BUSHFIRE THREAT ASSESSMENT

FOR
A PROPOSED DWELLING
AT

283 FISHERS HILL ROAD,

FISHERS HILL

NSW 2421

Prepared by:

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Site Details:	283 Fishers Hill Road, Fishers Hill NSW 2421
Prepared by:	***Sarah Jones B.Env.Sc.,G.Dip.DBPA (Design in Bushfire Prone Areas)*** ***Firebird ecoSultants Pty Ltd*** **A**BN – 16 105 985 993 PO Box 354, Newcastle NSW 2300 M: 0414 465 990 Email: sarah@firebirdeco.com.au T: 02 4910 3939 Fax: 02 4929 2727
Prepared for:	Backyard Grannys
Reference No.	Fishers Hill – Backyard Grannys – March 2022
Document Status & Date:	03/03/2022

Disclaimer

Not withstanding the precautions adopted within this report, it should always be remembered that bushfires burn under a wide range of conditions. An element of risk, no matter how small always remains, and 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.

Executive Summary

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of Backyard Grannys for a proposed dwelling at **283 Fishers Hill Road, Fishers Hill NSW 2421.** The report forms part of the supporting documentation for a DA to be submitted to Lake Macquarie City Council (LMCC).

The report demonstrates compliance with Planning for Bushfire Protection 2019 (NSW RFS, 2019) and AS3959-2018 Construction of Buildings in Bush Fire Prone Areas.

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal. Recommendations are provided with regard to fuel management, access, provision of emergency services, building protection and construction standards to facilitate an acceptable level of bushfire protection.

In summary,

> Section 7.9 Grassland Deeming Provision on PBP 2019 states:
>
> *In recognition of the characteristics of grassland fire behaviour, the NSW RFS has developed a simplified set of Deeming Provisions. This process provides for infill development located in a grassland area. A site assessment as detailed in Appendix 1 is not required, nor is referral to the NSW RFS.*
>
> *Where an APZ of 50m can be provided, no further BMPs are required*
>
> Grassland Deeming Provisions and the acceptable set of simple requirements for developments, where:

- **An APZ of 50m can be provided, no further Bushfire Protection Measures (BPMs) are required.**

> The Grassland Deeming Provision in **BOLD** above states that no BPMs are required if a 50m APZ can be provided

I certify the development conforms to the relevant specifications and requirements of Planning for Bushfire Protection 2019

Sarah Jones
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FPA BPAD-A Certified Practitioner (Certification Number BPD-PA-26512)
Ecologist / Bushfire Planner

Terms & Abbreviations

Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419 -2017	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BFPL Map	Bush Fire Prone Land Map
BPMs	Bush Fire Protection Measures
BFSA	Bush Fire Safety Authority
CC	Construction Certificate
LMCC	Lake Macquarie City Council
EPA Act	NSW Environmental Planning and Assessment Act 1979
FFDI	Forest Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection 2019
PoM	Plan of Management
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation

CONTENTS

TABLES

FIGURES

1 INTRODUCTION

A Bushfire Threat Assessment Report (BTA) has been prepared by Firebird ecoSultants Pty Ltd at the request of Fishers Hill Road for a proposed dwelling at 283 Fishers Hill Road, Fishers Hill NSW 2421, hereafter referred to as the "site" (refer to Figure 1-1 for site locality). Refer to Appendix A for Proposed Site Plans.

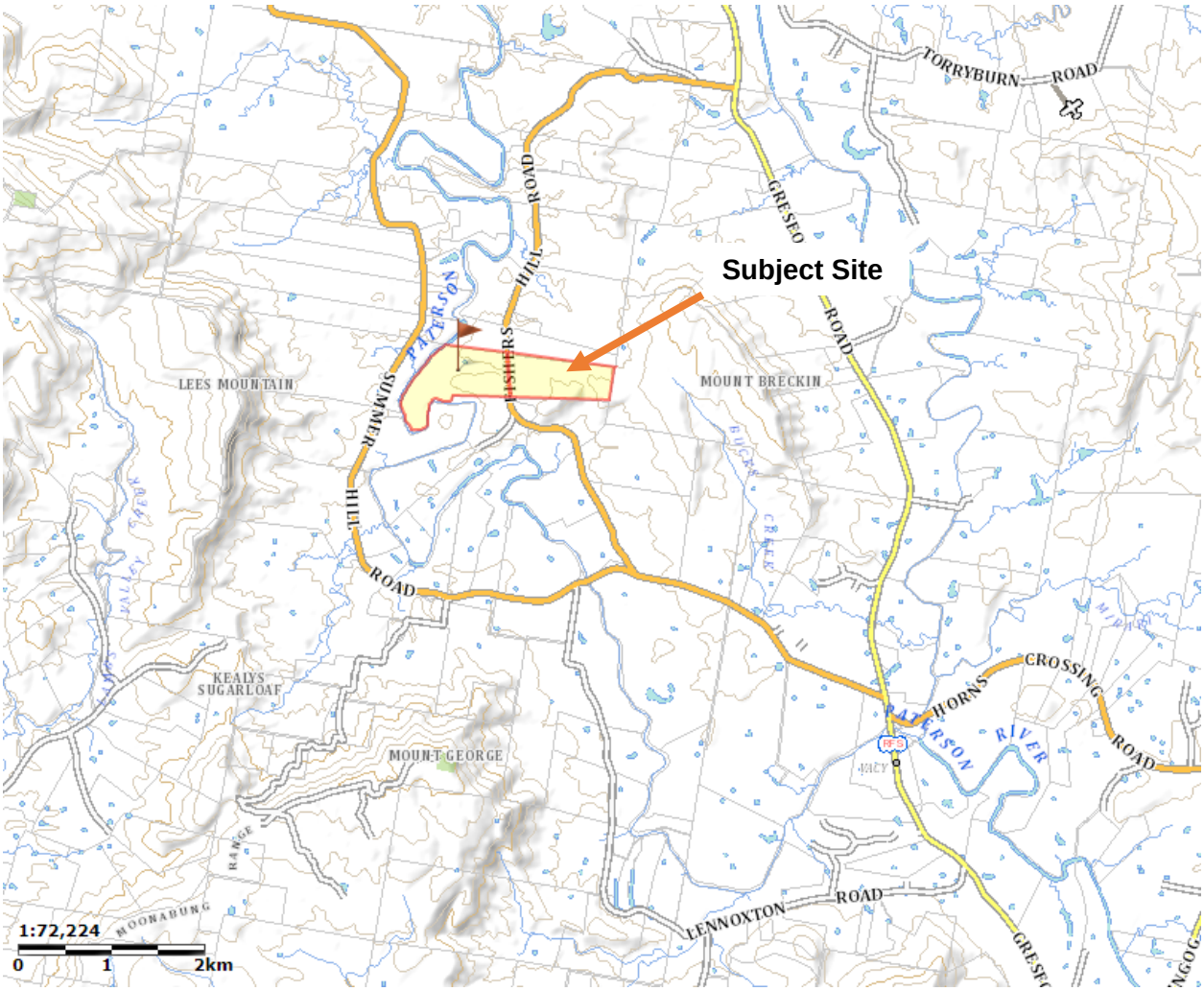
This BTA is suitable for submission with a Development Application (DA) and provides information on measures that will enable the development to comply with 'Planning for Bushfire Protection' (NSW RFS, 2019), hereafter referred to as PBP (RFS, 2019).

This assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Environmental Planning and Assessment Amendment (Planning for Bushfire Protection) Regulation 2007 and the Rural Fires Amendment Regulation 2007 (RF Amendment Regulation 2007).

1.1 Site Particulars

Locality:	283 Fishers Hill Road, Fishers Hill NSW 2421
LGA:	Lake Macquarie City Council
Current Land Use:	Vacant lot
Forest Danger Index:	100 FFDI

Figure 1-1: Site Location



1.2 Description of the Proposal

This DA relates to the proposal for a dwelling. Refer to Appendix A for proposed plans.

1.3 Legislative Requirements

The Site has been mapped as Bush Fire Prone Land Map (BFPLM) by LMCC.

This report forms part of the supporting documentation for a Development Application (DA) to be submitted to LMCC.

This BTA has been prepared using current legislative requirements and associated guidelines for assessment of bushfire protection, these being:

- PBP (RRS, 2019); and
- AS3959-2018 Construction of Buildings in Bushfire Prone Area.

1.4 Objectives of Assessment

This report has been prepared to address the requirements of Clause 44 of the Rural Fires Regulation. This BTA also addresses the six key Bush Fire Protection Measures (BFRMs) in a development assessment context being:

- The provision of clear separation of buildings and bush fire hazards, in the form of fuel-reduced APZ (and their components being Inner Protection Areas (IPA's) and Outer Protection Areas (OPA's);
- Sitting and design of the proposal;
- Construction standards;
- Appropriate access standards for residents, fire-fighters, emergency workers and those involved in evacuation;
- Adequate water supply and pressure, and utility services; and
- Suitable landscaping, to limit fire spreading to a building.

2 METHODOLOGY

2.1 Vegetation Assessment

Vegetation surveys and vegetation mapping carried out on the site has been undertaken as follows:

- Aerial Photograph Interpretation to map vegetation cover and extent
- Confirmation of the vegetation assemblage typology present.

2.2 Slope Assessment

Slope assessment has been undertaken as follows:

- Aerial Photograph Interpretation in conjunction with analysis of electronic contour maps with a contour interval of 10m.

3 SITE ASSESSMENT

The following assessment has been undertaken in accordance with the requirements of PBP (RFS, 2019).

3.1 Vegetation & Slope Assessment

In accordance with PBP (RFS 2019), an assessment of the vegetation over a distance of 140m in all directions from the site was undertaken. Vegetation that may be considered a bushfire hazard was identified in all directions from the site. This assessment is depicted in Table 3-1.

In accordance with PBP (RFS 2019), an assessment of the slope that the vegetation considered a bushfire hazard was undertaken and the results are presented in Table 3.1 below.

Table 3-1: Vegetation Classification

Proposed Dwelling		
Direction	**Vegetation Type**	**Slope**
North	Grassland	N/A*
East	Grassland	N/A*
South	Grassland	N/A*
West	Grassland	N/A*

* Section 7.9 Grassland Deeming Provision on PBP 2019 states:

In recognition of the characteristics of grassland fire behaviour, the NSW RFS has developed a simplified set of Deeming Provisions. This process provides for infill development located in a grassland area. A site assessment as detailed in Appendix 1 is not required, nor is referral to the NSW RFS

4 BUSHFIRE ATTACK ASSESSMENT

Building design and the materials used for construction of future dwellings should be chosen based on the information contained within AS3959-2018, and accordingly the designer / architect should be made aware of this recommendation. It may be necessary to have dwelling plans checked by the architect involved to ensure that the proposed dwellings meet the relevant Bushfire Attack Level (BAL) as detailed in AS3959-2018.

The determinations of the appropriate BAL are based upon parameters such as weather modelling, fire-line intensity, flame length calculations, as well as vegetation and fuel load analysis. The determination of the construction level is derived by assessing the:

- Relevant FFDI = 100
- Flame temperature
- Slope
- Vegetation classification; and
- Building location.

The following BAL, based on heat flux exposure thresholds, are used in the standard:

(a) **BAL – LOW** The risk is considered to be **VERY LOW**

There is insufficient risk to warrant any specific construction requirements but there are still some risks.

(b) **BAL – 12.5** The risk is considered to be **LOW**

There is a risk of ember attack.

The construction elements are expected to be exposed to a heat flux not greater than 12.5 k/m2.

(c) **BAL – 19** The risk is considered to be **MODERATE**

There is a risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to radiant heat.

The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m2.

(d) **BAL-29** The risk is considered to be **HIGH**

There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level of radiant heat.

The construction elements are expected to be exposed to a heat flux no greater than 29 kW/m2.

(e) **BAL-40** The risk is considered to be **VERY HIGH**

There is much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux no greater than 40 kW/m^2.

(f) **BAL-FZ** The risk is considered to be **EXTREME**

There is an extremely high risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.

The construction elements are expected to be exposed to a heat flux greater than 40 kW/m^2.

4.1 Determination of Bushfire Attack Levels

Using a FFDI of 100, the information relating to vegetation, slope and according to Table A1.12.5 of PBP 2019 that determined the appropriate BAL. The results from this bush fire risk assessment are detailed below in Table 4-1–Bush Fire Attack Assessment and Figure 4-1 shows the vegetation and APZs.

Table 4-1: Determination of BALs for the proposed dwelling

Vegetation Type & Direction	Separation Distance from vegetation	Bushfire Attack Level (BAL)
Grassland to the North	>50m	No Requirement
Grassland to the East	>50m	No Requirement
Grassland to the South	>50m	No Requirement
Grassland to the West	>50m	No Requirement

Given the information in Table 4-1, *Where an APZ of 50m can be provided, no further BPMs are required (Section 7.9 Grassland Deeming Provision on PBP 2019).*

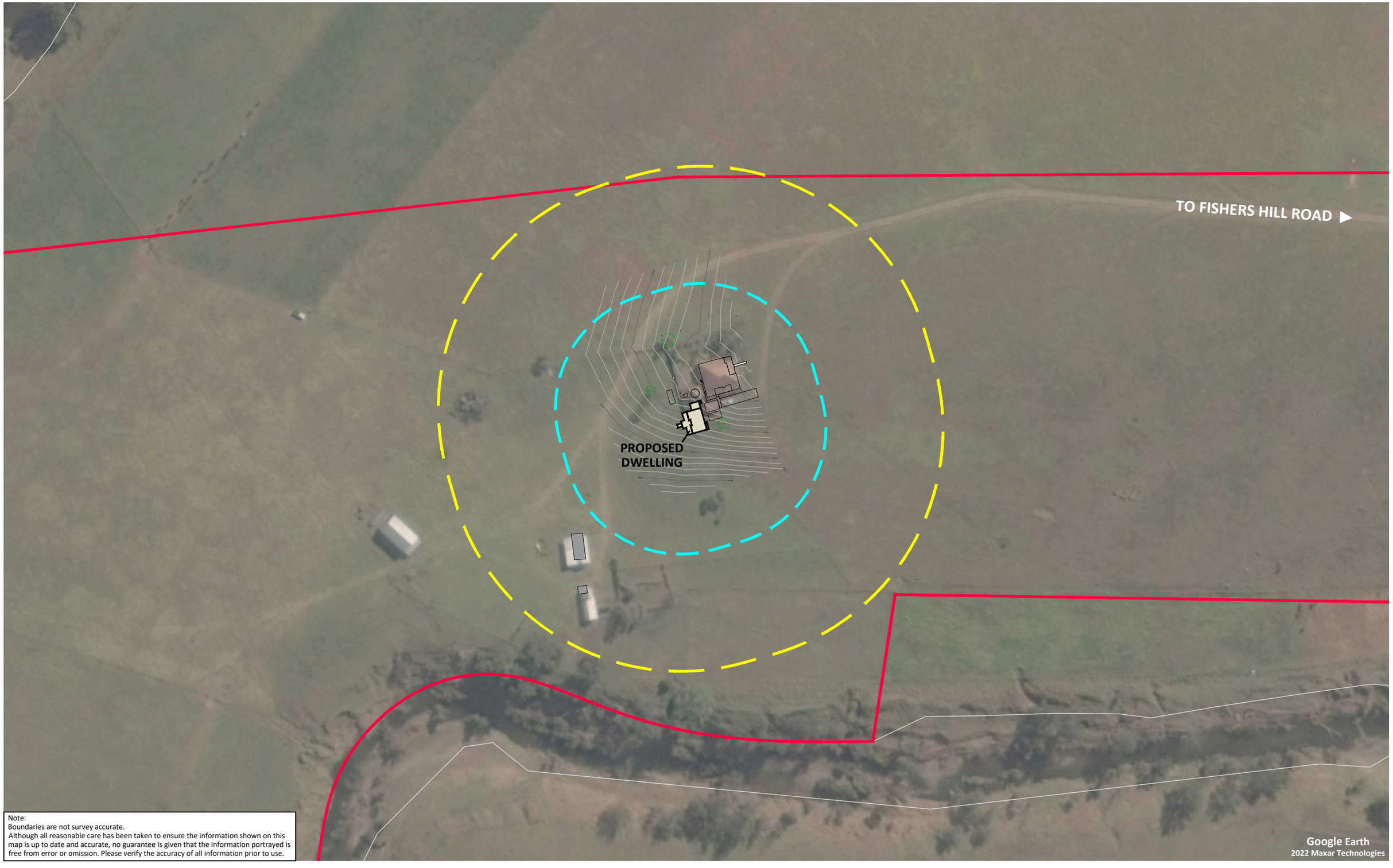


FIGURE 4-1: ASSET PROTECTION ZONES

SITE DETAILS No.283 Fishers Hill Road Fishers Hill
DATE 22 February 2022

Legend
- Subject Site
- 100m Buffer
- 50m APZ

NORTH

0 25 50 75

SCALE 1500 @ A3

PIXELDRAFTING

Firebird ecoSultants Pty Ltd
ABN - 16 105 985 993
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P O Box 354 Newcastle NSW 2300

Ref No 3070

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5 COMPLIANCE

The proposal is for a dwelling and therefore development standards apply. Table 5-1 details the compliance with Development Standards for Infill development.

Table 5-1: Proposed Dwelling Compliance with Development Standards

Acceptable Solutions	Performance Criteria	Compliance
ASSET PROTECTION ZONES		
〉 an APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.	〉 APZs are provided commensurate with the construction of the building; and 〉 A defendable space is provided.	**Complies with Acceptable Solution –** An APZ in accordance with table A1.12.2 has been provided and the entire site is to be managed as an Inner Protection Area.
〉 APZs are managed in accordance with the requirements of Appendix 4 of PBP.	〉 APZs are managed and maintained to prevent the spread of a fire to the building.	**Complies with Acceptable Solution –** the site is to be managed to the requirements of PBP Appendix 4 (summarised in Appendix B here)
〉 APZs are wholly within the boundaries of the development site. 〉 APZ are located on lands with a slope less than 18 degrees.	〉 the APZ is provided in perpetuity. 〉 APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	**Complies with Acceptable Solution –** Section 7.9 Grassland Deeming Provision on PBP 2019 states: *In recognition of the characteristics of grassland fire behaviour, the NSW RFS has developed a simplified set of Deeming Provisions. This process provides for infill development located in a grassland area. A site assessment as detailed in Appendix 1 is not required, nor is referral to the NSW RFS.*

ACCESS		
〉 property access roads are two-wheel drive, all-weather roads.	〉 firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	**Complies with Acceptable Solution –** *Where an APZ of 50m can be provided, no further BMPs are required.*
〉 the capacity of road surfaces and any bridges/ causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating.	〉 the capacity of access roads is adequate for firefighting vehicles.	**Complies with Acceptable Solution –** *Where an APZ of 50m can be provided, no further BMPs are required*
〉 hydrants are provided in accordance with the relevant clauses of AS 2419.1:2017; 〉 There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	〉 there is appropriate access to water supply.	**Complies with Acceptable Solution –** *Where an APZ of 50m can be provided, no further BMPs are required*
〉 at least one alternative property access road is provided for individual dwellings or groups of dwellings that are located more than 200 metres from a public through road; 〉 There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.	〉 firefighting vehicles can access the dwelling and exit the property safely.	**N/A** – *Where an APZ of 50m can be provided, no further BMPs are required* .

WATER SUPPLIES		
〉 reticulated water is to be provided to the development, where available; and 〉 a static water supply is provided where no reticulated water is available.	〉 an adequate water supply is provided for firefighting purposes.	**Complies with Acceptable Solution –** *Where an APZ of 50m can be provided, no further BMPs are required*
〉 fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2017; 〉 hydrants are not located within any road carriageway; and 〉 reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	〉 water supplies are located at regular intervals; and 〉 the water supply is accessible and reliable for firefighting operations.	**Complies with Acceptable Solution –** *Where an APZ of 50m can be provided, no further BMPs are required*
〉 fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2017.	〉 flows and pressure are appropriate.	**Complies with Acceptable Solution –** *Where an APZ of 50m can be provided, no further BMPs are required*
〉 all above-ground water service pipes external to the building are metal, including and up to any taps.	〉 the integrity of the water supply is maintained.	**Complies with Acceptable Solution –** *Where an APZ of 50m can be provided, no further BMPs are required*
〉 where no reticulated water supply is available, water for firefighting purposes is provided in accordance with Table 5.3d.	〉 a static water supply is provided for firefighting purposes in areas where reticulated water is not available.	**N/A –** *Where an APZ of 50m can be provided, no further BMPs are required*
ELECTRICTY SERVICES		

〉 where practicable, electrical transmission lines are underground; and 〉 where overhead, electrical transmission lines are proposed as follows: ○ lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and ○ 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.	〉 location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	**Complies with Acceptable Solution** – *Where an APZ of 50m can be provided, no further BMPs are required*
GAS SERVICES		
〉 reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used; 〉 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.	〉 location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	**Complies with Acceptable Solution** – *Where an APZ of 50m can be provided, no further BMPs are required*

CONSTRUCTION STANDARDS		
〉 BAL is determined in accordance with Tables A1.12.5 to A1.12.7; and 〉 construction provided in accordance with the NCC and as modified by section 7.5 (please see advice on construction in the flame zone).	〉 the proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact.	**Complies with Acceptable Solution** – *Where an APZ of 50m can be provided, no further BMPs are required*
〉 fencing and gates are constructed in accordance with section 7.6.	〉 proposed fences and gates are designed to minimise the spread of bush fire.	**Can Comply –** *Where an APZ of 50m can be provided, no further BMPs are required*
〉 Class 10a buildings are constructed in accordance with section 8.3.2.	〉 proposed Class 10a buildings are designed to minimise the spread of bush fire.	**N/A** – *Where an APZ of 50m can be provided, no further BMPs are required*
LANDSCAPING		
〉 compliance with the NSW RFS 'Asset protection zone standards' (see Appendix 4); 〉 a clear area of low-cut lawn or pavement is maintained adjacent to the house; 〉 fencing is constructed in accordance with section 7.6; and 〉 trees and shrubs are located so that: ○ the branches will not overhang the roof; ○ the tree canopy is not continuous; and ○ any proposed windbreak is located on the elevation from which fires are likely to approach.	〉 landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	**Complies with Acceptable Solution –** the site is to be managed to the requirements of PBP Appendix 4 (summarised in Appendix B)

6 CONCLUSION & RECOMMENDATIONS

In summary, a Bushfire Risk Assessment has been undertaken for a proposed dwelling at 283 Fishers Hill Road, Fishers Hill NSW 2421. The report forms part of the supporting documentation for a Development Application (DA) to be submitted to LMCC.

If the recommendations contained within this report are duly considered and incorporated, it is considered that the fire hazard present is containable to a level necessary to provide an adequate level of protection to life and property on the site.

In summary,

Section 7.9 Grassland Deeming Provision on PBP 2019 states:

In recognition of the characteristics of grassland fire behaviour, the NSW RFS has developed a simplified set of Deeming Provisions. This process provides for infill development located in a grassland area. A site assessment as detailed in Appendix 1 is not required, nor is referral to the NSW RFS.

Where an APZ of 50m can be provided, no further BMPs are required

Grassland Deeming Provisions and the acceptable set of simple requirements for developments, where:

- **An APZ of 50m can be provided, no further Bushfire Protection Measures (BPMs) are required.**

The Grassland Deeming Provision in **BOLD** above states that no BPMs are required if a 50m APZ can be provided

I certify the development conforms to the relevant specifications and requirements of Planning for Bushfire Protection 2019

7 BIBLIOGRAPHY

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APPENDIX A PROPOSED SITE PLANS

PROPOSED 2 BEDROOM DWELLING
LOT-2 DP-1027037
283 Fishers Hill Rd Fishers Hill N.S.W. 2421

NOTE:
Check all dimensions and levels on site before commencing work and ordering materials.
Workmanship and materials shall comply with all relevant codes, ordinances, Australian Standards and manufacturers instructions.

BASIX COMMITMENTS

SITE AREA	**52.2 Hectares**
EXISTING DWELLING	**171.34**

BASIX Certificate number
40% Compact Flourescent or light emitting diode lamps as per BASIX Certificate
Showerheads to have flow rate no greater than 9L or 3 star rating
Toilets minimum 3 star rating
Glazing as per BASIX Certificate
Minimum insulation Requirements
Walls - R 1.50
Ceilings - R 2.50

CONDITIONED FLOOR AREA	**52.70**	**UN-CONDITIONED FLOOR AREA**	**5.97**
ROOF AREA	**95.59**		

GLAZING SCHEDULE

All Glazing to Comply with AS1288 & BASIX Certificate

Bal Rating = TBC | Glazing = 4mm Clear | Reveal = 90mm

Element ID	D - 01	D - 02	WD - 01	WD - 02	WD - 03	WD - 04	WD - 05	WD - 06
Opening Name	Hinged Door with Sidelights	Glazed Aluminium Door	Double Hung Window	Double Hung Window	Double Hung Window	Double Hung Window	2-Sash Sliding Window	2-Sash Sliding Window
Unit Dimensions	1,620×2,100	820×2,100	610×1,800	610×1,800	610×1,800	610×1,800	610×1,800	610×600
Wallhole Dimensions	1,680×2,130	880×2,130	670×1,860	670×1,860	670×1,860	670×1,860	670×1,860	670×660
Sill height	0	0	300	300	300	300	300	1,500
Head height	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100
Surface Area	3.40	1.72	1.10	1.10	1.10	1.10	1.10	0.37
Glazing	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Obscured
Orientation	West	North	West	West	West	West	North	South

DOOR SCHEDULE

Element ID	D - 03	D - 04	D - 05	D - 06
Opening Name	Hinged Door	Cavity Slider	Hinged Door	Double Hinged Door
Unit Dimensions	770x2,040	770x2,040	820x2,040	1,040x2,040
Wallhole Dimensions	860x2,100	860x2,100	910x2,100	1,140x2,100
Head height	2,100	2,100	2,100	2,100

ISSUE:	DESCRIPTION:	DATE:
C0	Initial Concept Drawn - AM	16/02/2022
C1	BYG Internal Request - AM	18/02/2022

backyard grannys
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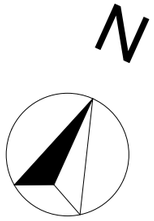
Lyel William Petherbridge
283 Fishers Hill Rd, Fishers Hill 2421
Lot No.2 DP1027037

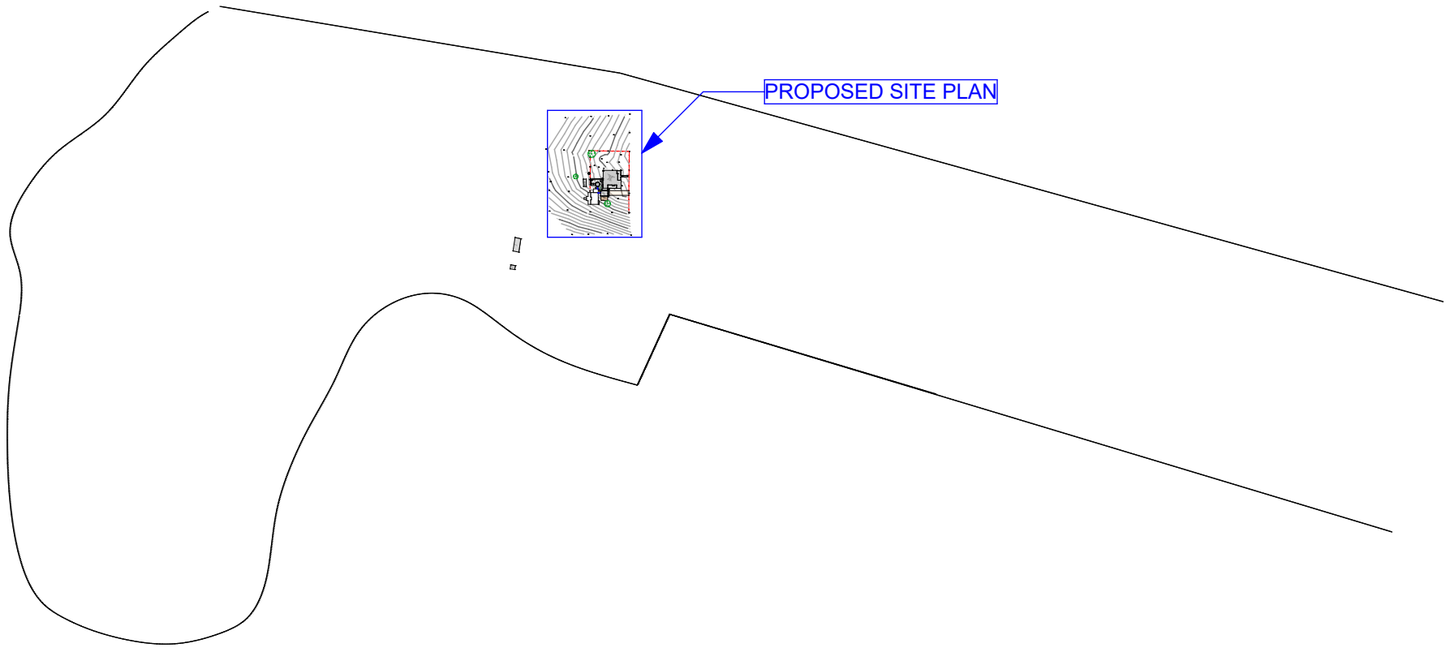
Project ID.
A283FH-2421ALBA

Drawing Scale	Date
As Noted @ A3	**18/02/2022**
Status	**Sold By**
CONCEPT_DA	**S.S.**

Drawing Title
COVER SHEET

Layout ID	Revision
A.000	**Rev01**

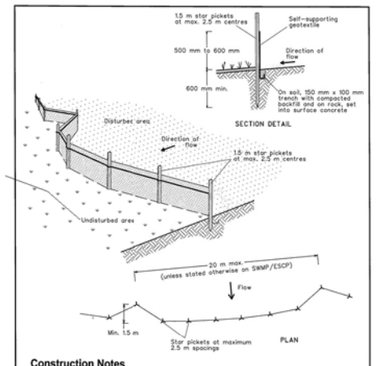




DEMOLITION OR REMOVAL NOTE:

Items noted for demolition or removal on the site plan, are for planning purposes only, and are usually the responsibility of the owner to remove prior to works
commencing on site, unless specified in your tender and/or contract.

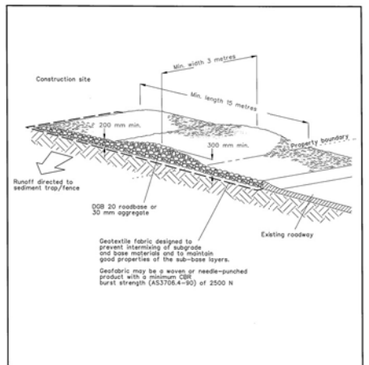
00 OVERALL SITE PLAN 1:5000



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench aong the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

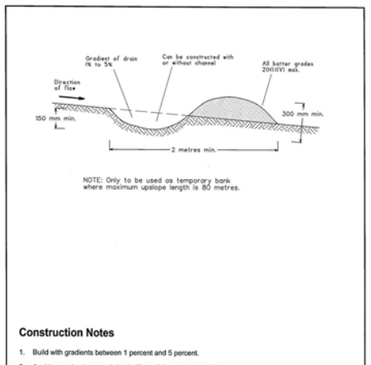
SEDIMENT FENCE **SD 6-8**



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment anc at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS **SD 6-14**



Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

EARTH BANK (LOW FLOW) **SD 5-5**

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Lot No.2 DP1027037

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Status	Sold By
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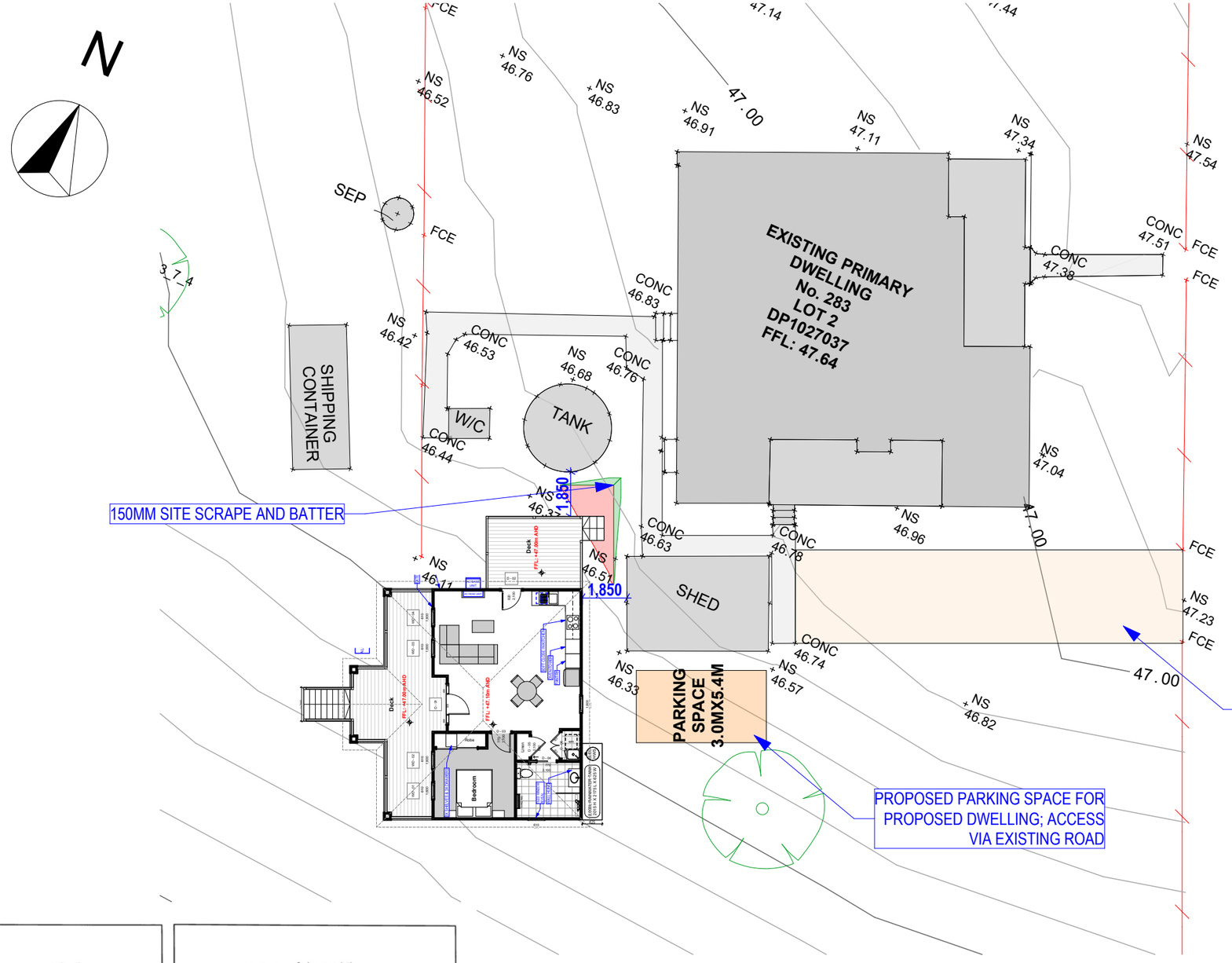
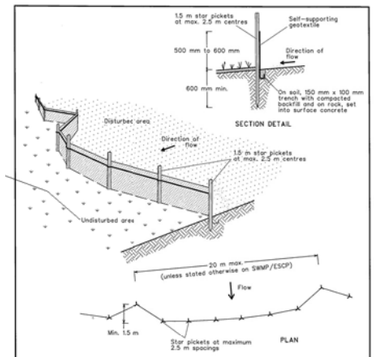
Drawing Title
EXISTING SITE PLAN

Layout ID	Revision
A.001	**Rev01**



01 PROPOSED SITE PLAN 1:200

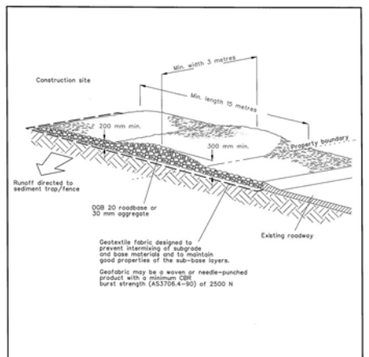
5m 4 3 2 1 0 2



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench aong the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically producad for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

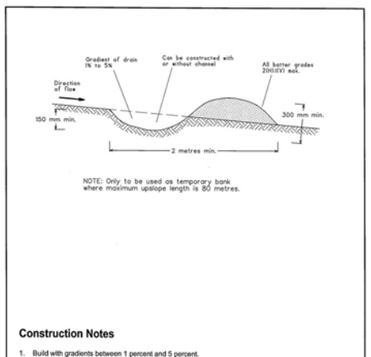
SEDIMENT FENCE SD 6-8



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment anc at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS SD 6-14



Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

EARTH BANK (LOW FLOW) SD 5-5

DEMOLITION OR REMOVAL NOTE:

Items noted for demolition or removal on the site plan, are for planning purposes only, and are usually the responsibility of the owner to remove prior to works
commencing on site, unless specified in your tender and/or contract.

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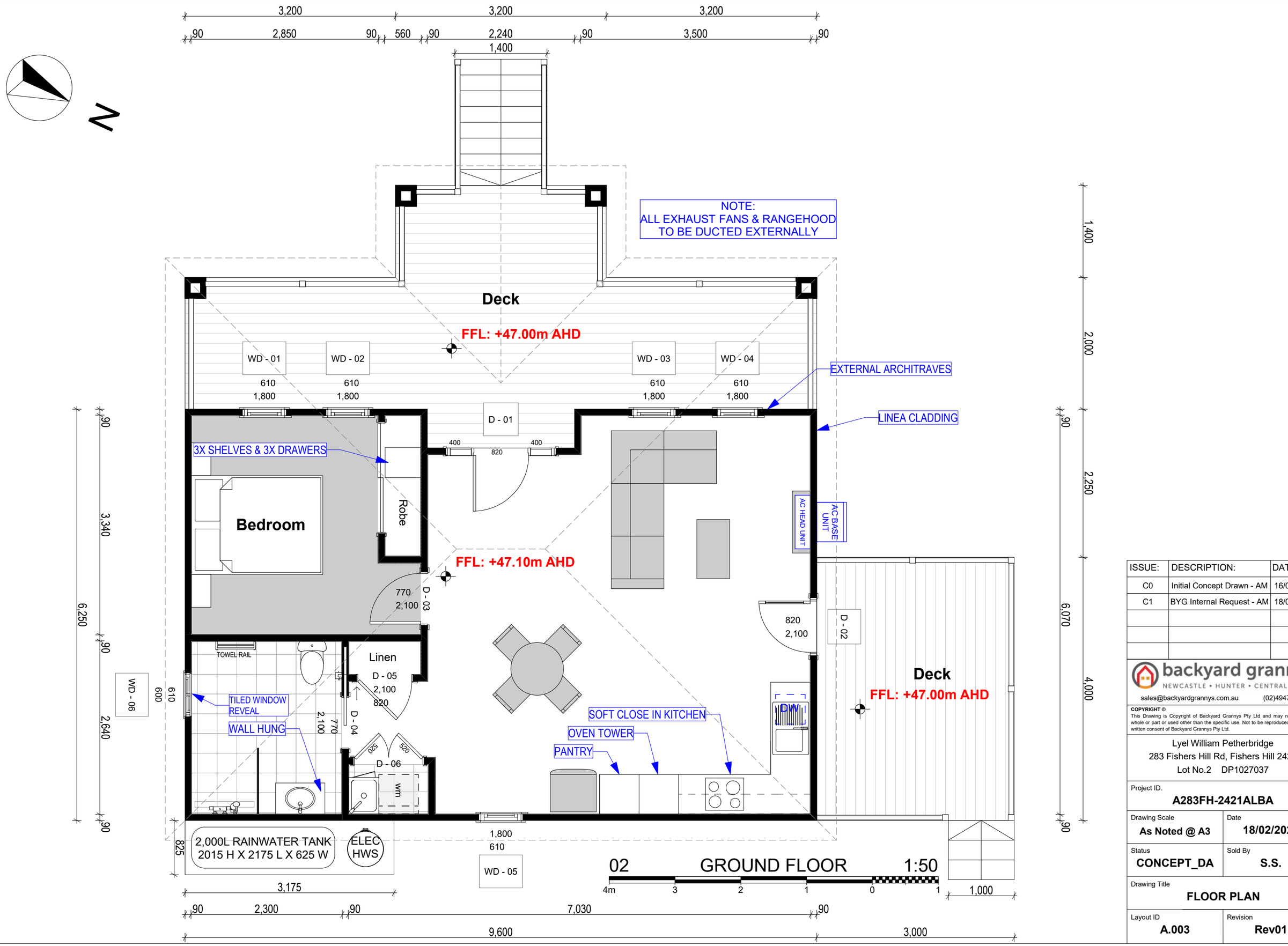
Drawing Title
PROPOSED SITE PLAN

Layout ID	Revision
A.002	**Rev01**



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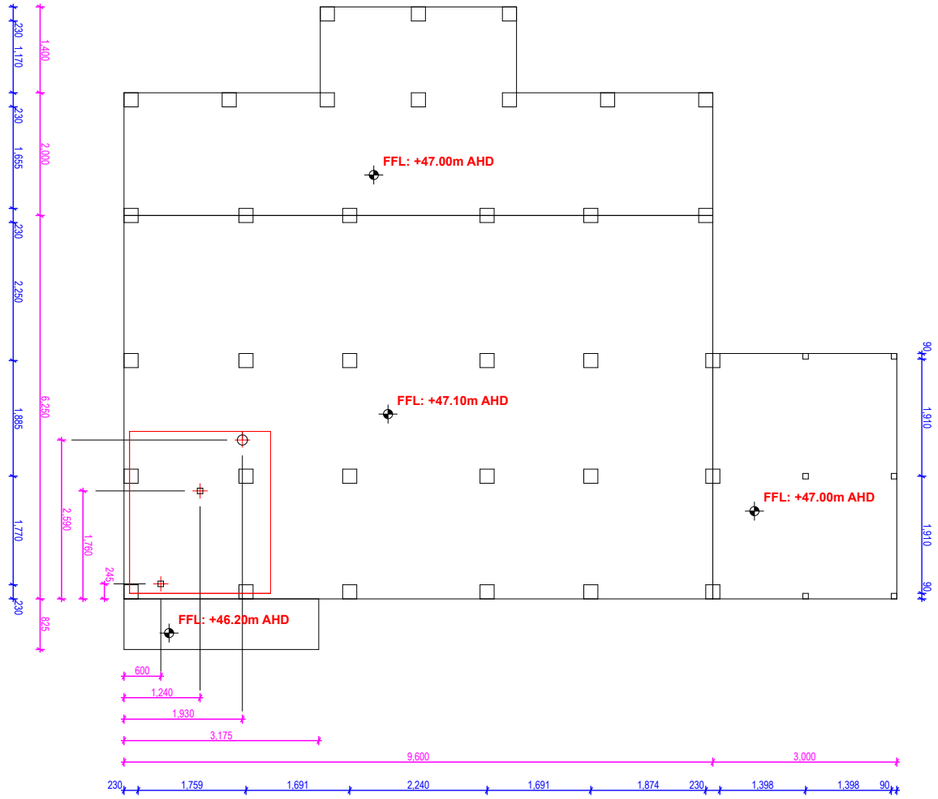
CONCEPT_DA	**S.S.**

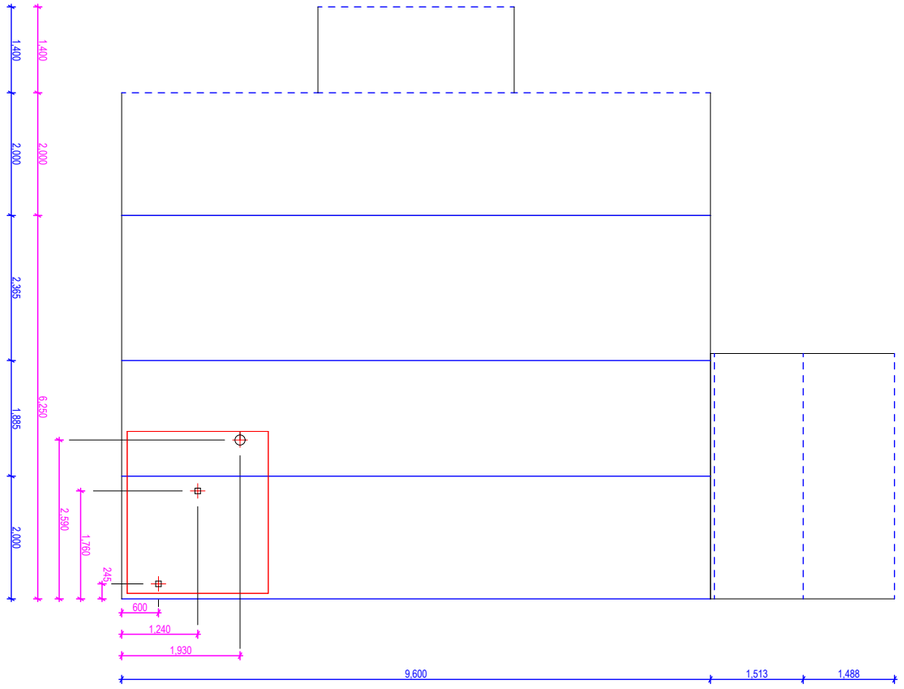
Drawing Title
FLOOR PLAN

Layout ID	Revision
A.003	**Rev01**

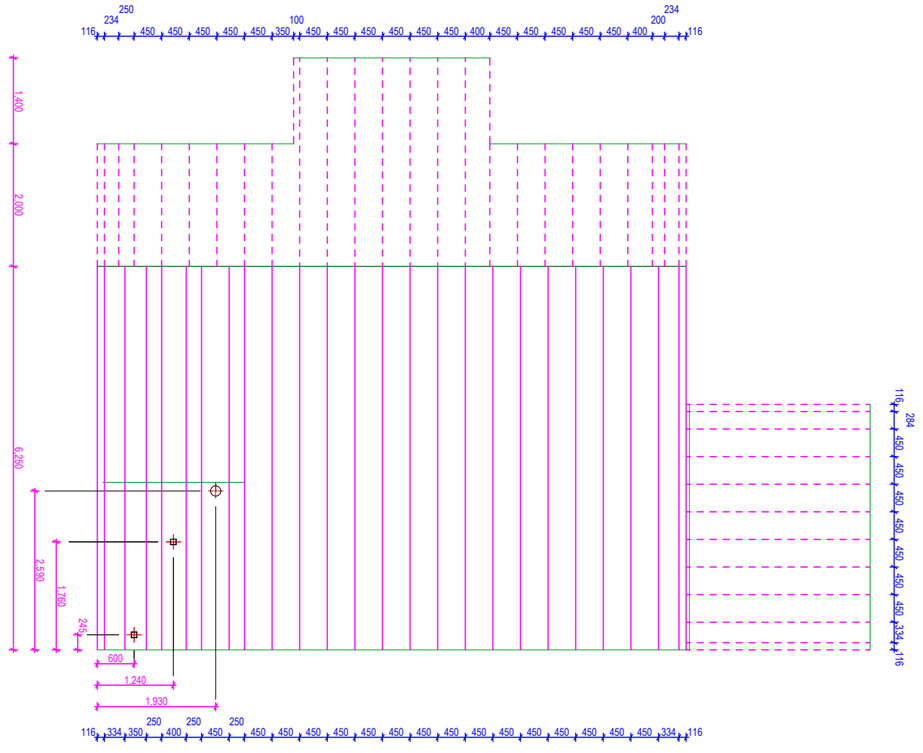


03 PIER LAYOUT 1:100

5m 4 3 2 1 0 1



04 BEARER LAYOUT 1:100



05 JOISTS LAYOUT 1:100

LOCKING

JOISTS

JOISTS FOR DECK

BEARER

BEARER FOR DECK

BATHROOM FLOOR WASTE

TOILET FLOOR WASTE

BATHROOM

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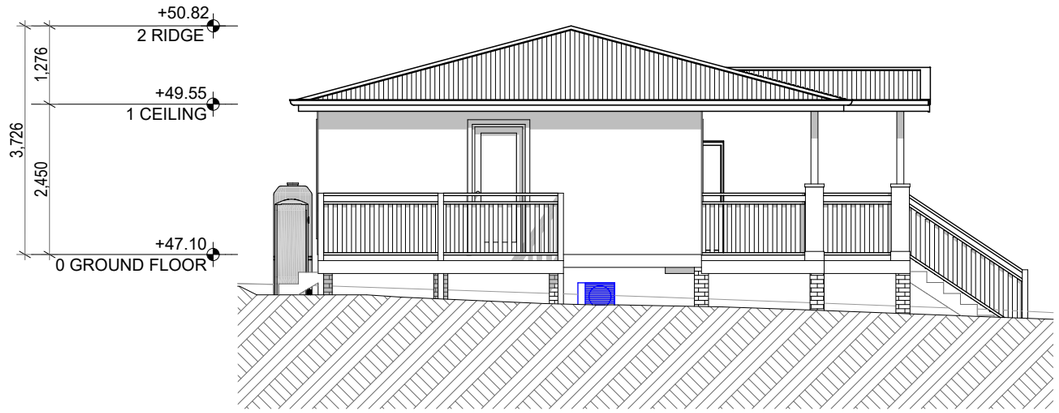
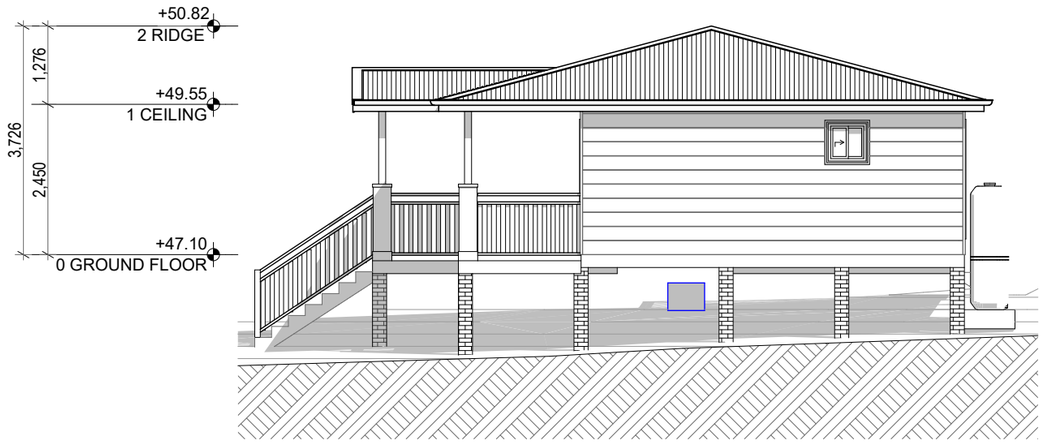
Drawing Title
SETOUT PLAN

Layout ID	Revision
A.004	**Rev01**



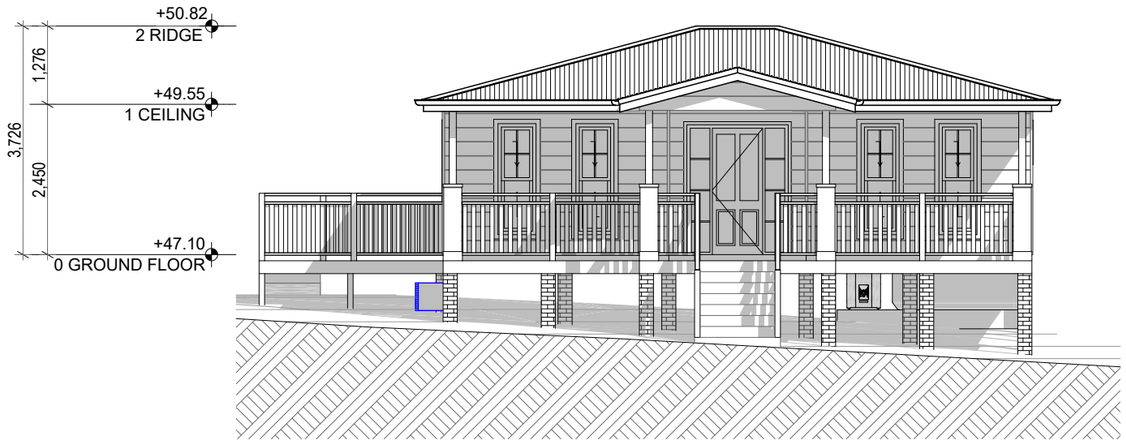
E-01 NORTH ELEVATION 1:100

E-02 EAST ELEVATION 1:100



E-03 SOUTH ELEVATION 1:100

5m 4 3 2 1 0 1



E-04 WEST ELEVATION 1:100

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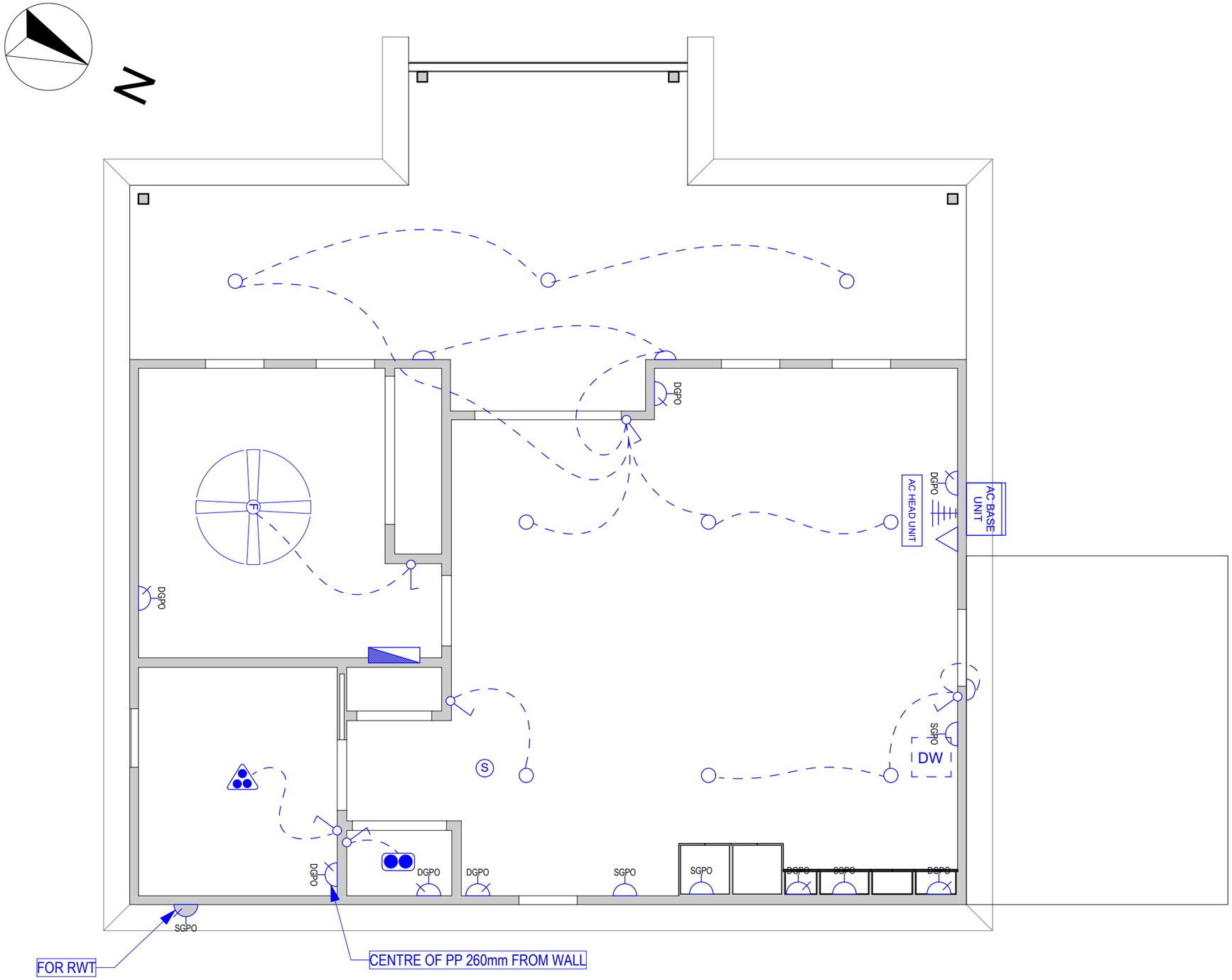
Drawing Title
ELEVATIONS

Layout ID	Revision
A.005	**Rev01**



06 ELECTRICAL PLAN 1:50

4m 3 2 1 0 1

ELECTRICAL PLAN LEGEND

F	1	FAN WITH LIGHT
	9	LED DOWNLIGHT
	1	3 in 1 LIGHT
	1	2 in 1 LIGHT
	3	OUTDOOR LIGHT
DGPO	8	DOUBLE POWER OUTLET
SGPO	4	SINGLE POWER OUTLET
	1	DISTRIBUTION BOARD
	1	TELEVISION POINT
	1	TELEPHONE OUTLET
S	1	SMOKE ALARM
SGPO	1	EXTERNAL POWER OUTLET

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Drawing Title
ELECTRICAL PLAN

Layout ID	Revision
A.006	**Rev01**

APPENDIX B ASSET PROTECTION ZONES

APPENDIX 4

ASSET PROTECTION ZONE REQUIREMENTS

In combination with other BPMs, a bush fire hazard can be reduced by implementing simple steps to reduce vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

Careful attention should be paid to species selection, their location relative to their flammability, minimising continuity of vegetation (horizontally and vertically), and ongoing maintenance to remove flammable fuels (leaf litter, twigs and debris).

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset Protection Zones

An APZ is a fuel-reduced area surrounding a building or structure. It is located between the building or structure and the bush fire hazard.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at the NSW RFS Website www.rfs.nsw.gov.au.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows for suppression of fire;
- an area from which backburning or hazard reduction can be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Bush fire fuels should be minimised within an APZ. This is so that the vegetation within the zone does not provide a path for the spread of fire to the building, either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

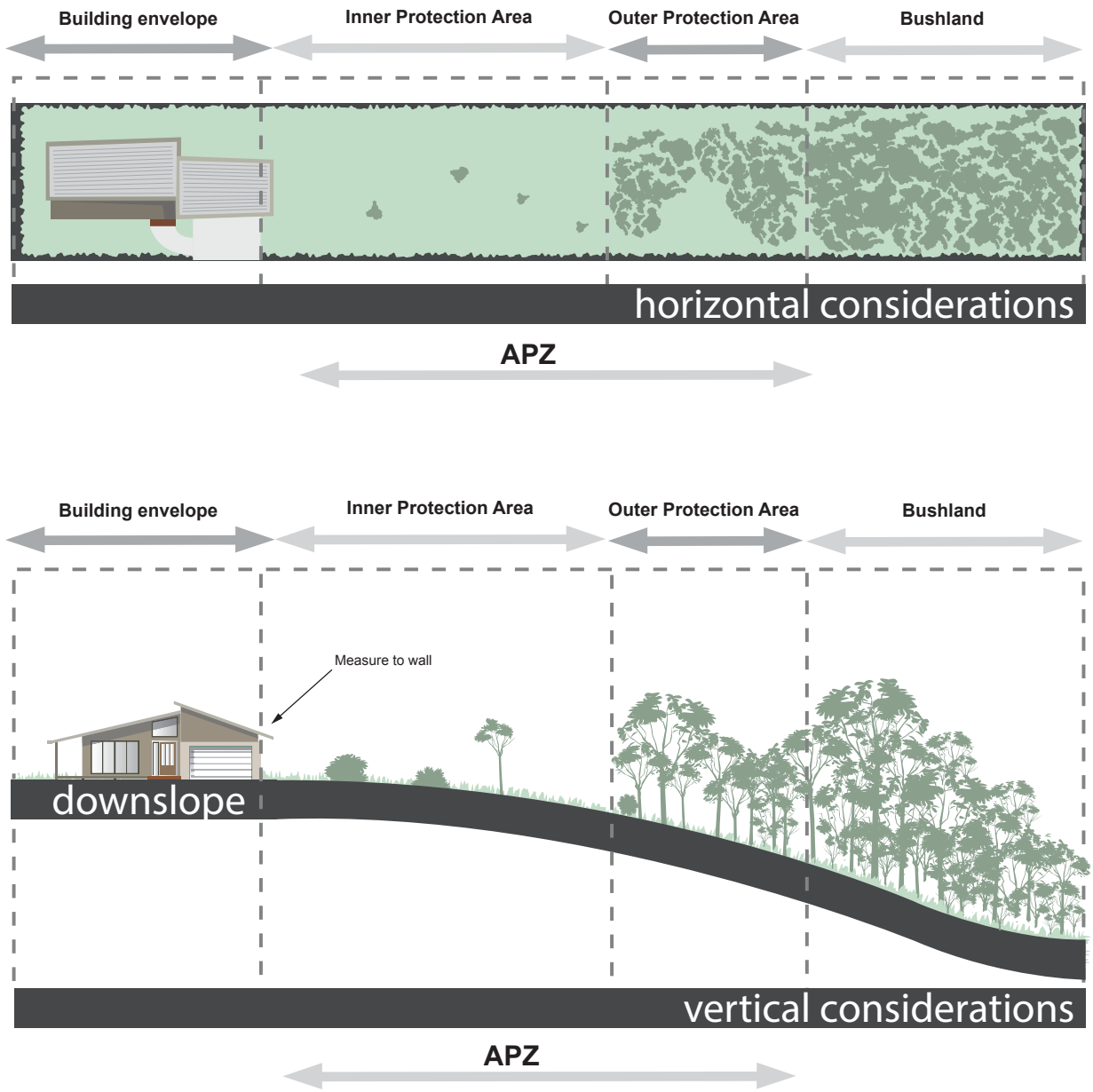
- direct flame contact on the building;
- damage to the building asset from intense radiant heat; and
- ember attack.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type and bush fire threat. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an Inner Protection Area (IPA) and an Outer Protection Area (OPA).

Figure A4.1

Typical Inner and Outer Protection Areas.



A4.1.1 Inner Protection Areas (IPAs)

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees

- 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; and
- preference should be given to smooth barked and evergreen trees.

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
- 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

- 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.

A4.1.2 Outer Protection Areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. It is an area where there is maintenance of the understorey and some separation in the canopy. The reduction of fuel in this area aims to decrease the intensity of an approaching fire and restricts the potential for fire spread from crowns; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

When establishing and maintaining an OPA the following requirements apply:

Trees

- tree canopy cover should be less than 30%; and
- canopies should be separated by 2 to 5m.

Shrubs

- shrubs should not form a continuous canopy; and
- shrubs should form no more than 20% of ground cover.

Grass

- grass should be kept mown to a height of less than 100mm; and
- leaf and other debris should be removed.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA as described above should be undertaken regularly, particularly in advance of the bush fire season.