cul-de-sac head has been incorporated into the design as part of Stage 4. This will allow for retention of the hardstand road surface within the dedicated road reserve without cutting into the nearby lots. Connection to the fire trail and informal access to the public open space is provided at the end of the cul-de-sac which will provide emergency services with through access should it be required. The cul-de-sac head is to be marked with a yellow line and sign posted stating 'No Parking' to ensure that sweeping and three point turns can be carried out be emergency vehicles.
	• Curves of roads (other than perimeter roads) are a minimum inner radius of six metres and minimal in number, to allow for rapid access and egress.	Complies – All roadways are greater than 6m in width and therefore comply with this control. No curves are considered sharp enough to prohibit rapid access or egress.
	• The minimum distance between inner and outer curves is six metres.	Alternate Solution – All roadways are greater than 6m in width and therefore comply with this control. No curves are considered sharp enough to prohibit rapid access or egress.
	• Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient.	Complies – The proposed roadways will not exceed 10 degrees gradient as illustrated within the Engineering Impact Assessment attached within the foregone SEE.
	• There is a minimum vertical clearance to a height of four	Complies - No vegetation or other obstructions will intrude into the

	metres above the road at all times.	4m space above the proposed roads. The fire trails will be dedicated to Council for ongoing management.
The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles.	• The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicate load rating.	Complies- The roadway will be built to a standard to cater for a minimum 15 tonne fire fighting vehicle. No bridges are proposed.
Roads that are clearly sign-posted (with easily distinguishable names) and buildings/properties that are clearly numbered.	Public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression.	Complies - Hydrant markings are to be made on the proposed roadway. These hydrants will be connected to reticulated water. Road reserve fire hydrant spacing, sizing and pressures to comply with AS2419.1 – 2005. See Engineering Impact Assessment within foregone SEE.
	Public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression.	Complies – On-street parking is not proposed. Hydrant markings are to be made on the proposed roadway. These hydrants will be connected to reticulated water. Road reserve fire hydrant spacing, sizing and pressures to comply with AS2419.1 – 2005. See Engineering Impact Assessment within foregone SEE.
There is clear access to reticulated water supply	• Public roads up to 6.5 metres wide provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.	Complies - On-street parking is not proposed. Hydrant markings are to be made on the proposed roadway. These hydrants will be connected to reticulated water. Road reserve fire hydrant spacing, sizing and pressures to comply with AS2419.1 – 2005. See Engineering Impact Assessment within foregone SEE.
	• One way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.	N/A – No one way roads are to be constructed within the subdivision.
Parking does not obstruct the minimum paved width	• Parking bays are a minimum of 2.6 metres wide from kerb edge to road pavement. No services or hydrants are located within the parking bays.	Complies – On-street parking is not proposed. Hydrant markings are to be made on the proposed roadway. These hydrants will be connected to reticulated water.

		Road reserve fire hydrant spacing, sizing and pressures to comply with AS2419.1 – 2005. See Engineering Impact Assessment within foregone SEE.
	• Public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road.	Complies – Roll top kerbing is to be used for the kerbs adjacent to the hazard side of public roads. See Engineering Impact Assessment.
Access (2) – Property Access		
Access to properties is provided in recognition of the risk to fire fighters and/ or evacuating occupants.	At least one alternative property access road is provided for individual dwellings (or groups of dwellings) that are located more than 200 metres from a public through road	Complies – All dwellings are located within 200m of a public road.
The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles. All weather access is provided.	• bridges clearly indicate load rating and pavements and bridges are capable of carrying a load of 15 tonnes	N/A – No bridges form part of the proposal.
	• Roads do not traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge).	N/A – Land not prone to periodic inundation or intertidal movements.
• Road widths and design enable safe access for vehicles	• A minimum carriageway width of four metres for rural- residential areas, rural landholdings or urban areas with a distance of greater than 70 metres from the nearest hydrant point to the most external part of a proposed building (or footprint). *Note: No specific access requirements apply in a urban area where a 70 metres unobstructed path can be demonstrated between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles (i.e. a hydrant or water supply).*	Complies – Fire hydrants have been positioned so as to ensure that hose lengths of 70m are achievable to all envelopes. This is demonstrated within the Engineering Impact Assessment included within the foregone SEE.

	• In forest, woodland and heath situations, rural property access roads have passing bays every 200 metres that are 20 metres long by two metres wide, making a minimum trafficable width of six metres at the passing bay.	N/A – Not a rural subdivision. The roads proposed will be urban dedicated roads.
	• A minimum vertical clearance of four metres to any overhanging obstructions, including tree branches.	Complies – No trees will overhang the proposed roadway. The fire trails proposed will be dedicated to Council for ongoing management.
	• Internal roads for rural properties provide a loop road around any dwelling or incorporate a turning circle with a minimum 12 metre outer radius.	N/A – The proposed development is not considered rural in nature. The roads and services will be to urban standard.
	• Curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.	Complies – All roadways are greater than 6m in width and therefore comply with this control. No curves are considered sharp enough to prohibit rapid access or egress.
	• The minimum distance between inner and outer curves is six metres.	Complies – All roadways are greater than 6m in width and therefore comply with this control.
	• The crossfall is not more than 10 degrees.	Complies – The proposed road will not have a crossfall of greater than 10 degrees. See Engineering Impact Assessment within the foregone SEE.
	• Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads. *Note: Some short constrictions in the access may be accepted where they are not less than the minimum (3.5m), extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.*	Complies – The proposed road not exceed 10 degrees gradient. See Engineering Impact Assessment within the foregone SEE.

	• Access to a development comprising more than three dwellings have formalised access by dedication of a road and not by right of way.	Complies – The proposed roads will provide public road access to all allotments.
Access (3) – Fire Trails		
The width and design of the fire trails enables safe and ready access for firefighting vehicles	• A minimum carriageway width of four metres with an additional one metre wide strip on each side of the trail (clear of bushes and long grass) is provided.	Complies – Fire trails have been proposed in accordance with these dimensions and will be dedicated to Richmond Valley Council as part of the proposal.
	• The trail is a maximum grade of 15 degrees if sealed and not more than 10 degrees if unsealed.	Complies – Fire trails are located on generally flat ground and will not exceed 10 degrees in grade.
	• A minimum vertical clearance of four metres to any overhanging obstructions, including tree branches is provided.	Complies – Fire trails will be dedicated to Council as part of the proposal. Ongoing maintenance will be carried out to ensure compliance with this requirement.
	• The crossfall of the trail is not more than 10 degrees.	Complies – The proposed fire trails will not have a crossfall of greater than 10 degrees. All trails are located on generally flat land.
	• The trail has the capacity for passing by: - reversing bays using the access to properties to reverse fire tankers, which are six metres wide and eight metres deep to any gates, with an inner minimum turning radius of six metres and outer minimum radius of 12 metres; and/or - a passing bay every 200 metres, 20 metres long by three metres wide, making a minimum trafficable width of seven metres at the passing bay. *Note: Some short constrictions in the access may be accepted where they are not less than the minimum (3.5m) and extend for no more than 30m and where obstruction cannot be reasonably avoided or removed.*	Alternate Solution – The proposed fire trail nominated as Lot 184 on the Plan of Subdivision has a total distance of 221.13m. No passing bay has been provided due to the minimal exceedance in distance. Should vehicles be required to pass one another, the 6m wide total carriageway is considered sufficient. Alternate Solution – The proposed fire trail nominated as Lot 185 on the Plan of Subdivision has a total distance of 227m from south to the midpoint exit. No passing bay has been provided due to the minimal exceedance in distance. Should vehicles be required to pass one another, the 6m wide total carriageway is considered sufficient. The fire trail complies when measured from north to the midpoint exit.

Fire trails are trafficable under all weather conditions. Where the fire trail joins a public road, access shall be controlled to prevent use by non authorised persons.	• The fire trail is accessible to firefighters and maintained in a serviceable condition by the owner of the land.	Complies – All fire trails will be controlled by an RFS approved gate. The Evans River foreshore area and informal emergency access will be regulated by fold down bollards to allow for bicycle access. The keys to the gates and bollards will be circulated to the RFS as well as other local emergency services. As the fire trails and public open space will be dedicated to Council, ongoing management will continue in perpetuity.
	• Appropriate drainage and erosion controls are provided.	Complies – All fire trails have been designed for adequate drainage and limits site erosion.
	• The fire trail system is connected to the property access road and/or to the through road system at frequent intervals of 200 metres or less.	Alternate Solution – The proposed fire trail nominated as Lot 184 on the Plan of Subdivision has a total distance of 221.13m. A minimal exceedance in the prescribed distance is noted and a variation from the NSW RFS is requested. Alternate Solution – The proposed fire trail nominated as Lot 185 on the Plan of Subdivision has a total distance of 227m from south to the midpoint exit. The fire trail complies when measured from north to the midpoint exit.
	• Fire trails do not traverse a wetlands or other land potentially subject to periodic inundation (other than a flood or storm surge).	Complies – No temporary inundation or intertidal influences impact the proposed fire trails.
	• Gates for fire trails are provided and locked with a key/lock system authorized by the local RFS.	Complies – All fire trails will be controlled by an RFS approved gate. The Evans River foreshore area and informal emergency access will be regulated by fold down bollards to allow for bicycle access. The keys to the gates and bollards will be circulated to the RFS as well as other local emergency services.

Fire trails designed to prevent weed infestation, soil erosion and other land degradation	• Fire trail design does not adversely impact on natural hydrological flows.	Complies – All fire trails have been designed to limit hydrological impact by directing stormwater appropriately. See Engineering Impact Assessment within the foregone SEE.
	• Fire trail design acts as an effective barrier to the spread of weeds and nutrients.	Complies – The fire trails will be 4m wide gravel seal finish with a 1m turfed strip either side. No encouragement of weed growth or nutrient dispersal is considered to result.
	• Fire trail construction does not expose acid-sulphate soils.	Complies – The proposed fire trails will not excavate acid sulfate soils.
Services – Water, Electricity and Gas		
Reticulated water supplies • Water supplies are easily accessible and located at regular intervals	• Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	Complies – Reticulated water is to be provided to all created allotments and uses a ring main system. See Engineering Impact Assessment within the foregone SEE.
	• Fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005. Where this cannot be met, the RFS will require a test report of the water pressures anticipated by the relevant water supply authority. In such cases, the location, number and sizing of hydrants shall be determined using fire engineering principles.	Complies – Road reserve fire hydrant spacing, sizing and pressures to comply with AS2419.1 – 2005. All dwelling envelopes are within the 70m distance to the further extent. See Engineering Impact Assessment within the foregone SEE.
	• Hydrants are not located within any road carriageway	Complies – Hydrants will be located within the road reserve and outside of the road carriageway.
	• All above ground water and gas service pipes external to the building are metal, including and up to any taps.	Complies – All external fixtures where applicable will be constructed from metal.

	•The provisions of parking on public roads are met.	Complies – The proposed subdivision complies with Council's required carparking controls. No public car parking is to be provided.
Non-reticulated water supply areas • For rural-residential and rural developments (or settlements) in bush fire prone areas, a water supply reserve dedicated to firefighting purposes is installed and maintained. The supply of water can be an amalgam of minimum quantities for each lot in the subdivision (community titled subdivisions), or held individually on each lot	• The minimum dedicated water supply required for firefighting purposes for each occupied building excluding drenching systems, is provided in accordance with Table 4.2.	N/A – Reticulated water to be supplied
	• A suitable connection for firefighting purposes is made available and located within the IPA and away from the structure. A 65mm Storz outlet with a Gate or Ball valve is provided.	N/A – Reticulated water to be supplied
	• Gate or Ball valve and pipes are adequate for water flow and are metal rather than plastic.	N/A – Reticulated water to be supplied
	• Underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank. A hardened ground surface for truck access is supplied within 4 metres of the access hole.	N/A – Reticulated water to be supplied
	• Above ground tanks are manufactured of concrete or metal and raised tanks have their stands protected. Plastic tanks are not used. Tanks on the hazard side of a building are provided with adequate shielding for the protection of fire fighters.	N/A – Reticulated water to be supplied
	• All above ground water pipes external to the building are metal including and up to any taps. Pumps are shielded.	N/A – Reticulated water to be supplied
Electricity Services • Location of electricity services limits the possibility of ignition of surrounding bushland	• Where practicable, electrical transmission lines are underground.	Complies - Underground electricity is to be provided to each of the created allotments. Electrical design will be completed as part of the Construction Certificate process.

or the fabric of buildings • Regular inspection of lines is undertaken to ensure they are not fouled by branches.	• Where overhead electrical transmission lines are proposed: - lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).	N/A – Underground provision to be made.
Gas services • Location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	• Reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used.	N/A – Proposed development does not utilize reticulated or bottled gas.
	• All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.	N/A – Proposed development does not utilize reticulated or bottled gas.
	• If gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal.	N/A – Proposed development does not utilize reticulated or bottled gas.
	• Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.	N/A – Proposed development does not utilize reticulated or bottled gas.

The proposed one hundred and seventy eight (178) lot subdivision over four (4) stages is considered to generally comply with the performance based controls set out within Chapter 4 of PFBP 2006. An alternate solution is sought to the diameter of the two (2) proposed cul-de-sac heads (20m diameter proposed). The fire trails exceed the 200m distance requirement by a marginal amount and therefore a variation is requested from the NSW RFS. Any further recommendations by the NSW RFS are to be conditioned as part of the approval.

SECTION 4

Conclusion

Having reviewed the NSW Rural Fire Service document 'Planning for Bushfire Protection 2006', 'AS-3959-2009 – Construction of Buildings in Bushfire Prone Areas' and the NSW RFS *'Standards for Asset Protection Zones'*, it is submitted that the proposed subdivision and the bushfire protection measures outlined within this report are consistent with the relevant policy and statutory requirements that apply to bushfire prone land.

All of the requirements set out in Clause 44 of the NSW Rural Fires Regulations 2008 have been satisfied and therefore a Bushfire Safety Authority is respectfully requested.

The proposed one hundred and seventy eight (178) lot subdivision at Iron Gates Road, Evans Head NSW is considered to warrant both Council's and the NSW Rural Fire Service's support.

BROCK LAMONT
TOWN PLANNER
PLANIT CONSULTING PTY LTD
SEPTEMBER 2014

APPENDIX A

Bushfire Safety Authority Plan

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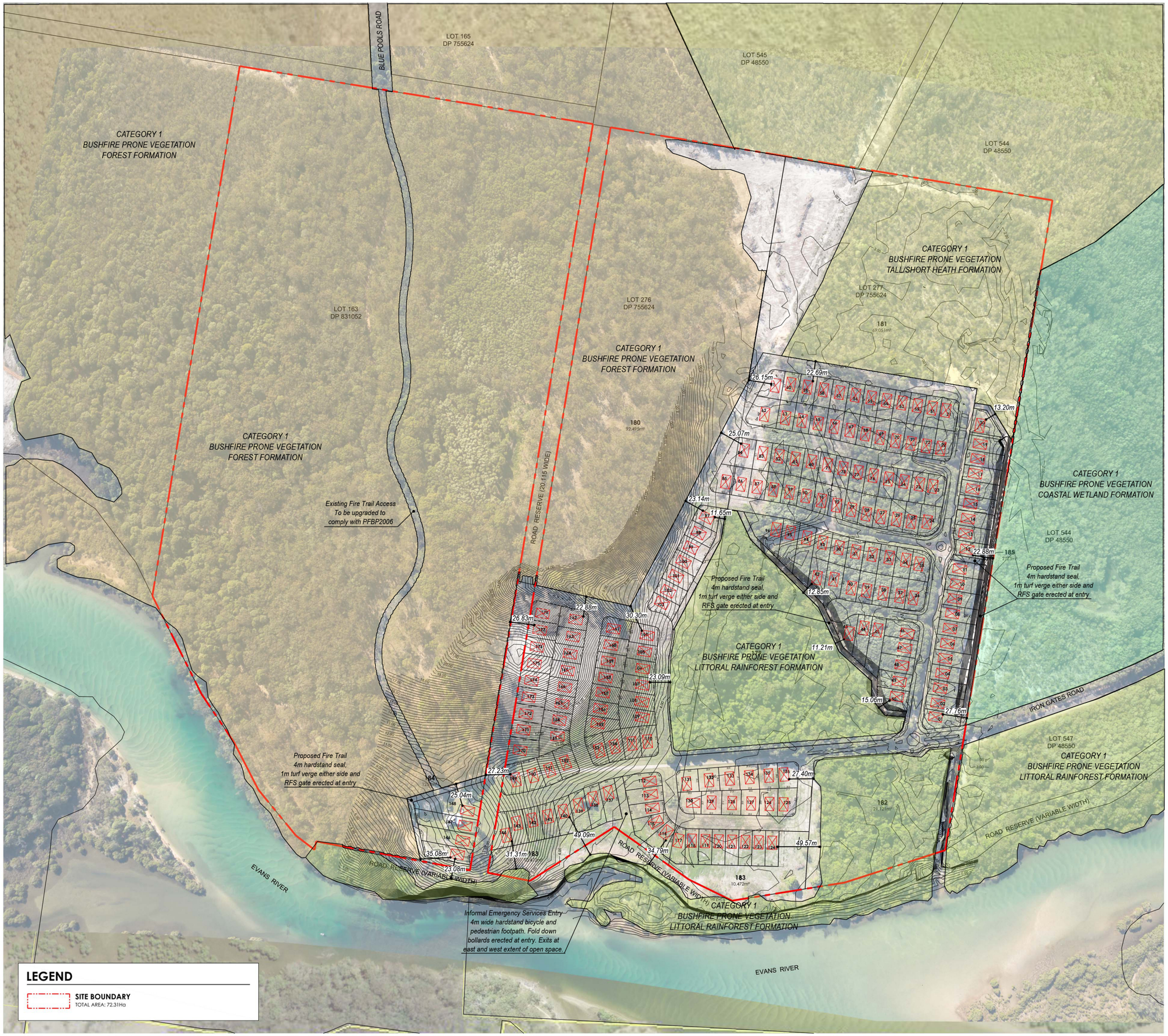
BUSHFIRE SAFETY AUTHORITY PLAN

IRON GATES, EVANS HEAD



LEGEND

SITE BOUNDARY
TOTAL AREA: 72.31Ha

PLANIT CONSULTING

PROJECT TITLE:
IRON GATES DEVELOPMENT, EVANS HEAD

DRAWING TITLE:
BUSHFIRE SAFETY AUTHORITY PLAN

BASE PROVIDED BY:
N/A

CLIENT:
GOLD CORAL

NO	DATE	REVISION	BY
-	-	-	-

SCALE:
1 : 4000 @ A3

DESIGN:
PLANIT CONSULTING

DRAWN:
ZP

DATE:
08/2014

CHECKED:
BL

DRAWING NO:
BSAP_001

NORTH POINT:

SHEET NO:
01 OF 01

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