BUSHFIRE THREAT ASSESSMENT

FOR A SECTION 4.55 APPLICATION FOR THE THE APPROVED SENIORS LIVING AND ASSOCIATED INFRASTRUCTURE AT 40-54 MCFARLANES ROAD BERRY PARK NSW 2321

Prepared by:

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Prepared for:	Teakmill Pty Ltd
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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 Teakmill Pty Ltd for a proposed modification to an approved Seniors living village and associated infrastructure at 40-54 McFarlanes Road, Berry Park NSW 2321**.** The report forms part of the supporting documentation for a Section 4.55 application to be submitted to Maitland City Council (MCC).

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, the following is recommended to enable the proposal to meet the relevant legislative requirements:

- All proposed buildings will be constructed to the requirements of BAL-12.5.
- APZs are required in accordance with Table 4-1 and Figure 4-1 of this report between the surrounding Grassland vegetation and the proposed dwellings.
- The proposed access internal road is to meet either the performance criteria or acceptable solutions as detailed in Section 6 of this report and Section 4.1.3 (1) of PBP. As assessed and approved in the GTAs issued by the RFS for the approved Retirement Village.
- A Bush Fire Emergency Management and Evacuation Plan is prepared.

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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 -2005	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
MCC	Maitland City Council
EPA Act	*NSW Environmental Planning and Assessment Act 1979*
FFDI	Forest Fire Danger Index
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 Teakmill Pty Ltd for a modification to an approved Seniors living village and associated infrastructure at 40-54 McFarlanes Road, Berry Park, hereafter referred to as the "site" (refer to Figure 1-1 for site locality). This BTA will be submitted as part of the section 4.55 application to be submitted to MCC. Refer to Appendix A for Proposed Site Plans.

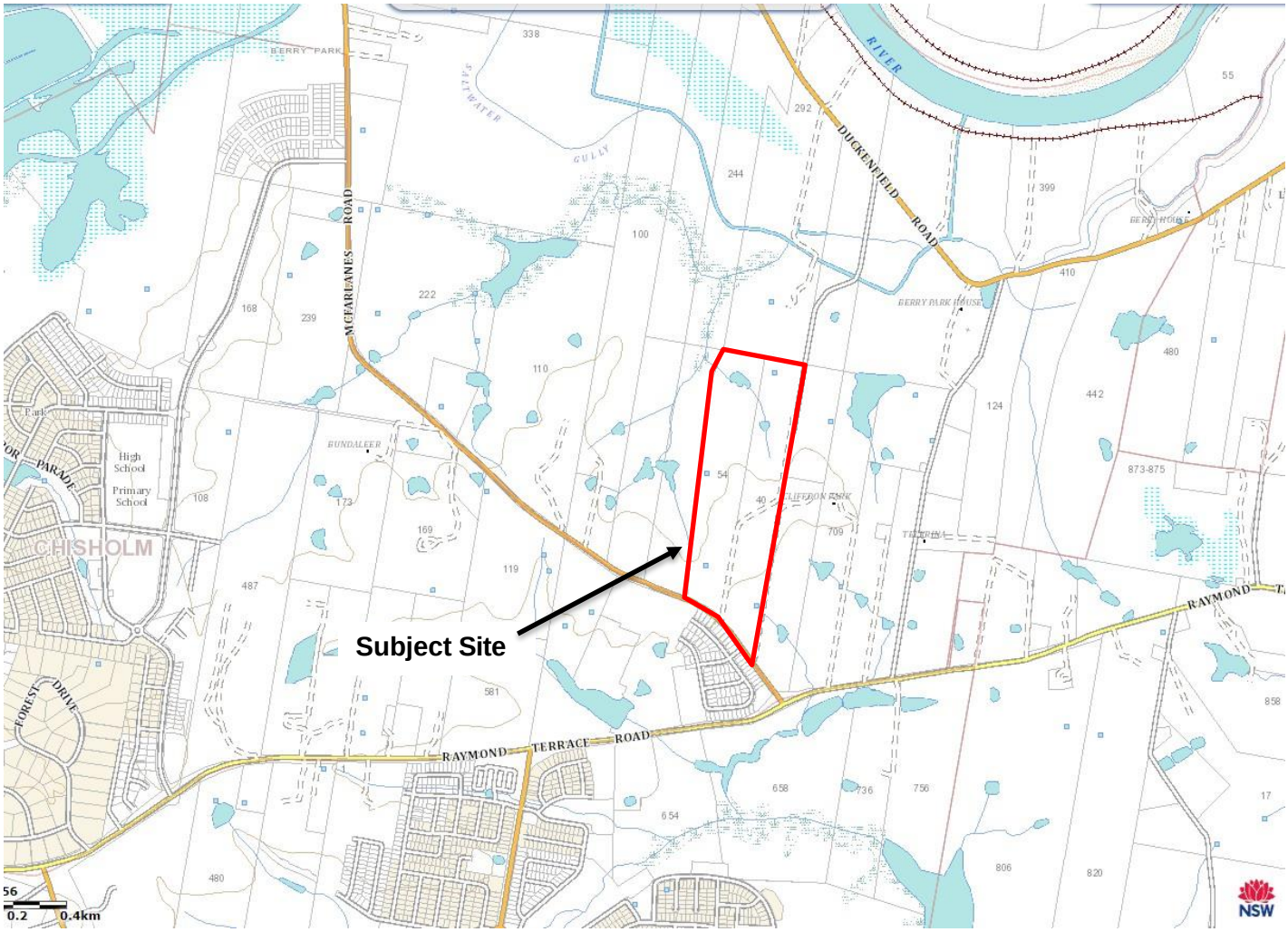
This BTA is suitable for submission with a Development Application (DA) and provides information on measures that will enable the development to comply with 'Planning for Bushfire Protection' (NSW RFS, 2019), hereafter referred to as PBP (RFS, 2019).

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:	40-54 McFarlanes Road, Berry Park NSW 2321
LGA:	Maitland City Council
Current Land Use:	Existing dwelling
Forest Danger Index:	100 FFDI

Figure 1-1: Site Location



1.2 Description of the Proposal

This DA relates to the proposal for a proposed Seniors living village and associated infrastructure. Refer to Appendix A for proposed plans.

1.3 Legislative Requirements

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

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

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

- PBP (RFS, 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 and Figure 3-1 that shows the vegetation post development.

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 Seniors Living Village		
Direction	**Vegetation Type**	**Slope**
North	Managed Land followed by Grassland	Downslope (0-5°)
East	Managed Land followed by Grassland	Upslope
South	Managed Land - Residential Development	Flat
West	Managed Land followed by Grassland	0-5° downslope

4 BUSHFIRE PROTECTION ASSESSMENT

4.1 Asset Protection Zones (APZ)

The PBP (RFS, 2019) guidelines has been used to determine the widths of the APZs required for habitable buildings within the site using the vegetation and slope data identified in Section 3-1 of this report.

The site lies within Maitland Local Government Area and therefore is assessed under a FDI rating of 100. Using the results from the Site Assessment (section 3-1 of this report) the deemed to satisfy APZ requirements for the proposed buildings within the site was determined using Table A1.12.1 APZs for SFPP in PBP (RFS, 2019). Refer to Table 4-1 and Figure 4-1 for required APZs for the proposed habitable building

Table 4-1: Recommended APZs for Proposed Habitable Buildings

Direction from Building Envelope	Vegetation Classification within 140m	Effective Slope (within 100m)	APZ to be Provided	Comment
North	Managed Land followed by Grassland	0-5° Downslope	>40m	Acceptable solution in accordance with PBP (RFS, 2019)
East	Managed land followed by Grassland	Upslope	>36m	APZ to be resolved before construction certificates are issued to stage 7. Acceptable solution in accordance with PBP (RFS, 2019)
South	Residential development / managed land	Flat	>36m	Acceptable solution in accordance with PBP (RFS, 2019)
West	Managed land followed by Grassland	0-5° Downslope	>40m	Acceptable solution in accordance with PBP (RFS, 2019)

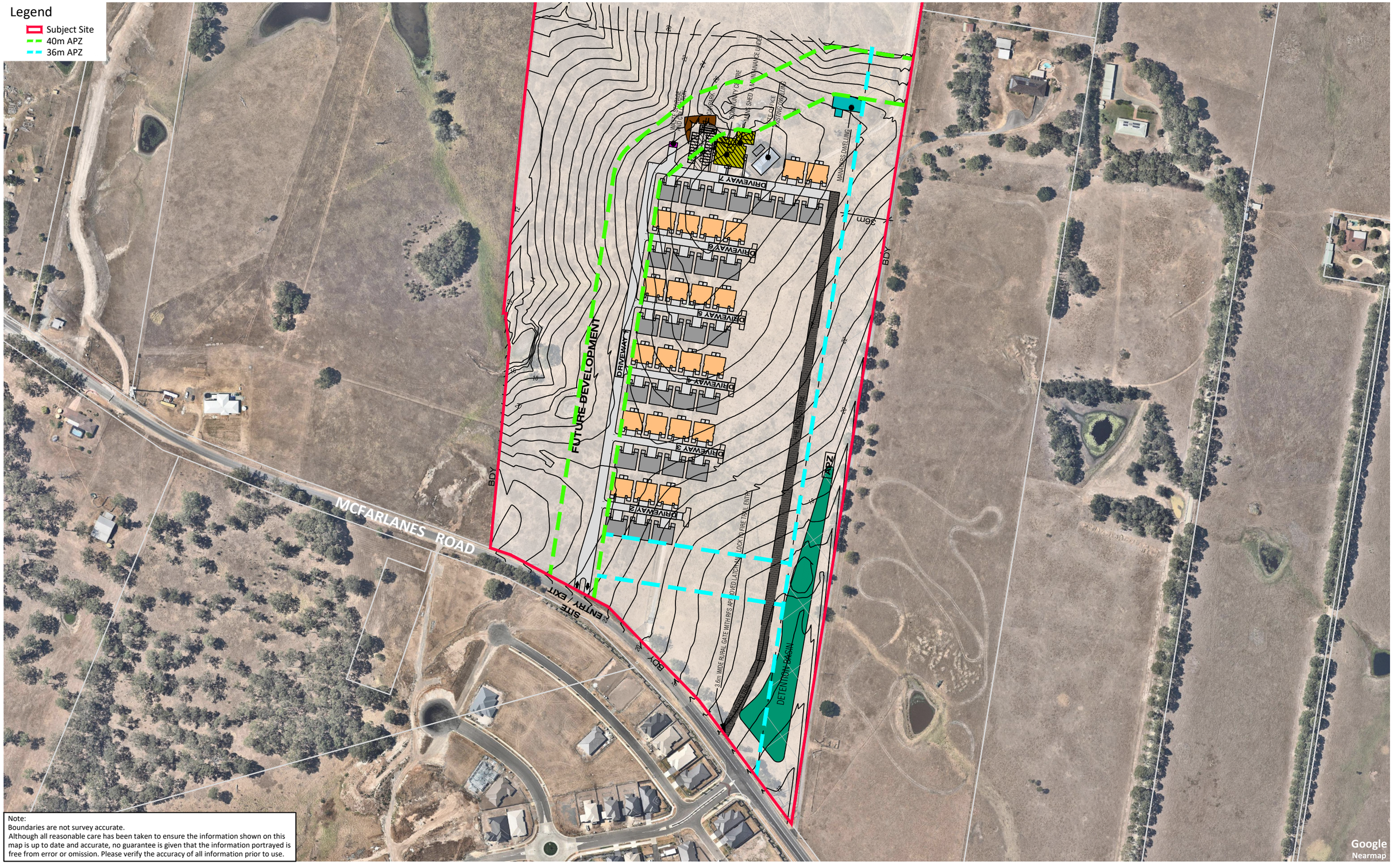


FIGURE 4-1: ASSET PROTECTION ZONES

Ref No 2576 H

CLIENT	Client
SITE DETAILS	No.40-54 McFarlanes Road Berry Park
DATE	6 April 2022

NORTH

0 50 100 150

SCALE 3000 @ A3

Firebird ecoSultants Pty Ltd
ABN - 16 105 985 993
Level 1, 146 Hunter Street, Newcastle NSW 2300
P O Box 354 Newcastle NSW 2300

5 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.

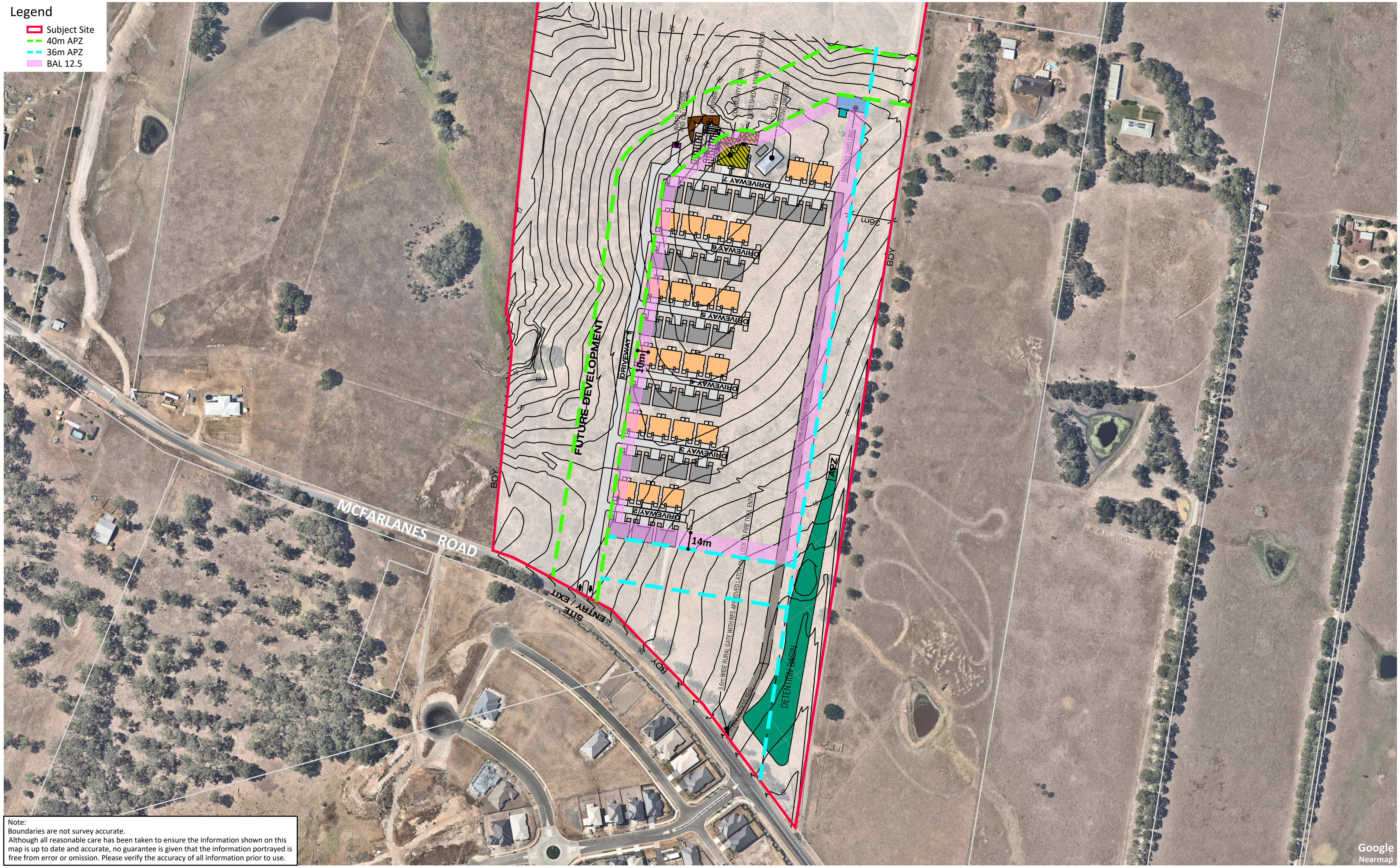
5.1 Determination of Bushfire Attack Levels

Using a FFDI of 100, the information relating to vegetation, slope and according to Table A1.12.5 of PBP 2018 that determined the appropriate BAL. The results from this bush fire risk assessment are detailed below in Table 5-1–Bush Fire Attack Assessment and Figure 5-1 shows the vegetation.

Table 5-1: Determination of BALs for the Proposed Dwellings

Vegetation Type & Direction	Separation Distance from vegetation	Bushfire Attack Level (BAL)
Grassland to the North	>40m	BAL-12.5
Grassland to the East	>36m	BAL-12.5
Grassland to the South	>36m	BAL-12.5
Grassland to the West	>40m	BAL-12.5

All buildings on site are to be constructed to **BAL-12.5** requirements.


Legend
Subject Site
40m APZ
36m APZ
BAL 12.5
MCFARLANES ROAD
FUTURE DEVELOPMENT
DRIVEWAY 1
DRIVEWAY 2
DRIVEWAY 3
DRIVEWAY 4
DRIVEWAY 5
DRIVEWAY 6
DRIVEWAY 7
10m
14m
36m
BDY
SITE ENTRY / EXIT
DETENTION BASIN
APZ
Note:
Boundaries are not survey accurate.
Although all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.
Google
Nearmap

Ref No 2576 H

FIGURE 5-1: BUSHFIRE ATTACK LEVELS

CLIENT	Client
SITE DETAILS	No.40-54 McFarlanes Road Berry Park
DATE	6 April 2022

NORTH

0 50 100 150

SCALE 3000 @ A3

Firebird ecoSultants Pty Ltd
ABN - 16 105 985 993
Level 1, 146 Hunter Street, Newcastle NSW 2300
P O Box 354 Newcastle NSW 2300

firebird

6 COMPLIANCE

The proposal is for a Special Fire Protection Purposes Seniors Living development and therefore development standards apply. Table 5-1 details the proposed dwelling compliance with Development Standards for Special Fire Protection Purpose Developments (SFPP).

Table 6-1: Proposed Compliance with SFPP Development Standards

Acceptable Solutions	Performance Criteria	Compliance
ASSET PROTECTION ZONES		
〉 the building is provided with an APZ in accordance with PBP 2019 (Table A1.12.1 in Appendix 1).	〉 radiant heat levels of greater than 10kW/m² (calculated at 1200K) will not be experienced on any part of the building.	**Complies with the Acceptable Solution** – the development requires a 36m APZ to the East and South and a 40m APZ to the North and West.
〉 APZs are located on lands with a slope less than 18 degrees.	〉 APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	**Complies with the Acceptable Solution** – the slope is <18°.
〉 the APZ is managed in accordance with the requirements of Appendix 4 of this document, and is wholly within the boundaries of the development site; 〉 APZ are wholly within the boundaries of the development site; and 〉 other structures located within the APZ need to be located further than 6m from the refuge building.	〉 APZs are managed and maintained to prevent the spread of fire to the building. 〉 the APZ is provided in perpetuity	**Complies with the Performance Criteria** – the APZ is to be managed as per PBP Appendix 4 (summarised here in Appendix B). The APZ are to exist partially on adjacent properties as part of existing managed land (driveway to adjacent property).
LANDSCAPING		
〉 landscaping is in accordance with Appendix 4; and 〉 fencing is constructed in accordance with section 7.6.	〉 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 the Acceptable Solution** – the APZ is to be managed as per PBP Appendix 4 (summarised here in Appendix B).

CONSTRUCTION STANDARDS		
〉 a construction level of BAL-12.5 under AS 3959 or NASH Standard and section 7.5 of PBP is applied.	〉 the proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	**Complies with the Acceptable Solution** – all new dwellings will be constructed in accordance with BAL-12.5.
ACCESS		
〉 SFPP access roads are two-wheel drive, all-weather roads; 〉 access is provided to all structures; 〉 traffic management devices are constructed to not prohibit access by emergency services vehicles; 〉 access roads must provide suitable turning areas in accordance with Appendix 3; and 〉 one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression	〉 firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	**Complies with the Acceptable Solution** – the site has direct access to McFarlanes Road.
〉 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 the Acceptable Solution –** Road will be constructed to support access for emergency vehicles.
〉 hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression; 〉 hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; and 〉 there is suitable access for a Category 1 fire appliances to within 4m of the static water supply where no reticulated supply is available.	〉 there is appropriate access to water supply.	**Complies with the Acceptable Solution** – Hydrants are to be appropriately located.

PERIMETER ROADS		
〉 there are two-way sealed roads; 〉 minimum 8m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are to be located clear of parking areas; 〉 there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the maximum grade road is 15 degrees and average grade of not more than 10 degrees; 〉 the road crossfall does not exceed 3 degrees; and 〉 a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	〉 perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	**Complies** – The managed grassland vegetation surrounding the development site will facilitate egress for emergency vehicles to reach all areas of the site.

NON-PERIMETER ROADS		
〉 minimum 5.5m carriageway width kerb to kerb; 〉 parking is provided outside of the carriageway width; 〉 hydrants are located clear of parking areas; 〉 there are through roads, and these are linked to the internal road system at an interval of no greater than 500m; 〉 curves of roads have a minimum inner radius of 6m; 〉 the maximum grade road is 15 degrees and average grade of not more than 10 degrees; 〉 the road crossfall does not exceed 3 degrees; and 〉 a minimum vertical clearance of 4m to any overhanging 0bstructions, including tree branches, is provided.	〉 non-perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating.	**Complies with the Acceptable Solution –** All access roads will meet the requirements of the Acceptable Solution.
WATER SUPPLY		
〉 reticulated water is to be provided to the development, where available; or 〉 a 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.	〉 an adequate water supply for firefighting purposes is installed and maintained.	**Complies with the Acceptable Solution** – the site is to be connected to reticulated water.
〉 fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005; 〉 hydrants are not located within any road carriageway; and 〉 reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads.	〉 water supplies are located at regular intervals. 〉 the water supply is accessible and reliable for firefighting operations.	**Can Comply with the Acceptable Solution –** Hydrants are to be spaced according to AS 2419.1:2005
〉 fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	〉 flows and pressure are appropriate.	**Assumed**

〉 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.	**Can Comply with the Acceptable Solution –** External pipes will meet the specifications of the acceptable solution.
〉 a connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; a 65mm Storz outlet with a ball valve is fitted to the outlet; 〉 ball valve and pipes are adequate for water flow and are metal; 〉 supply pipes from tank to ball valve have the same bore size to ensure flow volume; 〉 underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank; 〉 a hardened ground surface for truck access is supplied within 4m of the access hole; 〉 above-ground tanks are manufactured from concrete or metal; 〉 raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F AS 3959); 〉 unobstructed access is provided at all times; 〉 tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters; and 〉 underground tanks are clearly marked, 〉 all exposed water pipes external to the building are metal, including any fittings; 〉 where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack; Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and	〉 water supplies are adequate in areas where reticulated water is not available	**N/A –** the site is to be connected to reticulated water.

〉 fire hose reels are constructed in accordance with AS/NZS 1221:1997 Fire hose reels, and installed in accordance with the relevant clauses of AS 2441:2005 *Installation of fire hose reels.*		
ELECTRICITY SERVICES		
〉 where practicable, electrical transmission lines are underground; 〉 where overhead, electrical transmission lines are proposed as follow: ○ 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 the Acceptable Solution –** All electrical services to the site will comply with the specifications of the acceptable solutions.
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; 〉 if gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion;	〉 location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	**Complies with the Acceptable Solution –** All gas services to the site will comply with the specifications of the acceptable solutions.

〉 polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and 〉 above-ground gas service pipes external to the building are metal, including and up to any outlets.		
EMERGENCY MANAGEMENT		
〉 Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the: ○ The NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan; ○ Australian Standard AS 3745:2010 Planning for emergencies in facilities; and ○ the Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants Note: A copy of the Bush Fire Emergency Management and Evacuation Plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.	〉 a Bush Fire Emergency Management and Evacuation Plan is prepared.	A Bush Fire Emergency Management and Evacuation Plan is prepared.
〉 an Emergency Planning Committee is established to consult with residents (and their families in the case of aged care accommodation and schools) and staff in developing and implementing an Emergency Procedures Manual; and 〉 detailed plans of all emergency assembly areas including on site and off-site arrangements as stated in AS 3745:2010 are clearly displayed, and an annually emergency evacuation is conducted.	〉 appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire Emergency Management and Evacuation Plan.	**Can Comply with the Acceptable Solution**

7 CONCLUSION & RECOMMENDATIONS

In summary, a Bushfire Risk Assessment has been undertaken for section 4.55 application for a modification to an approved Seniors living village and associated infrastructure at 40-54 McFarlanes Road, Berry Park NSW 2321. The report forms part of the supporting documentation to be submitted to MCC.

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 associated with the development. In summary, the following is recommended to enable the proposal to meet the relevant legislative requirements for the proposed:

- All proposed buildings will be constructed to BAL-12.5 requirements.
- APZs are required in accordance with Table 4-1 and Figure 4-1 of this report between the surrounding Grassland vegetation and the proposed dwellings.
- The proposed access internal road is to meet either the performance criteria or acceptable solutions as detailed in Section 6 of this report and Section 4.1.3 (1) of PBP. As assessed and approved in the GTAs issued by the RFS for the approved Retirement Village.
- A Bush Fire Emergency Management and Evacuation Plan is prepared.

8 BIBLIOGRAPHY

Department of Bush Fire Services (undated). *Bush Fire Readiness Checklist.*

NSWFB (1988). *Hazard Reduction for the Protection of Buildings in Bushland Areas.* New South Wales Fire Brigades.

NSW Rural Fire Service (1997). *Bush Fire Protection for New and Existing Rural Properties.* September 1997, NSW Government.

NSW Rural Fire Service (2006). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.*

NSW Rural Fire Service (2019). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.*

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

NSW Rural Fire Service (2002). *Circular 16/2002: Amendments to the Rural Fires Act 1997 – hazard reduction and planning requirements.*

Planning NSW & NSW Rural Fire Service (2001). *Planning for Bushfire Protection – A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.*

Ramsay, GC and Dawkins, D (1993). *Building in Bushfire-prone Areas – Information and Advice.* CSIRO and Standards Australia.

Rural Fires and Environmental Assessment Legislation Amendment Act 2002.

Standards Australia (2018). *AS 3959 – 2018: Construction of Buildings in Bushfire-prone Areas.*

APPENDIX A PROPOSED SITE PLANS

McFARLANES GARDENS RETIREMENT VILLAGE

40 McFARLANES ROAD
LOT 1 DP 797227
LOTS 13 & 14 DP 1122688
BERRY PARK

SEC 96 - 20 / 03 / 21

PRECINCT 1
STAGES 1 - 4

DRAWING SCHEDULE

DWG No.	DWG	ISSUE	SHEET
001	TITLE SHEET	SEC 96	A3
002	STAGING PLAN	SEC 96	A3
003	FULL & PART SITE PLANS	SEC 96	A3
004	DETAIL SITE PLAN 1	SEC 96	A3
005	DETAIL SITE PLAN 2	SEC 96	A3
006	DETAIL SITE PLAN 3	SEC 96	A3
007	DETAIL SITE PLAN 4	SEC 96	A3
008	DETAIL SITE PLAN 5	SEC 96	A3
009	DETAIL SITE PLAN 6	SEC 96	A3
010	9AM SHADOWS 1	SEC 96	A3
011	9AM SHADOWS 2	SEC 96	A3
012	12PM SHADOWS 1	SEC 96	A3
013	12PM SHADOWS 2	SEC 96	A3
014	3PM SHADOWS 1	SEC 96	A3
015	3PM SHADOWS 2	SEC 96	A3
016	SITE ENTRY	SEC 96	A3
017	WASTE AREA	SEC 96	A3
018	CARPARK & MENS SHED PLANS	SEC 96	A3
019	COMMUNITY CENTRE PLAN	SEC 96	A3
020	COMMUNITY CENTRE ELEVATIONS 1	SEC 96	A3
021	COMMUNITY CENTRE ELEVATIONS 2	SEC 96	A3
022	COMMUNITY CENTRE SECTION	SEC 96	A3
023	ACCESSIBILITY DETAILS	SEC 96	A3
024	STREETSCAPES 1	SEC 96	A3
025	STREETSCAPES 2	SEC 96	A3
026	VILLA TYPE 1 PLAN	SEC 96	A3
027	VILLA TYPE 1 ELEVATIONS	SEC 96	A3
028	VILLA TYPE 2 PLAN	SEC 96	A3
029	VILLA TYPE 2 ELEVATIONS	SEC 96	A3
030	MANAGER DWELLING LOWER PLAN	SEC 96	A3
031	MANAGER DWELLING UPPER PLAN	SEC 96	A3
032	MANAGER DWELLING ELEVATIONS	SEC 96	A3
033	MANAGER DWELLING ELEV & SECTION	SEC 96	A3

LOCATION PLAN
NOT TO SCALE

TOCAE GROUP

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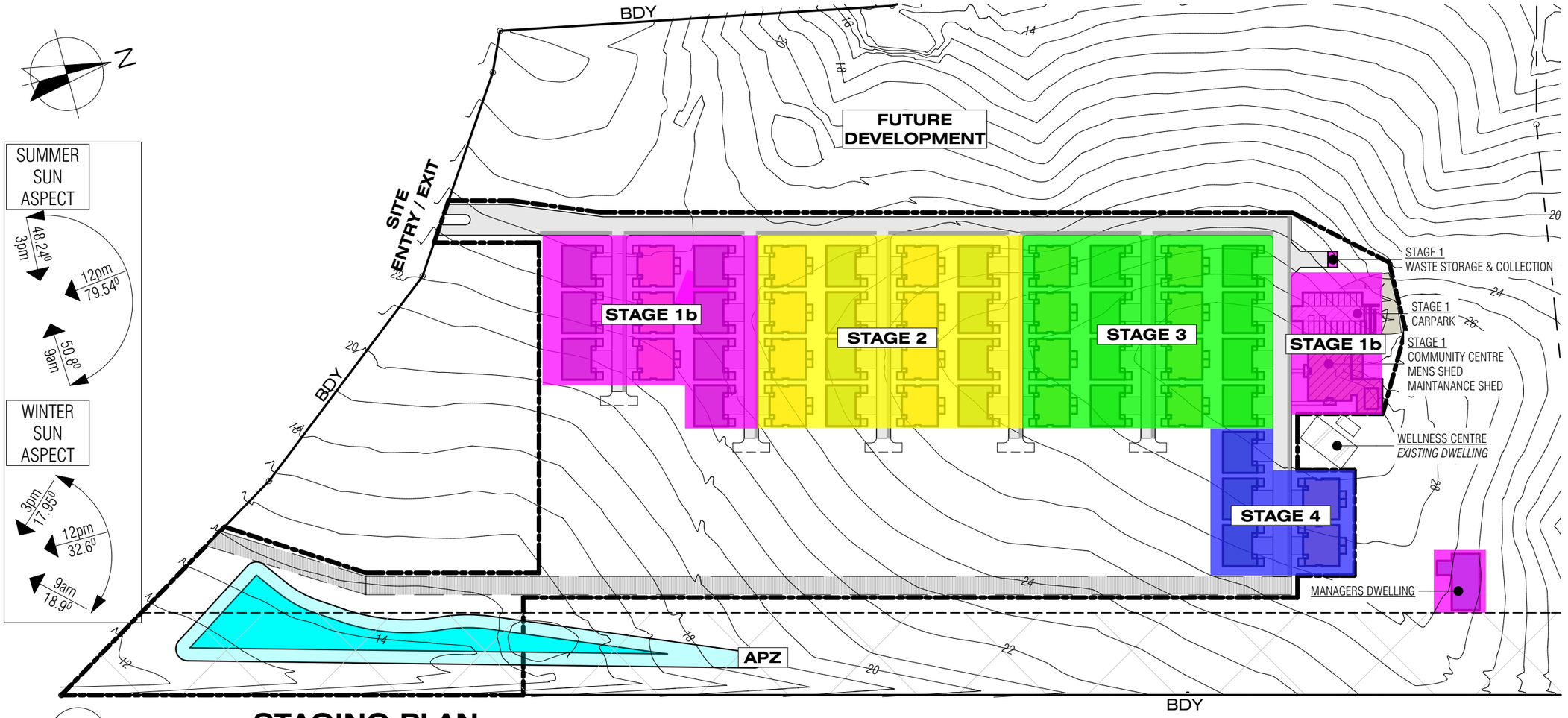


STAGING PLAN

SCALE 1 : 2000

SITE CALCULATIONS

SITE AREA	30.6 ha
	306000 m²
VILLAS	
SITE COVERAGE	243 & 268 m²
TOTAL SITE COVERAGE	11946 m²
	3.9 %
FSR	0.03 : 1
TOTALS	
SITE COVERAGE	32922 m²
	10.7 %
FSR	0.03 : 1
LANDSCAPE AREA	89.2%

STAGING LEGEND

STAGE 1a
EARTHWORKS
ACCESS DRIVEWAYS
INTERSECTION
SITE ENTRY

STAGE 1b
DRIVEWAYS
WASTE STORAGE AREA
COMMUNITY CENTRE
MENS SHED
MANAGERS DWELLING
COMM. CENTRE CARPARK
VILLA CONSTRUCTION
UNITS 31-42 57-64
TOTAL 20 UNITS

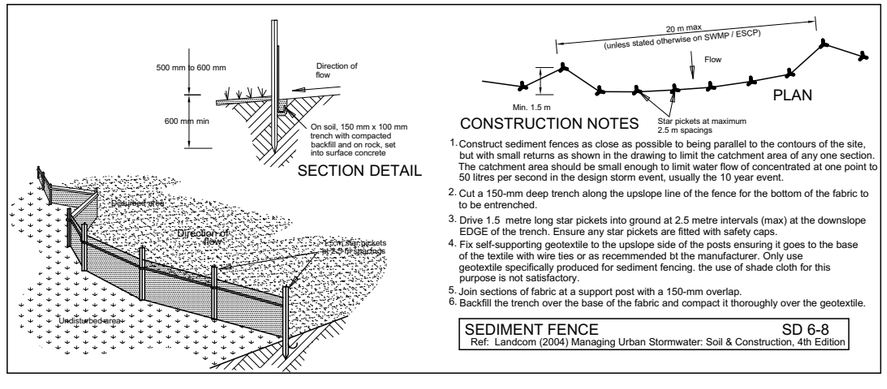
STAGE 2
DRIVEWAYS
VILLA CONSTRUCTION
UNITS 65-72 85-100 113-120
TOTAL 32 UNITS

STAGE 3
DRIVEWAYS
UNITS 121-128 144-156
169-176
TOTAL 32 UNITS

STAGE 4
DRIVEWAYS
UNITS 163-168 177-180
TOTAL 10 UNITS

PRECINCT 1
STAGES 1 - 4

November 2020				BSA Reference: 15839
Building Sustainability Assessments				Ph: (02) 4962 3439
enquiries@buildingsustainability.net.au				www. buildingsustainability.net.au
Important Note				
The following specification was used to achieve the thermal performance values indicated on the Assessor Certificate and takes precedence over any other specification.				
If different construction elements are applied then the Assessor Certificate is no longer valid.				
Thermal Performance Specifications (does not apply to garage)				
External Wall Construction				*Added Insulation*
Lightweight				R1.5
150mm AFS + Plasterboard				R1.5
Internal Wall Construction				*Added Insulation*
Plasterboard on studs				R1.5 to walls adjacent to garage
Plasterboard + studs + shaft liner + studs + Plasterboard (party walls)				None
Ceiling Construction				*Added Insulation*
Plasterboard				R3.5 to ceilings adjacent to roof space
Roof Construction	*Colour*			*Added Insulation*
Metal	Any			Foil
Floor Construction	*Covering*			*Added Insulation*
Concrete	As drawn			None
Windows	*Glass and frame type*	*U Value*	*SHGC Range*	*Area sq m*
ALM-001-01 A	Aluminium Type A Single clear	*6.70*	*0.51 - 0.63*	As drawn
ALM-002-01 A	Aluminium Type B Single clear	*6.70*	*0.63 - 0.77*	As drawn
Type A windows are awning windows, bifolds, casements, tilt 'n 'turn' windows, entry doors, french doors				
Type B windows are double hung windows, sliding windows & doors, fixed windows, stacker doors, louvres				
Skylights	*Glass and frame type*	*U Value*	*SHGC*	*Area sq m*
U and SHGC values are according to AFRC. Alternate products may be used if the U value is lower and the SHGC is within the range specified				
External Window Shading	*(eaves, verandahs, pergolas, awnings etc)*			
All shade elements modelled as drawn				
Ceiling Penetrations	*(downlights, exhaust fans, flues etc)*			
No adjustment has been made for losses to insulation arising from ceiling penetrations.				



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 of 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 along the upslope line of the fence for the bottom of the fabric to 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 textile with wire ties or as recommended bt 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
Ref: Landcom (2004) Managing Urban Stormwater: Soil & Construction, 4th Edition

SEDIMENTATION NOTES

SITE WORKS ARE NOT TO START UNTIL THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE INSTALLED AND FUNCIONAL.
ENTRY AND DEPARTURE OF VEHICLES IS TO BE CONFINED TO THE NOMINATED EXISTING VEHICLE ACCESS OR STABILISED SITE ACCESS.
TOPSOIL IS TO BE STRIPPED FROM BUILDING SITE AND STOCKPILED FOR LATER USE IN LANDSCAPING THE SITE.
TOPSOIL IS TO BE RESPREADAND ALL DISTURBED AREAS REHABILITATED (TURFED) WITHIN 20 WORKING DAYS OF COMPLETEION OF WORKS.
THE FOOTPATH, OTHER HTAN STABILISED SITE ACCESS, IS NOT TO BE DISTURBED, INCLUDING STOCKPILING OF MATERIALS.
WHERE ESSENTIAL WORKS (eg DRAINAGE) ARE REQUIRED, THE FOOTPATH IS TO BE REHABILITATED (TURFED) AS SOON AS POSSIBLE.
WASTE ENCLOSURE MINIMUM 1800 x 1800 x 1200 CONSTRUCTED USING STAR PICKETS AND 1200mm HIGH WEED CONTROL MAT ARRANGEMENTS ARE TO BE MADE FOR REGULAR COLLECTION AND DISPOSAL OR RECYCLING OF CONSTRUCTION WASTE.
ROOF DOWNPIPES TO BE CONNECTED TO STREET KERB OR OTHER STORMWATER DISPOSAL SYSTEM ON COMPLETION OF ROOF AND GUTTERING.
ALL SEDIMENTATION CONTROLS ARE TO BE CHECKED DAILY (AT A MINIMUM WEEKLY) AND AFTER ALL RAIN EVENTS.
ALL STRUCTURES TO BE CLEANED ON REACHING 50% STORAGE CAPACITY TO ENSURE THEY ARE MAINTAINED IN FULL FUNCTIONAL CONDITION.

SEC 96 20 / 03 / 21 ISSUED FOR COUNCIL SUBMISSION

ISSUE	DATE	AMENDMENT

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PROJECT
McFARLANES GARDENS RETIREMENT VILLAGE

LOCATION
40 McFARLANES ROAD
LOT 1 DP 797227 LOTS 13 & 14 DP 1122688
BERRY PARK

CLIENT
TEAKMILL Pty Ltd

DRAWING
STAGING PLAN

SCALE **AS SHOWN**	DRAWN **MLB**
DATE **20 / 03 / 21**	ISSUE **SEC 96 PRECINCT 1**
DWG No. **002**	
SHEET **002 / 33**	JOB No. **TOC1904**

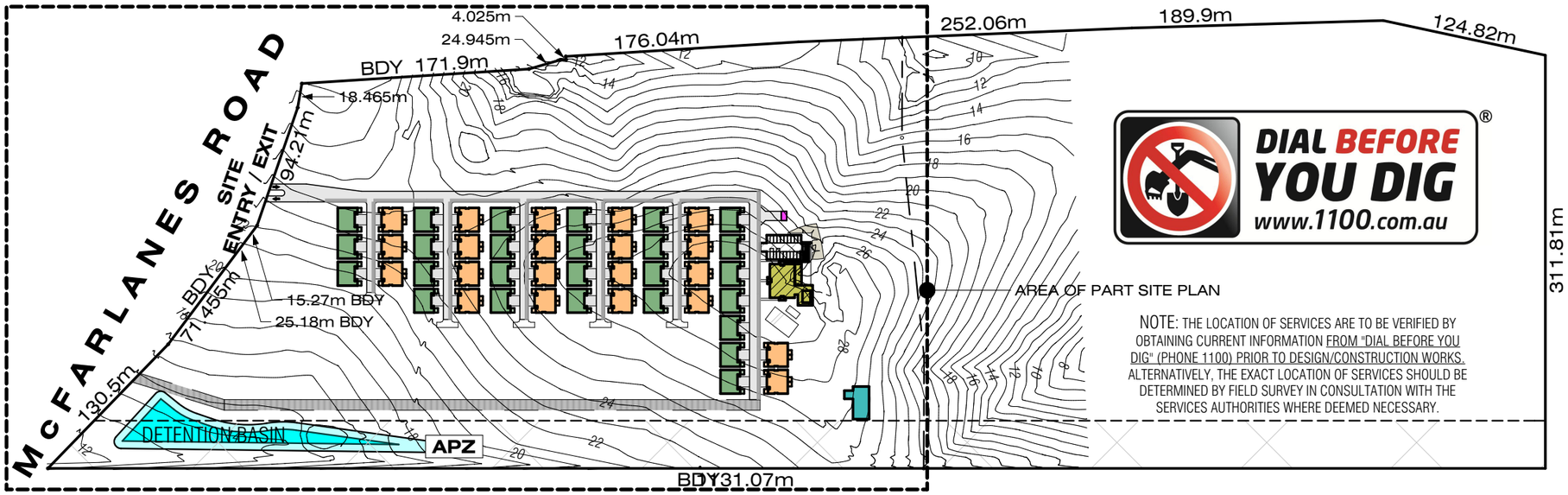
N

SUMMER SUN ASPECT

3pm 49.24°
12pm 79.54°
9am 50.80°

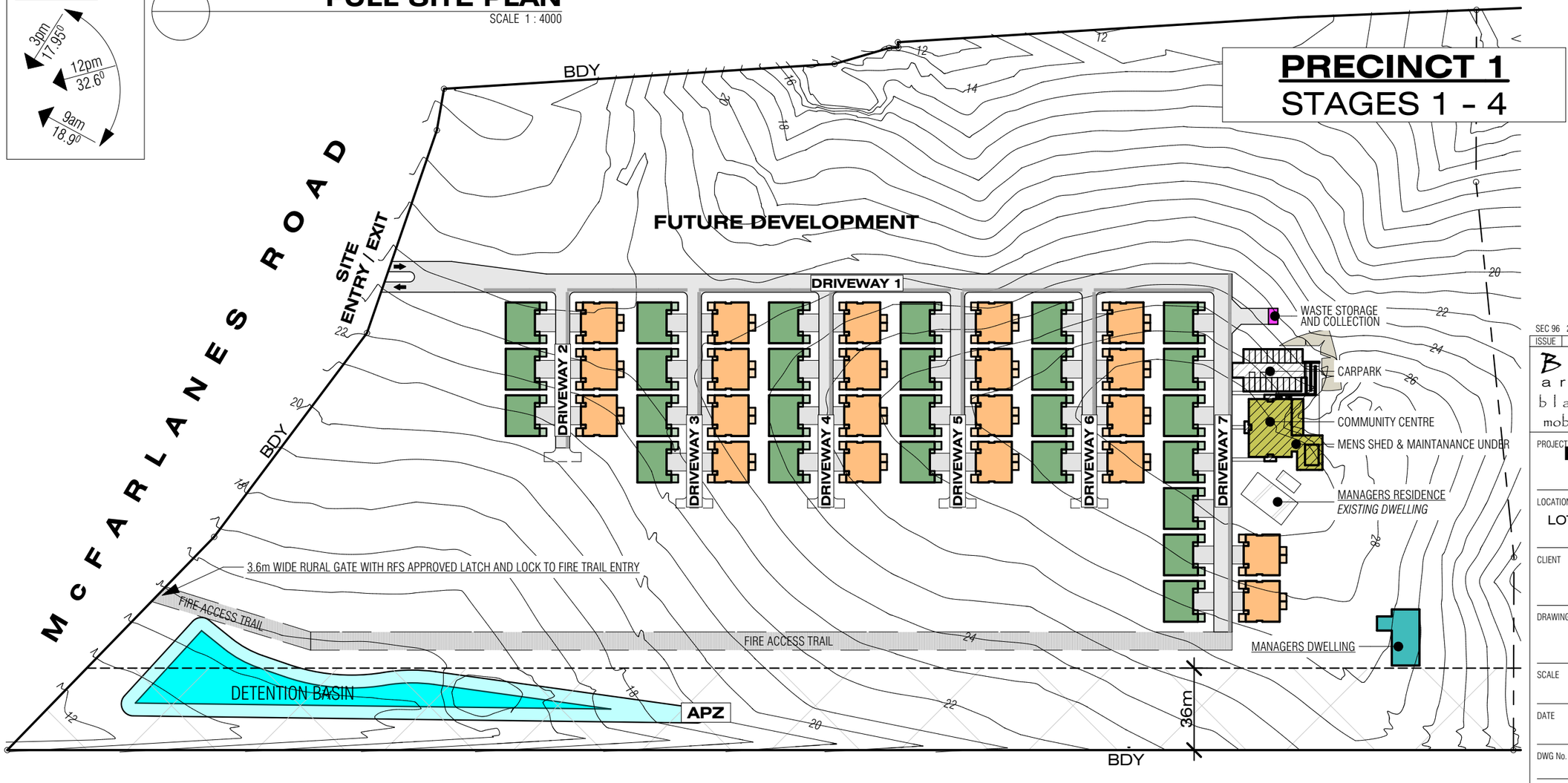
WINTER SUN ASPECT

3pm 17.95°
12pm 32.60°
9am 18.90°



FULL SITE PLAN

SCALE 1 : 4000



PART SITE PLAN

SCALE 1 : 2000

LEGEND

- VILLA TYPE 1 — 52
- VILLA TYPE 2 — 42

TOTAL UNITS 52 + 42 = 94

- CLOTHES LINE
- FENCE/SCREEN
- WASTE STORAGE AREA
- MANAGERS RESIDENCE — EXIST. DWELLING
- MANAGERS DWELLING
- COMMUNITY CENTRE
- RETAINING WALL
- CUT / FILL BATTER
- DETENTION BASIN

PRECINCT 1
STAGES 1 - 4

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PROJECT
McFARLANES GARDENS RETIREMENT VILLAGE

LOCATION
40 McFARLANES ROAD
LOT 1 DP 797227 LOTS 13 & 14 DP 1122688
BERRY PARK

CLIENT
TEAKMILL Pty Ltd

DRAWING
FULL & PART SITE PLANS

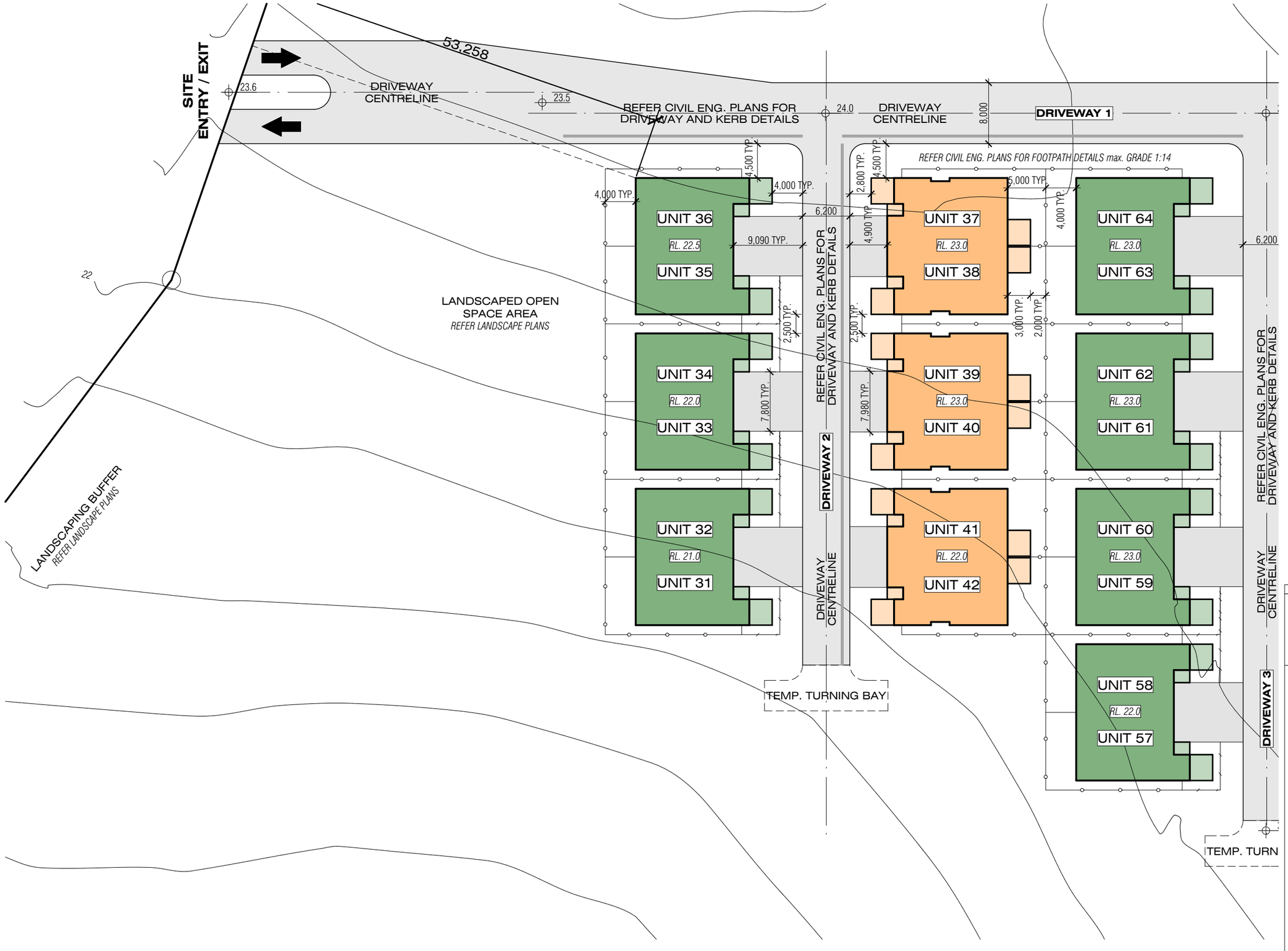
SCALE	DRAWN
AS SHOWN	MLB
DATE	ISSUE
20 / 03 / 21	SEC 96 PRECINCT 1

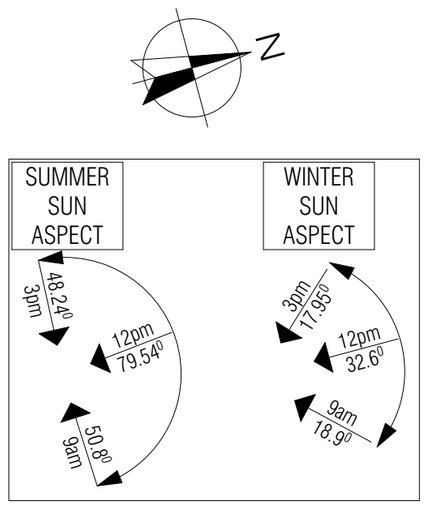
DWG No. 003

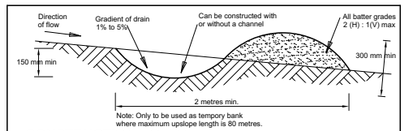
SHEET	JOB No.
003 / 33	TOC1904

 A3

PRECINCT 1
STAGES 1 - 4







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 tempory stabilisation within 10 days of construction.

EARTH BANK (LOW FLOW) SD5-5
Ref: Landcom (2004) Managing Urban Stormwater: Soil & Construction, 4th Edition

DETAIL SITE PLAN 1
SCALE 1 : 500

ACCESS NOTE: ALL PATHS AND BUILDING ACCESS TO COMPLY WITH THE REQUIREMENTS FOR SENIORS HOUSING SEPP MAXIMUM 1 : 14 GRADE.

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PROJECT
McFARLANES GARDENS RETIREMENT VILLAGE

LOCATION
40 McFARLANES ROAD
LOT 1 DP 797227 LOTS 13 & 14 DP 1122688
BERRY PARK

CLIENT
TEAKMILL Pty Ltd

DRAWING
PART SITE PLAN 1

SCALE	DRAWN
AS SHOWN	MLB
DATE	ISSUE
20 / 03 / 21	SEC 96 PRECINCT 1

DWG No. **004**

SHEET	JOB No.
004 / 33	TOC1904

PRECINCT 1
STAGES 1 - 4

McFARLANES ROAD

BL

BDY

18

TEMP. TURN

N

SUMMER SUN ASPECT

3pm 48.24°

12pm 79.54°

9am 50.8°

WINTER SUN ASPECT

3pm 17.95°

12pm 32.6°

9am 18.9°

LANDSCAPING BUFFER
REFER LANDSCAPE PLANS

FIRE ACCESS TRAIL

15.0

LANDSCAPING BUFFER
REFER LANDSCAPE PLANS

DETENTION BASIN

14

APZ

36,000

43,877

BDY

DETAIL SITE PLAN 2
SCALE 1 : 500

ACCESS NOTE: ALL PATHS AND BUILDING ACCESS TO COMPLY WITH THE REQUIREMENTS FOR SENIORS HOUSING SEPP MAXIMUM 1 : 14 GRADE.

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PROJECT
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LOCATION
40 McFARLANES ROAD
LOT 1 DP 797227 LOTS 13 & 14 DP 1122688
BERRY PARK

CLIENT
TEAKMILL Pty Ltd

DRAWING
PART SITE PLAN 2

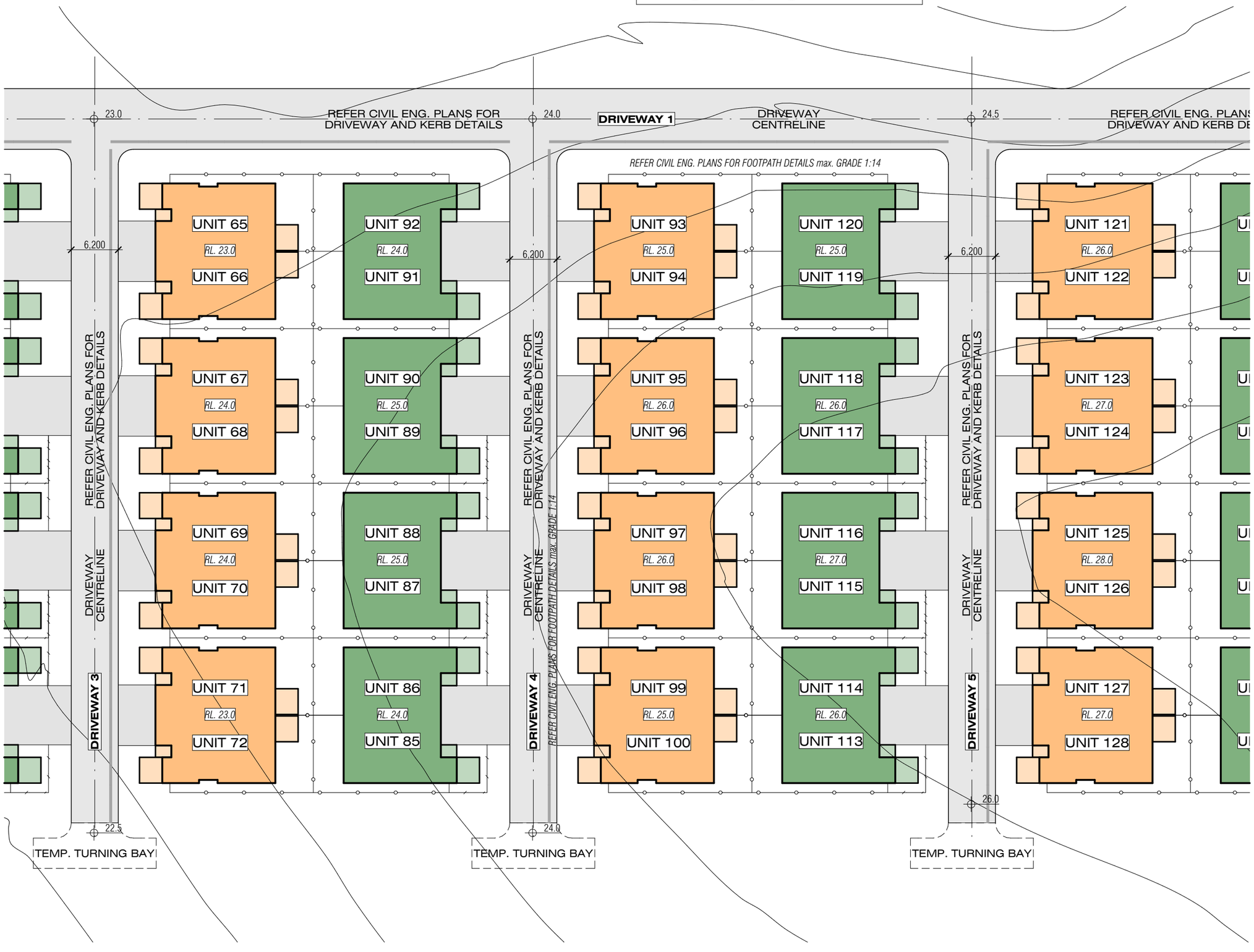
SCALE	DRAWN
AS SHOWN	MLB

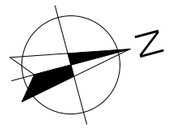
DATE	ISSUE
20 / 03 / 21	SEC 96 PRECINCT 1

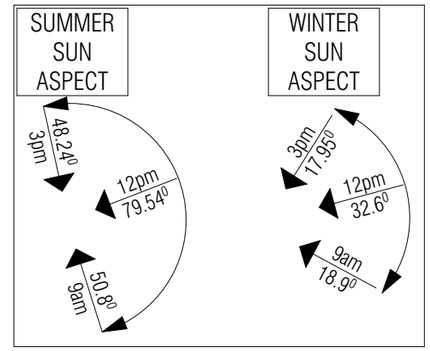
DWG No. **005**

SHEET	JOB No.
005 / 33	TOC1904

PRECINCT 1
STAGES 1 - 4







DETAIL SITE PLAN 3
SCALE 1 : 500

ACCESS NOTE: ALL PATHS AND BUILDING ACCESS TO COMPLY WITH THE REQUIREMENTS FOR SENIORS HOUSING SEPP MAXIMUM 1 : 14 GRADE.

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BERRY PARK

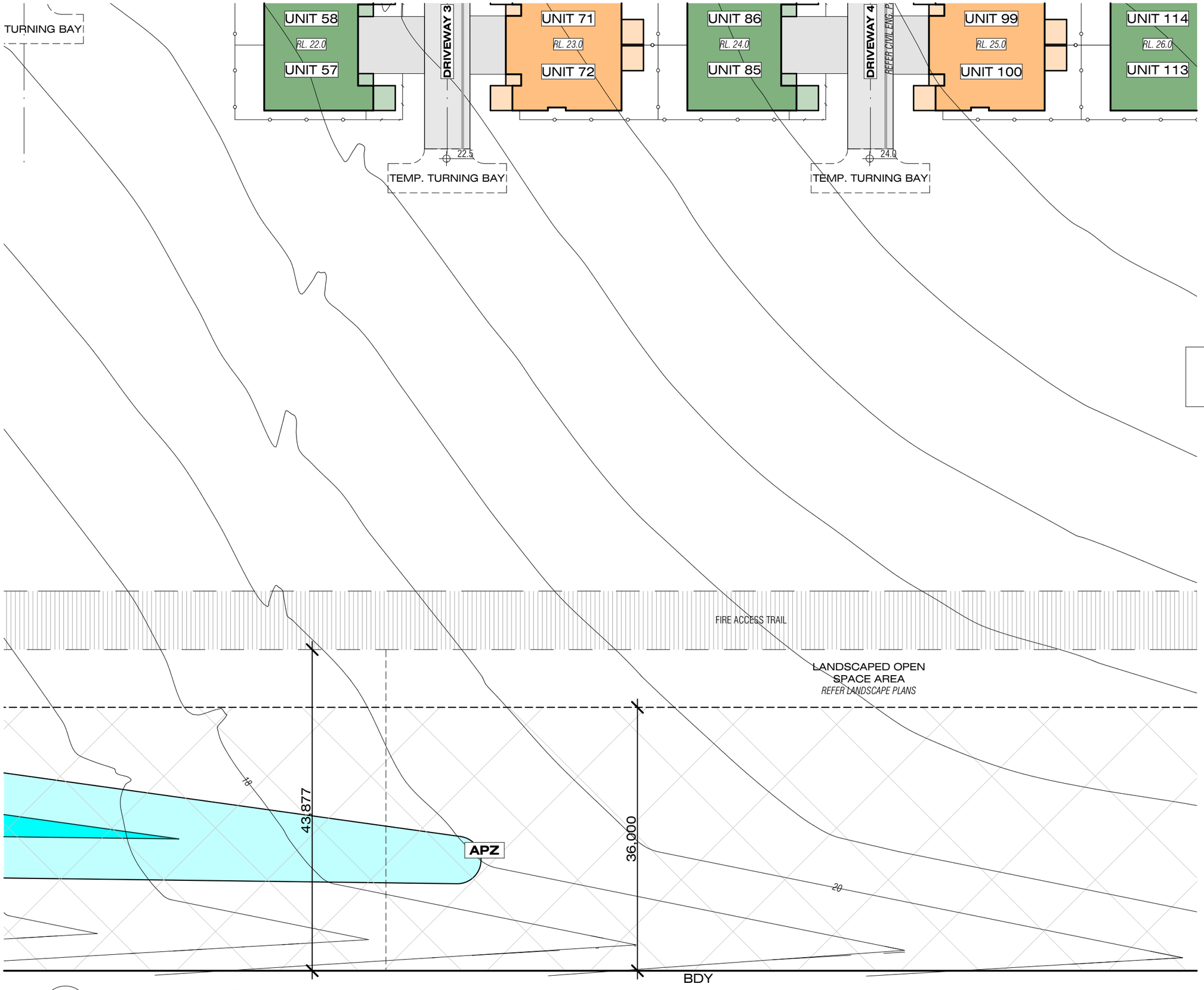
CLIENT
TEAKMILL Pty Ltd

DRAWING
PART SITE PLAN 3

SCALE	DRAWN
AS SHOWN	MLB
DATE	ISSUE
20 / 03 / 21	SEC 96 PRECINCT 1

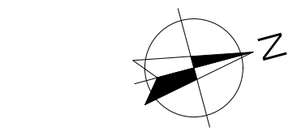
DWG No.
006

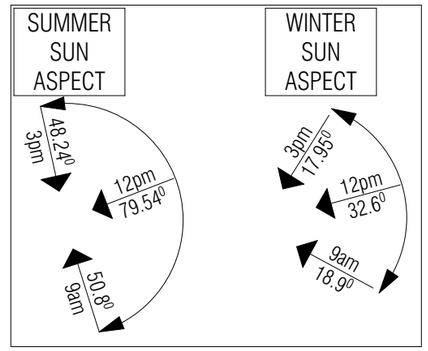
SHEET	JOB No.
006 / 33	TOC1904



DETAIL SITE PLAN 4

SCALE 1 : 500





PRECINCT 1
STAGES 1 - 4

ACCESS NOTE: ALL PATHS AND BUILDING ACCESS TO COMPLY WITH THE REQUIREMENTS FOR SENIORS HOUSING SEPP MAXIMUM 1 : 14 GRADE.

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PROJECT
McFARLANES GARDENS RETIREMENT VILLAGE

LOCATION
40 McFARLANES ROAD
LOT 1 DP 797227 LOTS 13 & 14 DP 1122688
BERRY PARK

CLIENT
TEAKMILL Pty Ltd

DRAWING
PART SITE PLAN 4

SCALE	DRAWN
AS SHOWN	MLB
DATE	ISSUE
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DWG No. **007**

SHEET	JOB No.
007 / 33	TOC1904

 A3

PRECINCT 1
STAGES 1 - 4

N

REFER CIVIL ENG. PLANS FOR DRIVEWAY AND KERB DETAILS

DRIVEWAY 1

DRIVEWAY CENTRELINE

25.5

26.0

REFER CIVIL ENG. PLANS FOR FOOTPATH DETAILS max. GRADE 1:14

UNIT 121 RL. 26.0 UNIT 122
UNIT 148 RL. 26.5 UNIT 147
UNIT 149 RL. 26.5 UNIT 150
UNIT 176 RL. 26.5 UNIT 175
UNIT 123 RL. 27.0 UNIT 124
UNIT 146 RL. 27.5 UNIT 145
UNIT 151 RL. 27.5 UNIT 152
UNIT 174 RL. 27.5 UNIT 173
UNIT 125 RL. 28.0 UNIT 126
UNIT 144 RL. 28.5 UNIT 143
UNIT 153 RL. 28.0 UNIT 154
UNIT 172 RL. 28.0 UNIT 171
UNIT 127 RL. 27.0 UNIT 128
UNIT 142 RL. 28.0 UNIT 141
UNIT 155 RL. 28.0 UNIT 156
UNIT 170 RL. 28.0 UNIT 169
UNIT 168 RL. 28.0 UNIT 167
UNIT 166 RL. 27.5 UNIT 165
UNIT 177 RL. 28.5 UNIT 178

6,200

8,000

REFER CIVIL ENG. PLANS FOR DRIVEWAY AND KERB DETAILS

DRIVEWAY CENTRELINE

REFER CIVIL ENG. PLANS FOR FOOTPATH DETAILS max. GRADE 1:14

DRIVEWAY 6

DRIVEWAY 7

27.0

28.0

TEMP. TURNING BAY

WASTE COLLECTION AREA

CARPARKING
RL. 29.0
44 45 46 47 48 49 50 51 52 53
62 61 60 59 58 57 56 55 54

ACCESS RAMP 1:14

ACCESS STAIR

7,350

5,475

COMMUNITY CENTRE
FFL 29.0

TERRACE

MENS SHED COURTYARD

MAINTANANCE UNDER

MENS SHED UNDER
FFL 25.5

POOL

WELLNESS CENTRE
EXISTING DWELLING

SUMMER SUN ASPECT
3pm 48.24°
12pm 79.54°
9am 50.8°

WINTER SUN ASPECT
3pm 17.95°
12pm 32.6°
9am 18.9°

DETAIL SITE PLAN 5
SCALE 1 : 500

ACCESS NOTE: ALL PATHS AND BUILDING ACCESS TO COMPLY WITH THE REQUIREMENTS FOR SENIORS HOUSING SEPP MAXIMUM 1 : 14 GRADE.

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PROJECT
McFARLANES GARDENS RETIREMENT VILLAGE

LOCATION
40 McFARLANES ROAD
LOT 1 DP 797227 LOTS 13 & 14 DP 1122688
BERRY PARK

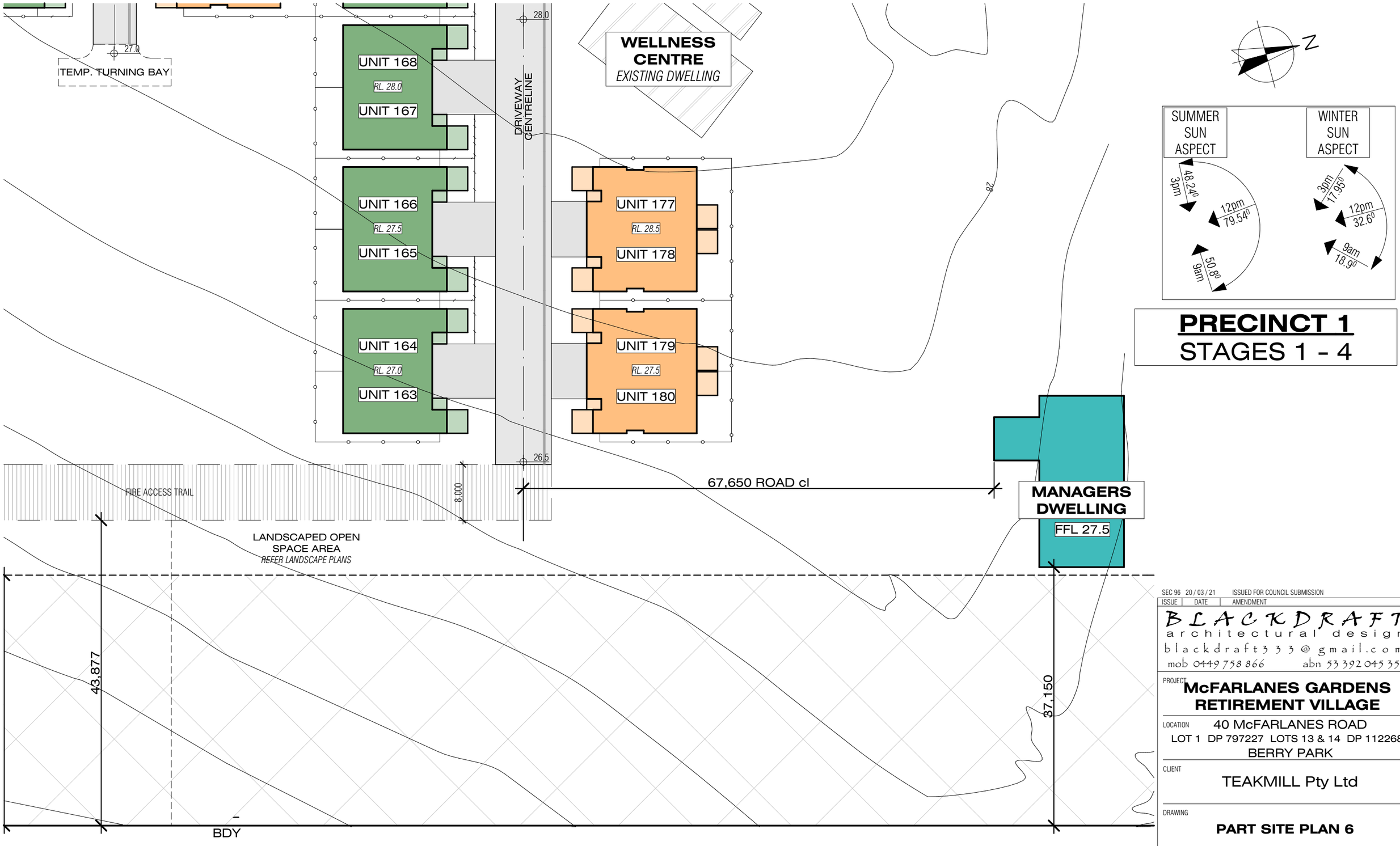
CLIENT
TEAKMILL Pty Ltd

DRAWING
PART SITE PLAN 5

SCALE	DRAWN
AS SHOWN	MLB
DATE	ISSUE
20 / 03 / 21	SEC 96 PRECINCT 1

DWG No. **008**

SHEET	JOB No.
008 / 33	TOC1904



PRECINCT 1
STAGES 1 - 4

DETAIL SITE PLAN 6
SCALE 1 : 500

ACCESS NOTE: ALL PATHS AND BUILDING ACCESS TO COMPLY WITH THE REQUIREMENTS FOR SENIORS HOUSING SEPP MAXIMUM 1 : 14 GRADE.

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PROJECT
McFARLANES GARDENS RETIREMENT VILLAGE

LOCATION
40 McFARLANES ROAD
LOT 1 DP 797227 LOTS 13 & 14 DP 1122688
BERRY PARK

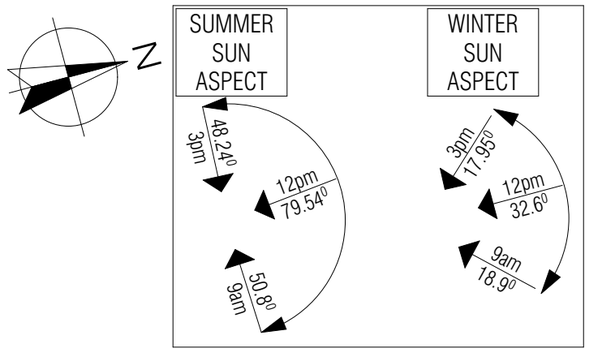
CLIENT
TEAKMILL Pty Ltd

DRAWING
PART SITE PLAN 6

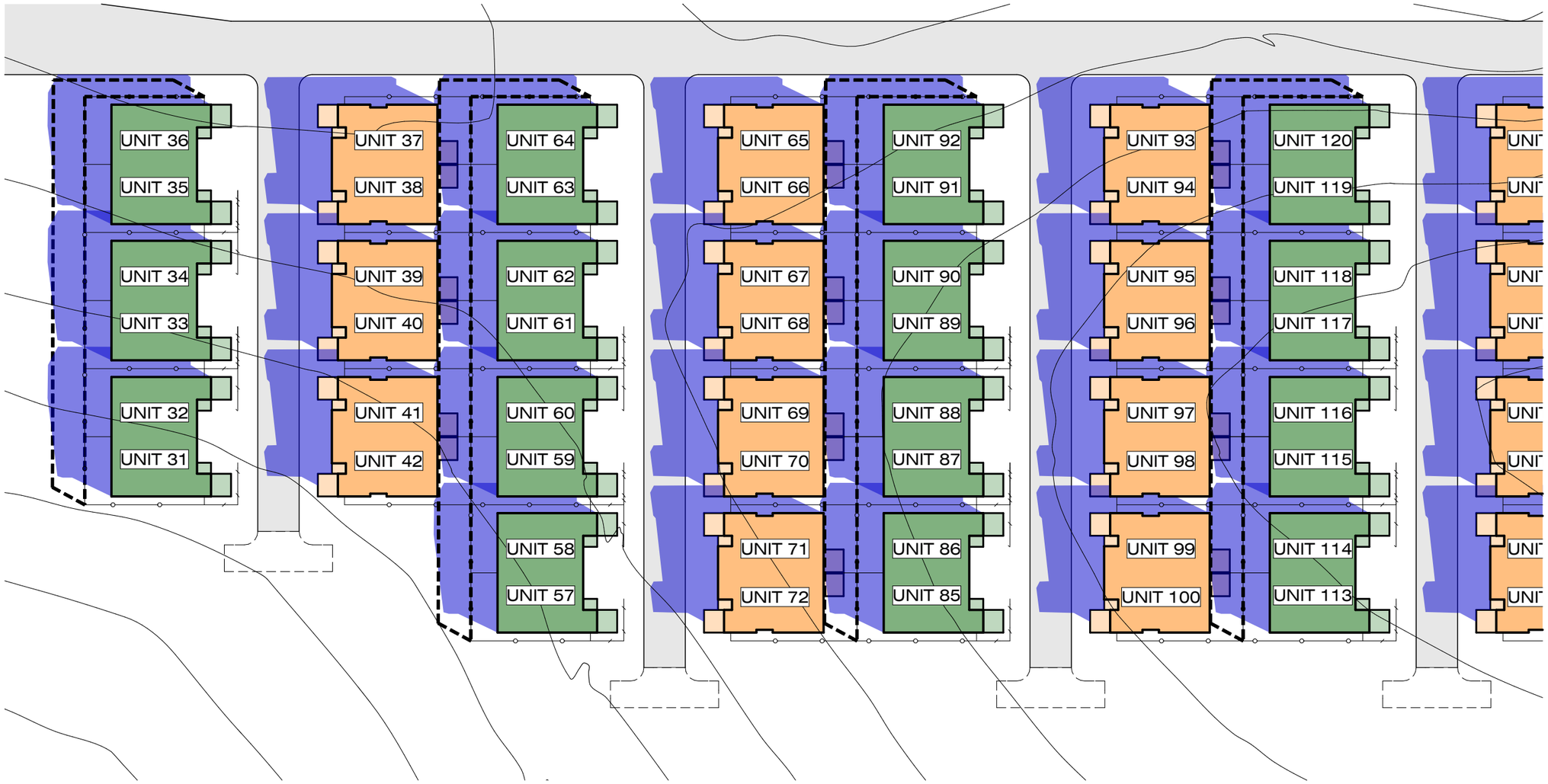
SCALE	DRAWN
AS SHOWN	MLB
DATE	ISSUE
20 / 03 / 21	SEC 96 PRECINCT 1

DWG No. **009**

SHEET	JOB No.
009 / 33	TOC1904



PRECINCT 1
STAGES 1 - 4



FENCE SHADOWS

9AM SHADOWS
SCALE 1 : 700

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PROJECT
McFARLANES GARDENS RETIREMENT VILLAGE

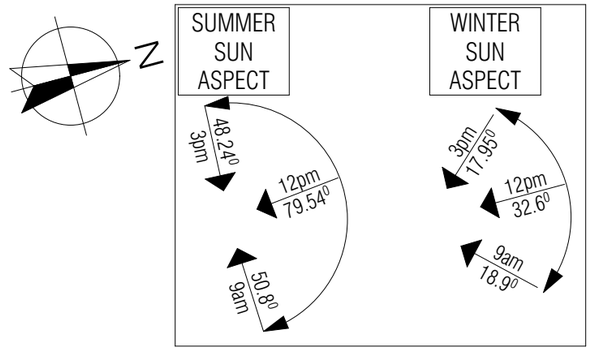
LOCATION
40 McFARLANES ROAD
LOT 1 DP 797227 LOTS 13 & 14 DP 1122688
BERRY PARK

CLIENT
TEAKMILL Pty Ltd

DRAWING
9AM SHADOWS 1

SCALE	DRAWN
AS SHOWN	**MLB**
DATE **20 / 03 / 21**	ISSUE **SEC 96 PRECINCT 1**
DWG No. **010**	
SHEET **010 / 33**	JOB No. **TOC1904**

PRECINCT 1
STAGES 1 - 4



FENCE SHADOWS

9AM SHADOWS
SCALE 1 : 700

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TEAKMILL Pty Ltd

DRAWING
9AM SHADOWS 2

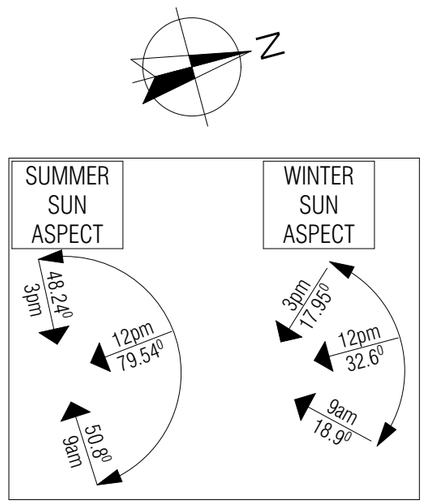
SCALE	DRAWN
AS SHOWN	MLB

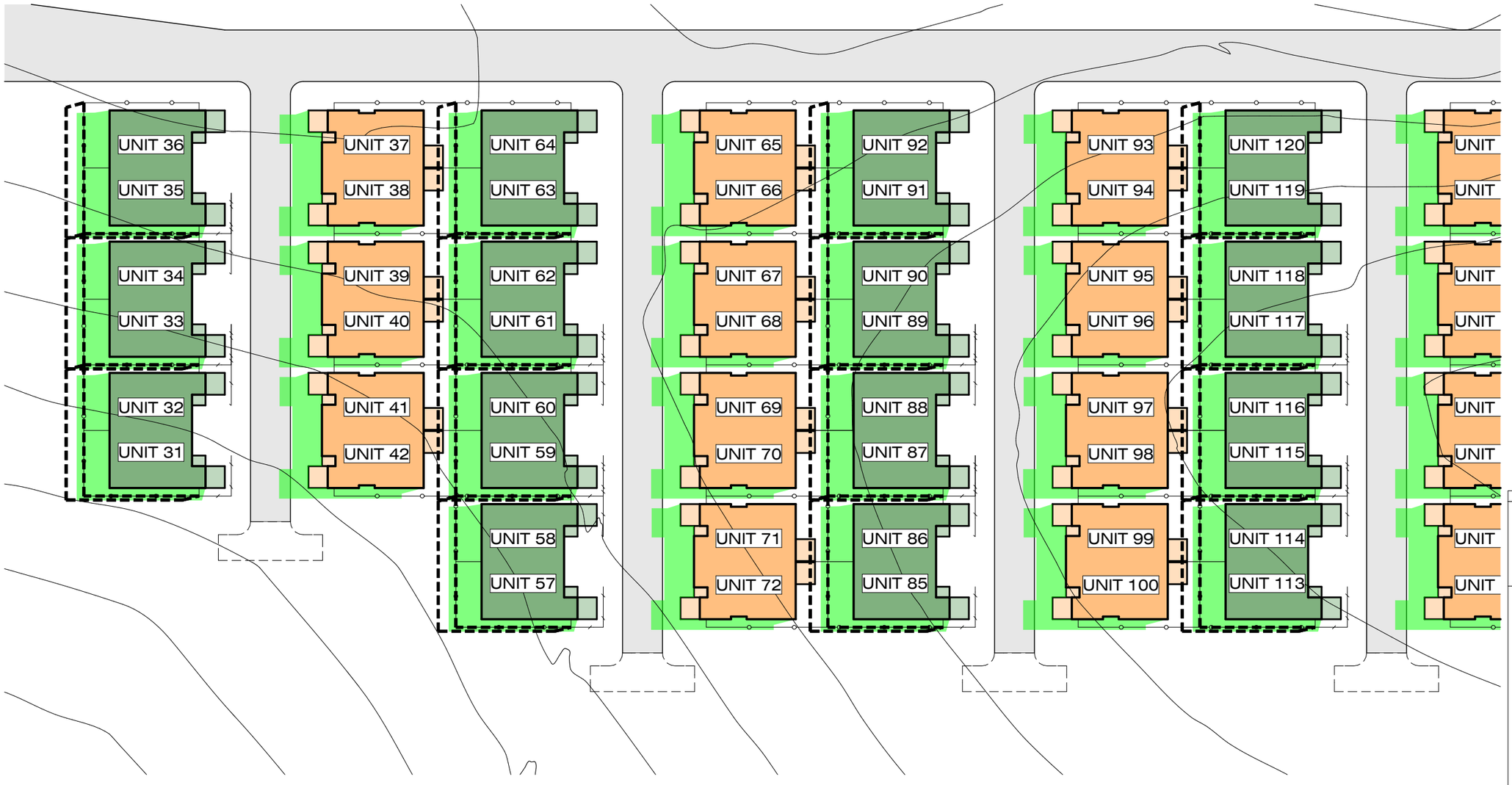
DATE	ISSUE
20 / 03 / 21	SEC 96 PRECINCT 1

DWG No. **011**

SHEET	JOB No.
011 / 33	TOC1904

PRECINCT 1
STAGES 1 - 4





FENCE SHADOWS

12PM SHADOWS
SCALE 1 : 700

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architectural design
blackdraft333@gmail.com
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PROJECT
McFARLANES GARDENS RETIREMENT VILLAGE

LOCATION
40 McFARLANES ROAD
LOT 1 DP 797227 LOTS 13 & 14 DP 1122688
BERRY PARK

CLIENT
TEAKMILL Pty Ltd

DRAWING
12PM SHADOWS 1

SCALE	DRAWN
AS SHOWN	MLB

DATE	ISSUE
20 / 03 / 21	SEC 96 PRECINCT 1

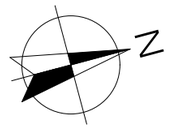
DWG No. 012

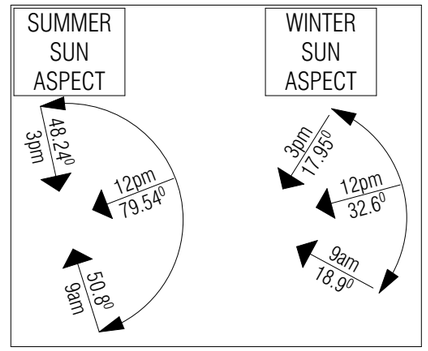
SHEET	JOB No.
012 / 33	TOC1904

PRECINCT 1
STAGES 1 - 4

FENCE SHADOWS

12PM SHADOWS
SCALE 1 : 700





ISSUE	DATE	AMENDMENT
SEC 96	20 / 03 / 21	ISSUED FOR COUNCIL SUBMISSION

BLACKDRAFT
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DRAWING
12PM SHADOWS 2

SCALE	DRAWN
AS SHOWN	MLB

DATE	ISSUE
20 / 03 / 21	SEC 96 PRECINCT 1

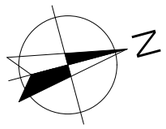
DWG No. **013**

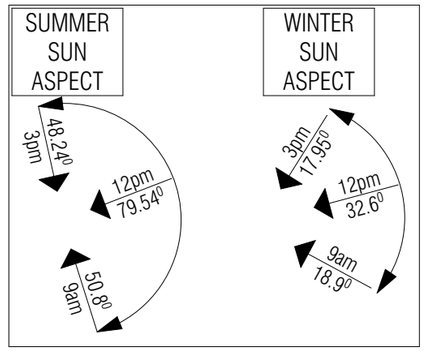
SHEET	JOB No.
013 / 33	TOC1904

PRECINCT 1
STAGES 1 - 4

FENCE SHADOWS

3PM SHADOWS
SCALE 1 : 700





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DRAWING
3PM SHADOWS 1

SCALE	DRAWN
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DWG No. 014

SHEET	JOB No.
014 / 33	TOC1904

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:

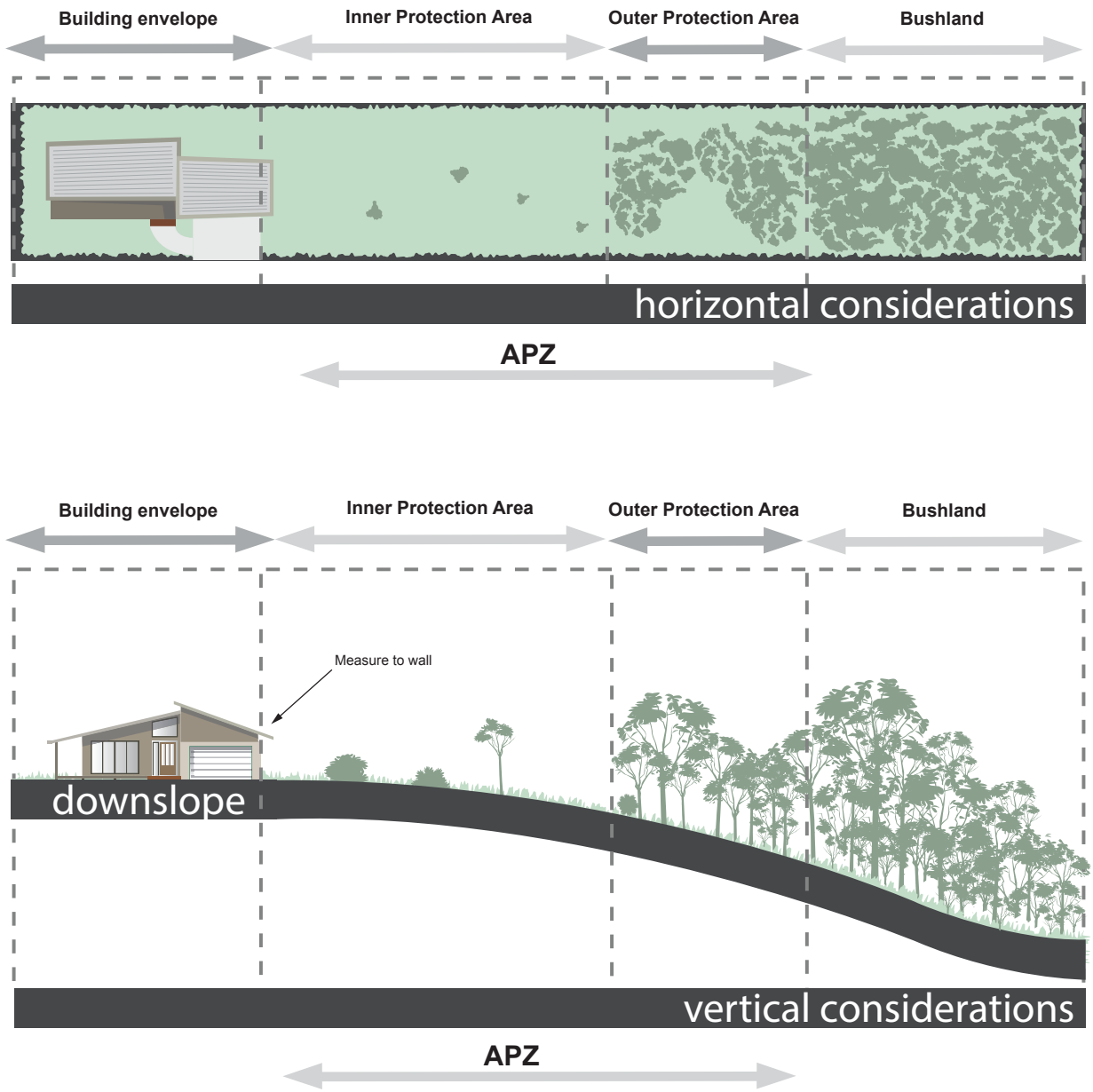
- direct flame contact on the building;
- damage to the building asset from intense radiant heat; and
- ember attack.

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.