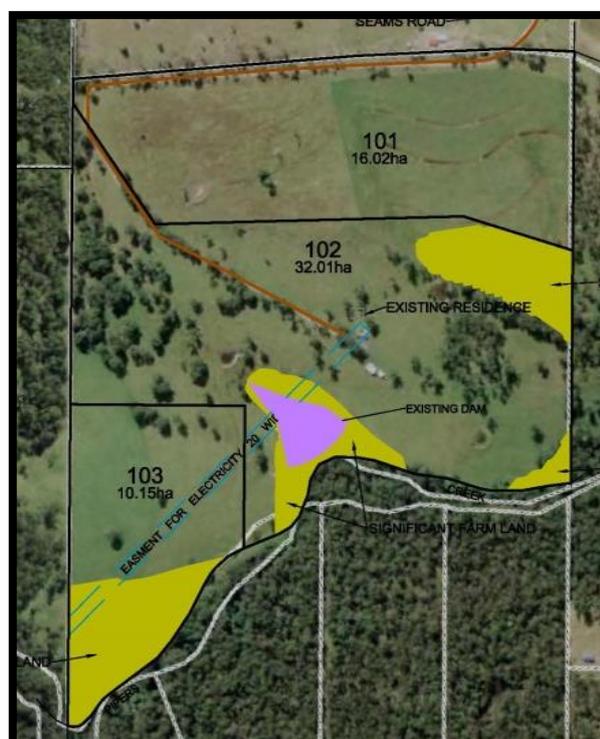




BUSHFIRE THREAT ASSESSEMENT

Proposed 3 Lot Sub-division

Lot 13 DP878784
Seams Road, Kundabung NSW



Client: Landini
Prepared by: Simon Thresher
Nov 2015
Revision III – 19 Sept 2017

HOPKINS CONSULTANTS

DEVELOPMENT MANAGERS • SURVEYORS • ENGINEERS • PLANNERS



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Attachments

Attachment A Overall site plan and adjacent properties

Attachment B Practical Access Authority Letter



1 Report Overview

This report has been commissioned to assess the threat associated with bushfire attack on the property Lot 13 DP 878784, Seams Road, Kundabung NSW.

This report is to accompany a planning proposal for the purposes of rezoning in order to allow a future sub-division proposal with minimum 10ha lot sizes. This report is to demonstrate that the bushfire risk is addressed as part of the re-zoning application. Further reporting and assessment will be required at any future sub-division or development applications stages.

This report does not include reference to future construction on the subject site, however it does address the presence of an existing dwelling that is to remain.

The report will outline that a future development application for subdivision facilitated by the planning proposal can meet the requirements of Planning for Bushfire Protection 2006 (PBP2006). It will also identify potential areas on the new lot that may be appropriate in accommodating future works.

2 Introduction

A Bushfire Threat Assessment has been carried out for Lot 13 DP 878784. The report is based on an initial site visit and assessment carried out on 20 October 2015. The report has been triggered by the identification of the lot being in a bushfire prone area. Kempsey Shire Council (KSC) has confirmed this status via phone call.

This report is to demonstrate that the bushfire threat is manageable for the proposed development given the nature of the development.

3 The Proposal

A planning proposal is under preparation to re-zone the land in order to allow minimum lot sizes of 10ha.

PBP2006 does not capture rezoning of lands. The proposal is somewhat unique in that the lot is owned privately and there are no future or proposed construction works. It is understood that the purposes of the rezoning are to allow for a future subdivision of the lands. Refer “Gateway Planning Proposal Seams Road Kundabung” (Hopkins Consultants 2016).

An outline of the sub-division proposal, if rezoning is approved, is below!



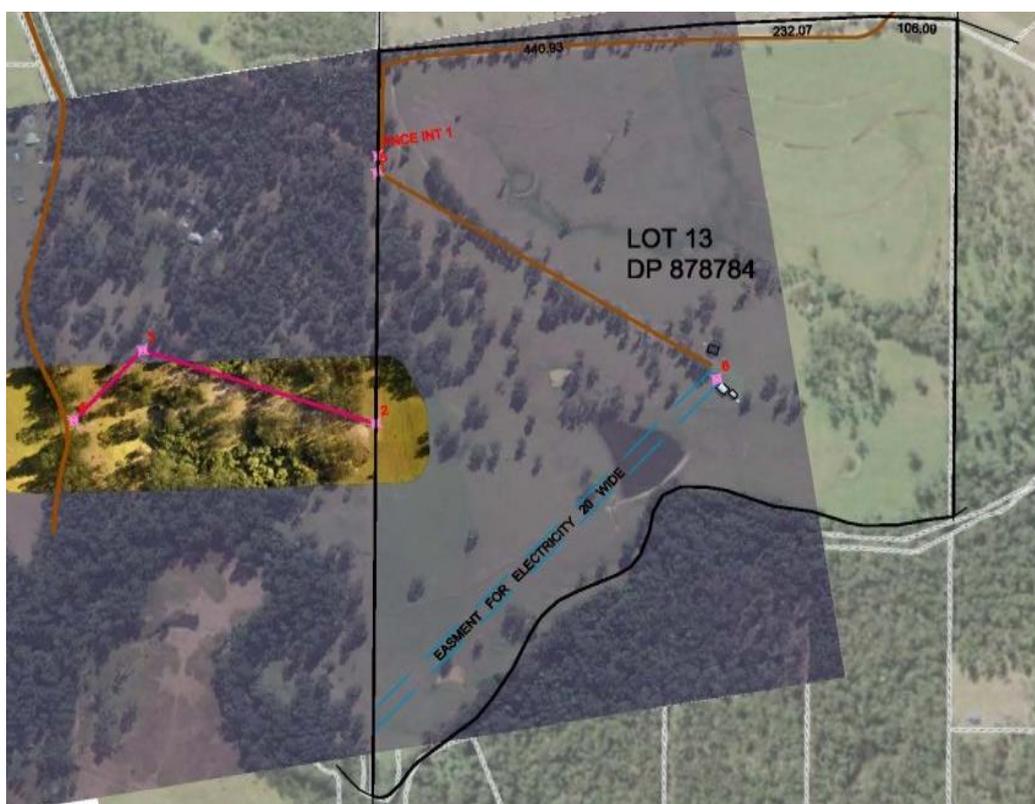
3.1 Sub-division outline

A 'Right of way' across the adjacent lot to the west has received in principle support from KSC. Similarly, there is a right of access proposed across Lot 102 to gain access to Lot's 1 and 3. Refer Attachment B "Practical Access Authority".

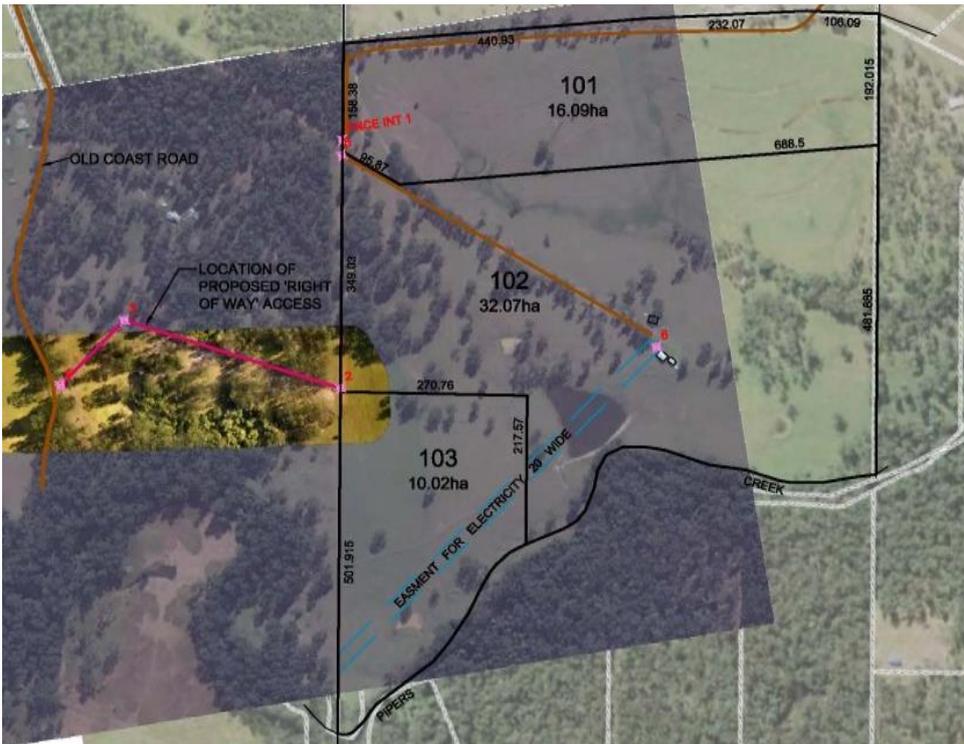
This proposal is not classified as "in-fill development" and no in-fill development is proposed at this stage.

This subdivision has been designed to minimise environmental impacts associated with the proposal and involves no physical changes to the land or vegetation structure on the whole. The proposal is considered to be entirely appropriate for the locality and the subject site.

Refer picture 1 and picture 2, as well as separate planning documents, for more details.



Picture 1 - Current lot layout

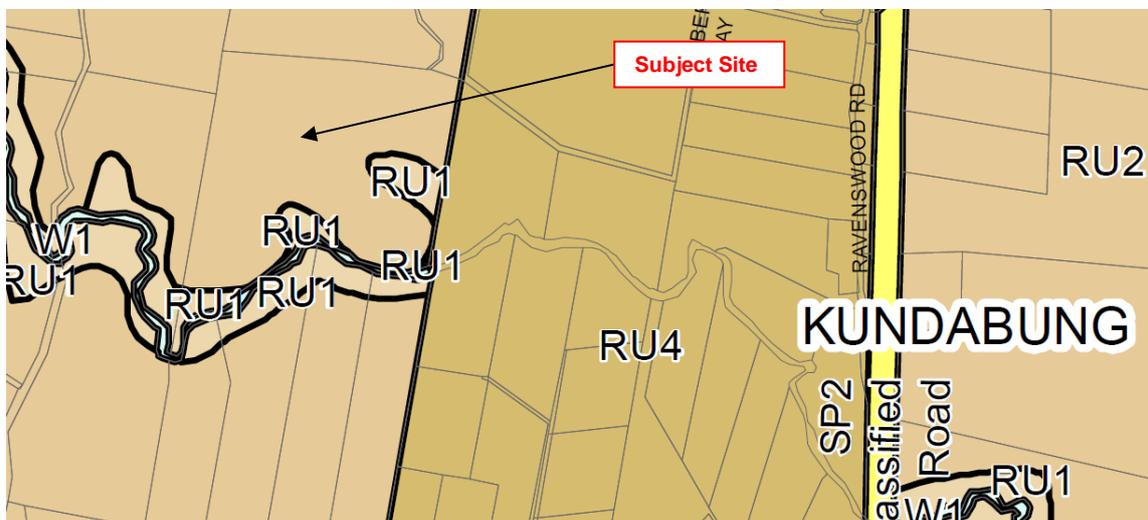


Picture 2 – Proposed three lot layout

4 The Site

4.1 Location and Zoning

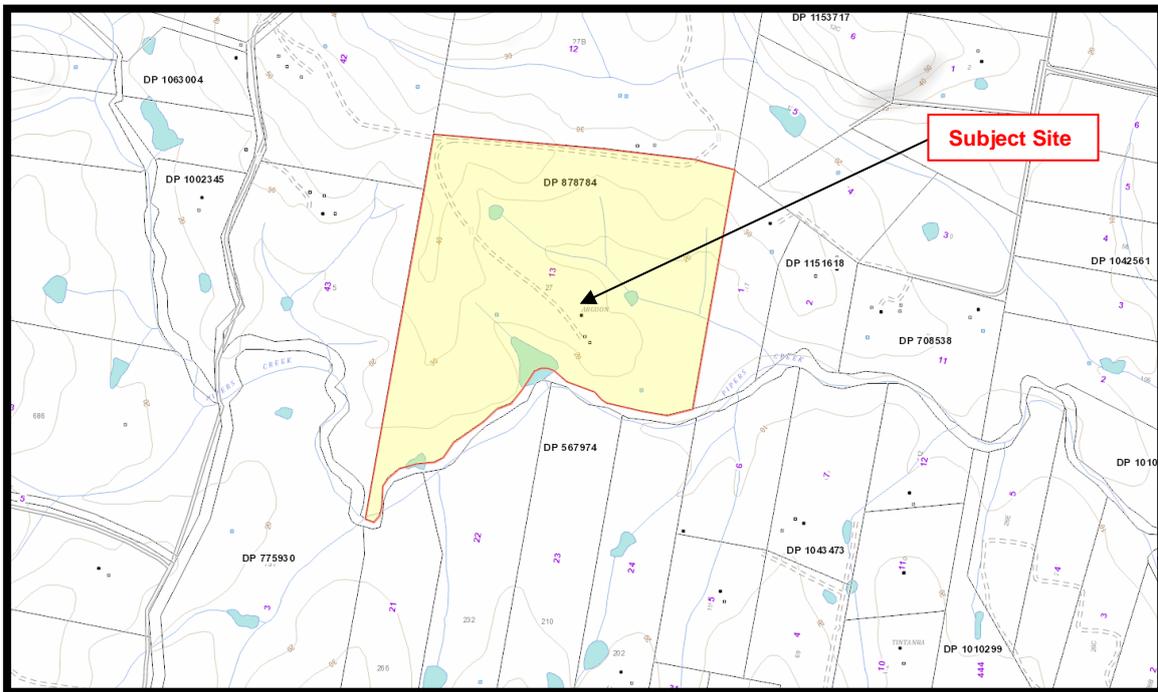
The subject site is zoned RU1 – Primary Production, RU2 – Rural Landscape. The site can be found on map LZN_012 of the LEP. This zoning permits the style of subdivision development of which more information on meeting the objectives of this zoning can be found in the accompanying planning application for this development. The subject site is located in the Crescent Head area which is in the KSC Local Government Area. If the planning proposal is approved, the zoning will change.



Map 1 – Extract from KSC LEP Map



Picture 3 - Aerial View of the site (sixmaps.com.au Nov 2015)



Map 2 – site map showing approx. location of development

4.2 Site Description

The proposed development site is 58.18ha in size and is located approximately 1.5km west of the Pacific Highway, 12km south of Kempsey and 30km north of Port Macquarie NSW. It is located wholly within the KSC Local Government Area.



Throughout the area are large homesteads on rural lots. As evidence by the zoning map, Map 1, there are several rural zones throughout the area. The subject site currently has a dwelling constructed on it. This dwelling will be located on the proposed Lot 102 of this sub-division.

As can be expected in an area such as this, there are large parcels of cleared land used for rural purposes as well as large stands of remnant trees and forests. The Maria River State Forest can be found to the north of the subject lot. Several degrees of slopes and various aspects were also encountered during the site visit. Vegetation altered slightly depending on the slope, aspect and proximity to water; however the Eucalypts are the dominant species.

Access to the subject lot is limited and is via neighbouring properties and driveways and a “Practical Access Authority” from the Forestry Corporation of NSW. There is currently no direct access to the public road networks. Once on the site, closer inspection revealed that for the most part, it is clear of vegetation. There are a few large individual specimens or small pockets of remnant trees around the site that would meet the definition of inner and / or outer protection areas as defined in PBP2006. The stands of trees are less than 1ha in size and would not contribute a significant fire run risk to proposed building localities. Under PBP2006 and AS3959-2009 these areas would be classified as Low Hazard.

It is important to remember that there are indeed very large and dense stands of vegetation outside the borders of the adjacent properties. These are all Eucalypt based and would be classified as a Sclerophylly forest using the vegetation key in *Ocean Shores to Desert Dunes* (Keith, D. 2004). Converted to the vegetation formation classes in AS3959-2009, they are simply referred to as “forest”.

Slope also plays a major role in the behaviour of fire and must be considered as part of the assessment. In this instance, slope has been confirmed via the visual method prescribed by the RFS and via contour mapping of the site. The slope of the potential future construction zones will be dealt with under their respective clauses below.



Picture 4 – Drone imagery looking to the northeast over the existing dwelling



Picture 5 – Drone imagery looking towards the southeast corner of the lot



Picture 6 – Drone imagery looking over the lot highlighting the cleared areas with potential for building envelopes

5 Assessment Objectives

The purpose of the proposal is to subdivide an existing single lot into three smaller lots, post rezoning planning approval. No construction works are proposed, and therefore consideration given to Bushfire Attack Levels is not deemed necessary for the purposes of construction standards. In effect, the proposal is “lines on a plan” and not any construction or alteration works on the ground.

Although the lot for the most part is cleared of vegetation, consideration still needs to be given to the bushfire protection measures outlined in PBP2006 and meeting the objectives of that document. It is believed that adequate APZ and separation distances from nearest points of vegetation can be achieved in order to not require and specific construction standards under AS3959-2009 for Lot 101 and Lot 303.

This report will identify 2 proposed new building locations / envelopes; one each on Lot 101 and Lot 103. Distances and set-backs will be shown accordingly outlining that there may in fact be no need for future construction requirements on any future dwellings.

The objectives of this report will be to determine;

- If the performance based controls can be met,
- If the standards for meeting these controls can be met, and
- Potential site specific future construction areas for proposed Lot 101 and Lot 103.



6 Meeting the ‘Performance Based Controls’

6.1 Specific Objectives for Subdivisions

In order to meet the performance based controls of PBP2006, certain specific objectives are to be met.

6.1.1 Minimising Perimeters

The proposed lot configuration minimises perimeters by utilising simple geometric shapes and right angles where possible; thus reducing bottlenecks and hourglass shapes – refer site plans and the separate DA documentation.

6.1.2 Minimise Bushland Corridors

There are no proposed plantings, revegetation or landscape works for this proposal. The subject lot as it stands is for the most part cleared of predominant vegetation. There is ample opportunity to create appropriate areas for future construction and are detailed below.

6.1.3 Provide Appropriate Sites for Future Construction

Areas identified for future construction can be found on the individual lot plans and at Attachment A. The site is gently undulating with slopes ranging from a few degrees up to approximately ten degrees. There are ample opportunities to located future dwellings on the mid to lower slopes and within 200m of the proposed access points.

6.1.4 Asset Protection Zones

Areas identified as possible future construction sites are identified on the individual lot plans and at Attachment A. A minimum standard of BAL 29 is the norm to achieve, however there is ample space on each of the proposed new lots to accommodate development that may not require any construction requirements or indeed the minimum level of BAL 12.5

Having said that, APZ's are required under PBP2006 and, given the potential maximum slope of 5-10 degrees a 30m APZ will be required to be met for each of the proposed new lots to achieve a minimum BAL29 standard for potential new works. 15m of the APZ shall be dedicated as an inner protection area and 15m shall be dedicated as an outer protection area¹.

Meeting this requirement will facilitate meeting the DTS requirements of the Building Codes of Australia (BCA) and indeed the requirements of PBP 2006 for any possible future works.

6.1.5 Provide Public Open Space

These lots are private land and therefore the allocation of public open space is not applicable.

¹ Calculated using the RFS APZ calculators <https://bfaa.rfs.nsw.gov.au/apz/apzcalc.html>



6.1.6 Ongoing APZ Maintenance

The private owner of the lots is responsible for the maintenance of APZs. Accordingly, all APZ are to be located wholly within the lot and not on any adjacent properties. Any future construction works will need a separate BAL Hazard Certificate and / or Bush Fire Threat Assessment that will detail the specifics of the protection zone maintenance schedules.

6.2 Standards for meeting the Bush Fire Protection Measures

6.2.1 Asset Protection Zones

APZ's are identified in section 6.1.4 above. There is ample opportunity to achieve adequate separation given that the lot for the most part is cleared. Two large areas have been identified, one each on Lot 101 and 103, that can accommodate a proposed dwelling and provide the maximum required APZ distances of 30m. There is also ample room to accommodate separation to the nearest stand of forest to ensure that construction standards are BAL 29 or less. Refer individual lot plans and attachment A.

6.2.2 Access – Public Roads

No new public roads are proposed as part of the subdivision.

The nearest public road is Old Coast Road. It is located 400m to the west and runs generally parallel, in a north-south orientation, to the west of the subject lot. Old Coast Road is approximately 6m wide, two-way, and unsealed with ample room each side to allow access to the roadside verges if needed.

There is very limited access and egress opportunities in the northern sections of Old Coast Road as it meanders deeper into state forests. The best access is at the southern extremity where it meets Smiths Creek Road. Smiths Creek Road is a sealed 2 way road that leads to other major roads in the area such as Crowther Road, Rodeo Drive and the Pacific Highway.

To alleviate the Access issues from the north, Forestry Corporation of NSW has provided a "Practical Access Authority" for use of Seams Road, Link Road and Bloodwood Ridge Road. These roads are unsealed 6m wide roads trafficable by 2-wheel drive cars. Bloodwood Ridge Road has access to the Pacific Highway via Ravenswood Road – Refer Attachment B for details.

Whilst public road access from the northern section may be limited via this Practical Access, there is ample access via the southern routes.

6.2.3 Access – Property Access and Internally

There are no property access points at this stage to the subject site. The subject site does not enjoy road frontage to any public road. To gain access, adjacent properties need to be traversed. There is however, a mutually agreed upon private 'right of way' across the adjacent lot to the west; Lot 43 DP 592703. Further information about this mutual agreement can be found with the relevant planning application documentation and other correspondence between both parties. The 'right of way' only joins the subject site at a single point and internal access is still



required to reach all new proposed lots and dwelling locations. Attachment A provides simplified design guidance on the internal road access.

As a minimum standard, both the 'right of way' **and** the internal rural roads must meet the standards contained in PBP2006, page 23, an extract of which is provided here. Road widths and design must enable safe access for vehicles. This can be achieved by meeting the following;

- Being a minimum of 4m wide,
- Having passing bays every 200m that are 20m long x 2m wide making a total width at that point of 6m,
- Vertical clearance to all obstructions of 6m or more, including tree branches,
- Provide a loop around a dwelling with a turning circle with an outside diameter of 12m or greater,
- Curves in the road to be kept to a minimum and if they are present, they must have an inner radius of 6m or greater,
- Distances between inner and outer curves must be 6m or greater,
- Cross falls are 10 degrees or less, and
- Grades for unsealed roads must be 10 degrees or less.

Given that access to the nearest public road is greater than 400m from the subject lot boundary, it is recommended that the proposed 'right of way' be maintained out to a width of 6m for its entire length to incorporate adequate passing opportunities along its length as opposed to intermittent passing bay opportunities.

Refer to Attachment A for further conceptual design details.

6.2.4 Access – Fire Trails

There are no new fire trails proposed for either lot, nor are there any existing fire trails.

6.2.5 Services – Water, Electricity and Gas

PBP 2006 states that *“as part of the development consent process for the construction of a dwelling, it may be necessary to specify the provision of certain services.”* (pg 26) There is no proposed construction of a dwelling for any of the proposed lots.

Electricity is currently provided to the street. No reticulated gas supplied to the lots.

There is no reticulated town water supply to the area. Water sources for the purpose of bushfire protection must be addressed in the development consent process if and when a proposal is put forward for the construction of a dwelling and must comply with the requirements of PBP2006 for static water sources.

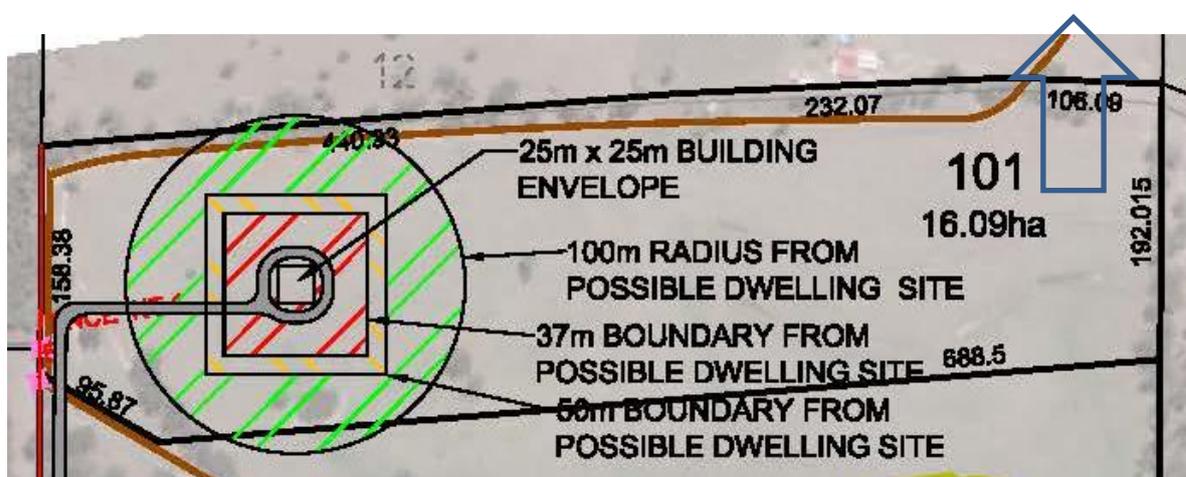
It is highly recommended that the existing dwelling on proposed lot 102 have a minimum 20,000L static water source available for the purposes of firefighting. The site inspection revealed that there is a triangular shaped large dam on site that is greater than 20,000L and would suit the requirements for maintaining a static water source



6.3 Provide Appropriate Sites for Future Construction

In order to meet objective 6.1.3 above; both proposed new lots have been investigated to provide potential appropriate sites for future construction. The proposed locations are located on RU2 lands, are located away from steep slopes and a situated far enough away from the nearby vegetation that any potential future dwellings may be able to be built to a BAL LOW or 12.9 standards under AS3959-2009.

6.3.1 Proposed Lot 101



Picture 7 – Proposed lot 101 showing construction envelop and separation from vegetation

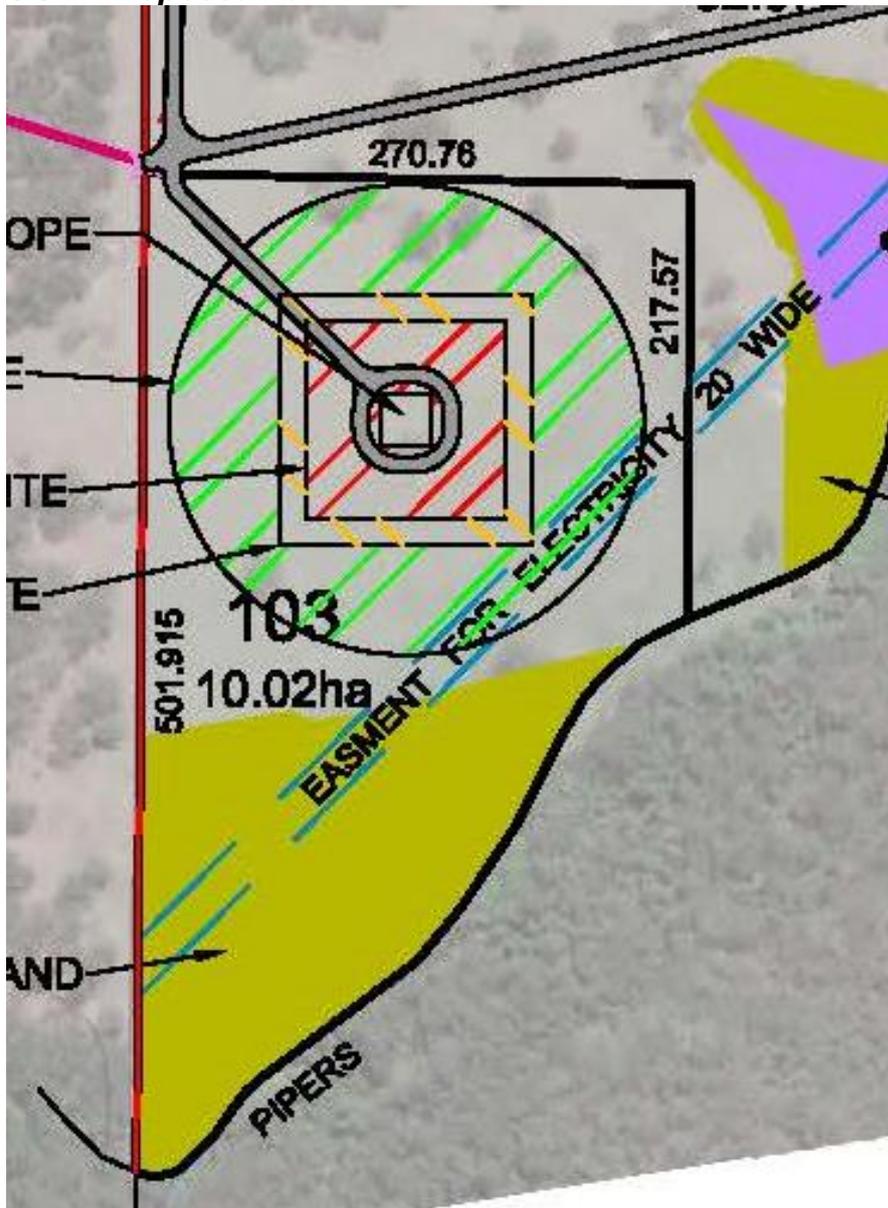
The suggested construction site for lot 101 is located in the north-western sector of the lot. The slope of the land is 0-5% downslope running northeast – southwest and requires a minimum APZ of 20m of which 15m is to comprise of an Outer Protection Area and 5m to an Inner Protection Area. There is a greater than 100m buffer between the proposed building envelope and APZ areas and the nearest predominant vegetation.

The areas indicated in;

- Red, 37m vegetation separation zone including 20m APZ plus 25m x 25m building envelope,
- Orange, 37-50m zone to meet BAL19
- Green, 50-100m zone to meet BAL12.5



6.3.2 Proposed Lot 2



Picture 8 – Proposed lot 103 showing construction envelope and separation from vegetation

The suggested construction site for lot 103 is located in the centrally within the lot. The slope of the land is 0-5% downslope running north-south and requires a minimum APZ of 20m of which 15m is to comprise of an Outer Protection Area and 5m to an Inner Protection Area. There is a greater than 100m buffer between the proposed building envelope and APZ areas and the nearest predominant vegetation.

The areas indicated in;

- Red, 37m vegetation separation zone including 20m APZ plus 25m x 25m building envelope,
- Orange, 37-50m zone to meet BAL19
- Green, 50-100m zone to meet BAL12.5



7 Conclusion

This application and report is unique in that there is no proposed construction nor is there any predicted future construction works; it is for the subdivision of rural lands only.

These works however, are still captured under Planning for Bushfire Protection 2006 and as such have been assessed for a subdivision as is required. Developments of this type have to meet the 'specific objectives for subdivisions' and the 'standards for meeting the Bush Fire Protection Measures' as outlined in PPBP2006.

This report has identified that these objectives and measures can be met. This report has also identified 2 potential construction areas, one on each proposed new lot, where future dwellings may be constructed with little to no construction standards required given the existing nature of clearance on the vegetation clearance and other bushfire protection measures.

Given that there is limited vegetation on site, the most important factor in assessing the threat for the proposed 3 lots is access. Access must be carefully planned in order to meet the requirements of PBP2006 and achieve a suitable "acceptable solution" under that document.

8 Recommendations

This report identifies that the proposal can meet the "performance based controls" for subdivision on the basis of approved planning permission. It is the recommendation of this report that the planning proposal be approved from a bushfire threat prospective, subject to;

- Access across the "right of way" and internally to all 3 lots *must* be provided and built in accordance with the standards set out in PBP2006 and more specifically the acceptable solutions outlined on page 23. Furthermore, the recommended distance of 4m wide roads should be increased to 6m for the entire length of the proposed "right of way" to allow for egress of residents from the subject lots as well as the neighbouring lots in conjunction with any incoming fire or emergency service vehicles,
- The existing dwelling to have new access provided to it from the "right of way" and built in accordance with acceptable solutions of PBP2006,
- Building envelopes to be located where indicated on the attached drawings,
- Should these recommended future construction sites not be compatible with a clients' wishes, a revised bushfire threat assessment must be carried out for the subdivision of the land,
- Site specific bushfire threat assessments *must* be carried out, post subdivision approval, at the development proposal stage for the construction of a dwelling on any of the lots.



Bushfires can attack in any direction; are spread by embers, radiant heat and direct flame contact. The best chance of minimising fire threat is distance. This report identified that potential building locations can be found that are greater than 100m from the nearest hazard vegetation thus creating areas of BAL-LOW that do not attract future construction requirements.

This report is based on the following assumptions:

- For a satisfactory level of bushfire safety to be achieved, regular inspection and testing of proposed measures, building elements and methods of construction specifically nominated in this report, are essential and are assumed in the conclusion of this assessment.
- There are no re-vegetation plans in respect to hazard vegetation and it is therefore assumed that the fuel loading will not alter.
- The siting of any future dwellings or buildings, will be within the areas identified on the attached plans
- It is assumed that all future building works will comply with DTS provisions contained in the BCA including the relevant requirements of A.S. 3959-2009 and that the development will be constructed and maintained in accordance with the fire protection measures detailed in this report.
- The vegetation characteristics of the subject site and surrounding land remains unchanged from that observed at the time of the site inspection.

Please note that;

- In the event of any changes to the suggested future building locations, a revised Bushfire Threat Assessment will be required.
- This report is specifically for the proposed subdivision development as detailed in this report and must not be used for any other purposes.
- This report has been prepared with all reasonable skill, care and diligence. The author, Simon Thresher, has the following qualifications and experience;
 - Master's Degree Environmental Management; University of Newcastle 2014
 - Diploma Horticulture (Landscape Design) Ryde TAFE 2003,
 - Planning for Bush Fire Prone Areas, University of Technology, Sydney 2007,
 - Over 200 successful Bush Fire Threat Assessments in at least 4 different LGA's,
 - 10 years' experience in the design, documentation and management of landscape construction works,
 - A Certified Practising Designer of the Australian Institute of Landscape Designers and Managers, and
 - Associate Member of the Environmental Institute of Australia and New Zealand.



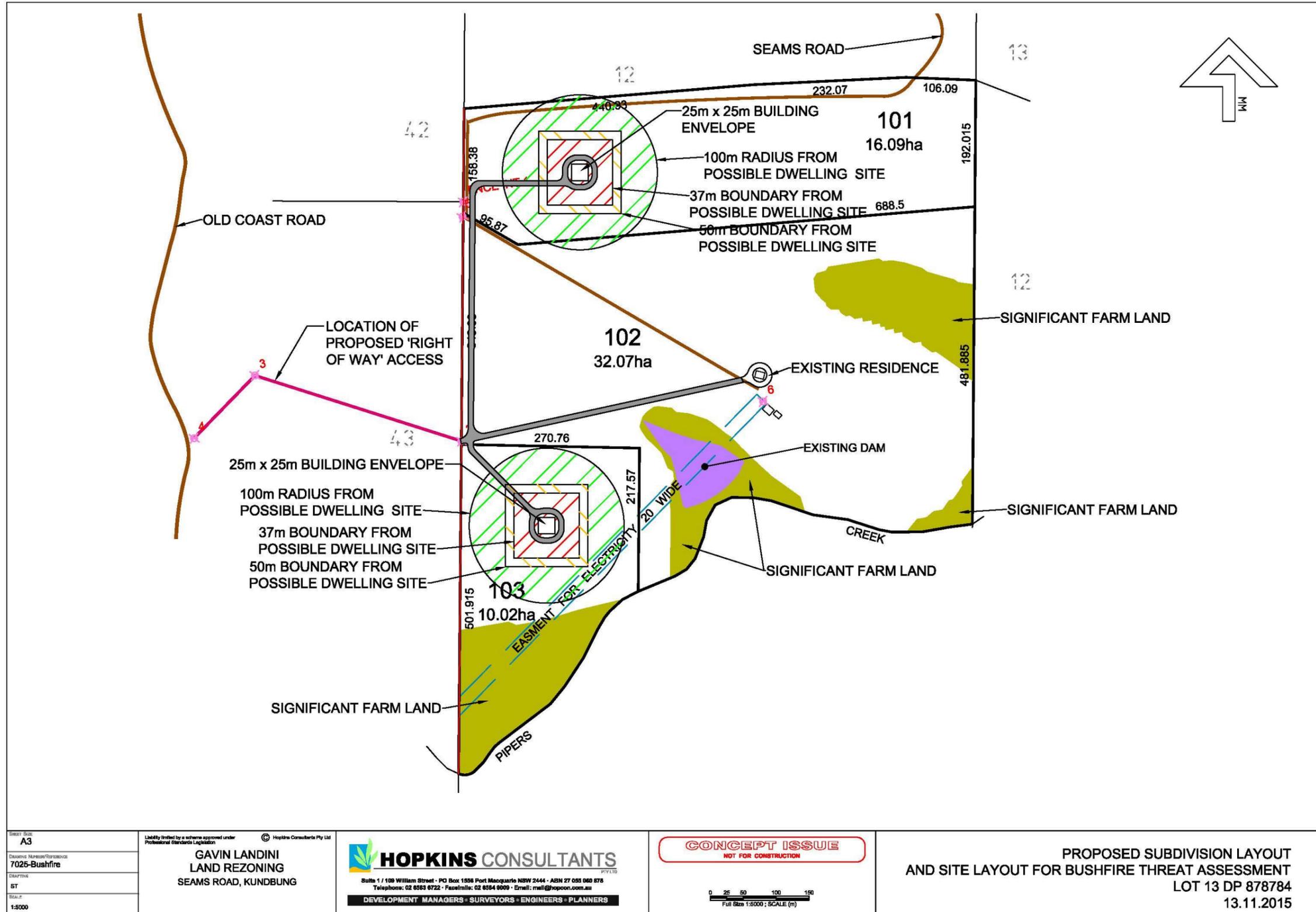
9 Bibliography

Australian Building Codes Board 2011, BCA 2011: *Building Code of Australia*, Australian Building Codes Board.

Australian Standard – *Construction of Buildings in Bushfire Prone Areas*, AS 3959-2009

Keith, D. A. 2004. *Ocean Shores to Desert Dunes; The Native Vegetation of New South Wales and the ACT*. Dept of Environment and Conservation NSW. Hurstville.

Planning for Bushfire Protection 2006. *A Guide for Councils, Planners, Fire Authorities and Developers* (Including Addendum; Annex 3 2010) NSW Rural Fire Service.



<p>SHEET SIZE A3</p> <p>DRAWING NUMBER/REFERENCE 7025-Bushfire</p> <p>DRAWN BY BT</p> <p>SCALE 1:5000</p> <p><small>Cell File: S:\Projects\7025 Landini\DWG\Planning\7025-Bushfire.dwg, Layout: 02, Plotted By: slean, Date: 19/11/15 - 1523.</small></p>	<p><small>Liability limited by a scheme approved under Professional Standards Legislation</small></p> <p>GAVIN LANDINI LAND REZONING SEAMS ROAD, KUNDBUNG</p>	<p>HOPKINS CONSULTANTS PTY LTD</p> <p><small>Suite 1 / 109 William Street - PO Box 1558 Port Macquarie NSW 2444 - ABN 27 053 060 878 Telephone: 02 6563 8722 - Facsimile: 02 6584 9009 - Email: mail@hopcon.com.au</small></p> <p>DEVELOPMENT MANAGERS • SURVEYORS • ENGINEERS • PLANNERS</p>	<p>CONCEPT ISSUE NOT FOR CONSTRUCTION</p> <p>0 25 50 100 150 Full Size 1:5000 ; SCALE (m)</p>	<p>PROPOSED SUBDIVISION LAYOUT AND SITE LAYOUT FOR BUSHFIRE THREAT ASSESSMENT LOT 13 DP 878784 13.11.2015</p>
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1/09/2017

Ref No.: F2014/00676

Mr GV Landini
27 Seams Road
KUNDABUNG NSW 2441

Dear Gavan,

Practical Access to Private Property through Maria River State Forest

Forestry Corporation NSW agrees to grant practical access via Bloodwood Ridge Road, Link Road and Seams Road, marked on the attached map, Maria River State Forest for access to Lot 13, DP 878784 under the following conditions:

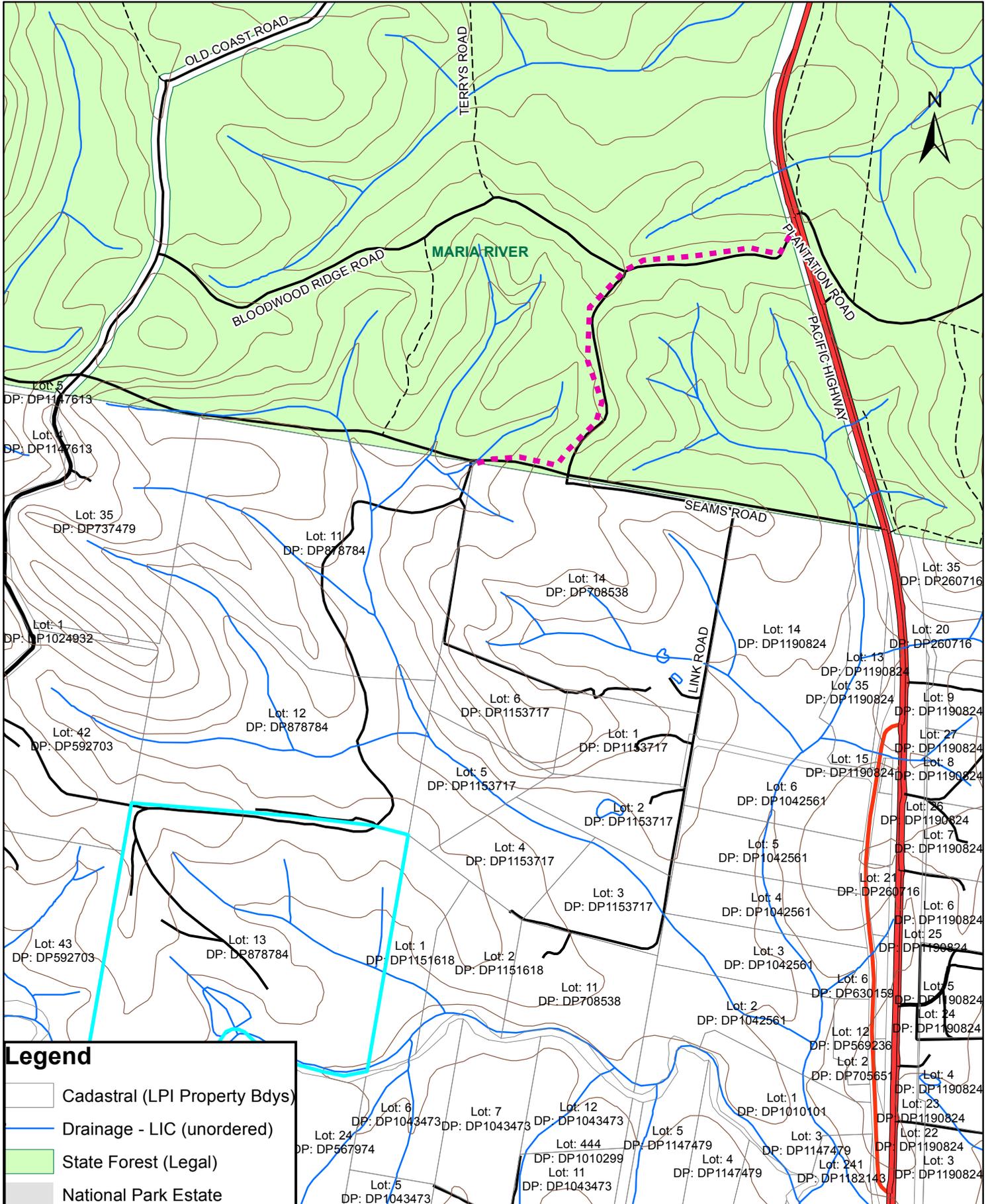
- (a) The person or persons in whose favour this Access is granted shall indemnify the Crown and the Forestry Corporation of NSW against all actions, suits, claims and demands of whatsoever nature and all costs, charges and expenses in respect of any accident or injury to any person or property which may arise out of, or be in any way connected with the use of the Access by such person, his employees or agent.
- (b) The Forestry Corporation of NSW will not be under any obligation whatsoever to construct, repair, upgrade the access or carry out any work whatsoever or it in any way connected with it.
- (c) The granting of the Access in no way creates a right to exclusive use of the land associated with the Access and in particular the exercise of rights thereunder must not impede or restrict the use of that part of Maria River State Forest by any officers, employees or agents of the Forestry Corporation of NSW, the Crown or the Public generally.
- (d) No work of any kind shall be carried out on the Access track without the authority of the Forestry Corporation of NSW.
- (e) No tree shall be cut, removed, destroyed or damaged on or in the vicinity of the Access track without the authority of the Forestry Corporation of NSW.
- (f) Nothing in this grant of Access or these conditions is to be taken as restricting or affecting the Forestry Corporation's powers to close or restrict the use of the Access track under the *Forestry Act 2012* and any Regulations in force pursuant to that Act from time to time.
- (g) The granting of practical access in no way implies legal access.

This Authorisation for Practical Access is unlikely to be revoked in the foreseeable future but Forestry Corporation of NSW reserves the right to close roads for forest management reasons.

Yours sincerely

A handwritten signature in black ink, appearing to read 'R. Rienstra', with a stylized flourish at the end.

Richard Rienstra
Senior Land Administrator | Forests Stewardship



Legend

- Cadastral (LPI Property Bdys)
- Drainage - LIC (unordered)
- State Forest (Legal)
- National Park Estate

- Landini Property
- Approved Practical Access

