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Building Construction in Bush Fire Prone Areas

Bushfire Hazard Assessment Report

REF No. 19.09.301

Address	Lot 1 DP 1181666 Castlereagh Road Castlereagh NSW 2749
For	K & M Smith
The site was inspected on	24th September 2019

Report Preparation

Craig Burley

Grad Dip Design for Bushfire Prone Areas
FPAA Certified BPAD – Level 3 Practitioner

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

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Bushfire Risk Assessment Certificate

As required by legislation under section 79BA of the *Environmental Planning and Assessment Act* 1979 No 203

Property Address:	Lot 1 DP 1181666 Castlereagh Road Castlereagh NSW 2749
Description of Proposal	New Class 1a dwelling and new Class 10a being a farm shed
Plan Reference: [Relied upon in report preparation]	This assessment is based on plans prepared by: Distinct Innovations Dated: August 2019 Drawing No: 1707
Bushfire Hazard Assessment Report Ref. No.	19.09.301
Report Date:	03.10.2019
BAL Rating:	BAL 12.5
Does the proposal comply with the requirements of *Planning for Bush Fire Protection* 2006?	YES with incorporation of the recommendations included contained in the attached Bushfire Hazard Assessment Report
Does the proposal require referral to the NSW Rural Fire Service?	NO
Does the proposal rely on Alternate Solutions?	NO

I Craig Burley of Control Line Consulting have carried out a bushfire risk assessment on the above-mentioned proposal and property.

A detailed Bushfire Hazard Assessment Report has been prepared in accordance to the submission requirements as set out in *Appendix 4* of *Planning for Bush Fire Protection* 2006 together with recommendations as to how the relevant specifications and requirements are to be achieved.

I hereby certify, in accordance with *79BA of the Environmental Planning and Assessment Act* 1979 No 203:

1. That I am a person recognised by the *NSW Rural Fire Service* as a qualified consultant in bushfire risk assessment; and

2. That subject to the recommendations contained in the attached Bushfire Hazard Assessment Report the proposed development conforms to the relevant specifications and requirements.

I am aware that the Bushfire Hazard Assessment Report, prepared for the above mentioned site is to be submitted in support of a development application for this site and will be relied upon by Penrith City Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with *Planning for Bushfire Protection* 2006.

Yours faithfully

Craig Burley
Grad Dip Design in Bushfire Prone Areas
FPA Australia BPAD – Level 3 Certified Practitioner

BPAD
Bushfire
Planning & Design
Accredited Practitioner
Level 3

Executive Summary

We have been engaged by K & M Smith, the owners of the subject land to prepare a bush fire hazard assessment report to be a supplement for inclusion in a development application to Penrith City Council, for the proposed construction of a new Class 1a dwelling and a new Class 10a building being a farm shed upon their land.

The site has been identified as being bushfire prone land and therefore the legislative requirements for the proposed development are applicable.

The proposed development is an infill development as defined within *Planning for Bush Fire Protection* 2006 and this report has been prepared in accordance with the requirements of *Section 79BA of the Environmental Planning and Assessment Act 1979.*

The objectives and performance requirements for the proposed development as required by the Building Code of Australia Volume 2 and the document *Planning for Bush Fire Protection* 2006 will be achieved by the incorporation of the recommendations contained within this report.

Bushfire Attack Summary
Lot 1 DP 1181666
Castlereagh Road Castlereagh NSW 2749

Vegetation Formation	Grassland to south
Vegetation Slope	Downslope > 0 to 5 degrees
Building Separation Distance metres	35
Separation Slope	Downslope > 5 to 10 degrees
Fire Danger Index	100
Category of Bushfire Attack	Low
AS 3959 Construction Standard	BAL 12.5

The proposal and the recommendations contained within this report can provide for conformity to *Planning for Bush Fire Protection* 2006 and therefore will assist in providing a reasonable level of bushfire protection and improve but not guarantee the chances of building survival, or provision for the occupants with a safe refuge during the passage of a bushfire front and or the provision of a defendable space for fire fighters.

Table of Contents

1.0 Introduction

We have been engaged by K & M Smith, the owner of the subject land to prepare a bush fire hazard assessment report to be a supplement for inclusion in a development application to Penrith City Council for the proposed construction of a new Class 1a dwelling and a new Class 10a building being a farm shed upon the subject land.

The site has been identified as being bushfire prone land and therefore the legislative requirements for the proposed development are applicable.

The proposed development is an infill development as defined within *Planning for Bush Fire Protection* 2006 and this report has been prepared in accordance with the requirements of *Section 79BA of the Environmental Planning and Assessment Act 1979.*

1.1 Purpose of Report

- To determine the vegetation type, the expected fire behaviour and the threat to the proposal; and
- To assess the proposal with reference to *Planning for Bush Fire Protection* 2006; and
- To assess the proposed construction with reference to the Building Code of Australia Volume 2; and
- To determine the level of construction with reference to AS 3959-2009 *Construction of buildings in bushfire prone areas;* and
- To identify any other such measures as to improve the chances of building survival during a bushfire event; and
- To assist the consent authority Penrith City Council in the determination of the development application subject to this proposal.

1.2 Scope of Report

The scope of this report is limited to the Bushfire Hazard Assessment for the proposed development and only contains recommendations for the subject property. Where reference is made to adjacent or adjoining lands, this report does not purport to assess those lands; rather it may discuss bushfire progression on and through those lands with the possible bushfire impact to the subject property and the proposed development.

1.3 Regulatory Controls

The preparation of this report has given consideration to the various legislative and regulatory requirements including the *Environmental Planning and Assessment Act 1979*, the Building Code of Australia, *Planning for Bush Fire Protection* 2006 and AS 3959-2009 *Construction of buildings in bushfire prone areas.*

1.4 Methodology

A site inspection for the purpose of assessing bushfire related matters affecting this site was conducted on the 24th September 2019 and a review of the proposed construction plans as supplied by the owner and prepared by Distinct Innovations has taken place.

An assessment of slope was conducted out to a distance of 100 metres and assessment of vegetation to a distance of 140 metres from the proposed development.

The findings were related and assessed with reference to *Planning for Bush Fire Protection* 2006 Addendum to Appendix 3 and section 2 of AS 3959-2009 *Construction of buildings in bushfire prone areas* for the formulation of the Bushfire Hazard Assessment.

1.5 The Proposal

The proposal as indicated by consultation with the proponents and perusal of plans supplied, shows for the construction of a new single storey Class 1a dwelling and a new Class 10a building being a farm shed.

The building footprint for the dwelling has been positioned upon the plans supplied and detail on such plans shows the new dwelling shall be located approximately 15.0 metres from the northern (road frontage) boundary and 15.0 metres from the eastern boundary.

The building footprint for the farm shed is shown to be approximately 2.350 metres from the southern elevation of the dwelling and 12 metres from the eastern boundary.

Further details of construction are shown upon plans included within appendix 1 of this report.

However, it must be noted that the plans supplied may not fully satisfy the recommendations included within this report and subject to actual consent conditions issued by the consent authority some modifications or changes may need to occur to achieve the required compliance.

2.0 Site and Adjacent Developments

The following seeks to describe the site, the adjoining lands and land uses effective upon the development proposal.

2.1 Site Description

The site is identified as Lot 1 DP 1181666
Castlereagh Road
Castlereagh NSW 2749
LGA Penrith City Council

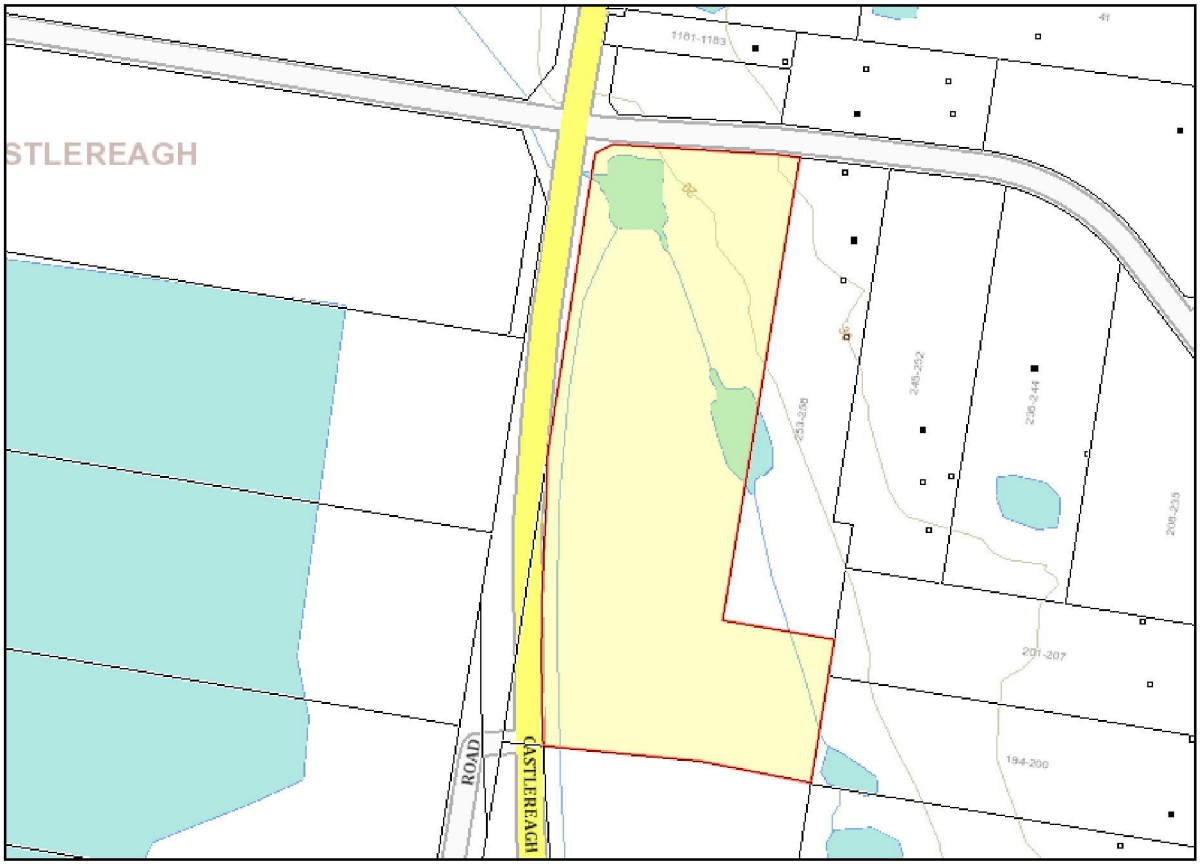


Figure 1: Address validation ex Dept of Lands

The subject allotment was created prior to the current subdivisional requirements contained within *Planning for Bush Fire Protection* 2006.

The site is a rural lifestyle allotment of approximately 5.8 hectares located on the corner of Castlereagh Road and West Wilchard Road. The area in which the proposal is located is generally similar development that has been established for many years.

The subject allotment is located within an area that should be considered as not having a direct interface to bushfire hazardous vegetation but does interface with grassland hazardous vegetation.

The subject allotment is positioned upon the south westerly aspect slopes and essentially level terrain to the east of Castlereagh Road.

The parcel of land is quite irregular in shape with two road frontages although vehicle access is principally from West Wilchard Road.

At present the site has no structural improvements and should be considered to be vacant land.

In terms of vegetation the site contains open grasslands with a very limited number of trees.

The site is shown upon the Penrith Bushfire Prone Land Map (Figure 2) to be almost wholly within category 3 vegetation (shown light orange). The site inspection and interpretation of aerial photography for the site confirms that the subject allotment is reasonably depicted upon this image.

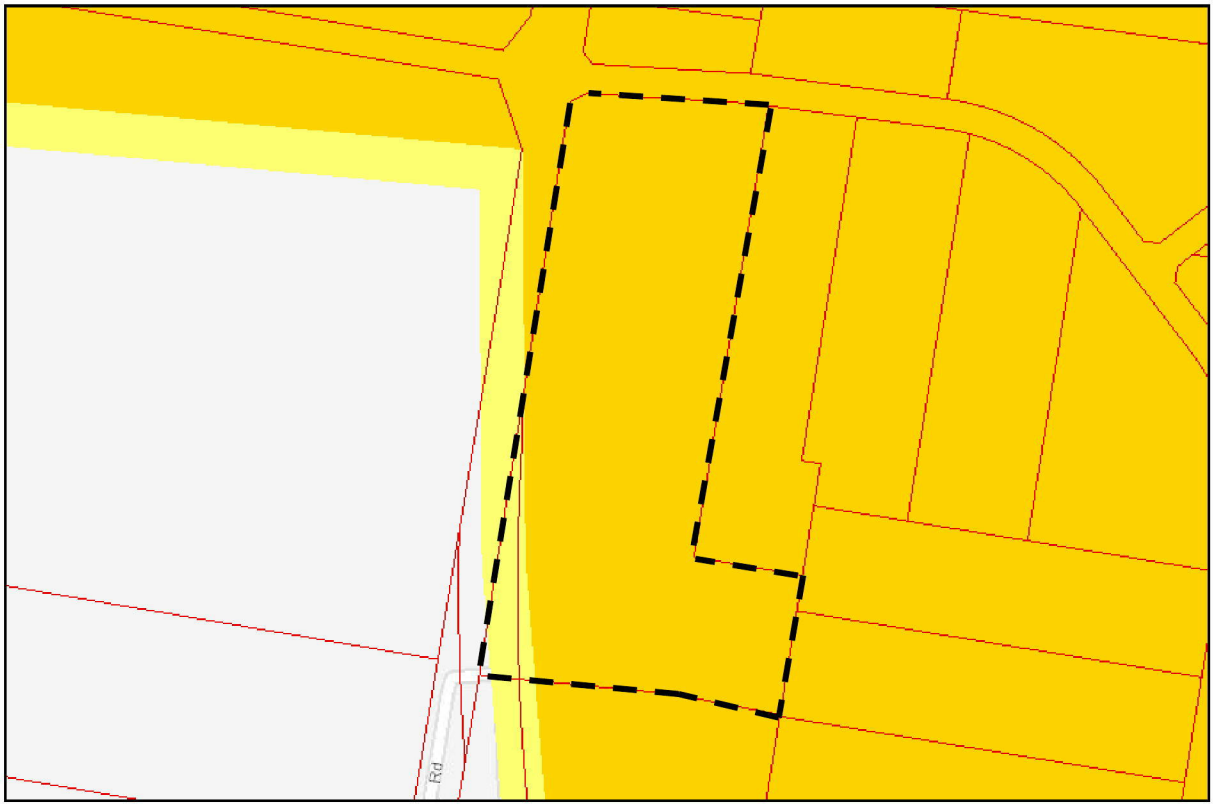


Figure 2; Section Penrith LGA Bushfire Prone Land Map

Provision of mains reticulated water supply, electricity and phone is available to the proposal by existing infrastructure.

2.2 Description of Adjoining Lands

To the north of the subject allotment is the carriageway of West Wilchard Road and beyond this is rural lifestyle allotments that do not contain any significant sections of vegetation which create a hazard on the proposed development.

To the east of the subject are managed areas of land on rural residential allotments.

To the south of the subject allotment is open grasslands.

To the west of the subject allotment is the carriageway of Castlereagh Road and beyond this are grasslands within the Penrith Lakes Development Scheme.

Figure 3: Aerial photo depicting localised terrain and adjoining allotments

3.0 Environmental Considerations

The scope of this report has not been to provide an environmental survey although this report will be a supplement to a Statement of Environmental Effects as part of the development application process.

The proposed scope of works does not necessitate the removal of any significant sections of vegetation to satisfy the recommendations for asset protection zones. It is also our opinion that the bushfire protection measures as recommended within this report will have little or no adverse environmental effects.

The proposal is located on a site that has been developed for many years and this proposal does not change the approved land use or increase the expected level of occupancy.

4.0 Bushfire Hazard Assessment

The bushfire hazard assessment was conducted for the proposed development, using the procedures as outlined in *Planning for Bush Fire Protection* 2006, Addendum to Appendix 3 and section 2 of AS 3959-2009 *Construction of buildings in bushfire prone areas* procedure to determine the bushfire attack level (BAL) likely upon the development.

The assessment was conducted on the assumption of the building footprint being positioned as described in section 1.5 The Proposal of this report and the site plan.

4.1 Classification of Vegetation and Separation Distance from Proposed Development

The vegetation was assessed for a distance of 140 metres from the proposed development building footprint in each of the following directions. To the north, east, south and west being the general direction adjacent and away from the proposed building elevations within such building footprint.

Figure 4: Vegetation study area 140 metre radius approx. Image ex Dept Lands

Proposed dwelling location Proposed shed location Grassland

To the south of the development site within subject allotment is the effective bushfire hazardous vegetation and this area should be classified as being a vegetation formation of **Grassland**. The closest section of consistent grassland vegetation is located approximately 35 metres to the south of the proposed construction.

4.2 Slope Assessment

The slope was assessed for a distance of 100 meters within the bushfire hazardous vegetation and reference to slope classifications has been undertaken considering the procedure specified within section 2 of AS 3959-2009 *Construction of buildings in bushfire prone areas.*

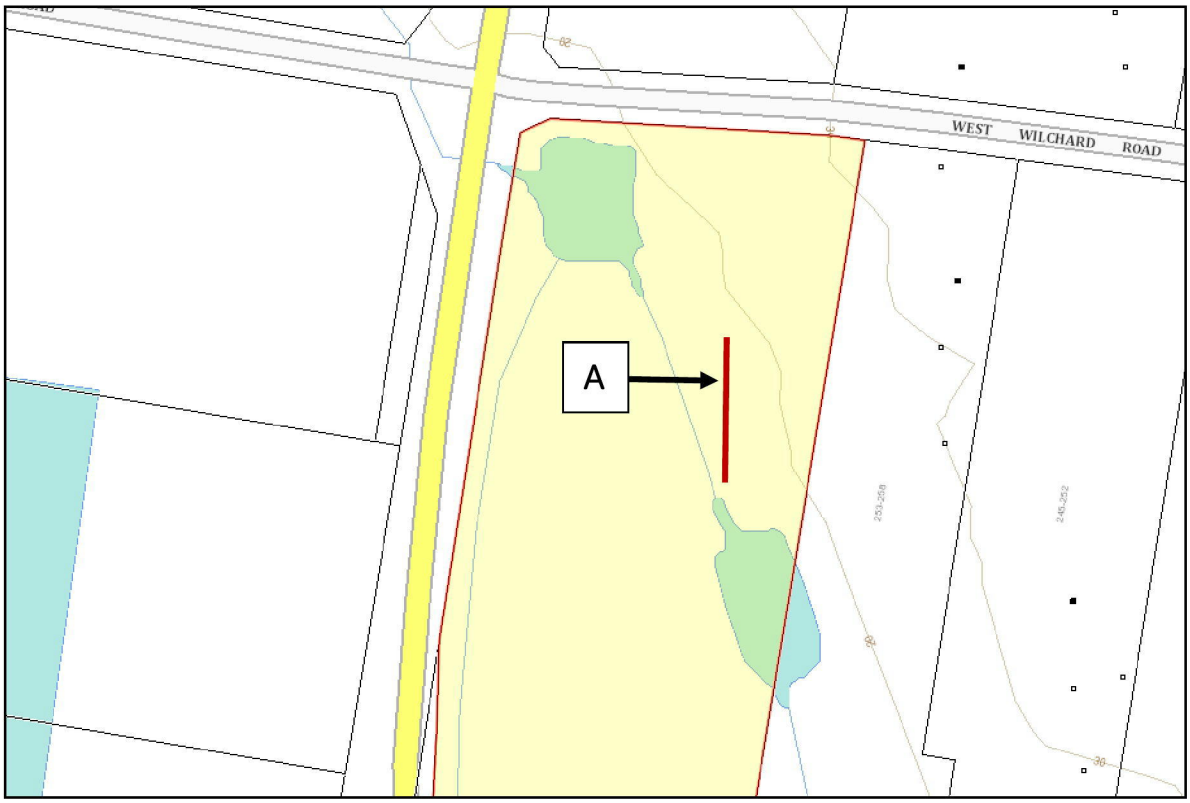


Figure 5; Slope assessment study area Image ex Dept Lands

The **effective slope** of the land, out to a distance of 100 metres from the proposed scope of works (that is, the slope of the land most likely to influence bushfire behaviour for the purposes of calculating the Category of Bushfire Attack and Asset Protection Zones, has been assessed (using a clinometer) and desktop analysis as being;

- Downslope > 0 to 5 degrees to the south – **A**

4.3 Category of Bushfire Attack

The bushfire attack level (BAL) for the proposed development was determined by using the information gathered with respect to the classification of the vegetation, the effective slope and provision of asset protection zones specified in this report with reference given to the Addendum to Appendix 3 of *Planning for Bush Fire Protection* 2006 and the procedures within section 2 of AS 3959-2009 *Construction of buildings in bushfire prone areas.*

It is the determination of the site inspection, the assessment procedure with incorporation of the recommendations in this report that the proposed development could experience a **Low** category of bushfire attack. The proposed development is most likely to be subject to the greatest bushfire attack from any area to the **south** from the proposed development location.

Bushfire Attack Summary

Vegetation Formation	Grassland to south
Vegetation Slope	Downslope > 0 to 5 degrees
Building Separation Distance metres	35
Separation Slope	Downslope > 5 to 10 degrees
Fire Danger Index	100
Category of Bushfire Attack	Low
AS 3959 Construction Standard	BAL 12.5

5.0 Assessment of the extent to which the development conforms or deviates from Chapter 4 of *Planning for Bush Fire Protection* 2006

The proposed development being the construction of a new Class 1a dwelling and a new Class 10a building will conform to the requirements of *Planning for Bush Fire Protection* 2006 when considered in conjunction with both the proposal supplied for this assessment and the recommendations arising from this bushfire hazard assessment report.

5.1 Asset Protection Zones

The provision of asset protection zones for the proposed building footprint cannot be fully provided for onsite to satisfy the requirements of *Planning for Bush Fire Protection* 2006.

The maintenance of the majority of area upon the subject allotment currently would not satisfy the requirements of an inner protection area of an asset protection zone as contained in *Planning for Bush Fire Protection* 2006.

This report will recommend that the site where not built upon is maintained to the requirements of an inner protection area of an asset protection zone and managed to these provisions for the lifetime of the development as follows;

- From the northern, western and eastern elevations of the proposed dwelling and shed to the adjacent sections of the allotment boundaries; and

- From the south elevations of the proposed dwelling and shed for a distance of 35 metres.

The following is a summary of the requirements for an asset protection zone inner protection area as described within the documents *Planning for Bush Fire Protection* 2006 and NSW RFS *Standards for Asset Protection Zones*.

Inner Protection Area

An IPA should provide a tree canopy cover of less than 15% and the tree canopy should be located greater than 2.0 metres from any part of the roof line of a dwelling. Garden beds of flammable shrubs should not be located under trees and should be located not closer than 10 metres from an exposed window or door. Trees should have lower limbs removed up to a height of 2.0 metres above the ground.

Ground fuels such as fallen leaves, twigs (less than 6mm in diameter) and branches should be removed on a regular basis, and grass needs to be kept closely mown and where possible green.

The creation and continued maintenance of the full asset protection zone is one of the primary factors in bushfire protection measures for developments in bushfire prone areas.

5.2 Position and Design of Proposed Development

The design and siting of the proposed dwelling must take into consideration the actual bushfire risk and this report contains recommendations to assist in mitigating the mechanisms of bushfire attack.

5.3 Construction Level

The Building Code of Australia contains both the performance requirements and the 'deemed to satisfy' provisions relating to construction of class 1, 2 & 3 buildings that are proposed for *construction in bushfire prone areas.* To satisfy the performance provision P2.3.4 of the Building Code of Australia Vol. 2, a Class1a building that is constructed in a designated bushfire prone area must be designed and constructed to reduce the risk of ignition from a bushfire while the fire front passes.

Australian Standard 3959-2009 *Construction of buildings in bushfire prone areas* is referenced by the BCA as the deemed to satisfy construction standard for residential dwellings in designated bushfire prone areas with the exception that in NSW the requirements shall be varied to comply with the Addendum to Appendix 3 of *Planning for Bushfire Protection* 2006.

Given that the category of bushfire attack that could be anticipated for such development is Low from vegetative fuels to the south, the proposed dwelling and shed should therefore be designed and constructed to the requirements of AS 3959-2009 and must be constructed to comply with section 3 Construction General and section 5 BAL 12.5 of such standard apart from as varied to comply with the Addendum to Appendix 3 of *Planning for Bushfire Protection 2*006.

5.4 Access / Egress

5.4.1 To the Proposed Development

The access to the subject site is from West Wilchard Road which is a sealed two lane road in a well maintained condition and under most conditions should provide adequate access and egress for both residents and emergency service vehicles.

West Wilchard Road and Castlereagh Road links to other through roads at each end which would afford the residents the ability to evacuate the area to a location not being directly implicated by the mechanisms of bushfire attack, although under most bushfire conditions this would generally not be required.

5.4.2 Within the Site

The site plan for the proposal does show that vehicle access may not be possible to all elevations of the dwelling, although a fire tanker will be able to park in close proximity to the northern building elevation upon the West Wilchard Road carriageway and foot access will be available to each of the other building elevations.

Given the dwelling is located only 15 metres from the West Wilchard Road frontage no recommendations for internal access are recommended.

It should be considered by the residents that during a major bushfire event the following may occur;

- The suppression or defensive operations by fire authorities may not be possible in the general area of the development due to safety considerations for fire fighters; and

- That there may not be adequate fire authority resources to protect this development or others in the general area.

Whilst all fire authorities will endeavour to assist all occupants and protect all buildings during major bushfire events this is not always possible and cannot be guaranteed.

5.5 Utility Supplies

5.5.1 Water

This section of Castlereagh is serviced by a mains reticulated water system and a search of the mains reticulated water supply layout plans (see figure 6 below) indicates that a series of hydrants are located on the northern side of West Wilchard Road. The site inspection confirmed the location of these hydrants although their location and distance to the furthest point of the dwelling does not satisfy AS 2419.1-2005 *Fire hydrant installations*.

Therefore the proposed development must be able to integrate suitable measures that ensure an independent, reliable water supply for use during a bushfire event by the occupants or a firefighting authority tanker, and should have the following key objectives:

- To enable a suitably prepared, able bodied person or persons to undertake first aid fire suppression of small ignitions near or on the external elevations of the building that may occur before and after the passing of a bushfire front.

- To be able to replenish bushfire tankers that may be in attendance during a bushfire event

- To be able to operate independently of the mains power supply so as to be able to fully function if an electrical mains power failure occurred

- To be able to supply an adequate amount of water at the required pressure to firefighting hose or hoses

To satisfy the requirements of *Planning for Bush Fire Protection* 2006 it is a recommendation of this report that a reserve Static Water Supply (SWS) of not less than 20,000 litres be permanently maintained on the subject allotment within noncombustible tanks located within the inner protection area of the asset protection zone.

The reserve Static Water Supply (SWS) should be permanently plumbed to a petrol or diesel firefighting water pump of not less than 5 hp. The pump must be shielded from the direct effects of a bushfire event.

The site restrictions may not allow for a bushfire tanker to have direct and clear access to the reserve Static Water Supply (SWS) and as such the proposed development should provide a delivery line of not less than 50mm diameter from the firefighting water pump to an outlet point located directly on the northern road frontage boundary. This outlet point should be fitted with a ball or gate valve and a 65 to 38mm Storz reducer fitting.

The water pump should also be connected to and supply water to kink resistant hose or hoses with a minimum diameter of not less than 19mm and firefighting nozzle capable of reaching all building elevations.

All plumbing and fittings associated with reserve water supply, the first aid fire hoses, the tanker refill outlet point and firefighting pump that is above the ground or below the ground for less than 300mm shall be metal.

The installation and ongoing maintenance of the plumbing and water pump must be undertaken to the manufacturer specifications.

The site shall provide NSW RFS Static Water Supply (SWS) approved signage fitted in the approved locations to enable fire fighters clear indication of the location of the reserve water and the outlet point.

The NSW RFS district office can assist with the procurement of these signs and the guidelines for suitable installation.

5.5.2 Electricity

The methodology for the connection of electricity shall be by overhead wire connection from the mains service supply to a pole that will be located just inside the road frontage boundary and from that point it shall travel underground to the metre box upon the external wall of the dwelling. This connection should not increase to a large extent the likelihood of bushfire ignition or be the cause of electrical failure to the subject site under most conditions due to the limited overhead distance to be spanned by the wiring.

5.5.3 Gas

At the time of report preparation it was not known if it is proposed to connect gas supply to the subject dwelling. However any future connection to either mains or portable gas supply should be undertaken and maintained to the provisions of AS 1596-2002 *Storage and handling of LP Gas.* All piping associated with the installation must be metal.

5.6 Landscaping

A formal landscaping plan was not supplied for perusal at the time of formulating this report however recommendations are made with respect to the maintenance of the area on the site.

It is highly probable that in the future landscaping and garden establishment may occur on the site. However no future planting of trees or shrubs, or combustible landscaping features should be undertaken or constructed in a manner which creates a path for bushfire progression towards the dwelling or allows for a potential compromise to the integrity of the asset protection zone.

5.7 Emergency Procedures

Preparation of procedures and actions by individuals and occupants of lands within bushfire prone areas has clearly been shown to increase chances of personal safety and building survival should a bushfire event occur.

The NSW Rural Fire Service and the NSW Fire Brigades have formulated a Bush Fire Survival Plan and this is readily available from either the NSW RFS website or the local district office.

This document should be completed by the residents in conjunction with all occupants of the household so as to better prepare all persons for a bushfire event.

After completion it should be regularly reviewed (at least once a year) and stored in a location as to be easily accessible for reference during a bushfire emergency.

6.0 Bushfire Hazard Assessment Recommendations

1. That the site where not built upon shall have the vegetation reduced where necessary to satisfy the requirements of *Planning for Bush Fire Protection* 2006 and the NSW Rural Fire Service document "Standards for Asset Protection Zones" for an inner protection area of an asset protection zone and this area shall be maintained at this vegetation level for the lifetime of the development as described below;
   - From the northern, western and eastern elevations of the proposed dwelling and shed to the adjacent sections of the allotment boundaries; and
   - From the south elevations of the proposed dwelling and shed for a distance of 35 metres.

   These areas are to form a continuous and linked buffer around the entire dwelling.

2. That no future landscaping features, planting of shrubs, trees or other vegetation shall occur in such a manner as to compromise the integrity of the asset protection zone.

3. That the proposed dwelling and shed shall be constructed to section 3 Construction General and section 5 BAL 12.5 of AS3959-2009 *Construction of buildings in bushfire prone areas* with the exception that the construction requirements shall be varied to comply with the requirements of the NSW Rural Fire Service Addendum to Appendix 3 Table A3.7 of *Planning for Bush Fire Protection* 2006.

4. That the dwelling shall maintain a reserve Static Water Supply (SWS) for use during a bushfire event of not less than 20,000 litres stored in a non combustible tank within the area of recommended asset protection zone.

5. The reserve Static Water Supply shall be permanently plumbed to a petrol or diesel fire fighting water pump with a minimum of 5hp. The pump shall be regularly maintained as per the manufacturer specifications. The pump must be located in such a position to be shielded from the direct mechanisms of bushfire attack.

6. That a water delivery line of not less than 50 mm diameter be plumbed from the fire fighting water pump plumbed to the reserve Static Water Supply tank, to an outlet point directly on the northern road frontage boundary of the subject allotment to enable fire fighting tankers to refill. The outlet of this line shall be fitted with a ball or gate valve and a 65 to 38mm reducer Storz fitting.

7. That the development must provide and have readily available kink resistant hose or hoses with a diameter of not less than 19mm and a fire

fighting nozzle, capable of reaching all elevations of the dwelling, and fittings suitable for connection to the fire fighting water pump.

8. That all plumbing associated with the reserve water supply above the ground or for a depth of not less than 300mm below the ground shall be metal.

9. That approved NSW Rural Fire Service; Static Water Supply signage is installed at approved locations for the proposed development.

10. That the supply of electricity and telephone to the dwelling shall be under ground where at all possible.

11. That if the supply of gas to the subject dwelling is undertaken it shall be installed and maintained in accordance with AS 1596-2002 and requirements of relevant authorities.

12. The residents should complete a *Bush Fire Survival Plan* as formulated by the NSW Rural Fire Service and the NSW Fire Brigades.

These recommendations are the opinions of the author of this report and are compiled to assist the consent authority and the NSW Rural Fire Service in the assessment of this proposed development and that the final conditions as imposed by the consent authority must be adhered to at all stages and where required for the lifetime of the development.

7.0 Conclusion

The objectives and performance requirements for the proposed development as required by the Building Code of Australia Volume 2 and the document *Planning for Bush Fire Protection* 2006 will be achieved by the incorporation of the 12 recommendations contained within this report.

The recommendations contained within this report will assist in providing a reasonable level of bushfire protection and improve but not guarantee the chances of building survival, or provision for the occupants with a safe refuge during the passage of a bushfire front and or the provision of a defendable space for fire fighters.

Craig Burley
Grad.Dip. Building in Bushfire Prone Areas (UWS)
FPA Australia Certified BPAD – Level 3 Practitioner

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

Caveat

Quote from *Planning for Bush Fire Protection* 2006, '*not withstanding the precautions adopted, it should always be remembered that bushfire burn under a wide range of conditions and an element of risk, no matter how small always remains.*'

Quote from Standards Australia, '*Although the standard is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.*'

References

Planning for Bush Fire Protection 2006 Planning NSW in conjunction with NSW Rural Fire Service

Building Code of Australia Volume 2 2005 Australian Building Codes Board

AS 3959 –2009 Construction of buildings in bushfire prone areas Standards Australia & Australian Building Codes Board

Landscape and building Design for Bushfire Areas Ramsay C. & Rudoplh L. CSIRO 2003

Quantifying bushfire penetration into urban areas in Australia Keping Chan & McAneny J. Geophysical Research Letters, Volume 31, L12212, doi:10.1029/2004GL020244,2004

Bushfires in Australia Luke R.H. & McArthur CSIRO 1978

Performance of Building Elements in Bushfire Prone Areas Poon S.L. & England J.P. Warrington Fire Research Australia

Address Validation Search Department of Lands www.maps.nsw.gov.au

Standards for Asset Protection Zones NSW Rural Fire Service 2005

Ocean Shores to Dessert Dunes Keith D. Department of Environment and Conservation Sydney 2004

Appendix 1- Proposed dwelling plans ex Distinct Innovations

castlereagh house

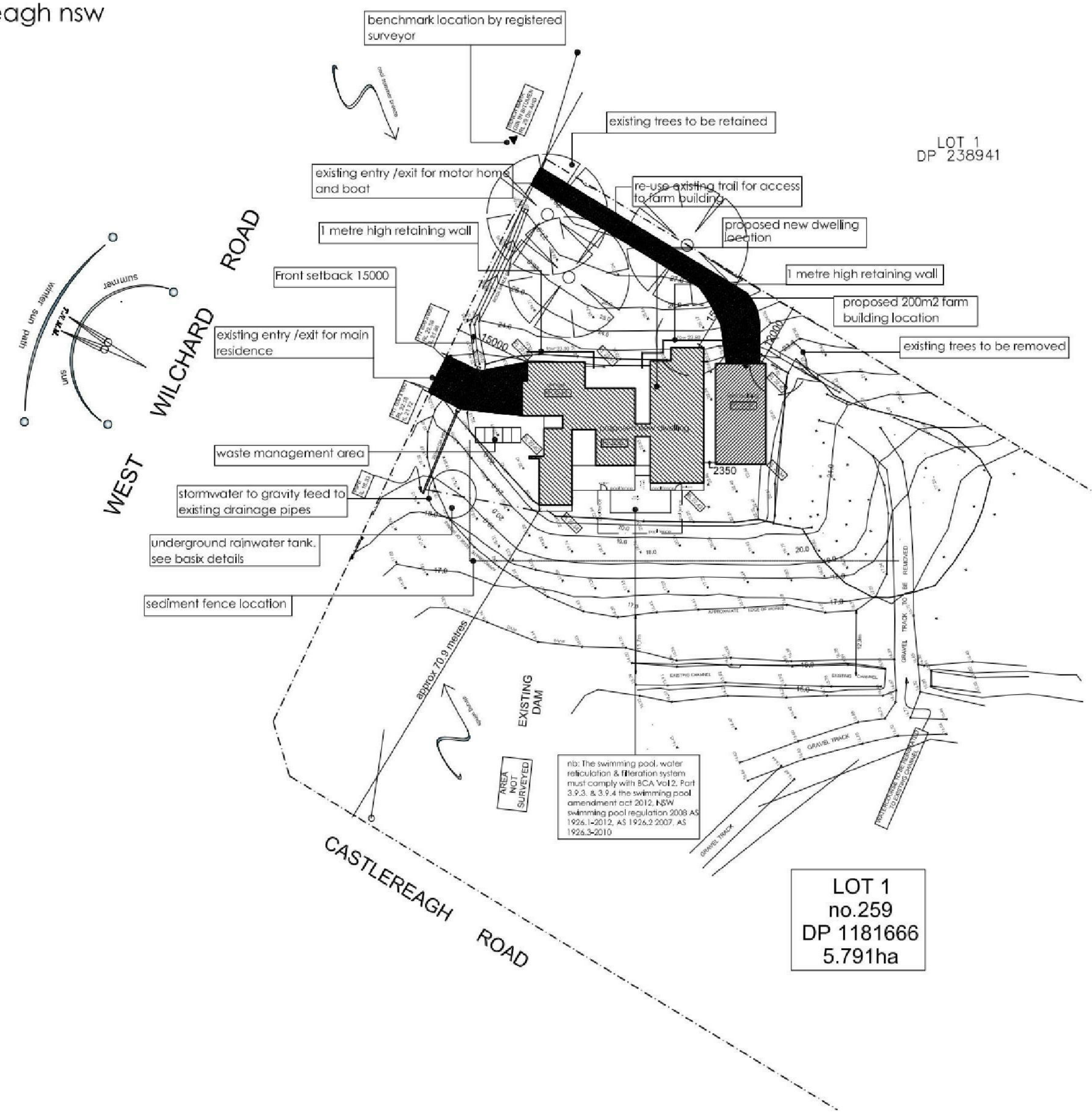
259 west wilchard road castlereagh nsw

architectural list:

1. FALLS, SLIPS, TRIPS
2. FALLING OBJECTS
3. TRAFFIC MANAGEMENT
4. SERVICES
5. MANUAL TASKS
6. HAZARDOUS SUBSTANCES
7. CONFINED SPACES
8. PUBLIC ACCESS
9. OPERATIONAL USE OF BUILDING RESIDENTIAL BUILDINGS
10.OTHER HIGH RISK ACTIVITY

THESE NOTES MUST BE READ AND UNDERSTOOD BY ALL INVOLVED IN THE PROJECT. THIS INCLUDES (but is not excluded to): OWNER, BUILDER, SUB-CONTRACTORS, CONSULTANTS, RENOVATORS, OPERATORS, MAINTENORS AND DEMOLISHERS

safety notes



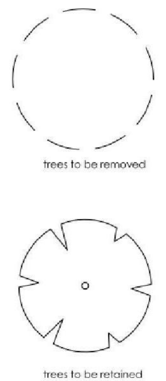
part site/site analysis plan (scale 1:500)

- The swimming pool, water reticulation & filteration system must comply with BCA Vol2. Part 3.9.3 & 3.9.4. the swimming pools act 1992. swimming pool amendment act 2012. NSW swimming pool regulation 2008 AS 1926.1 - 2012 . AS 1926.2 2007. AS 1926.3- 2010

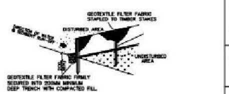
flood affected site

bushfire prone site

general notes and specifications (applies to all pages)



tree legend

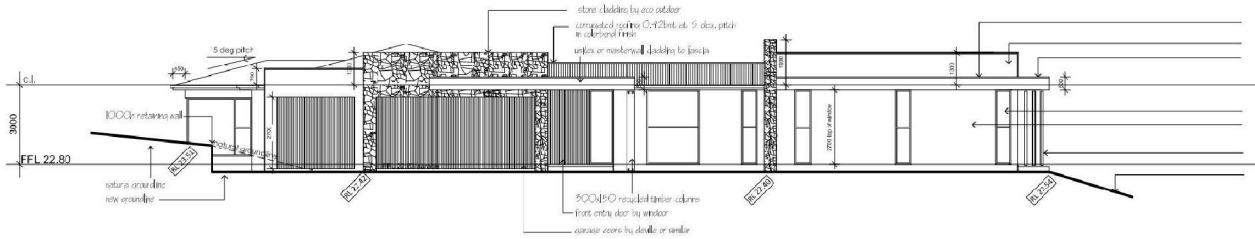


sediment fence. nts

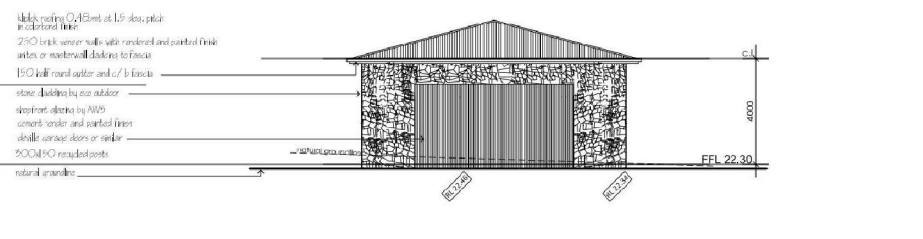
area calculations	
site area	14.30 acres
proposed new dwelling	
living	530.00m2
patio	32.84m2
alfresco	62.87m2
garage	127.82m2
total area	753.53m2 81.11squares
farm building	200.00m2

Distinct Innovations	p: 02 8850 6156 w: distinctinnovations.com.au e: email@distinctinnovations.com.au	
amendments / date / amendments / date		
client / project:	proposed new dwelling smith no.259 west wilchard rd castlereagh nsw	
title:	development application	
north:		
scale: 1:500	copyright date: august 2019	
page no: 1 of 5	drawing no: 1707	
drawn: lvj	checked: lvj	paper: a1
BUILDING DESIGNERS ASSOCIATION OF NEW SOUTH WALES INC.	Accredited Building Designer No: 6164	

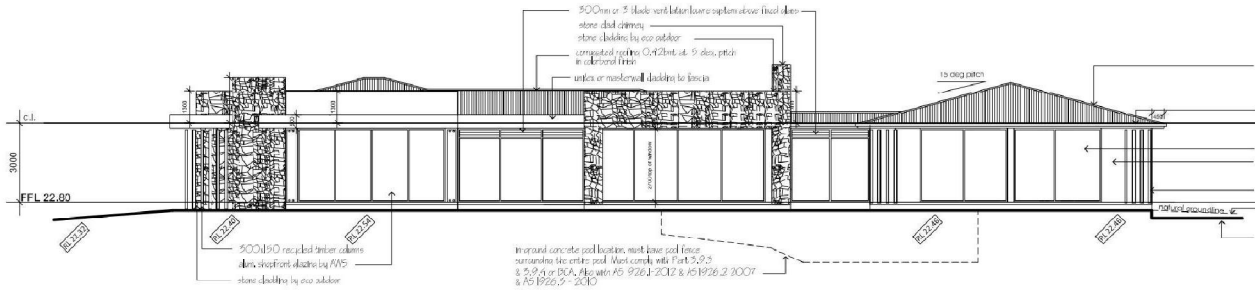
Document Set ID: 8974770
Version: 1, Version Date: 24/12/2019



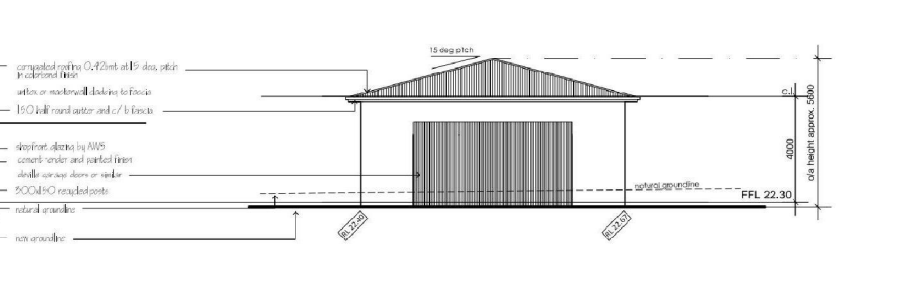
north elevation. (scale 1:100)
view from west wilchard road



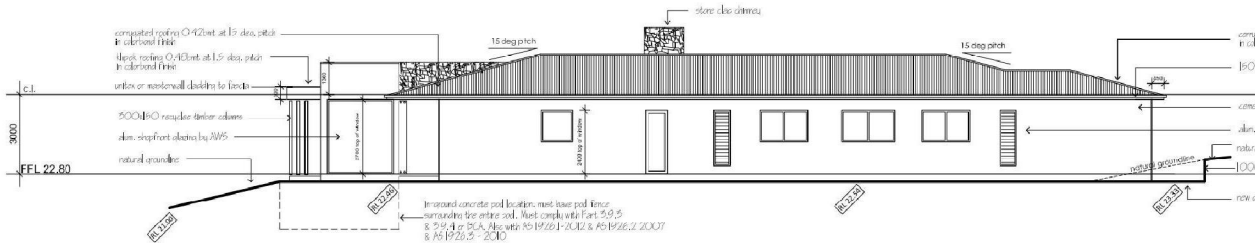
west elevation. (farm building)
view from castlereagh road (scale 1:100)



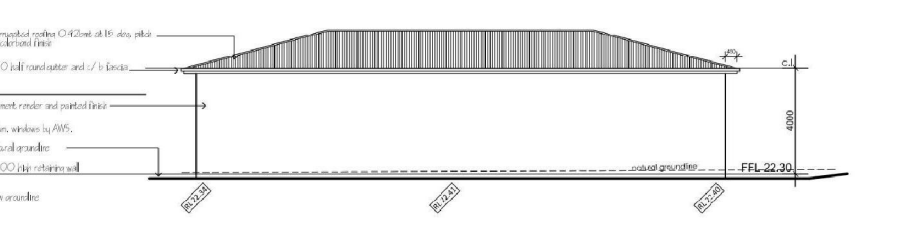
west elevation.



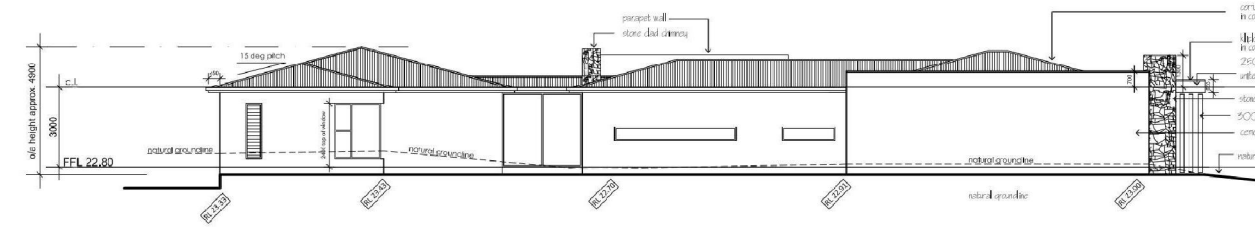
east elevation.



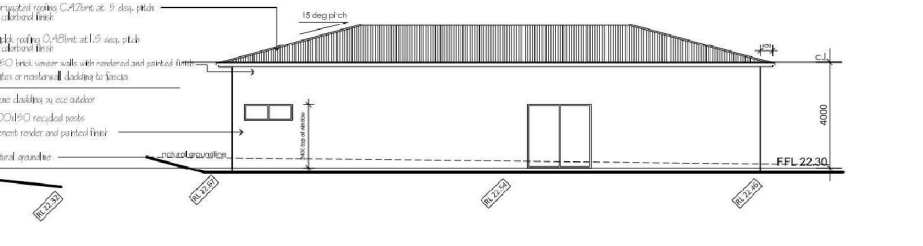
south elevation.



south elevation.



east elevation.

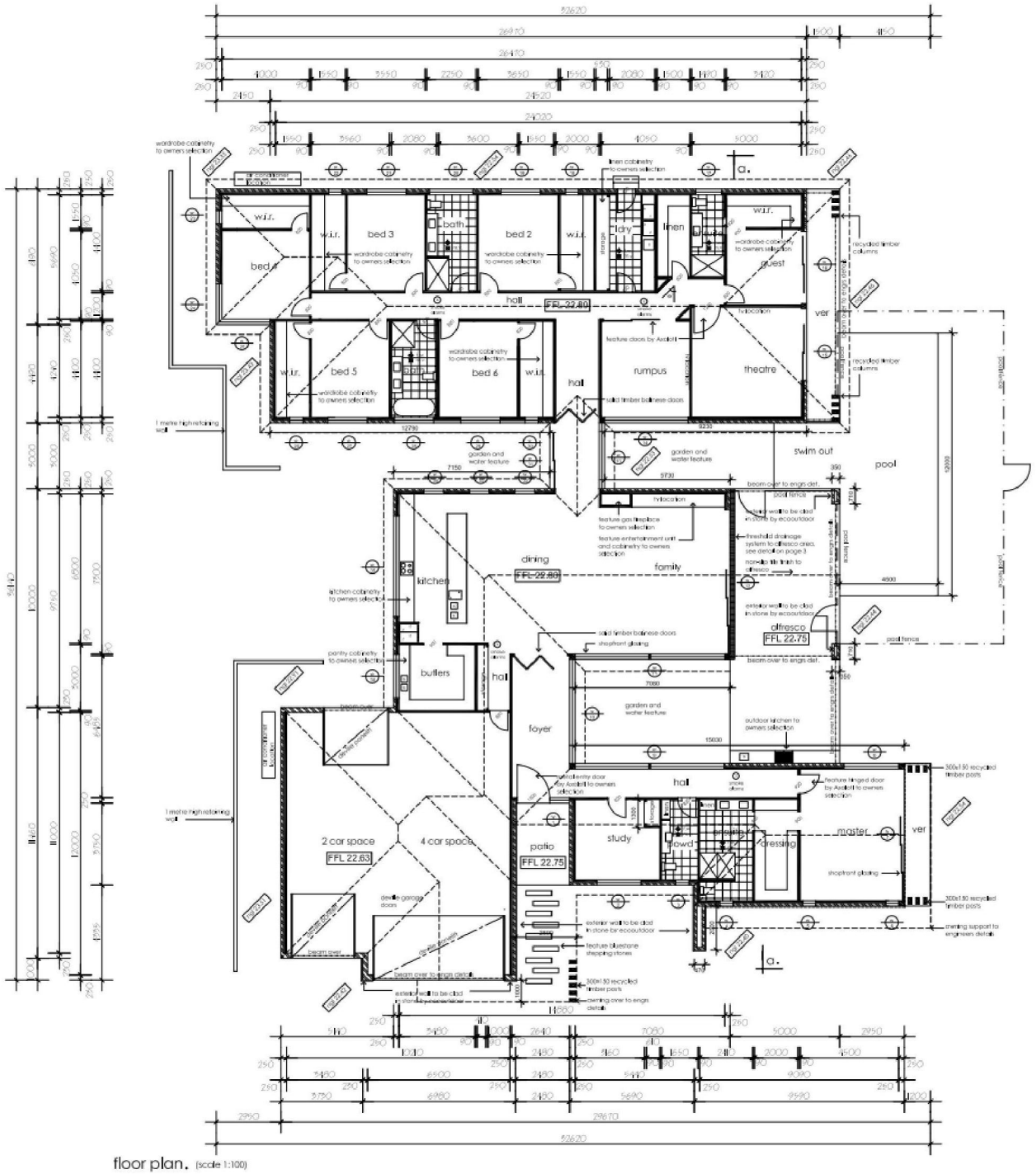


north elevation.

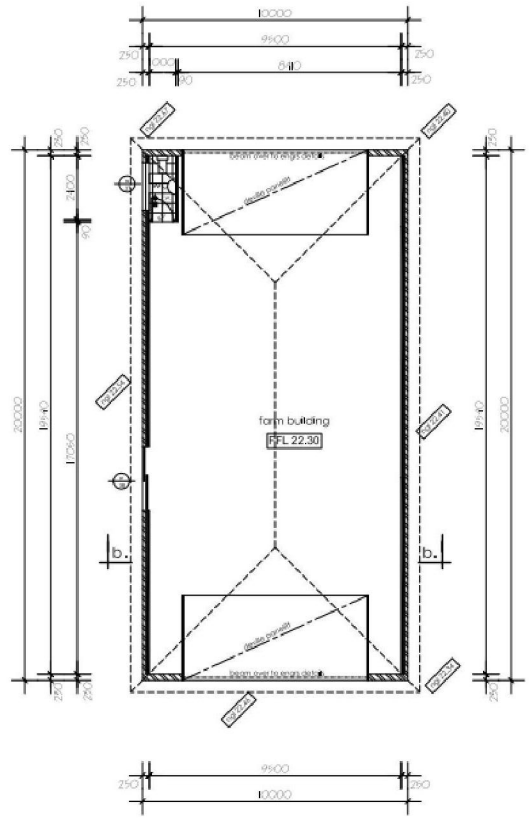
flood affected site

bushfire prone site

Distinct Innovations	p: 02 8850 4154 w: distinctinnovations.com.au e: email@distinctinnovations.com.au	amendments	date	amendments	date	client / project: proposed new dwelling smith no.259 west wilchard rd castlereagh nsw	title: development application	north:	scale: 1:100 page no: 4 of 5 drawn: vj	copyright date: august 2019 drawing no: 1707 checked: vj paper: a1	BUILDING DESIGNERS ASSOCIATION OF NEW SOUTH WALES INC. Accredited Building Designer No: 6164



floor plan. (scale 1:100)



floor plan. (scale 1:100)

flood affected site

bushfire prone site

Distinct Innovations

p: 02 8850 6156

w: distinctinnovations.com.au

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amendments	date	amendments	date

client / project:
proposed new dwelling
smith
no.259 west wilchard rd castlereagh nsw

title:
development application

north:

scale: 1:100	copyright date: august 2019
page no: 2 of 5	drawing no: 1707
drawn: lvj	checked: lvj paper: a1

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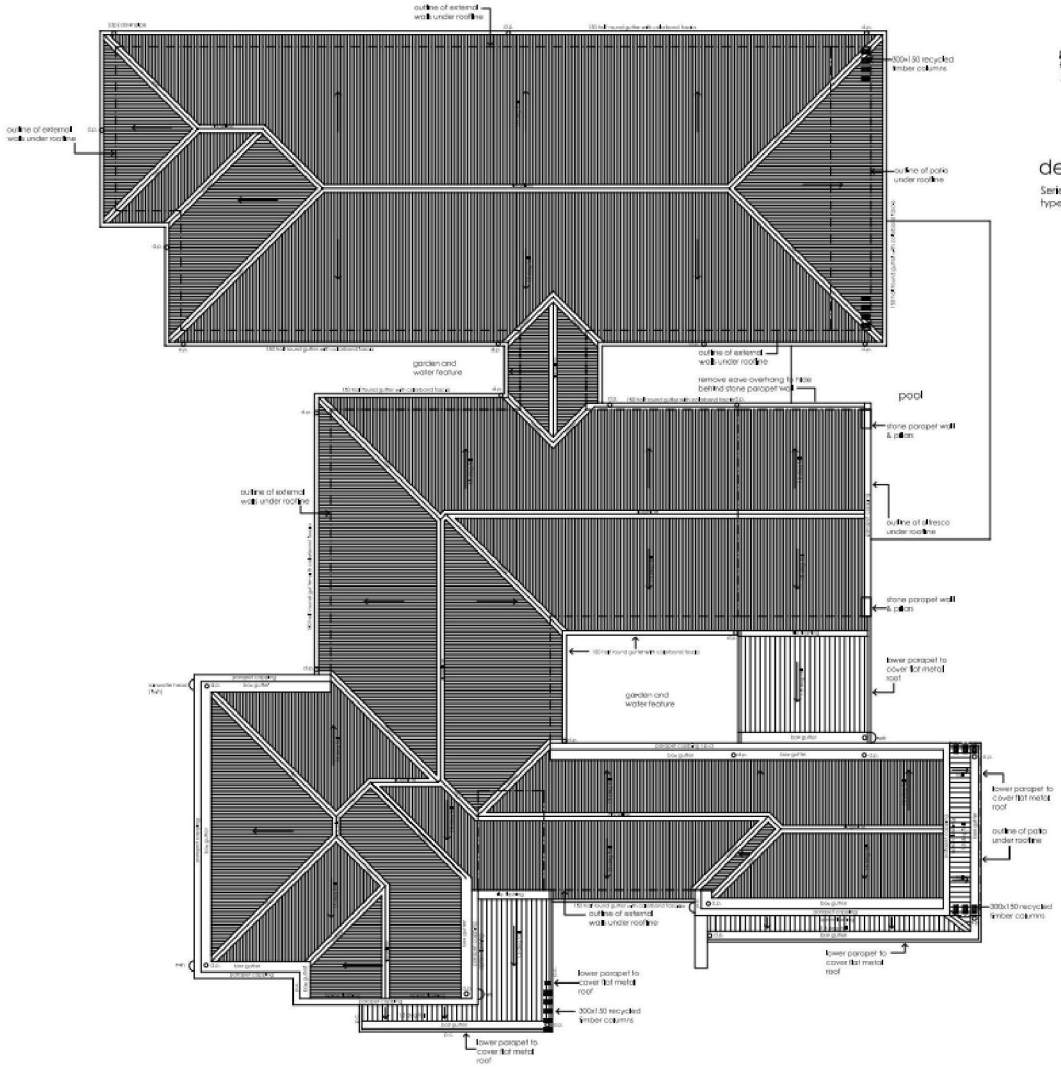
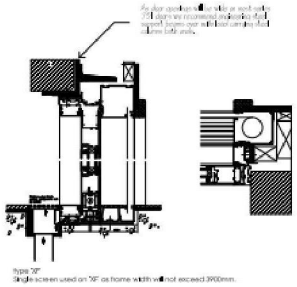


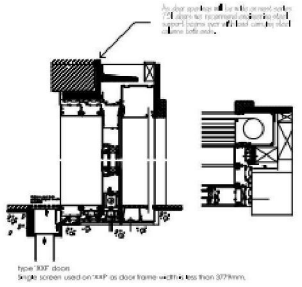
roof plan. (scale 1:100)



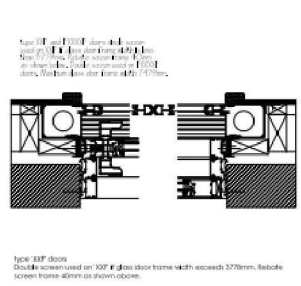
type 'SE'
Single screen used on 'SE' as frame width will not exceed 3900mm.

detail one.

Series 731 Sliding Doors with type S1E Retractable Screen



type 'XXP' doors
Single screen used on 'XXP' as door frame width is less than 3779mm.



type 'XXP' doors
Double screen used on 'XXP' if glass door frame width exceeds 3778mm. Rebate screen frame 40mm as shown above.

note:
all windows must be site measured prior to manufacture. All windows performance specifications must be as per the basix certificate . Any discrepancies must be related back to the designer prior to manufacture. Windows must meet the child safety standards of NCC 3.9.2.5

window schedule	
no.	window size and type
1.	2700d x 900w fixed
2.	2700d x 2000w alum. double hung
3.	2700d x 600w alum. double hung
4.	2700d x 600w alum. double hung
5.	2700d x 600w alum. double hung
6.	2700d x 600w alum. double hung
7.	2700d x 6000w alum.sld.door
8.	2700d x 2400w fixed glass window
9.	2700d x 6800w (2400 fixed) & (300 louvres above)
10.	2700d x 4700w (2400 fixed) & (300 louvres above)
11.	2700d x 6800w (2400 fixed) & (300 louvres above)
12.	2700d x 6500w alum. sliding door
13.	2700d x 3000w (2400 fixed) & (300 louvres above)
14.	2700d x 3800w (2400 fixed) & (300 louvres above)
15.	2700d x 3300w alum. sliding door
16.	2700d x 3300w alum. sliding door
17.	1200d x 1200w awning
18.	2100d x 600w louvre
19.	1200d x 1800w alum. sld. window
20.	1200d x 2000w alum.sld.window
21.	1200d x 1800w alum. sld. window
22.	2100d x 600w louvre
23.	2100d x 600w louvre
24.	2100d x 1800w fixed & double hung
25.	2100d x 2400w fixed and double hung
26.	2100d x 600w louvre
27.	1200d x 1800w alum. sld. window
28.	1200d x 1800w alum.sld. window
29.	1200d x 1800w alum. sld. window
30.	2100d x 600w louvre
31.	2700d x 3000w alum. sld.door
32.	2700d x 900w alum. double hung
33.	2700d x 900w alum. double hung
34.	2700d x 900w alum. double hung
35.	500d x 4600w fixed
36.	500d x 2000w fixed
37.	600d x 1800w alum.sld.window
38.	2400d x 2400w alum.sld.door

window table.

flood affected site

bushfire prone site

Distinct home designs

p: 02 8850 6156
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amendments	date	amendments	date

client / project:
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smith
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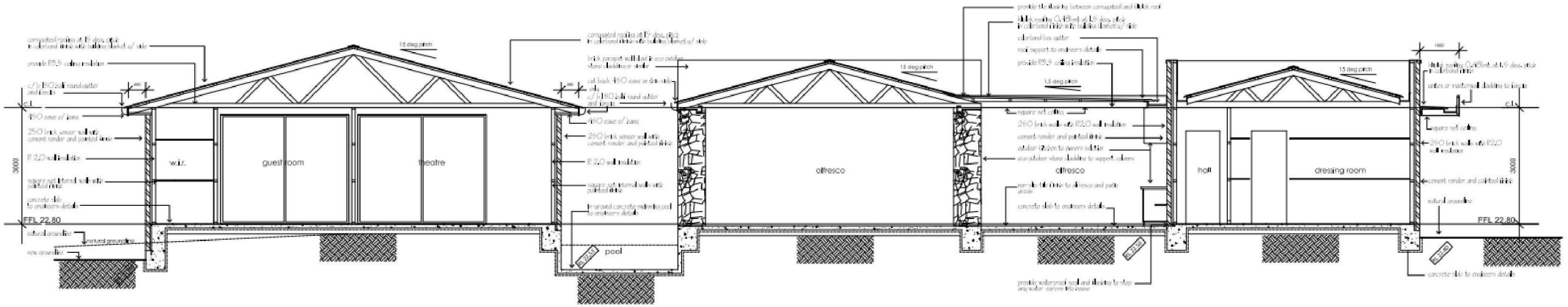
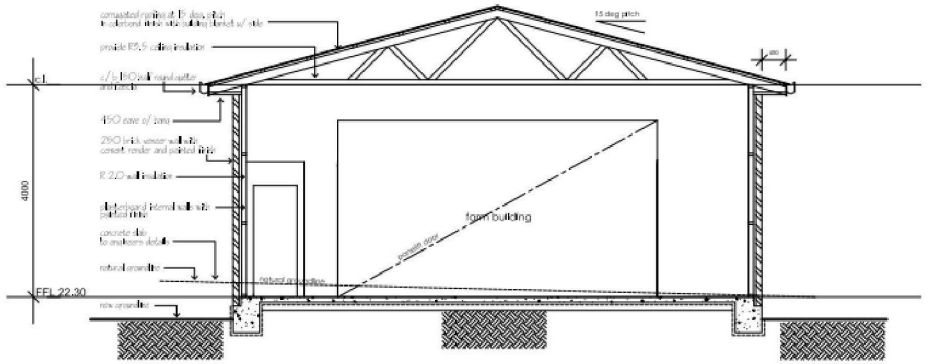


section a-a. (scale 1:50)



section b-b. (scale 1:50)

flood affected site

bushfire prone site

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