



STRATEGIC BUSHFIRE STUDY

PLANNING PROPOSAL

231 PACIFIC HIGHWAY

MOUNT WHITE

MARCH 2022
REF: 22011

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PREFACE

This document provides an assessment of the bushfire attack potential and the necessary bushfire protection strategies for a planning proposal of land for a future tourist accommodation development at Mount White. Aspects considered in relation to the Strategic Bushfire Study 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 buildings. The Aims and Objectives of Planning for Bushfire Protection are also addressed.

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1. INTRODUCTION

Introduction

This Bushfire Assessment Report has been prepared by *Conacher Consulting* for a planned proposal of land for a hotel/tourist accommodation development of land at Mt White.

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 planning proposal, by the Rural Fire Service.
- v) Identify the acceptable solutions identified in Chapter 5 of RFS (2019) for any future development proposal.
- vi) Address relevant matters that need to be incorporated into a Strategic Bushfire Study for the planning proposal.

The following figures and plans have been incorporated to supplement the text and information provided in this report:

Figure 1 Location and Topographic Details (Extract of the 1:25000 topographic map)

Figure 2 Bushfire Prone Land Map (Extract from Council Maps)

Figure 3 Local Area Zoning (Aerial photograph showing site and nearby natural vegetation)

Figure 4 Site Detail Plan

Figure 5 Local Area Vegetation and Contours

Site details

The planning and cadastral details of the subject site are provided in Table 1.1.

TABLE 1.1 SITE DETAILS	
Location	Lot 1 DP 207158, 231 Pacific Highway, Mount White
Allotment Area	3.3 ha
Zoning	RU1 – Primary Production
Local Government Area	Central Coast Council
Existing Land Use	Rural Residential

Planning Proposal

The planning proposal addressed in this Report is to allow permitted use of the site for a boutique hotel, conference centre and associated facilities such as landscape gardens, access and parking, effluent disposal area, bushfire asset protection zones and on-site stormwater management measures. The existing zoning of the site as RU1 Primary Production under Gosford LEP 2014 is not proposed to be changed.

A development application has recently been approved by Central Coast Council (DA62053/2021) for a new dwelling including four boutique style bed and breakfast suites and associated dining, lounge and bar areas, located within the southern part of the site.

The proposed development will be limited to the previously cleared and developed areas and stock grazing paddocks adjoining these areas. The central and southern drainage lines and adjoining riparian vegetation along these drainage lines will be retained. These non-developed riparian areas may be subject to an ongoing weed management program.

Bushfire Assessment and Planning Proposals

The main objective of this Strategic Bushfire Study is to provide background and site specific information on bushfire matters relevant to consideration of a planning proposal as previously outlined. The Rural Fire Service has requested that a Strategic Bushfire Study be prepared for this planning proposal.

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 planning process. In this particular proposal Local Planning Direction 4.4 Planning for Bushfire Protection is relevant. This Planning Direction identifies that a planning proposal must have regard to Planning for Bushfire Protection (RFS 2019).

Section 4.2 of Planning for Bushfire Protection (RFS 2019) requires that a Strategic Bushfire Study be completed during the preparation of planning proposals for the Gateway Process. The matters to be covered in a Strategic Bushfire Study are identified in Table 4.2.1 of RFS (2019) and are provided in Appendix 1 of this Report. This current report is not a Strategic Bushfire Study (SBS). The Strategic Bushfire Study will be prepared as part of the detailed information for the consideration of the planning proposal.

The specific issues to be addressed in a Strategic Bushfire Study, as summarised from Table 4.2.1 of RFS (2019) are identified below:

- Bushfire landscape assessment
- Landuse assessment
- Access and egress
- Emergency services
- Infrastructure
- Adjoining land.

The following Sections (Section 2 to 7) of this Report follow the order of issues to be incorporated into a SBS as identified in Table 4.2.1. of RFS (2019). Additional sections have been included in this report (Section 1 Introduction and Section 8 Conclusions) which are not identified in Table 4.2.1 but have been included into this report to supplement the information required in a SBS.

Development Category

The proposed development following the planning proposal approval would be classified as a special fire protection purpose development under Chapter 6 of Planning for Bushfire Protection (RFS, 2019) and is therefore 'integrated development' when a development application is lodged.

Planning for Bushfire Protection (RFS, 2019)

Due to the presence of bushfire prone land on the site, as shown on the Bushfire Prone Land Map, any planning proposal or development is required to include a Bushfire

Assessment Report prepared in accordance with the requirements of *Planning for Bushfire Protection* (RFS, 2019). A Strategic Bushfire Study will also be required as part of the final documentation for the planning proposal.

State Legislation

The development following planning proposal approval is an integrated development and will therefore be subject to Section 4.46 of the EP&A Act. Section 100 of the Rural Fires Act to the proposed development as it is integrated development. The planning proposal 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. BUSHFIRE LANDSCAPE ASSESSMENT

Climate and Bush Fire Season

The following details are provided in Bushfire Coordinating Committee (2011) for the local area:

“The typical/average climate in Gosford BFMC area is temperate with predominately summer rainfall and the bush fire season runs from October to March.

Prevailing weather conditions associated with the bush fire season in the Gosford BFMC area are north-westerly winds accompanied by high day-time temperatures and low relative humidity. There are also occasional dry lightning storms occurring during the bush fire season.”

A review of the climate records for the local area that the average maximum temperature between November to March is between 25°C to 27°C. Temperatures above 40°C have been recorded in each of these months. Rainfall is summer dominant with an annual average of 1328mm.

Topography

The site consists of the gently sloping land (0-5% gradient) located above an upland creek drainage terrace associated with Calverts Creek. The topographical details of the area are shown in Figure 1. The site is situated on the Central Coast Plateau areas.

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.

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 site are outlined below:

North – Pasture – Rural land, Managed land, Riparian vegetation

South – Remnant vegetation, Managed land and Pacific Highway

East – Managed land

West – Remnant vegetation with Riparian vegetation

A separate report for the assessment of the vegetation to the south as remnant vegetation due to a potential fire run towards future buildings of less than 50 metres is provided in Appendix 2.

Potential Bushfire Behaviour

The principle area of potential bushfire hazard affecting the site is the vegetated riparian area to the west (off-site) and in the north-west of the site.

The Bushfire Risk Management Plan (BCC 2011) has identified the area as being a human settlement asset (rural residential) with a high level of bushfire risk. This area has been assessed as 'possible' to be affected by bushfire with a major consequence of impact from a bushfire.

An analysis of the potential bushfire spread and intensity under various weather scenarios has not been completed at this early stage of assessment. This analysis would be more appropriate when determining a performance based solution for future bushfire protection measures if required with a future development application.

The distribution of forest vegetation around the site is shown in Figure 5. The upslope patches of forest to the north and east are separated from the site by cleared agricultural land and the commercial nursery/café developments.

The principle bushfire threat to the future development is the downslope remnant riparian vegetation and large patch of forest located to the south of the Pacific Highway (downslope).

3. LANDUSE ASSESSMENT

Provision of Asset Protection Zones

Asset protection zones will be integrated into the development and will generally consist of managed lawns and landscaped gardens managed in accordance with the conditions of an inner protection area as identified in Appendix 4 of RFS (2019).

RFS (2019) identifies 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

Bushfire Asset Protection Zone Assessment

A preliminary 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.

TABLE 2.1 ASSET PROTECTION ZONE ASSESSMENT (from Table A1.12.1 of RFS 2019)			
Direction	Vegetation Classification (within 140m)	Effective Slope (within 100m)	Recommended APZ Distance from Bushfire Hazard (metres)
North	Pasture, remnant shrub	Upslope	NR
South	Managed land	0-5 ⁰ downslope	NR
East	Managed land	Upslope	NR
West	Remnant vegetation	0-5 ⁰ downslope	47

NR = No Requirements as no hazard present

Building Construction Requirements and Bushfire Attack Level Determination

The asset protection zones applying to the future development following the planning proposal have been determined using the APZ assessment criteria from Table A1.12.1 of Planning for Bushfire Protection (RFS 2019). However, for any future building to be located within the site determination of the Bushfire Attack Level for each building in accordance with Table A1.12.5 of RFS (2019) is required at a later stage when an application for a buildings on the site is made.

All buildings to be located within 100 metres of the bushfire prone vegetation 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 buildings located beyond 100 metres from the identified bushfire hazards.

For Special Fire Protection Purpose buildings (e.g. hotels, tourist accommodation) Table 6.8a of RFS (2019) identifies that the accommodation building is not to be exposed to a radiant heat level of greater than 10kw/m². An APZ of at least 47 metres in width is required to achieve this radiant heat level, as identified in Table A1.12.1 of RFS (2019).

The final BAL determinations are to be assessed in the future Bushfire Assessment Report prepared at the development application stage following the planning proposal.

4. ACCESS AND EGRESS

The site is located on the corner of the Pacific Highway and Ashbrookes Road. The Pacific Highway is a through road with connection to the M1 Motorway at the Mt White Interchange (1.5 kilometers to the south) and at the Calga Interchange (6 kilometers to the north).

Ashbrookes Road is a sealed non-through road which terminates approximately 1.5 kilometers to the north-west of the site.

All access and egress will be to the Pacific Highway via Ashbrookes Road.

Section 5.3.2 of PBP (RFS 2019) outlines the requirements for public roads within a residential subdivision, however, the proposal is not for 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”*.

The subject site is located in the corner of Pacific Highway and Ashbrookes Road. A detailed Bushfire Emergency Management Plan (RFS 2019) would identify the evacuation procedures to be followed during a bushfire emergency. Evacuation by vehicles would be undertaken via the Pacific Highway (north or south direction if required).

5. EMERGENCY SERVICES

All emergency services have access to the site due to its location on the Pacific Highway at Mount White.

The nearest local depots or stations for the various emergency services are provided below:

Rural Fire Service

Brigade Station, Pacific Highway, Mount White

Travel Time: 10 minutes

Central Coast Headquarters, Woy Woy Road, Kariong

Travel Time 20 minutes

Fire and Rescue NSW

Station, Central Coast Highway Kariong

Travel Time: 20 minutes

Ambulance NSW

Station, M1 Motorway, Mooney Mooney

Travel Time 10 minutes

Police

Station, Mann Street Gosford

Travel Time 25 minutes

State Emergency Service

Depot, Poleman Avenue Erina

Travel Time 30 minutes

6. INFRASTRUCTURE

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 (where relevant) must comply with the following in accordance with Table 5.3c of Planning for Bush Fire Protection (RFS 2019):

- 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:

- lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas;
- 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.
- bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;
- 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.

Water Supply

The local area does not have reticulated water mains.

The future development should be provided with a dedicated bushfire water supply tank of 20,000 litres capacity (concrete or metal tank) to be installed and maintained. A diesel driven pump should be connected to the tank by metal pipes capable of adequate flows for firefighting purposes with an attached hose reel. A 65mm Storz outlet should be connected to the bushfire water supply tank. Alternatively, stored water in future swimming pools could be utilized as an alternative emergency supply. A large dam is located on land to the north-east which can be used as a static water supply for bushfire emergencies.

For this particular site an on-site stored supply of water for firefighting purposes is to be designed for any future development in accordance with Table 6.8c of RFS (2019).

Power

The future development will be supplied with power from the existing power. There are high voltage powerlines located in the northern part of the site which are not part of the development proposal.

Gas Supply

The future development will be supplied with a portable gas supply. There are high pressure gas pipelines located in the northern part of the site which are not part of the development proposal.

Communications

The future development will be connected to the underground fibre network. Mobile telephone coverage is available via the local communications network.

7. ADJOINING LAND

The adjoining land use and zoning is shown in Figure 3 and 5. The local road network is shown in Figure 1.

The surrounding land uses are:

North - Agricultural/rural residential.

- South - Approved B&B/Dwelling, partially cleared Forest, paddocks.
- East - Restaurant, Commercial plant nursery.
- West - Dwellings on large lots.

The principle direction of potential bushfire impact is from the remnant forest vegetation to the west and the retained forest to the south. There are no requirements to be imposed on adjoining landowners to increase the level of bushfire protection measures on their land to decrease the bushfire risk to the future development.

All future bushfire protection measures will be implemented within the subject site. These include:

- provision of appropriate asset protection zones
- construction of future swellings to appropriate bushfire attack levels
- provision of roads and water supply to meet the requirements of RFS (2019) as previously documented in this report.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Aims 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 at this stage of the planning proposal.

Objective 1

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

Construction of future buildings to meet the requirements of the specific bushfire attack levels (BAL) or radiant heat levels for each building, and the provision of the APZ as outlined in Sections 2 and 3, will ensure that adequate protection is provided to buildings and occupants of any future building 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 development 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 management of the APZ's as an inner protection area is designed to prevent the spread of fire to future buildings.

Objective 4

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

The existing 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/guests 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 site 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.

8.2 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. Detailed assessment of provision of an independent water supply for the future development and bushfire protection requirements.
- iii. Provision of services to be in accordance with Section 5.3.3 of RFS (2019).
- iv. Construction of future buildings 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.

8.2 CONCLUDING COMMENTS

The planning proposal for the future proposed 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.

REFERENCES

Councils of Standards Australia AS3959 (2018) – 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.

Bushfire Coordinating Committee (2011) Gosford District Bushfire Risk Management Plan

FIGURES

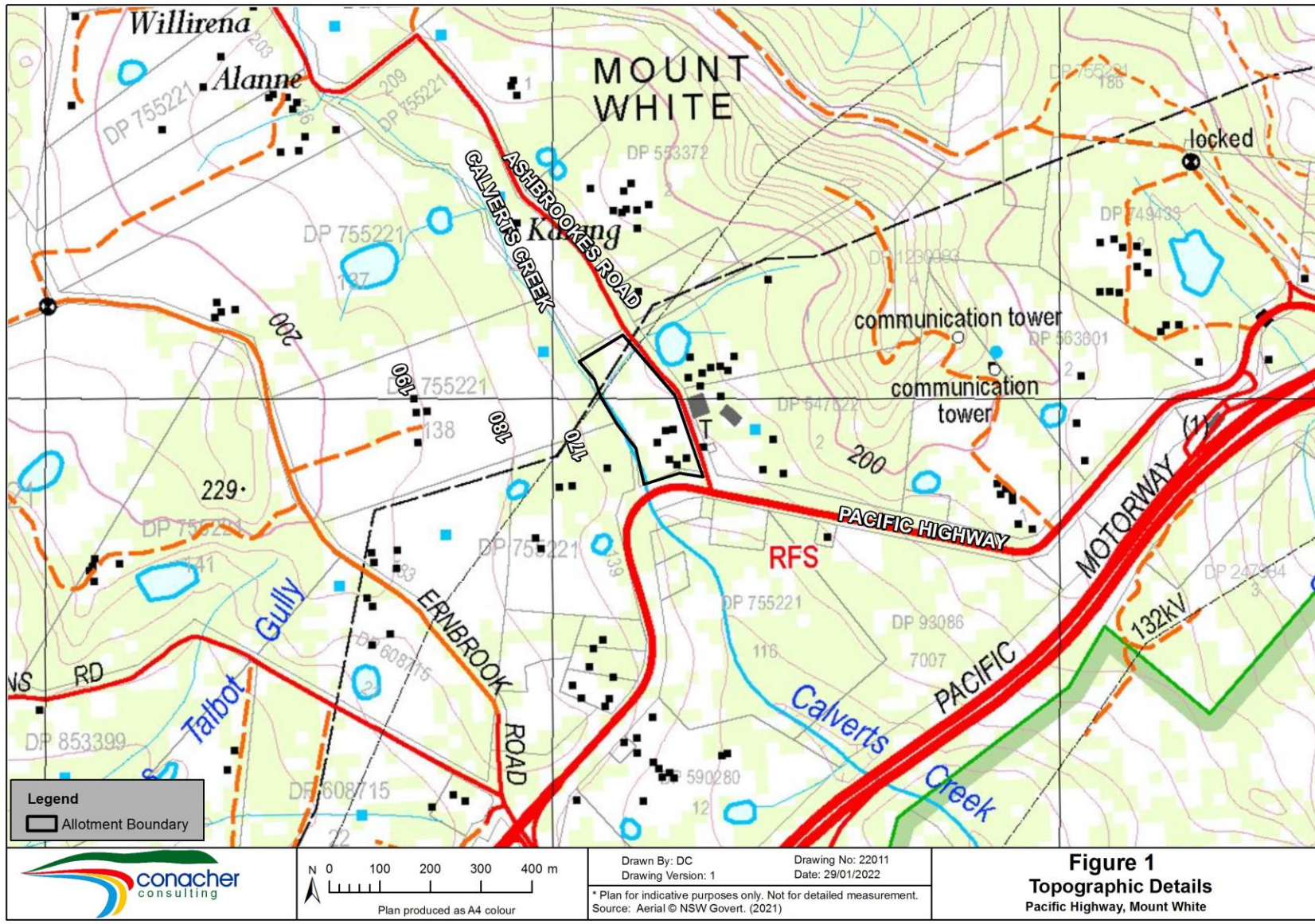
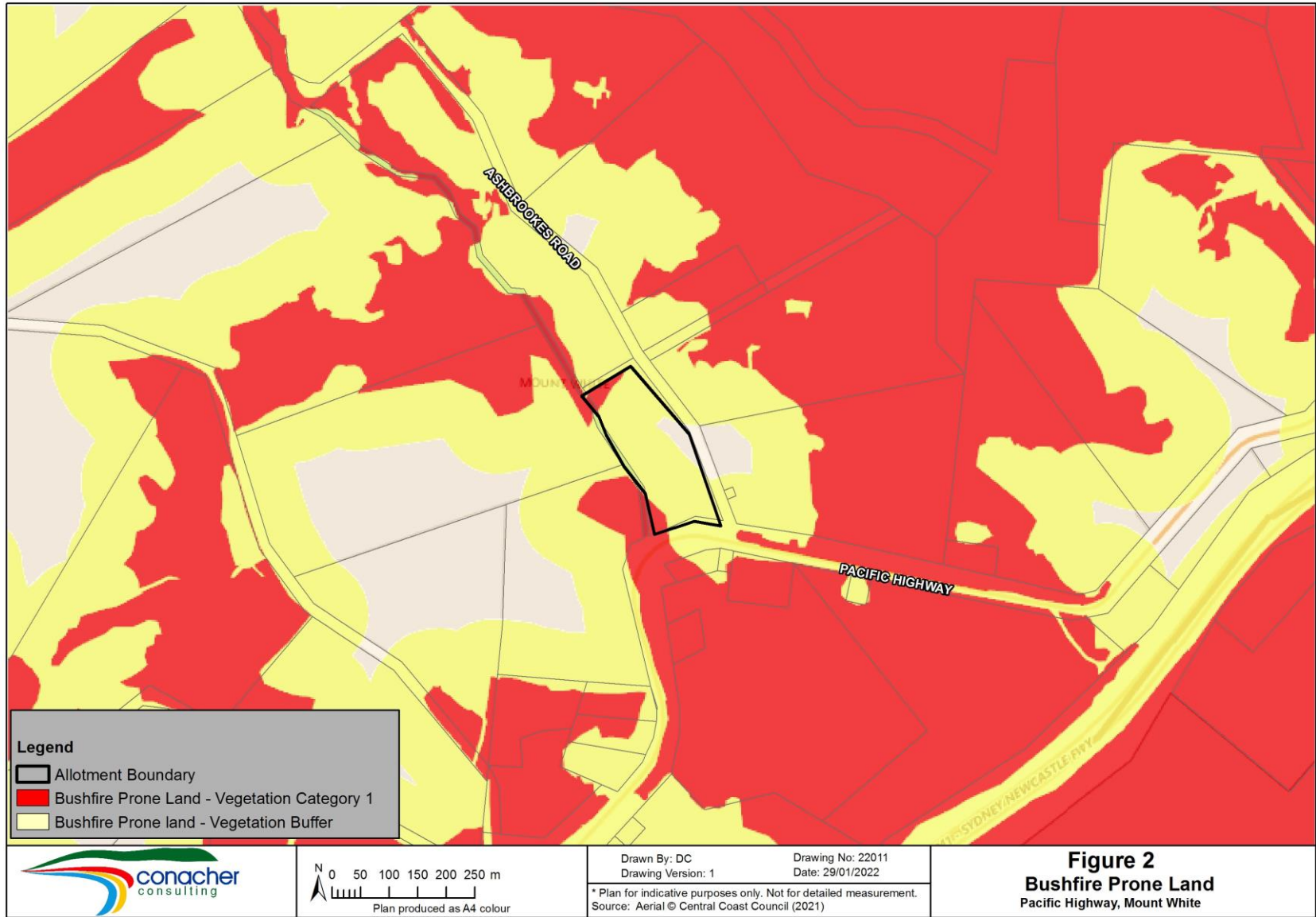
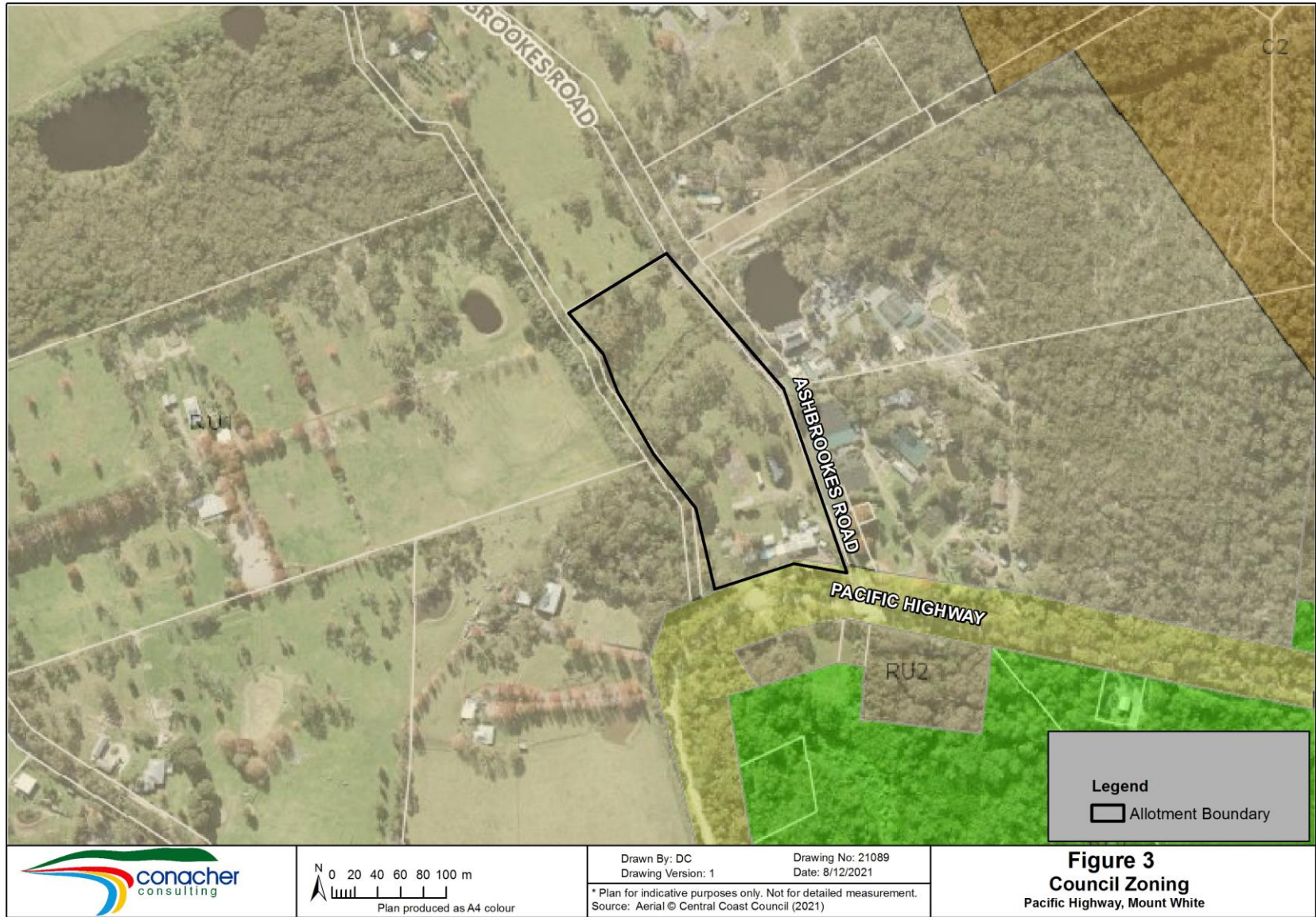
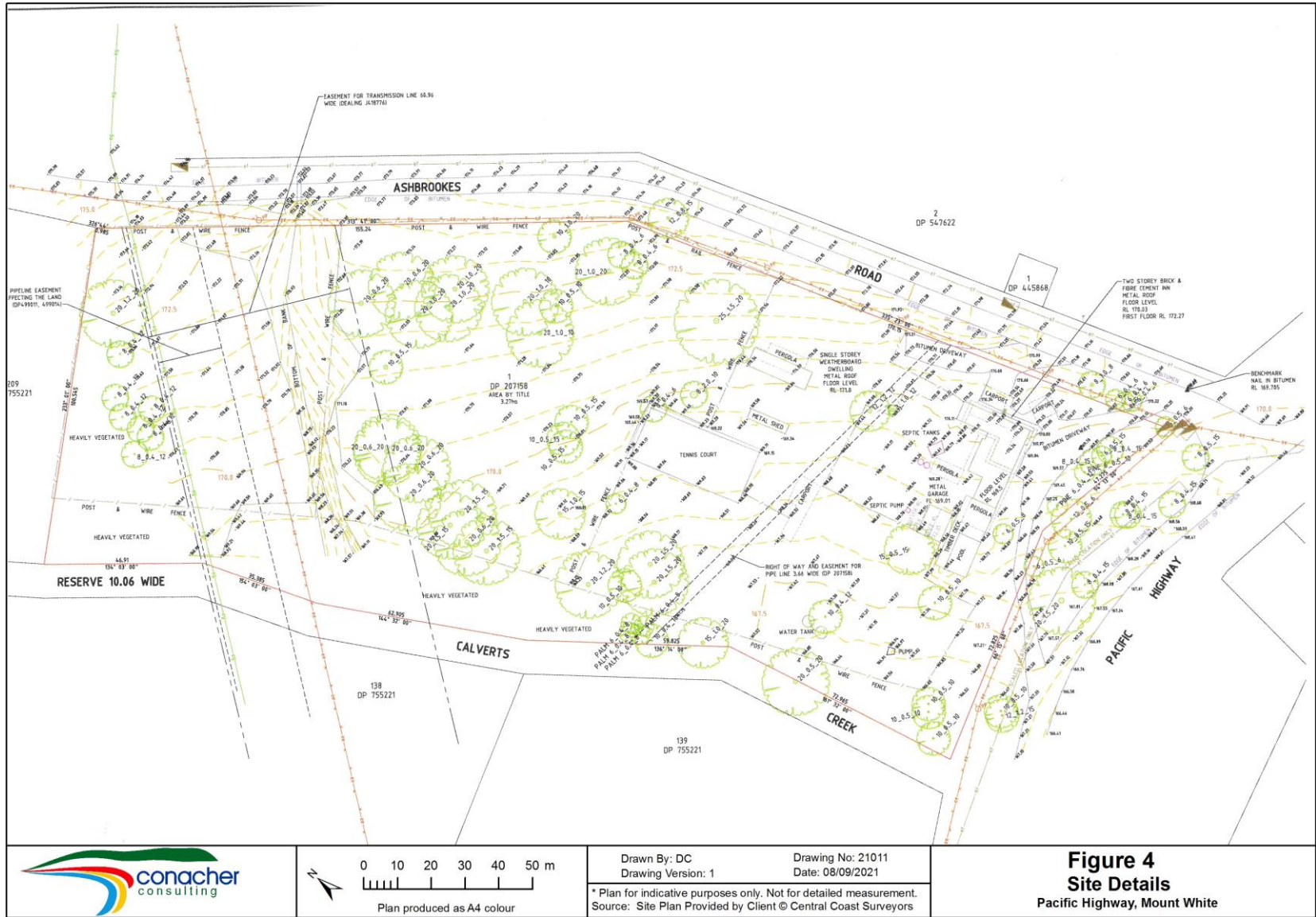
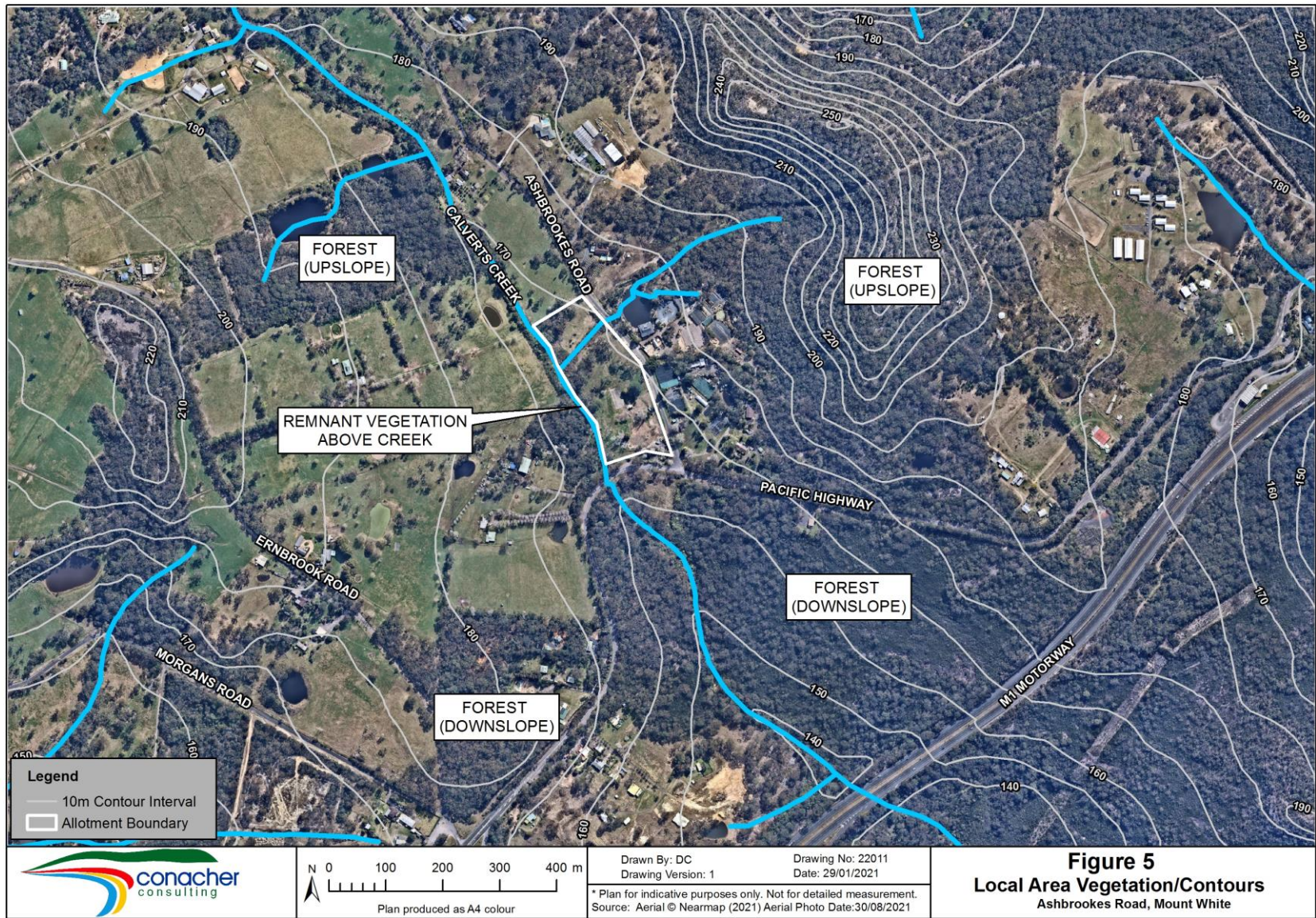


Figure 1
Topographic Details
 Pacific Highway, Mount White









APPENDIX 1

SITE SPECIFIC REMNANT VEGETATION ASSESSMENT

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SITE SPECIFIC REMNANT VEGETATION ASSESSMENT

The Rural Fire Service have requested an assessment for the western area of vegetation adjoining and within the site is identified in the Bushfire Report as remnant vegetation. The criteria used for determining the classification of this patch of vegetation as remnant vegetation are provided in Section A1.11.1 (Simplified Approach Method) of Appendix 1 of RFS (2019).

The following details and criteria identified in Section A1.11.1 of RFS (2019) are outlined below:

- The simplified approach is an acceptable method for assessing remnant vegetation.
- Remnant vegetation areas are considered low hazard vegetation with APZ setbacks and building construction standards to be determined as the same for rainforest in the use Tables A1.12.2 and 1.12.5 of RFS (2019).
- Remnant vegetation, when using the Simplified Approach of Section A1.11 is identified as a parcel of vegetation with:
 - ii A size of less than 1 hectare, or
 - iii A shape that provides a potential fire run that could threaten buildings not exceeding 50 metres.

The second of these two options (ie fire run not exceeding 50 metres) is used to demonstrate that the downslope vegetation is remnant vegetation. It is noted that both criteria do not need to be achieved to classify the Vegetation as remnant vegetation.

A fire run is the fire path that a bushfire travels in an upslope direction from lower elevations to higher elevations. Slope is the direction measured perpendicular to the land contours. The vegetation under detailed assessment is located downslope of the proposed building.

In addition to the topographic plan and aerial photographs provided as Figure 1, 2, 3 and 4 of the main report the following site specific plans have been prepared and relied on for determining the bio-physical characteristics of the site and adjoining landscape, including vegetation and bushfire run:

- Figure A – Local area depicting contours, drainage and vegetation.
- Figure B – Site Contour and Levels Plan.
- Figure C – Adjoining Areas Vegetation/Bushfire Hazard Plan
- Figure 4 is annotated with comments on vegetation characteristics and is provided in the Bushfire Assessment Report.

Additionally some ground level photographs are provided to demonstrate some of the relevant vegetation and bushfire hazard matters.

Some site specific details are provided below

i) Topography

- Site located on midslopes between local hill to the east and the creek flats of Calverts Creek to the west (Refer to Figure A).
- Site comprises slope gradient of approximately 4% present (2°)
- Site elevation ranges from 171 metres (east) to 166 metre (west).

ii) Drainage

- Calverts Creek (second order watercourse) is located to the west of the site, approximately 30-33 metres from the proposed building.
- Above the Pacific Highway Calverts Creek is a broad, low gradient watercourse with no incised channel and with a sandy, silt substrate within the base of the creek.
- Downstream of the Pacific Highway Calverts Creek has steeper gradients and flows over sandstone bedrock with a series of pools and riffles present.

iii) Vegetation

- The western vegetation contains patches of forest vegetation, cleared grassed paddocks and aquatic and wetland vegetation within the flow line of Calverts Creek.
- Vegetation within Calverts Creek comprises freshwater wetland vegetation with a low fire hazard.

DETAILS OF LAND VEGETATION TO THE EAST SIDE OF CALVERTS CREEK (WEST OF BUILDING)

- Distance from Calverts Creek to future building: 30-33 metres
- Width of riparian vegetation between creek and future building: 10-15 metres
- Width of managed pasture vegetation between building and riparian vegetation: 25 metres
- Measured fire run in riparian edge vegetation (upslope west to east): 10 metres
- Width of proposed APZ between riparian vegetation and building: 21 metres

DETAILS OF LAND VEGETATION TO THE WEST SIDE OF CALVERTS CREEK

- Extent of vegetation patch: 75 metres east/west. 125 metres north/south
- Area of vegetation including managed areas under tree canopy: 1.4 hectares
- Buildings within vegetated areas: sheds, dwelling
- Connectivity to the north: 30-40 metres wide riparian shrubs/heath along Calverts Creek
- Connectivity to the south: Forest to the south of Pacific Highway separated by 15-20m wide road clearing.

CONCLUDING COMMENTS

The area of tree and shrub vegetation growing along the banks of Calverts Creek to the west of the future dwelling area has a maximum potential of run of approximately 15 metres. Therefore this distance of fire run below 50 metres meets the criteria for the vegetation to be classified as remnant vegetation within the criteria established in Section A.1.11.1 of Planning for Bushfire Protection RFS (2019).

