

Bushfire Assessment Report

for

Mia Holman

at

13 Bungendore Road
Ingleside

Lot 133 DP 752046

February 2019

Roger Fenwick Bush Fire Consultant
BPAD-Level 2 Accredited BPD-PA 9797
PO Box 86 B Kettering Tasmania 7155
(03) 6283 3061 0411 609 906
roger@bushfire-consultant.com.au

Table of Contents

Executive Summary	3
Bushfire Attack Level Risk Assessment Certificate	3
Introduction	4
Location	4
Topography	5
Vegetation	5
Significant Environmental Features	5
Current Development	5
Proposed Development	5
Potential Fire Exposure	6
Asset protection zone	6
Construction standards	6
Water	6
Access	6
Services	6
Conclusion & Recommendations	6
References	7
Annexure 1 – cv	8
Annexure 2	10
Annexure 3 – maps	12

Executive Summary

The applicant proposes construction of a secondary dwelling on land within the buffer to fire-prone vegetation. This infill development is permitted by Clause 5.4 (9) (b) of the Pittwater LEP 2014 and is assessed under s4.14 of the *Environmental Protection & Assessment Act 1979* (EP&A Act).

Vegetation: **Forest**
Slope: **0° level - upslope**
Required setback: BAL-29: 25-35m
Actual setbacks: **34m**

Construction standard required: **BAL-29**

checklist

APZs comply with PBP 2006 Appendix 2?	Yes
APZs comply with AS 3959-2009 Table 2.4.2?	Yes
Proposed works comply with Addendum to PBP Appendix 3 2010?	Yes
Appropriately sited?	Yes
Construction standard complies with AS 3959-2009?	Yes
Property access road complies with PBP 4.1.3 (2)?	Yes
Internal access road complies with PBP 4.2.7?	N/A
Water supply complies with AS 2419.1-2005?	Yes
Mains electricity connection complies?	Yes
Reticulated gas is properly installed and maintained?	N/A
(Bottled) gas cylinders are correctly installed?	Yes
Landscaping complies with Appendix 5 & will maintain APZs?	Yes

Bushfire Attack Level Risk Assessment Certificate

I certify that the assessment and recommendations within this report comply with the relevant bushfire legislation and related codes.



Roger Fenwick

B Sc (For)
Grad. Cert. Design for Bushfire Prone Areas
BPAD-Level 2 Certified Practitioner BPD-PA-9797

Introduction

A summary of my *curriculum vitae* is attached as Annexure 1.

I have been asked to report on proposed construction of a secondary dwelling on land zoned RU2 within the Northern Beaches LGA. The proposal was assessed with respect to compliance according to s4.14 of the EP&A Act as non-integrated (infill) development required to comply with BAL-29 siting and construction. The Pittwater LEP 2014 s5.4 (9) (b) permits this development.

Location

The site is defined as Lot 166 DP 752046 in the Northern Beaches (ex Pittwater) Local Government Area. The address is 13 Bungendore St, Ingleside. This is in the Greater Sydney Fire Weather Area, for which FDI 100 conditions apply.

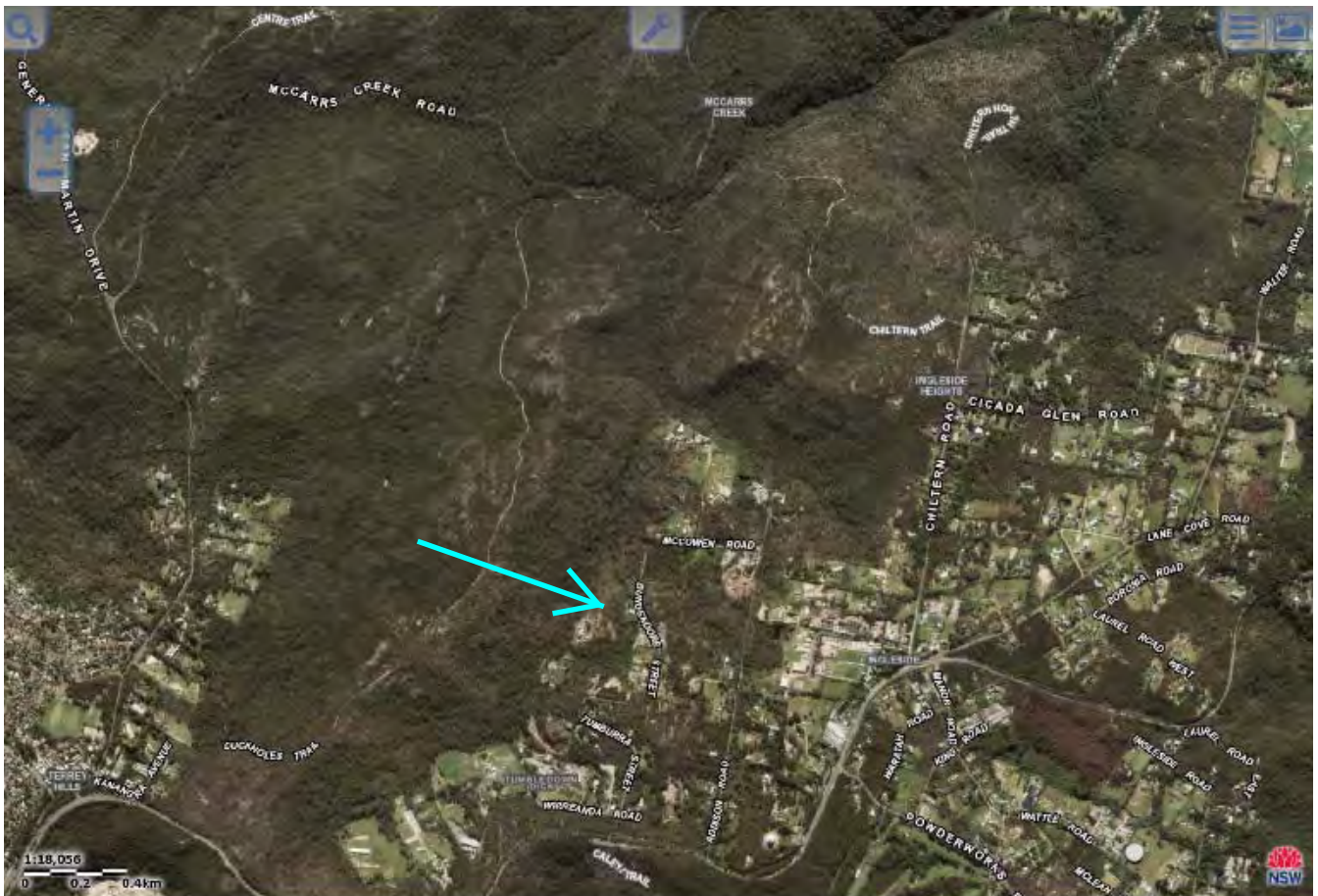


Photo 1 General site location, Sixmaps, printed 13 February 2019

The maps, plans and aerial image at Annexure 3 show the site and its surrounds.

Topography

All slopes and distances were determined by me during an on-site inspection on 24 April 2018, using a Suunto clinometer and Bushnell 450 laser rangefinder. Some distance observations were verified by reference to Sixmap images.

The proposed secondary dwelling site itself is flat and level, and is set on a promontary over land that generally slopes and benches down to the west. To the south of the property boundary the land is level relative to the subject site. To the east of the site the land slopes up slightly.

Vegetation

Vegetation on the property is now all managed, as part of development associated with the primary dwelling located on a lower tier of land to the west of the subject site. Retained vegetation to the south on the other side of the 10m wide access handle and roadway to the adjacent property is Dry sclerophyll forest (Keith 2004) equivalent to Forest vegetation (Specht 1970, in Auslig 1990, in AS 3959), commencing 34m from the proposed new works. Vegetation generally to the east on the other side of Bungendore St is the same, and is located 65m from the site.

Vegetation on the large block of land adjoining the bulk of the site to the SW is all managed to IPA standards. All other vegetation is more than 100m distant.

Significant Environmental Issues

None are known or considered to be likely. No vegetation removal associated with construction of the dwelling or APZs is proposed.

Current Development

The site currently has a primary dwelling application in preparation under the provisions of *SEPP (Exempt and complying development codes) 2008*. That house has an area of 400m². There is also a substantial farm shed on the site.

Proposed Development

The applicant proposes to construct a secondary dwelling, located within a BAL-29 setting on an upper tier of the site, near Bungendore Rd. This complies with the RFS policy governing increased density.

Potential Fire Exposure

Asset protection zone

Within this report, references to guidelines or PBP means the '*Planning for bush fire protection 2006*' and *Addendum Appendix 3 2010* publications by the NSW Rural Fire Service (RFS). References to Standards are to AS 3959 - 2009, *Construction of buildings in bushfire-prone areas*. References to Bushfire Attack Level (BAL)-xx construction standards are derived from AS 3959-2009, where xx refers to the radiant heat load in kWm^{-2} . An extract of some of the relevant parts of those documents is at Annexure 2.

The closest part of the proposed new works to Forest vegetation on level ground will be 34m distant from it.

Construction standards

Being between 25 & 35m from Forest vegetation on level ground or an upslope requires construction of houses at BAL-29 under AS 3959-2009, subject to the NSW variation specified in *Addendum: Appendix 3 2010*.

Water

No reticulated town water nor hydrants are supplied. A mixture of in-ground and above-ground tanks will hold a total of 250kl of water, of which at least 20kl is reserved for fire fighting with appropriate fittings and hardstanding for tankers. This meets the requirements of 4.1.3 of PBP.

Access

Access to the site is directly off Bungendore St, a locally 7m wide public road. Internal access is not applicable, but there will be an acceptable turning Y beside the house. This meets the requirements of PBP.

Services

Mains electricity is supplied to the site via overhead wires from overhead cables. Bottled gas, if connected, will be sited, protected and plumbed to code, using all-metal above-ground components. Services will meet the requirements of PBP.

Maintenance

The entire grounds will continue to be maintained to suburban garden standards.

Conclusion & Recommendations

The proposed works should be approved with the following conditions:-

1. The grounds of the property shall in perpetuity be managed as an Inner Protection Area as outlined in S 4.1.3 and Appendix 5 of PBP and the RFS document 'Standards for asset protection zones'.
2. Construction of all new works shall comply with Sections 3 & 7 of AS 3959-2009, as modified by *Addendum: Appendix 3 2010*.

References

Keith D. (2004) *Ocean Shores to Desert Dunes*. Department of Environment and Conservation, Sydney

Rural Fire Service NSW (2005) *Standards for Asset Protection Zones*

Rural Fire Service NSW (2006) *Planning for bush fire protection*

Rural Fire Service NSW (2010) *Planning for bush fire protection Addendum: Appendix 3*

Standards Australia (2009) AS 3959 *Construction of buildings in bushfire-prone areas*.

Annexure 1 – *cv*

Curriculum vitae

Roger Fenwick

CURRICULUM VITAE

Name: **Roger FENWICK**

Born: 1946

Qualifications: B Sc (For), Australian National University, 1969.
Graduate Certificate BPAD, UWS, 2013.
Member, Fire Protection Association of Australia.

Language: English

Positions Held:

1988-Present	Consultant
1986-87	Chief Fire Control Officer, (CFCO) ACT Bush Fire Council
1985	Secretary, ACT Bush Fire Council
1982-1984	Experimental Officer, CSIRO, Project Aquarius
1979-1981	Field Service Representative for Chemonics Industries, USA
1976-1978	CFCO of the ACT Bush Fire Council
1972-1975	Deputy CFCO, including one year of acting CFCO, ACT Bush Fire Council
1971	Assistant Forester at Pierces Creek Forest, and assistant to the CFCO
1970	Assessment Section, ACT Forests, and assistant to the CFCO of the ACT Bush Fire Council

Fields of Special Competence:

Fire risk assessment and control measures to minimise fire risk, fire control and organisation and management of rural fire fighting services, fire forensic investigations, training in bush fire fighting, fire fighting equipment selection and maintenance, and chemical fire retardant use.

Extract of PBP

&

AS 3959

BAL-29 Approved hardwood species

Standard trade name	Botanical name
Ash, silvertop	Eucalyptus sieberi
Blackbutt	Eucalyptus pilularis
Gum, spotted	Corymbia maculata
	Corymbia henryi
	Corymbia citriodora
Gum, red, river	Eucalyptus camaldulensis
Ironbark, red	Eucalyptus sideroxylon
Kwila (Merbau)	Intsia bijuga
Turpentine	Syncarpia glomulifera

This is a **summary** of the **minimum** specifications in 'Planning for Bushfire Protection 2006' as amended in 2010 and 'AS 3959 2009 – Construction of buildings in bushfire-prone areas' which are recommended in this report. It is included as a courtesy, is a guide only, and may not be complete. In addition, the contents of the documents from which this information was extracted may have changed between the dates of preparation of this report, and its use or application. Specifications in other documents such as the Building Code of Australia (BCA) may apply. It is the user's responsibility to comply with all statutory conditions as well as those specified by the approving authority with particular reference to this report. The appropriate source documents should be consulted to determine the full specifications abbreviated in this table.

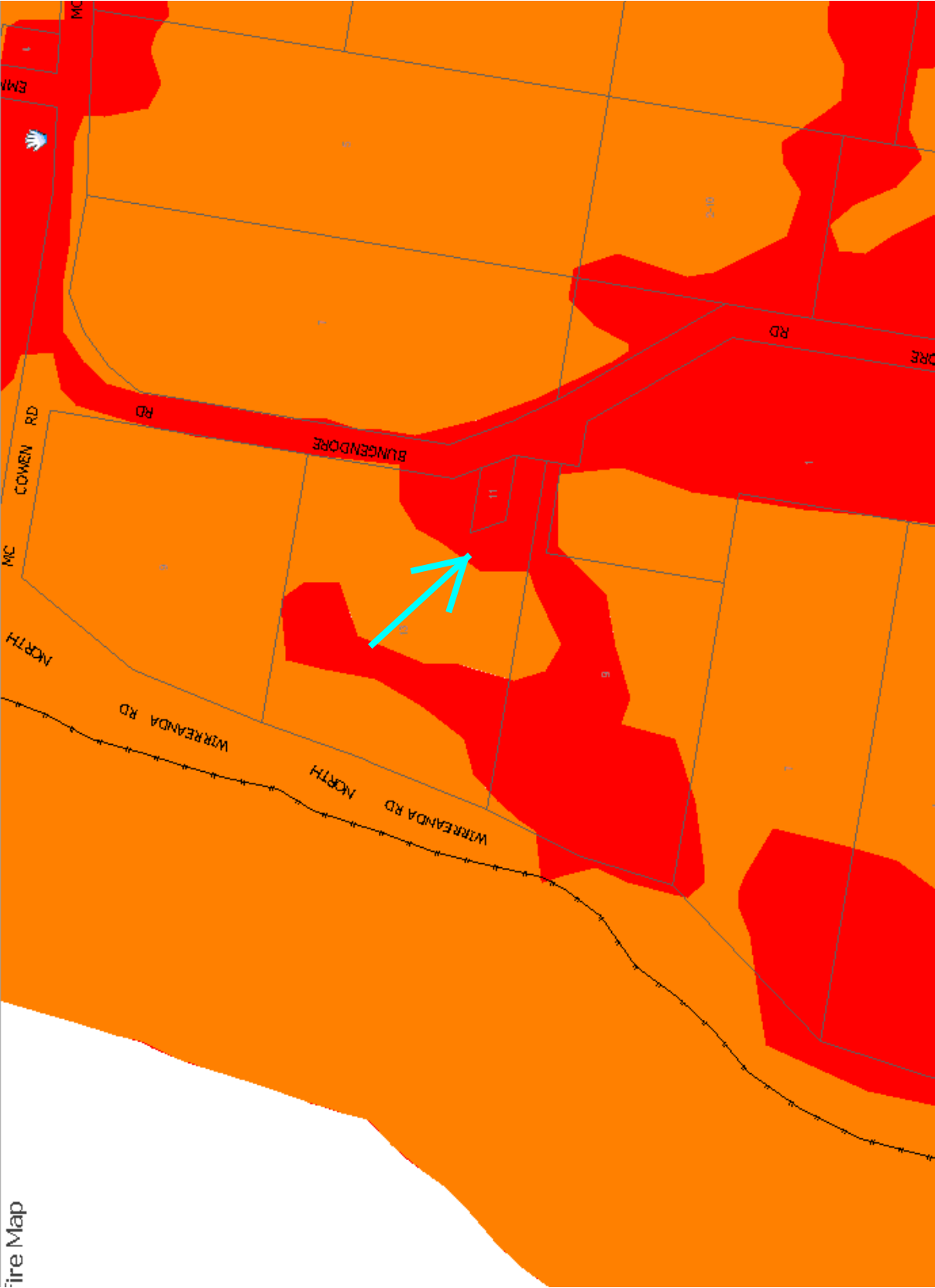
		BAL-12.5	BAL-19	BAL-29	BAL-40					
Floor	Slab	OK			Non-combustible or FRT or enclosed					
	Timber <400mm ag	FRT or lined or enclosed								
	Timber >400mm ag	OK								
Floor posts		FRT or enclosed			Enclosed or non-combustible					
External walls		400mm FRT or non-combustible	FRT or non-combustible		Non-combustible					
Windows	Frame	FRT or metal			Metal					
	Screens	Al, Fe or Br mesh on all openable	Fe or Br mesh on all openable, 5mm toughened glass, or shutters		Fe or Br mesh on all, 6mm toughened glass, or shutters					
External doors	Sliding	Safety glass	5mm toughened glass	6mm toughened glass or full mesh	6mm toughened glass plus full mesh or shutter					
	Screens	Al, Fe or Br, if fitted			Fe or Br					
	Timber frames	FRT			Metal only					
Vents etc	Garage	Lower 400mm FRT or non-combustible	FRT or non-combustible		Non-combustible					
Roofs	Mesh	Al, Fe or Br mesh 2mm			Fe or Br mesh 2mm					
	Tiled	Fully sarked (Flammability Index <5)								
	Sheeted	Non-combustible, fully sarked (Flammability Index <5)								
Verandahs, decks etc	Rooflights	Non-combustible sleeve/lining, 4mm safety glass			FRL -/30/-					
	Enclosed	Any supports, <3mm spaced deck, FRT or non-combustible			Any supports, unspaced deck, non-combustible					
	Unenclosed	FRT or non-combustible, <3mm spaced deck			All non-combustible, unspaced deck					
Services	<300mm to glass	300mm wide FRT or non-combustible	FRT or non-combustible		Non-combustible					
		Exposed water & gas pipes to metal								
Ag	Above ground	FRT	Fire Resistant	Timber	Al	Aluminium	Fe	Stainless steel	Br	Bronze

Annexure 3 – maps

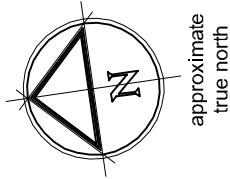
Maps and Plans

Aerial images Sixmaps, printed 13 February 2019
Bushfire Prone Land map
Site plans





Fire Map



survey notes:

- 1) CAUTION: SHOULD ANY DEVELOPMENT OR CONSTRUCTION BE PLANNED ON OR NEAR THE BOUNDARIES, THE BOUNDARIES SHOULD BE CLEARLY MARKED ON SITE.
- 2) ALL AREAS AND DIMENSIONS HAVE BEEN COMPILED FROM PLANS MADE AVAILABLE AT THE LAND TITLE OFFICE.
- 3) ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM G.P.S. (SMARTNET).
- 4) CONTOUR INTERVALS 0.5 METRE.
- 5) SPOT LEVELS ARE INDICATIVE OF GROUND FORM ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
- 6) TREE SPREADS ARE DIAGRAMMATIC ONLY AND ARE NOT SYMMETRICAL.
- 7) NO UNDERGROUND TOL BEFORE YOU DIG - SERVICES REQUIRED IN THIS VICINITY.
- 8) SPOT LEVELS ARE ACCURATE.
- 9) BEARINGS SHOWN ARE ON M.G.A. - (MAP GRID of AUSTRALIA).


legend:

- ④ TREE POINT NUMBER (REFER ACCOMPANYING SURVEY)
- GUTTER - DENOTES TOP OF GUTTER
- DRAINAGE PIT
- INSPECTION CAP
- ⊙ POWER POLE
- ⊕ ELECTRICITY PILLAR
- CENTRE OF UTILITY TRENCH
- OVERHEAD ELECTRIC LINES
- TOP OF BANK
- BOTTOM OF BANK
- ROCK OUTCROP

area calculations:

Principal Dwelling Area: 492.8m²
Secondary Dwelling Area: 246m²
Hard surface area: 150m²
Total Non-Landscaped Area: 888.88m²
Landscaped Area = 25,880 - 888.88m² = 24,991.2m²
The Proposal provides for a Landscaped Area of 24,991.2m² (96.6%)

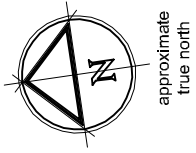
site/analysis layout plan

Note: © Copyright. This design and plan is the property of PARKER & ASSOCIATES and must not be used, reproduced or copied wholly or in part without written permission from the company.	Project: PROPOSED SECONDARY DWELLING 13 BUNGENDORE STREET, INGLESIDE. For: MR J HOLMAN				 <p>parker + associates building design consultants A B N 9 3 9 2 5 7 4 9 1 6 2 SYDNEY: PO BOX 143 THORNLEIGH NSW 2120 LAKE MACQUARIE: 5/68 THOMPSON ROAD, SPEERS POINT NSW 2284 TEL/FAX: (02) 4942 8407 MOBILE: 0416 069 847 EMAIL: anthony@parkerbdc.com WEB: www.parkerbdc.com</p>		Date: MAR. 2019	Sheet: 1
							Drawn: AJP	Job No.
							Scale: 1:1000	20412
	D	22/5/19	DA ISSUE					
	C	10/5/19	REVISED SKETCH					
	B	9/4/19	REVISED SKETCH					
	A	12/3/19	INITIAL SKETCH	E	9/8/19	REVISED DA ISSUE		
	ISSUE	DATE	COMMENT	ISSUE	DATE	COMMENT		

general notes:

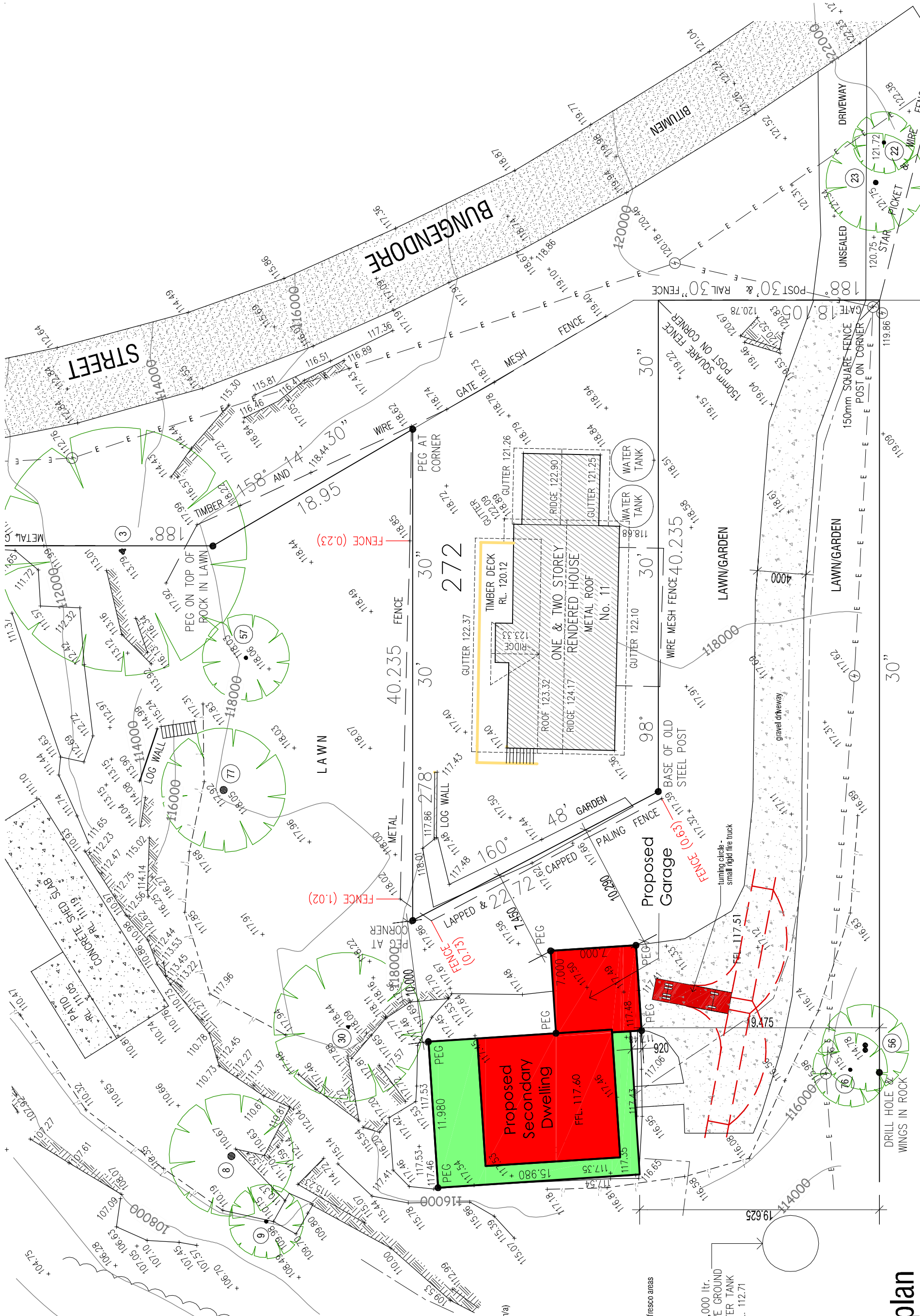
1. ALL DIMENSIONS AND FLOOR AREAS ARE TO BE VERIFIED BY BUILDER
2. LEVELS SHOWN ARE APPROXIMATE UNLESS ACCOMPANIED BY REDUCED LEVELS BY A REGISTERED SURVEYOR.
3. FIGURED DIMENSIONS ARE TO BE TAKEN IN PREFERENCE TO SCALING.
4. ALL BOUNDARY CLEARANCES MUST BE VERIFIED BY THE SURVEYOR PRIOR TO THE COMMENCEMENT OF ANY BUILDING WORK.
5. WHERE ENGINEERING OR HYDRAULIC DRAWINGS ARE REQUIRED, SUCH MUST TAKE PREFERENCE TO THIS DRAWING.
6. STORMWATER TO BE CONNECTED AND DISCHARGED TO COUNCIL'S REQUIREMENTS AND TO AS 3500.3-1990.
7. ALL SERVICES TO BE LOCATED AND VERIFIED BY THE BUILDER WITH THE RELEVANT AUTHORITIES PRIOR TO THE COMMENCEMENT OF ANY BUILDING WORKS.





legend:

- contours
- spot levels
- finished floor levels
- trees to be retained
- trees to be removed (n/a)
- existing building
- proposed buildings
- proposed veranda/allresco areas



site layout plan

Note:

© Copyright. This design and plan is the property of PARKER & ASSOCIATES and must not be used, reproduced or copied wholly or in part without written permission from the company.

Project:

PROPOSED SECONDARY DWELLING
13 BUNGENDORE STREET, INGLESIDE.
For: MR J HOLMAN

ISSUE	DATE	COMMENT
D	22/5/19	DA ISSUE
C	10/5/19	REVISED SKETCH
B	9/4/19	REVISED SKETCH
A	12/3/19	INITIAL SKETCH

ISSUE	DATE	COMMENT
E	9/8/19	REVISED DA ISSUE

parker + associates
building design consultants

A B N 9 3 9 2 5 7 4 9 1 6 2
SYDNEY: P O BOX 143 THORNTON RD. SPEERS POINT NSW 2126
LAKE MACQUARIE: 5/68 THOMPSON ROAD, SPEERS POINT NSW 2284
TEL/FAX: (02) 4942 8407 MOBILE: 0416 069 847
EMAIL: anthony@parkerbdg.com WEB: www.parkerbdg.com

Date: MAR. 2019

Drawn: AJP

Scale: 1:300

Sheet: 2

Job No. 20412



BUILDING DESIGNERS
ASSOCIATION OF AUSTRALIA
Membership No.1064-09

BUSHFIRE ATTACK LEVEL: CONSTRUCTION STANDARDS

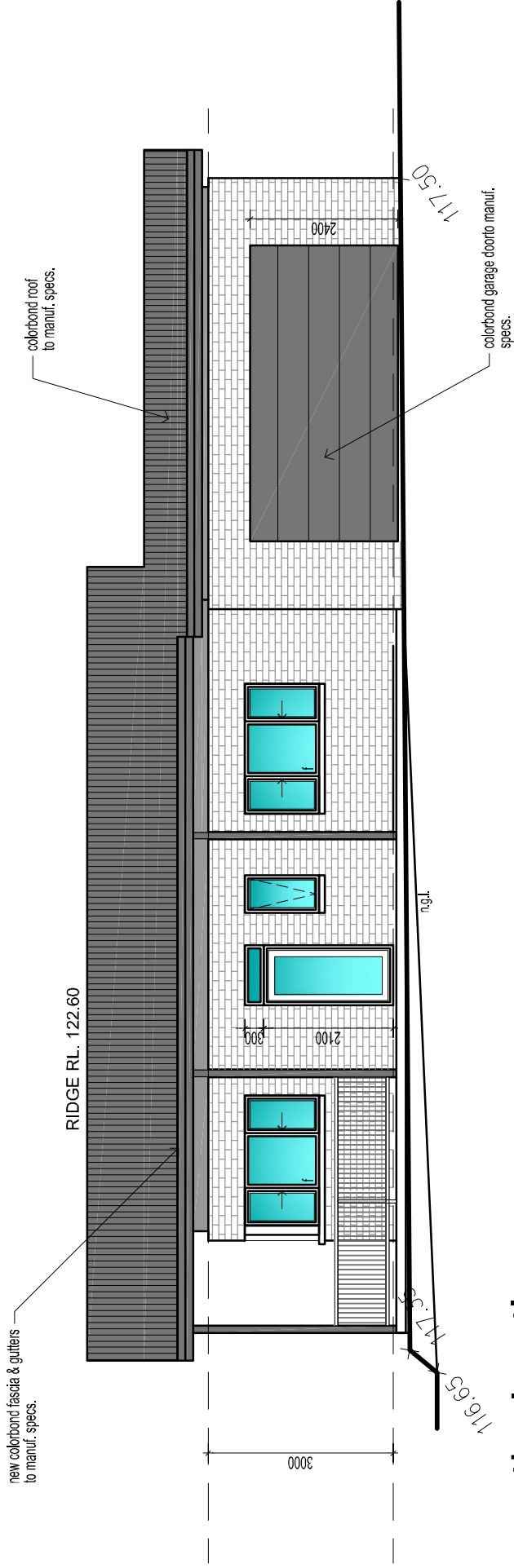
As per the accompanying BUSHFIRE THREAT ASSESSMENT REPORT by Roger Fenwick Bush Fire Consultant.

As the proposal is to construct a class 1a dwelling, the proposal must conform to the performance criteria of PBP 2006 4.3.5. Accordingly the proposed new works shall comply with AS 3959–2009 Section 7, BAL–29.

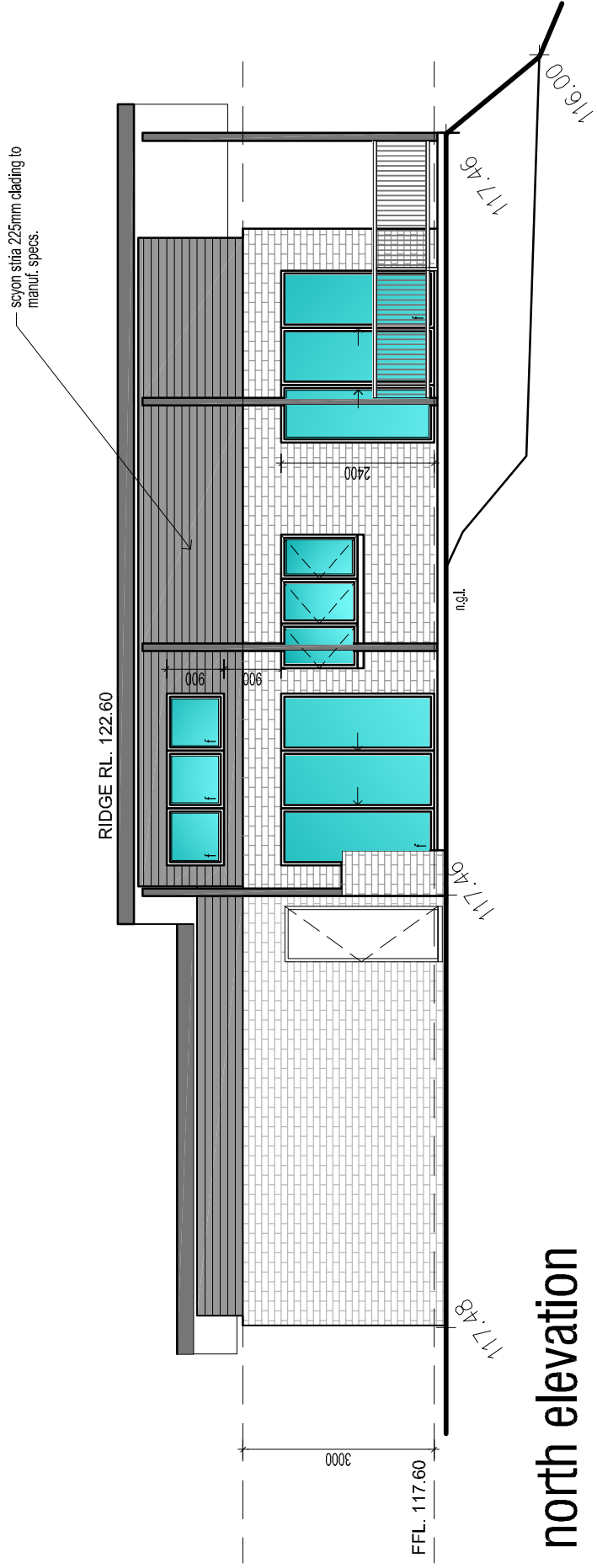
Nb: The owner/builder should consult the actual standard before commencing construction.

Construction of exposed facades to AS 3959–2009 Section 7, BAL–29 will increase the structure's survivability in the event of a bushfire attack.

Generally the structure shall be constructed from a selection of materials which comply with the prescribed requirements of AS 3959 2009.




south elevation



north elevation

Note: © Copyright. This design and plan is the property of PARKER & ASSOCIATES and must not be used, reproduced or copied wholly or in part without written permission from the company.	Project: PROPOSED SECONDARY DWELLING 13 BUNGENDORE STREET, INGLESIDE. For: MR J HOLMAN				Date: MAR. 2019		Sheet: 4
					Drawn: AJP		Job No.
					Scale: 1:100		20412

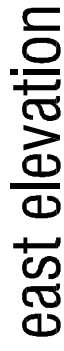



parker + associates
building design consultants

A B N 9 3 9 2 5 7 4 9 1 6 2
SYDNEY: P O BOX 143 THORNLEIGH NSW 2120
LAKE MACQUARIE: 5/55 THOMPSON ROAD, SPEERS POINT NSW 2284
TEL/FAX: (02) 4942 8407 MOBILE: 0416 069 847
EMAIL: anthony@parkerbdc.com WEB: www.parkerbdc.com

D	22/5/19	DA ISSUE				
C	10/5/19	REVISED SKETCH				
B	9/4/19	REVISED SKETCH				
A	12/3/19	INITIAL SKETCH	E	9/8/19	REVISED DA ISSUE	
ISSUE	DATE	COMMENT	ISSUE	DATE	COMMENT	

Generally the structure shall be constructed from a selection of materials which comply with the prescribed requirements of AS 3959 2009.



Note: © Copyright. This design and plan is the property of PARKER & ASSOCIATES and must not be used, reproduced or copied wholly or in part without written permission from the company.	Project:									
	PROPOSED SECONDARY DWELLING									
	13 BUNGENDORE STREET, INGLESIDE.									
	For: MR J HOLMAN									
	D	22/5/19	DA ISSUE							
	C	10/5/19	REVISED SKETCH							
	B	9/4/19	REVISED SKETCH							
	A	12/3/19	INITIAL SKETCH	E	9/8/19	REVISED DA ISSUE				
	ISSUE	DATE	COMMENT	ISSUE	DATE	COMMENT				
										
	parker + associates building design consultants									
	A B N 9 3 9 2 5 7 4 9 1 6 2 SYDNEY : P O BOX 143 THORNTON LEIGH NSW 2120 LAKE MACQUARIE : 5/58 THOMPSON ROAD, SPEERS POINT NSW 2294 TEL : 02 9330 1000 FAX : 02 9330 1001 EMAIL : anthony@parkerbdc.com WEB : www.parkerbdc.com									
				Date: MAR. 2019		Sheet: 5				
				Drawn: AJP		Job No.				
				Scale: 1:100		20412				



Area 1:

Taken from the middle gate looking west at the Eastern Plateau



Taken from the bottom gate looking south from the Northern Plateau to the Eastern Plateau:



Taken from the bottom gate looking west over the Northern Plateau:



Panorama taken standing on the north western corner of the Middle Plateau showing east to west (ie left to right):



Note the farm shed with helicopter landing site in front of it. This helicopter landing site has access to 120,000 litres of water with a positive head of 6m (ie the perfect location for RFS helicopters to land and refill with firefighting water without the need for a water pump).

Taken on the south eastern corner of the Middle Plateau looking east towards the Top Plateau:



Taken on the south eastern corner of the Middle Plateau looking west over the Middle Plateau (note the underground 120,000 concrete water tank):

