



BUSHFIRE ASSESSMENT REPORT

**REZONING FOR
RESIDENTIAL SUBDIVISION**

CENTRAL COAST HIGHWAY

FORRESTERS BEACH

**AUGUST 2021
REF: 20139**

BUSHFIRE ASSESSMENT REPORT

**REZONING FOR
RESIDENTIAL SUBDIVISION
CENTRAL COAST HIGHWAY
FORRESTERS BEACH**

AUGUST 2021

Conacher Consulting Pty Ltd

Environmental and Land Management Consultants

PO Box 4082, East Gosford NSW
Phone: 02 4324 7888
conacherconsulting@gmail.com

This document is copyright ©
CONACHER CONSULTING P.L. ABN 62 166 920 869

PREFACE

This document prepared by *Conacher Consulting*, provides an assessment of the bushfire attack potential and the necessary bushfire protection strategies for a proposed rezoning of land for a future residential subdivision at Forresters Beach. Aspects considered in relation to the Bushfire Assessment Report include; vegetation type, slopes, water supplies, entry and egress access, provision of asset protection zone defensible space and construction standards for any future dwellings.

Report Prepared by:

PHILLIP ANTHONY CONACHER B.Sc.(Hons), Dip.Urb Reg Planning, M.Nat.Res.
Project Director
Conacher Consulting Pty Ltd

TABLE OF CONTENTS

SECTION 1	INTRODUCTION	
	1.1 Introduction	1
	1.2 Site Details	1
	1.3 Planning Proposal	2
	1.4 Bushfire Assessment and Rezoning Proposals	2
SECTION 2	BUSHFIRE ATTACK ASSESSMENT	
	2.1 Bushfire Assessment Criteria	3
	2.2 Bushfire Asset Protection Zone Assessment	4
	2.3 Building Construction Requirements and Bushfire Attack Level Determination	4
SECTION 3	BUSHFIRE PROTECTION MATTERS	
	3.1 Provision of Asset Protection Zones	5
	3.2 Access	5
	3.3 Water Services	6
SECTION 4	CONCLUSIONS AND RECOMMENDATIONS	
	4.1 Aim & Objectives of Planning for Bushfire Protection	8
	4.2 Recommendations	9
	4.3 Concluding Comments	9
	FIGURES	10
	REFERENCES	15

APPENDIX 1 STRATEGIC BUSHFIRE STUDY DETAILS

SECTION 1

INTRODUCTION

1.1 INTRODUCTION

This Bushfire Assessment Report has been prepared by *Conacher Consulting* for a proposed rezoning of land for a residential development of land at Forresters Beach.

The objectives of this Report are to:

- i) Identify any Planning Directions (Section 9.1 EPA Act) relating to bushfire assessment matters;
- ii) Address the relevant requirements of Planning for Bushfire Protection (Rural Fire Service, 2019);
- iii) Identify if the development complies with the aims and objectives of Planning for Bushfire Protection (RFS, 2019);
- iv) Prepare a Report that supplies the relevant information for consideration of a Gateway Approval for a rezoning proposal.
- v) Identify the acceptable solutions identified in Chapter 5 of RFS (2019) for any future development proposal.

1.2 SITE DETAILS

Location

The subject land incorporates Lots 1-4 DP1000694, Lot 522 DP1077907 and Lot 3 DP101649 and is located to the west of Central Coast Highway. The development site covers approximately 9.8 hectares. An aerial photograph of the subject site and adjoining area is provided in Figure 1.

Topography

The site consists of the gently sloping land (0-5% gradient) located on the edge of a large wetland area. The topographical details of the area are shown in Figure 2.

Surrounding Land Use

North - Developed residential land.

South - Developed residential land and undeveloped bushland (forest).

East - Developed residential land.

West - Undeveloped bushland (forest) and rural residential lots.

1.3 PLANNING PROPOSAL

The proposed development following rezoning of parts of the site is a residential subdivision, with lots to be developed in stages.

The rezoning proposal covers future land uses and zones such as:

- Environmental Protection
- Drainage Reserves
- Open Space Area
- Residential
- Roads

The specific location of these zones and proposed subdivision lot plan has yet to be determined.

1.4 BUSHFIRE ASSESSMENT AND REZONING PROPOSALS

The main objective of this Bushfire Assessment Report is to provide background and site specific information on bushfire matters relevant to consideration of a planning proposal (rezoning) for a gateway determination.

The EP&A Act Section 9.1(2) identifies directions issued by the Minister are to be incorporated into the considerations and consultations undertaken by the relevant planning authority during the rezoning process. In this particular proposal Local Planning Direction 4.4 Planning for Bushfire Protection is relevant. This Planning Direction identified that a planning proposal must have regard to Planning for Bushfire Protection paragraph (5) 2019.

Section 4.2 of Planning for Bushfire Protection (RFS 2019) requires that a Strategic Bushfire Study be completed during the preparation of rezoning proposals through the Gateway Process. The matters to be covered in a Bushfire Strategic Study are identified in Table 4.2.1 of RFS (2019) and are provided in Appendix 1 of this Report.

SECTION 2

BUSHFIRE ATTACK ASSESSMENT

2.1 BUSHFIRE ASSESSMENT CRITERIA

Bushfire Prone Land Map

Council's Bushfire Prone Land Map (Figure 3) shows the subject site mapped as Buffer to Category 1 Vegetation and Category 1 Vegetation. The site is adjoined to the east, south and west by Category 1 vegetation.

Forest Fire Danger Index

The subject site is located within the Central Coast Council Local Government Area in the Greater Sydney Region. The Forest Fire Danger Index for the Greater Sydney Region is rated at 100 for use in determining asset protection zone requirements and categories for bushfire attack.

Vegetation Classification

The principal vegetation types affecting the bushfire hazard located within 140 metres of the proposed lots are outlined below:

- North – Cleared land containing residential buildings drainage basins and reserve managed as asset protection zone.
- South – Forest and managed land in residential lots.
- East – Forest and managed land in residential lots.
- West – Forest and managed land in rural residential lots.

Development Category

The proposed development following rezoning is classified as a 'residential subdivision' under Chapter 2 of Planning for Bushfire Protection (RFS, 2019) and is therefore 'integrated development' when a development application for subdivision is lodged.

Planning for Bushfire Protection (RFS, 2019)

Due to the presence of Category 1 vegetation on the site, as shown on the Bushfire Prone Land Map, any planning proposal for rezoning or subdivision is required to include a Bushfire Assessment Report prepared in accordance with the requirements of *Planning for Bushfire Protection* (RFS, 2019).

State Legislation

This development following rezoning is an integrated development and is therefore subject to Section 4.46 of the EP&A Act. Section 100 of the Rural Fires Act also applies to the proposed development as it is a subdivision of land. Section 4.14 of the EP&A Act applies to any future dwellings to be constructed on the approved lots. The planning proposal for rezoning is subject to the requirements of planning direction 4.4 Planning for Bushfire Protection under Section 9.1(2) of the EP&A Act.

2.2 BUSHFIRE ASSET PROTECTION ZONE ASSESSMENT

An assessment of the asset protection zone requirements and bushfire attack in relation to the adjoining lands, vegetation and slope gradients for the site is provided in Table 2.1.

TABLE 2.1 ASSET PROTECTION ZONE ASSESSMENT (from Table A1.12.2 of RFS 2019)			
Direction	Vegetation Classification (within 140m)	Effective Slope (within 100m)	Recommended APZ Distance from Bushfire Hazard (metres)
North	Reduced Vegetation	Upslope	NR
South	Forest	0-5° downslope	29
East	Reduced Vegetation	Upslope	NR- 30 metres cleared land present
West	Forest/Reduced Vegetation	0-5° downslope	29
NR = No Requirements as no hazard present			

2.3 BUILDING CONSTRUCTION REQUIREMENTS AND BUSHFIRE ATTACK LEVEL DETERMINATION

The asset protection zones applying to the future subdivision following rezoning have been determined using the APZ assessment criteria from Table A1.12.2 of Planning for Bushfire Protection (RFS 2019). However for any future dwellings to be located within the future allotments determination of the Bushfire Attack Level for each lot in accordance with Table A1.12.5 of RFS (2019) is required at a later stage when an application for a dwelling on the lots is made.

All dwellings to be located within 100 metres of the bushfire prone vegetation to the west will require construction standards to meet the bushfire attack levels as per the requirements as identified in Table A1.12.5 of RFS (2019). There are no specific construction requirements in relation to RFS (2019) for dwellings located beyond 100 metres from the identified bushfire hazards.

An initial assessment for the BAL determinations based on Table A1.12.5 of RFS (2019) has identified the following BAL's for the site, as measured from the nearby forest vegetation (0 – 5° downslope):

BAL 40	-	22 - 29 metres
BAL 29	-	29 - 40 metres
BAL 19	-	40 - 54 metres
BAL 12.5	-	54 – 100 metres
BAL LOW	-	>100 metres (no specific construction levels)

The final BAL determinations are to be assessed in the future Bushfire Assessment Report prepared at the residential subdivision stage following rezoning.

SECTION 3

BUSHFIRE PROTECTION MATTERS

3.1 PROVISION OF ASSET PROTECTION ZONES

All future lots will contain managed gardens/lawns which are effectively low hazard areas.

To achieve a desired minimal BAL 29 construction standard for future dwellings an APZ of at least 29 metres will be required from the adjoining bushfire hazard in the west. Figure 4 shows the location of the proposed asset protection zones for a BAL 29 dwelling.

The RFS have identified that when establishing and maintaining an inner protection area for an APZ the following requirements apply:

- tree canopy cover should be less than 15% at maturity;
- trees at maturity should not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above the ground;
- tree canopies should be separated by 2 to 5m;
- preference should be given to smooth barked and evergreen trees;
- large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.
- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed

3.2 ACCESS

Section 5.3.2 of PBP (RFS 2019) outlines the requirements for public roads within a residential subdivision. The intent of the public road system in a bushfire emergency is stated in PBP (RFS 2019) as: *“To provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area”*.

As summarised by the Rural Fires Service access roads must comply with the following general requirements of Table 5.3b of Planning for Bush Fire Protection 2019 and the following:

- subdivisions of three or more allotments have more than one access in and out of the development;
- traffic management devices are constructed to not prohibit access by emergency services vehicles;
- 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;
- all roads are through roads;
- dead end roads are not recommended, but if unavoidable, 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;
- where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road; where access/egress can only be achieved

through forest, woodland and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system;

- one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression;
- the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/causeways are to clearly indicate load rating;
- hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;
- hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 - Fire hydrant installations System design, installation and commissioning; and
- there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.

Perimeter roads must comply with the general requirements of Table 5.3b of Planning for Bush Fire Protection 2019 and the following:

- are two-way sealed roads;
- minimum 8m carriageway width kerb to kerb;
- parking is provided outside of the carriageway width;
- hydrants are located clear of parking areas;
- are through roads, and these are linked to the internal road system at an interval of no greater than 500m;
- curves of roads have a minimum inner radius of 6m;
- the maximum grade road is 15 degrees and average grade of not more than 10 degrees;
- the road crossfall does not exceed 3 degrees; and
- a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

Non-perimeter roads must comply with the general requirements of Table 5.3b of Planning for Bush Fire Protection 2019 and the following:

- minimum 5.5m carriageway width kerb to kerb;
- parking is provided outside of the carriageway width;
- hydrants are located clear of parking areas;
- roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m;
- curves of roads have a minimum inner radius of 6m;
- the road crossfall does not exceed 3 degrees; and
- a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

3.3 WATER SERVICES

The existing urban development in the local area has reticulated water mains. The future development will extend the existing water reticulation from the surrounding infrastructure therefore a supplementary form of water supply will not be necessary for fire fighting purposes. This water supply arrangement is to be in compliance with Section 5.3.3 of *'Planning for Bushfire Protection, (RFS 2019)*.

The reticulated water supply, fire hydrant spacing, sizing and pressure is to comply with the requirements of AS2419.1 – 2005. A certification or test report from the Water Supply Authority demonstrates that the requirements of AS2419.1-2005 can be achieved during a bushfire event.

As summarised by the RFS the intent of water and utility services is to provide adequate services of water for the protection of 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.

The provision of water, electricity and gas must comply with the following in accordance with Table 5.3c of Planning for Bush Fire Protection 2019:

- reticulated water is to be provided to the development where available;
- fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS2419;
- hydrants are and not located within any road carriageway;
- reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads;
- fire hydrant flows and pressures comply with the relevant clauses of AS 2419;
- all above-ground water service pipes are metal, including and up to any taps;
- where practicable, electrical transmission lines are underground;
- where overhead, electrical transmission lines are proposed as follows:
 - o lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and
 - o no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.
- reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;
- reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - The storage and handling of LP Gas, the requirements of relevant authorities, and metal piping is used;
- all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;
- connections to and from gas cylinders are metal; polymer-sheathed flexible gas supply lines are not used; and
- above-ground gas service pipes are metal, including and up to any outlets.

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 AIM AND OBJECTIVES OF PLANNING FOR BUSHFIRE PROTECTION

“The aim of Planning for Bushfire Protection is to provide for the protection of human life and minimise impacts on property from the threat of bushfire, while having due regard to development potential, site characteristics and protection of the environment” (RFS 2019 pg 10).

The preparation of this Bushfire Assessment Report and subsequent assessment by Council and the Rural Fire Service ensures compliance with the aim of Planning for Bushfire Protection.

The following comments are provided in relation to satisfying the objectives of PBP.

Objective 1

(i) afford buildings and their occupants protection from exposure to a bush fire;

Construction of dwellings to meet the requirements of the specific bushfire attack levels (BAL) for each lot, and the provision of the APZ as outlined in Sections 2 and 3, will ensure that adequate protection is provided to dwellings and occupants of any future dwelling in the event of a bushfire.

Objective 2

(ii) provide for a defensible space to be located around buildings;

The establishment and maintenance of the completed subdivision and asset protection zones will provide a defensible space located around buildings.

Objective 3

(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to building;

The asset protection zones identified in Table 2.1 shows that dwellings are not to be constructed within the flame zone for any lot. The management of the APZ's as an inner protection area is designed to prevent the spread of fire to future dwellings.

Objective 4

(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;

The existing road system and proposed extension of this road system constructed to the width requirements of Section 5.3.2 of RFS (2019) will ensure safe operational ingress for emergency services and also simultaneous safe egress for residents during a bushfire emergency within the local area.

Objective 5

(v) provide for ongoing management and maintenance of bushfire protection measures,

The APZ within the future lots and the roadways is to be managed as an inner protection zone during the development and occupation of the site.

Objective 6

(vi) ensure that utility services are adequate to meet the needs of firefighters

The adequacy of utility services such as water supply is discussed in Section 3 of this document. The utility services are to be adequate to meet the needs of firefighters (and others assisting in bush fire fighting).

4.2 RECOMMENDATIONS

The following recommendations are provided in relation to the requirements of RFS (2019).

- i. Management of the areas identified as asset protection zones to the standards of an inner protection area as outlined in Appendix 4 of RFS (2019).
- ii. Construction of future roads to meet the requirements of Section 5.3.2 of RFS (2019)
- iii. Provision of water and services to be in accordance with Section 5.3.3 of RFS (2019).
- iv. Construction of future dwellings to meet the bushfire attack levels as determined from the distance to the remaining bushfire hazard as identified in Section 2.3 of this Report.

4.3 CONCLUDING COMMENTS

The proposed rezoning for future residential development has been assessed for its compliance with the accepted solutions for bushfire protection measures identified in Section 3. With the implementation of the combination of measures recommended, and outlined in Sections 2 and 3 of this report, the overall aims and objectives of Planning for Bushfire Protection (RFS 2019) can be achieved for the proposed development.

FIGURES

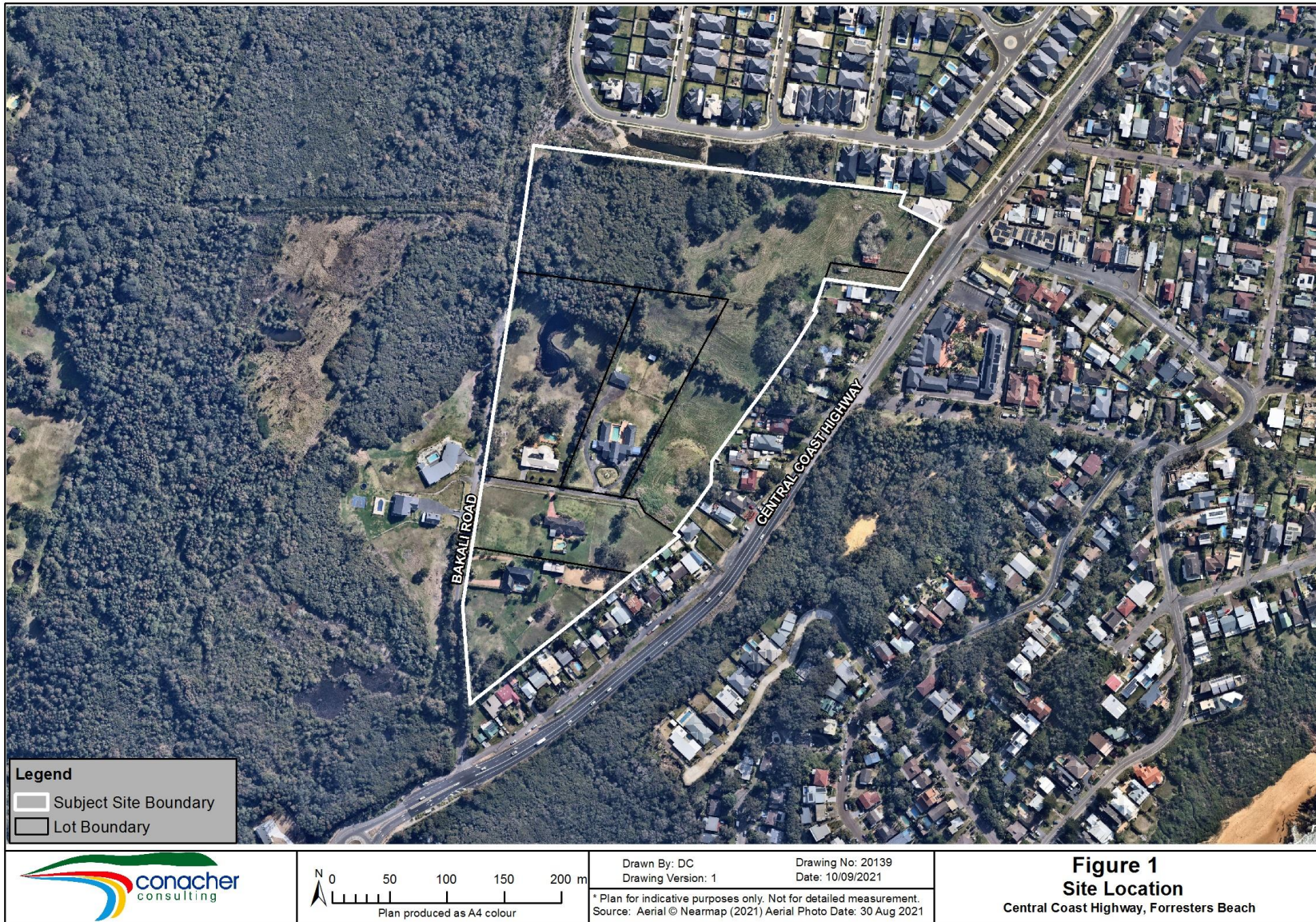


Figure 1
Site Location
 Central Coast Highway, Forresters Beach

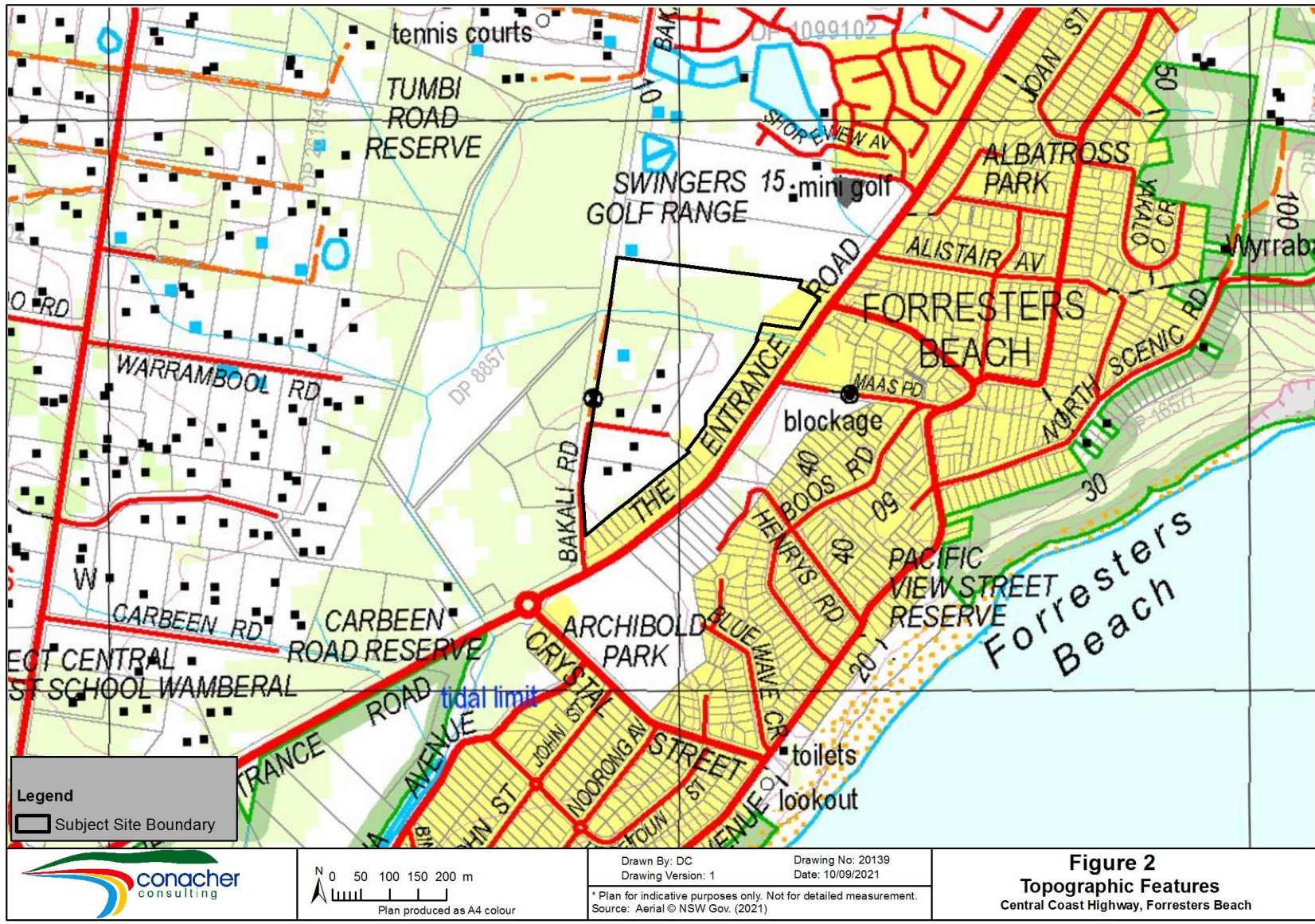
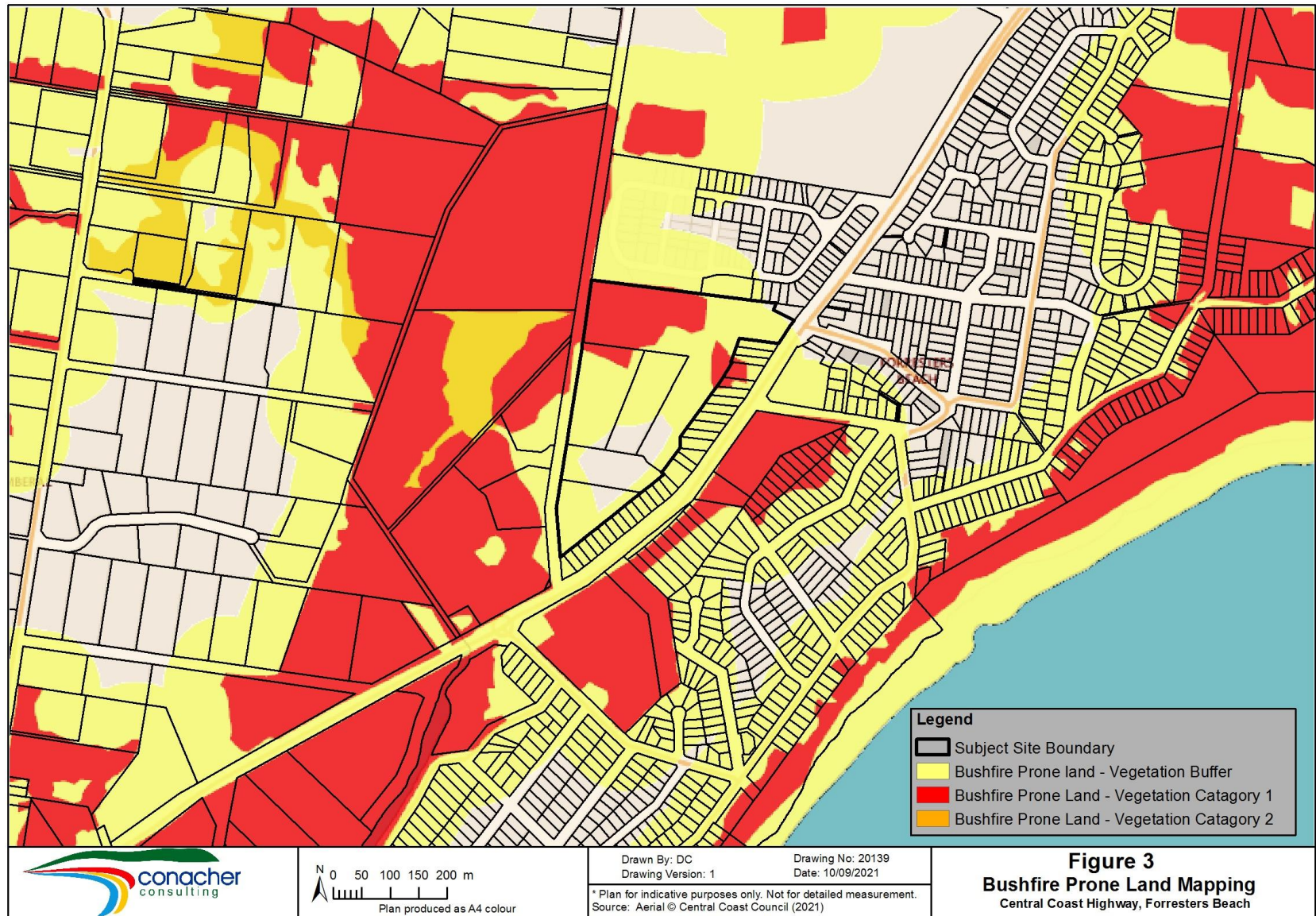


Figure 2
Topographic Features
 Central Coast Highway, Forrester's Beach





REFERENCES

Councils of Standards Australia AS3959 (2009) – Australian Standard Construction of buildings in bush fire-prone areas.

NSW Rural Fire Service (2019) - *Planning for Bush Fire Protection - A Guide for Councils, Planners, Fire Authorities and Developers*. NSW Rural Fire Service.

APPENDIX 1

STRATEGIC BUSHFIRE STUDY DETAILS

Table 4.2.1

Bush Fire Strategic Study

ISSUE	DETAIL	ASSESSMENT CONSIDERATIONS
Bush fire landscape assessment	A bush fire landscape assessment considers the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape.	<ul style="list-style-type: none"> ➤ The bush fire hazard in the surrounding area, including: <ul style="list-style-type: none"> ➤ Vegetation ➤ Topography ➤ Weather ➤ The potential fire behaviour that might be generated based on the above; ➤ Any history of bush fire in the area, ➤ Potential fire runs into the site and the intensity of such fire runs.
Land use assessment	The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed land uses.	<ul style="list-style-type: none"> ➤ The risk profile of different areas of the development layout based on the above landscape study; ➤ The proposed land use zones and the resultant permitted land uses; ➤ The most appropriate siting of different land uses based on risk profiles within the site (i.e. not locating development on ridge tops, SFPP development to be located in lower risk areas of the site); and ➤ The impact of the siting of these uses on APZ provision.
Access and egress	A study of the existing and proposed road networks both within and external to the masterplan area or site layout.	<ul style="list-style-type: none"> ➤ The capacity for the proposed road network to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile; ➤ The location of key access routes and direction of travel, and ➤ The potential for development to be isolated in the event of a bush fire.
Emergency services	An assessment of the future impact of new development on emergency services provision.	<ul style="list-style-type: none"> ➤ Consideration of the increase in demand for emergency services responding to a bush fire emergency (including the need for new stations/bridges); and ➤ Impact on the ability of emergency services to carry out fire suppression in a bush fire emergency.
Infrastructure	An assessment of the issues associated with infrastructure provision.	<ul style="list-style-type: none"> ➤ The ability of the reticulated water system to deal with a major bush fire event (particularly in terms of water pressure); and ➤ Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc.
Adjoining land	The impact of new development on adjoining landowners and their ability to undertake bush fire management.	<ul style="list-style-type: none"> ➤ Consideration of the implications of a change in land use on adjoining land including; <ul style="list-style-type: none"> ➤ The ability of adjoining and nearby land to carry a bush fire; and ➤ Consideration of increased pressure on adjoining landowners to introduce or increase BPMs through the implementation of Bush Fire Management Plans as a result of the changes in land use.