



intelligent outcomes | respected experience

Bushfire Management Plan

Lot 21 Nicholson Road, Piara Waters

Prepared for
Mirvac Pty Ltd and Brondesbury Pty Ltd
by Strategen

September 2016

Bushfire Management Plan

**Lot 21 Nicholson Road, Piara
Waters**

Strategen is a trading name of
Strategen Environmental Consultants Pty Ltd
Level 1, 50 Subiaco Square Road Subiaco WA 6008
ACN: 056 190 419

September 2016

Limitations

Scope of services

This report ("the report") has been prepared by Strategen Environmental Consultants Pty Ltd (Strategen) in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Strategen. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, Strategen has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, Strategen has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Strategen has also not attempted to determine whether any material matter has been omitted from the data. Strategen will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Strategen. The making of any assumption does not imply that Strategen has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. Strategen disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law of Western Australia as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

Client: Mirvac Pty Ltd and Brondesbury Pty Ltd

Report Version	Revision No.	Purpose	Strategen author/reviewer	Submitted to Client	
				Form	Date
Draft Report	Rev A	For review by Client	D Panickar / A Ennis / R Banks BPAD 36857	Electronic (email)	27/05/2016
Final report	Rev 0	For external use	D Panickar / A Ennis / R Banks BPAD 36857	Electronic (email)	15/06//2016
Final report	Rev 1	For external use	D Panickar / A Ennis / R Banks BPAD 36857	Electronic (email)	21/09//2016

Filename: MDF16241_01 R001 Rev 1 - 21 September 2016

Table of contents

1. Introduction	1
1.1 Background	1
1.2 Purpose and application of the plan	1
2. Spatial consideration of bushfire threat	4
2.1 Existing site characteristics	4
2.1.1 Location	4
2.1.2 Zoning and land use	4
2.1.3 Assets	4
2.1.4 Access	4
2.1.5 Water and power supply	4
2.2 Existing fire environment	6
2.2.1 Vegetation	6
2.2.2 Site topography and slope under vegetation	6
2.2.3 Bushfire weather conditions	11
2.2.4 Bushfire history, fuel age, risk of ignition and potential ignition sources	12
2.2.5 Potential bushfire scenarios	12
2.2.6 Bushfire suppression response capability	12
2.3 Bushfire hazard assessment	15
2.4 BAL assessment	15
2.4.1 Fire Danger Index	15
2.4.2 Vegetation class	15
2.4.3 Slope under classified vegetation	17
2.4.4 Distance between proposed development areas and the classified vegetation	17
2.4.5 Method 1 BAL calculation	17
3. Bushfire management measures	19
3.1 Hazard separation distances (APZs)	19
3.2 Increased building construction standards	19
3.3 Vehicular access	20
3.4 Reticulated water supply	20
3.5 Additional measures	21
4. Proposal compliance and justification	23
5. Implementation and enforcement	27
5.1 Document review	27
5.2 Stakeholder consultation	27
6. References	28

List of tables

Table 1: Method 1 BAL calculation	17
Table 2: Vehicular access technical requirements	20
Table 3: Acceptable solutions assessment against bushfire protection criteria	24
Table 4: Proposed works program	27

List of figures

Figure 1: Subdivision concept plan	2
Figure 2: South-East Forrestdale Structure Plan	3
Figure 3: Site overview	5
Figure 4: Vegetation class	7
Figure 5: Site topography	13
Figure 6: Bushfire hazard levels	16
Figure 7: Bushfire Management Plan: Lot 21 Nicholson Road, Piara Waters	22

List of appendices

Appendix 1 January wind profiles for Jandakot Aero Weather Station
Appendix 2 City of Armadale Firebreak Notice and Bushfire Information

1. Introduction

1.1 Background

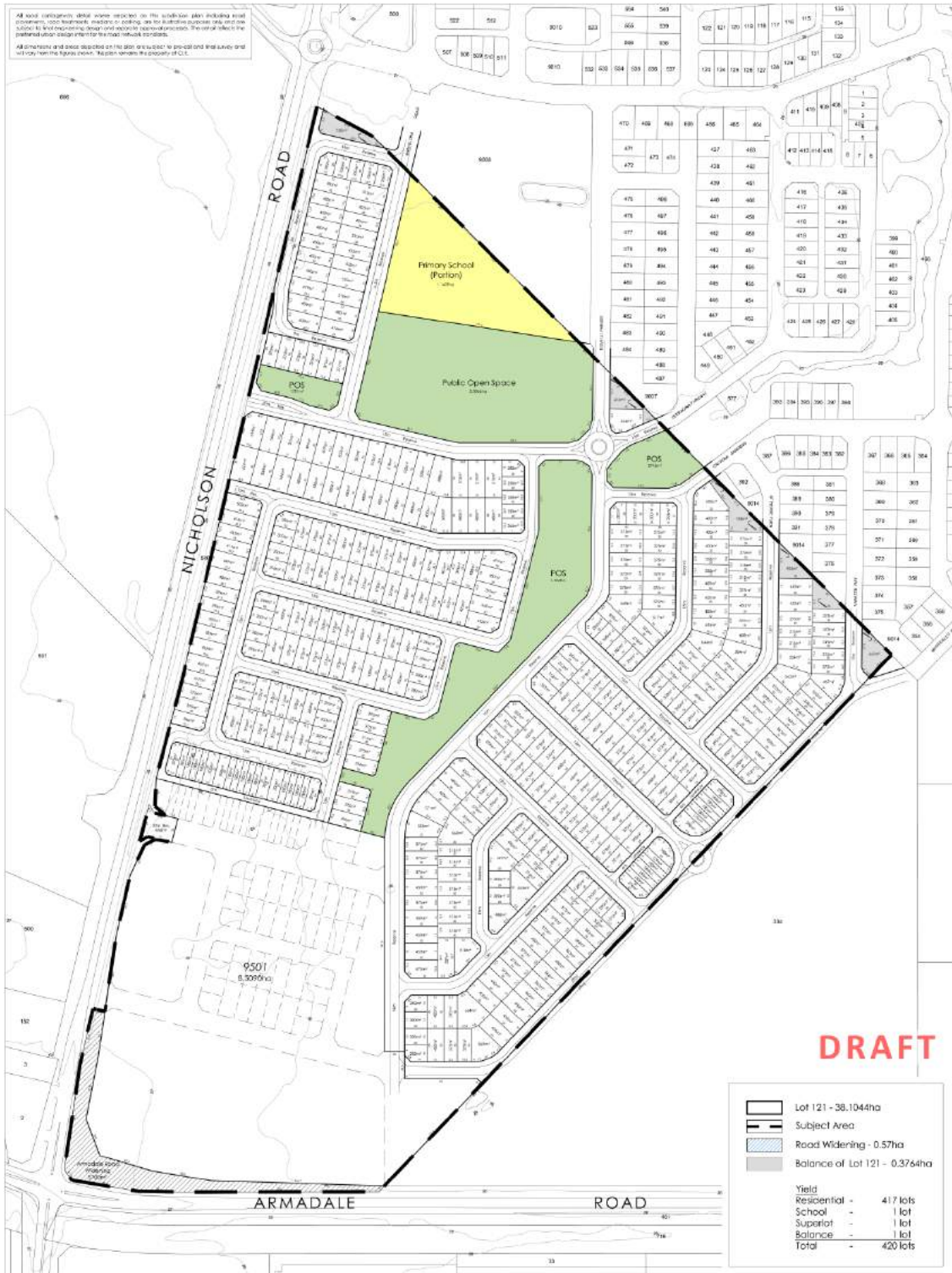
Mirvac Pty. Ltd. (Mirvac) and Brondesbury Pty Ltd (Brondesbury) are proposing to develop a residential estate on Lot 21 Nicholson Road, Piara Waters (the project area). The subdivision concept plan (Figure 1) aims to eventually create approximately 488 (subject to change) residential lots ranging from 180 m²-732 m² in size, a primary school lot, areas of Public Open Space (POS) and mixed business/residential and local centre lots in accordance with the South-East Forrestdale Structure Plan (Figure 2).

Due to the extent of adjacent vegetation, the project area is designated as bushfire prone, as depicted in the Western Australian State *Map of Bush Fire Prone Areas* (DFES 2016).

Strategen has prepared this Bushfire Management Plan (BMP) to accompany subdivision applications in order to meet requirements triggered under State Planning Policy 3.7 *Planning in Bushfire Prone Areas* (SPP 3.7; WAPC 2015a). This BMP has been prepared in accordance with *Guidelines for Planning in Bushfire-Prone Areas* (the Guidelines; WAPC 2015b).

1.2 Purpose and application of the plan

The purpose of the BMP is to provide guidance on how to plan for and manage the potential bushfire risk to future assets of the project area through implementation of a range of bushfire risk mitigation measures. The BMP outlines how future on-site assets can be protected during the summer months when the threat from bushfire is at its peak. This is particularly relevant when existing fire appliances in the area may be unable to offer an immediate emergency suppression response; therefore, development planning and design should aim to provide mitigation strategies that protect future life and property from bushfire as a priority.



PROPOSED SUBDIVISION
 Lot 9502 Nicholson Road, Piara Waters
 City of Armadale

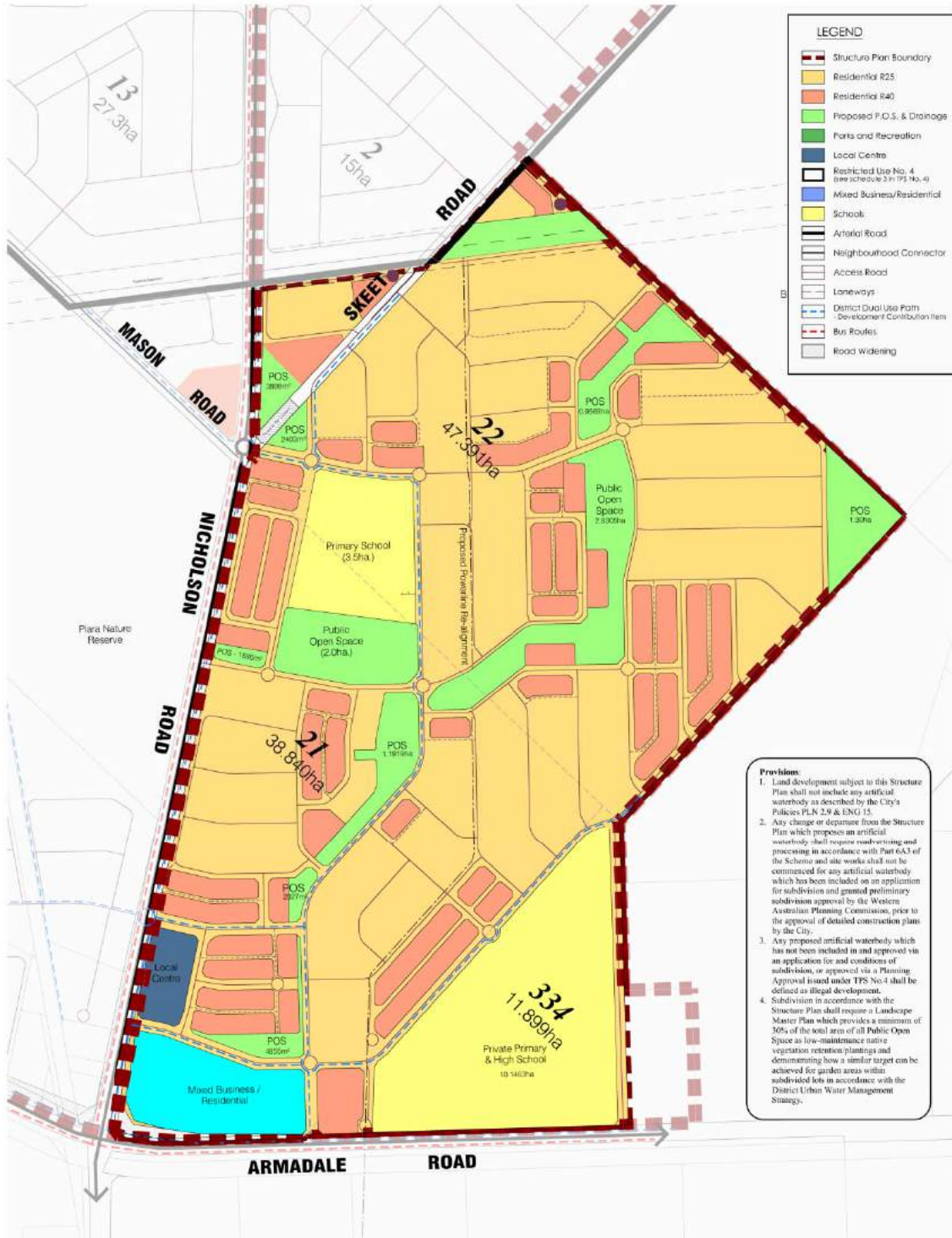
plan no: 3067-27D-04
 scale: 1:3000@A3
 date: 23.05.2016



Source: CLE 2016

Figure 1: Subdivision concept plan





644-385-01 (31.05.2012), nts

SOUTH-EAST FORRESDALE STRUCTURE PLAN - ZONING PLAN
City of Armadale

Source: CLE

Figure 2: South-East Forrestdale Structure Plan

2. Spatial consideration of bushfire threat

2.1 Existing site characteristics

2.1.1 Location

The project area comprises Lot 21 Nicholson Road, Piara Waters in the City of Armadale, located approximately 21 km south-southeast of the Perth Central Business District.

The project area encompasses approximately 38.8 ha and is bound by the following, as depicted in Figure 3:

- North: residential development
- West: Nicholson Road and Piara Nature Reserve (Bush Forever Site 262)
- East: St John Bosco College and Bush Forever Site 342
- South: Armadale Road, water pumping station and rural residential development.

2.1.2 Zoning and land use

The project area is zoned as 'Urban Development' under provisions of the City of Armadale Town Planning Scheme No. 4 (TPS 4). Land to the north, east, west is zoned 'Urban Development' and land to the south is zoned 'Rural Living' and 'Public Purposes: Water Authority of WA'. Piara Nature Reserve (Bush Forever Site 262) to the west and Bush Forever Site 342 to the east are reserved as 'Parks and Recreation' under TPS 4.

The project area is completely cleared as a result of previous rural land uses. A southern portion of the project area is occupied by a single residence and poultry farm.

2.1.3 Assets

The southern portion of the project area contains on-site assets in the form of single dwelling and poultry farm infrastructure. Proposed development of the project area will significantly increase the critical life and property assets of the site. This will significantly intensify the number of residents, visitors and built assets across the project area.

There are no significant environmental values contained on-site as a result of previous land use.

2.1.4 Access

The project area is currently accessed via Nicholson Road and Armadale Road (Figure 3).

2.1.5 Water and power supply

Water and power supplies exist to the existing dwelling located within the southern portion of the project area.

Water and power supply services will be extended throughout the project area from surrounding areas of residential development, which will result in provision of a reticulated water supply including emergency use fire hydrants, hose reels and underground power supply for proposed residences.

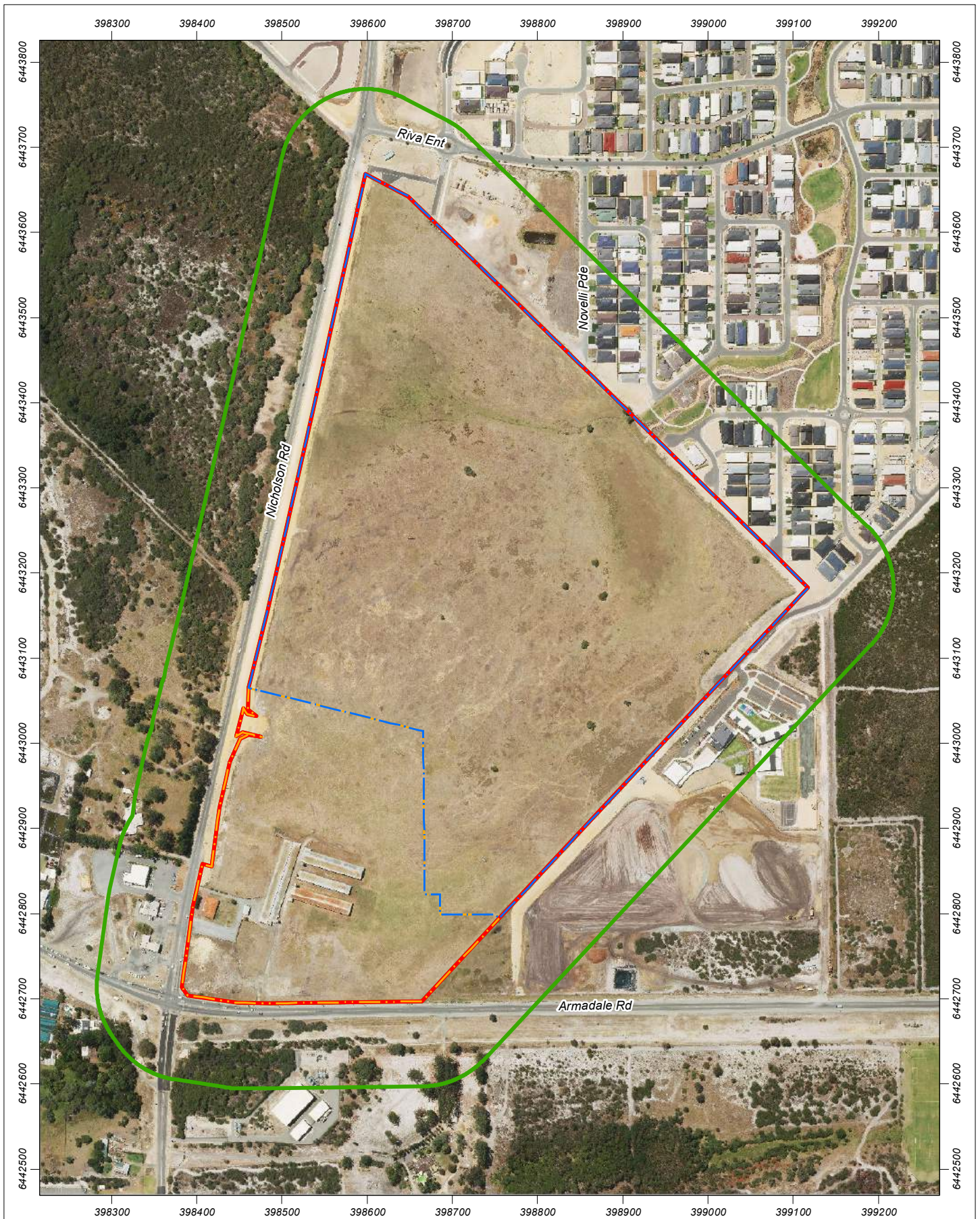
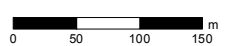


Figure 3: Site overview





Scale 1:6,000 at A4



Coordinate System: GDA 1994 MGA Zone 50
 Note that positional errors may occur in some areas
 Date: 15/06/2016

Author: JCrute
 Source: Aerial image: Landgate, flown 02/2016.
 Subdivision plan: Client 05/2016.

Legend

-  Mirvac land
-  Brondesbury land
-  Project area
-  100m wide assessment area



info@strategen.com.au
 www.strategen.com.au

2.2 Existing fire environment

2.2.1 Vegetation

The project area occurs within the Southern River vegetation complex as mapped by Heddle *et al.* (1980). The Southern River complex is described as an open woodland of Marri-Jarra-Banksia on the elevated areas and a fringing woodland of *Eucalyptus rudis-Melaleuca raphiophylla* along the streams.

The project area and adjacent land has been subject to various levels of vegetation disturbance through clearing. Clearing is most prominent within the project area and to the north, south and east of the project area as a result of residential development and rural land uses.

Adjacent vegetation to the east and west of the project area however, is associated with Piara Nature Reserve (Bush Forever site 262) and Bush Forever site 342 and contains both woodland and heath vegetation which resemble the Southern River vegetation complex (Plate 2 and Plate 3).

Strategen has assessed vegetation classes in accordance with *AS 3959–2009 Construction of buildings in bushfire-prone areas* (AS 3959; SA 2009) within the project area and adjacent 100 m through on-ground verification. The following provides a summary of this investigation, as depicted in Figure 4:

- on-site vegetation is completely cleared Plate 7
- adjacent vegetation is a combination of:
 - * Class A forest vegetation to the south (Plate 1)
 - * Class B woodland vegetation to the west (Plate 2 and Plate 3)
 - * Class D scrub vegetation to the east and south (Plate 4, Plate 5 and Plate 6)
 - * managed vegetation and grassland throughout cleared areas where the land is actively managed (to the north, south and remaining areas to the east and west) (Plate 7).

Portions of the project area and adjacent land within 100 m that are already cleared and/or consist of managed vegetation and do not represent a vegetation class have been excluded under Clause 2.2.3.2 (e and f) of AS 3959 since these areas are either non-vegetated or low threat managed in a minimal fuel condition.

2.2.2 Site topography and slope under vegetation

The project area is located on the Swan Coastal Plain, which is characterised by a low-lying coastal plain, mainly covered with woodlands.

Strategen has assessed site topography and effective slope under classified vegetation within the project area and adjacent 100 m through on-ground verification in accordance with AS 3959 methodology.

The project area and adjacent land is generally flat, with a high point of 27.8 metres Australian Height Datum (mAHD) in the south to a low point of 24.9 mAHD in the north.

Based on site inspection and topographical information provided by the client, the project area is not located upslope from classified vegetation as shown in Figure 5.

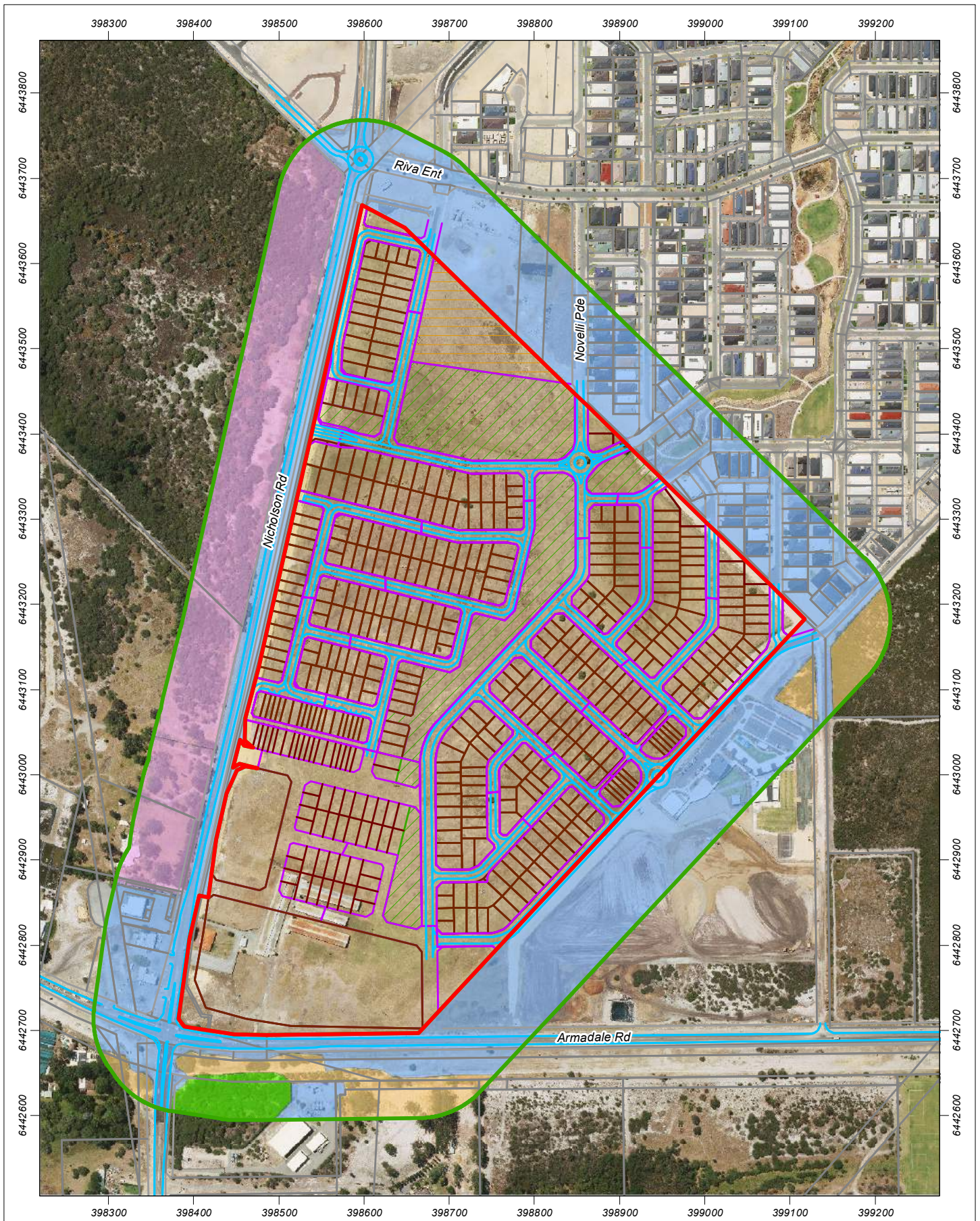
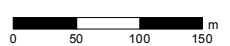


Figure 4: Vegetation class

Scale 1:6,000 at A4



Coordinate System: GDA 1994 MGA Zone 50
 Note that positional errors may occur in some areas
 Date: 15/06/2016

Author: JCrute
 Source: Aerial image: Landgate, flown 02/2016.
 Subdivision plan: Client 05/2016.

Path: Q:\Consult\2016\MDF\MDF16241\ArcMap_documents\R001\RevA\MDF16241_01_R001_RevA_F004.mxd

Legend

- Carriageways
- Lot boundaries
- Road reserve
- Existing cadastre
- Project area
- 100m wide assessment area
- POS
- School
- Class A Forest
- Class B Woodland
- Class D Scrub
- Cleared





Plate 1: Classified Class A forest vegetation to the south of the project area



Plate 2: Classified Class B woodland vegetation west of the project area



Plate 3: Classified Class B woodland vegetation west of the project area



Plate 4: Classified Class D scrub vegetation to the east of the project area



Plate 5: Classified Class D scrub vegetation to the east of the project area



Plate 6: Classified Class D scrub vegetation to the south of the project area



Plate 7: Cleared land south of the project area

2.2.3 Bushfire weather conditions

Worst case bushfire weather condition

Southwest Western Australia generally experiences a cool to mild growing season in the months of August through to November of each year, followed by four months of summer drought conditions, which is when the potential for bushfire occurrence is at its peak.

Worst case (adverse) bushfire weather conditions can occur during this dry period when a low pressure trough forms off the west coast and strong winds develop from the north or northeast. These conditions are sometimes associated with 'Extreme' or 'Catastrophic' fire dangers, which are consistent with very high temperatures, low relative humidity and very strong winds. Based on the predominant summer climatic conditions of the local area, 'Extreme' and 'Catastrophic' fire dangers normally occur less than 5% of the time during the designated bushfire season, which equates to around six days between December and March (McCaw & Hanstrum 2003).

Predominant bushfire weather conditions

Predominant fire weather conditions are considered to occur 95% of the time during the designated bush fire season and these conditions generally align with average summer climatic conditions of the locality.

Average 9:00 am and 3:00 pm January wind profiles for Jandakot Aero weather station are contained in Appendix 1. These illustrate that the predominant winds during the designated bush fire season are from the east and southeast in the morning averaging around 18.3 km/h; and from the southwest in the afternoon averaging around 24.9 km/h (BoM 2016).

The mean 9:00 am and 3:00 pm relative humidity for Jandakot Aero during the designated bush fire season is around 49% and 37% respectively, with average monthly maximum temperatures peaking at around 31.7°C in February.

The predominant bushfire weather conditions discussed above correlate with an average fire danger index of 'High', as determined using the Commonwealth Science and Industrial Research Organisation (CSIRO) Fire Danger and Fire Spread Calculator (CSIRO 1999).

2.2.4 Bushfire history, fuel age, risk of ignition and potential ignition sources

Vegetation within and directly adjacent to the project area does not contain any evidence of recent bushfire occurrence. Given the largely cleared nature of the understorey within these areas, the resulting fuel loads are moderate.

The risk of ignition pre-development was assessed as low throughout the site due to the low levels of public access and visitation. However, Strategen considers that the risk of ignition will increase in surrounding reserves due to increasing fuel loads over time and heightened levels of public access and resident occupancy at the bushland interface.

The potential sources of ignition in the area are expected to be from:

- deliberately lit fire (i.e. arson)
- lightning strike
- accidental causes, such as vehicle accidents and sparks from vehicle exhausts
- escapes from unauthorised camp fires, particularly throughout the broader fire environment and bushland reserves
- escapes from prescribed burns
- pole-top fires
- incorrect disposal of cigarettes.

2.2.5 Potential bushfire scenarios

Bushfire runs in land surrounding the project area are of moderate length with 900 m of continuous vegetation to the northwest of the project area, 400 m of continuous vegetation to the east of the project area, 3200 m of continuous vegetation to the northeast of the project area and 650 m of continuous vegetation to the south of the project area.

Based on the above, a bushfire has the potential to ignite and occur in and in close proximity to the site, particularly from the northwest and east grading to the northeast. Due to the moderate length of bushfire runs, it is possible for a bushfire to facilitate elevated levels of radiant heat and ember attack if it is allowed to reach its full rate of spread potential.

Bushfire impacts are most likely to be received from the east - southeast in the morning and the south/southwest in the afternoon in association with the predominant prevailing winds during the bushfire season. Due to limited bushfire runs in these directions, there is limited scope for significant bushfire impacts to be received.

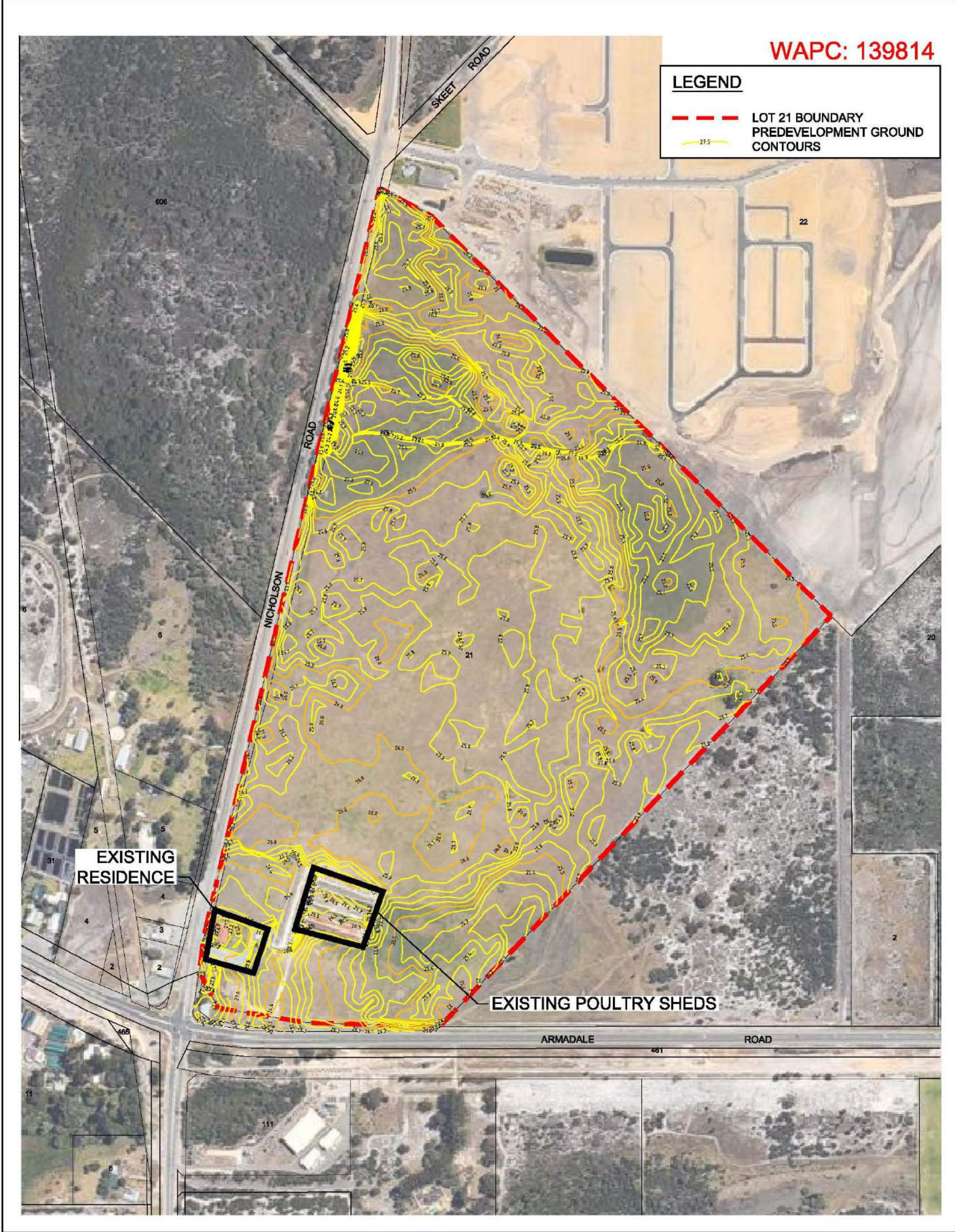
2.2.6 Bushfire suppression response capability

Local Bush Fire Brigades stationed at Armadale, Roleystone, Bedfordale and Jandakot are expected to provide a best case emergency suppression response time of 30 minutes should a bushfire threaten lives or homes on or adjacent to the project area.

WAPC: 139814

LEGEND

- LOT 21 BOUNDARY
- 27.5 PREDEVELOPMENT GROUND CONTOURS



Source: Emerson Stewart Consulting (2010)

Figure 5: Site topography

This page is intentionally blank

2.3 Bushfire hazard assessment

Strategen has mapped the bushfire hazard levels within 100 m of the project area (refer to Figure 6) on the basis of the vegetation classes identified in Section 2.2.1 and the slope under classified vegetation assessed in Section 2.2.2. The following bushfire hazard levels were assigned:

- Class A forest vegetation to the south of the project area: 'Extreme'
- Class B woodland vegetation west of the project area: 'Extreme'
- Class D scrub vegetation east of the project area: 'Extreme'
- Class D scrub vegetation east and south of the project area: 'Moderate'.

2.4 BAL assessment

Vegetation with a 'Moderate' or 'Extreme' bushfire hazard level is considered bushfire prone and any proposed development within 100 m of the bushfire prone vegetation extent will require application of Australian Standard AS 3959–2009 *Construction of Buildings in Bushfire-prone Areas* (SA 2009) via implementation of increased building construction standards in response to the assessed Bushfire Attack Level (BAL).

Only a small portion of the proposed lots within the project area will be located within 100 m of vegetation assessed as having an 'Extreme' or 'Moderate' bushfire hazard level, which will require a BAL response in accordance with AS 3959–2009 (Figure 7). The detailed investigation undertaken by Strategen requires an update to the *WA State Map of Bush Fire Prone Areas* (DFES 2016) to more accurately reflect site conditions. Several areas (including the project area itself) mapped as bushfire prone (DFES 2016) are no longer considered to be bushfire prone due to absence of classified vegetation.

The Method 1 procedure for calculating the BAL (as outlined in AS 3959–2009) incorporates the following factors:

- state-adopted FDI rating
- vegetation class
- slope under classified vegetation
- distance maintained between proposed development areas and the classified vegetation.

Based on the specified BAL, construction/separation requirements for proposed buildings can then be assigned.

2.4.1 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australian environments, as outlined in AS 3959–2009 and endorsed by Australasian Fire and Emergency Service Authorities Council.

2.4.2 Vegetation class

Vegetation class is described in Section 2.2.1 and depicted in Figure 4 and consists of forest (Class A), woodland (Class B) and scrub (Class D). Where BAL contours differ based on the different BAL application distances associated with the two vegetation classifications, the highest BAL has been applied (e.g. BAL 12.5 in Class D scrub vs. BAL 19 in Class B woodland – BAL 19 would be the end result).

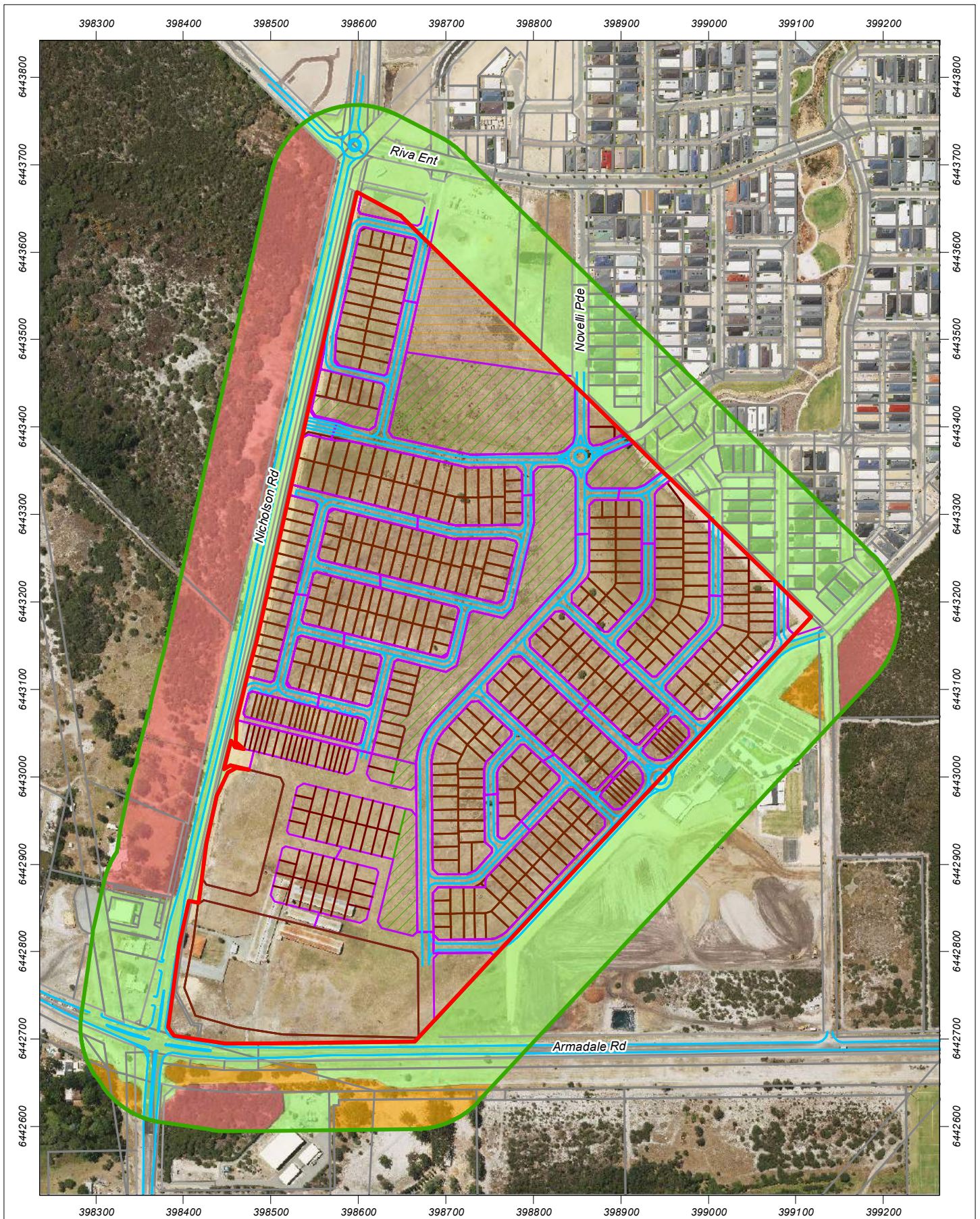
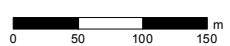


Figure 6: Bushfire hazard levels

Scale 1:5,842 at A4



Coordinate System: GDA 1994 MGA Zone 50
 Note that positional errors may occur in some areas
 Date: 15/06/2016

Author: JCrute
 Source: Aerial image: Landgate, flown 02/2016.
 Subdivision plan: Client 05/2016.

Path: Q:\Consult\2016\MDF\MDF16241\ArcMap_documents\R001\RevA\MDF16241_01_R001_RevA_F006.mxd

Legend

- | | | |
|-------------------|---------------------------|------------------------------|
| Carriageways | Project area | Bushfire hazard level |
| Lot boundaries | 100m wide assessment area | Extreme |
| Road reserve | POS | Moderate |
| Existing cadastre | School | Low |



info@strategen.com.au
 www.strategen.com.au

2.4.3 Slope under classified vegetation

Slope under classified vegetation is assessed in Section 2.2.2, with a summary provided as follows on the basis of site investigations and the surface elevations depicted in Figure 5:

- vegetation surrounding the project area is at equal elevation or upslope of proposed lots within the project area.

2.4.4 Distance between proposed development areas and the classified vegetation

Strategen has assessed and identified the separation distances between future buildings and the classified vegetation extent, as summarised in Table 1.

2.4.5 Method 1 BAL calculation

A Method 1 BAL calculation has been completed for each proposed lot in accordance with AS 3959–2009 (Table 1). The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by the proposed dwelling and subsequently informs the standard of building construction required for that dwelling to withstand such impacts.

BAL contours have been identified for the larger proposed mixed business/residential, local centre and residential lots within the southern portion (Brondesbury land) of the project area, on the basis that this will guide BAL ratings for development within these lots to be identified as part of future planning. Figure 7 does not show lot numbers within this portion of the project area, as lot numbers are not yet allocated.

The proposed development site is totally cleared to enable development of a significant built and landscaped footprint.

A portion of the development site will be located within 100 m of vegetation assessed as having an 'Extreme' or 'Moderate' bush fire hazard level, which will require implementation of AS 3959–2009 and increased building construction standards for proposed built assets (refer to Figure 7). The 'Extreme' bushfire hazard applies to Class A forest vegetation to the south, Class B woodland vegetation to the west and Class D scrub vegetation to the east. The 'Moderate' bushfire hazard applies to Class D scrub vegetation to the east and south. All vegetation is located at equal elevation to the project area.

BALs for proposed built assets within 100 m of this vegetation are outlined in Table 1. The resulting hazard separation distances around dwellings will be provided in the form of Asset Protection Zones (APZs).

Table 1: Method 1 BAL calculation

Proposed lots	Classified vegetation	Effective slope	Hazard separation distance	BAL rating
Portion of one proposed mixed business/residential lot on the southern boundary	Class A forest	All upslope or on flat ground from proposed development	42-<100 m	BAL 12.5
Eight proposed lots along the western site boundary Portion of one proposed local centre lot on the south western boundary Small corner section of one proposed mixed business/residential lot on the southern boundary	Class B woodland	All upslope or on flat ground from proposed development	26 m	BAL 19
95 lots proposed along the western site boundary	Class B woodland	All upslope or on flat ground from proposed development	29-<100 m	BAL 12.5
28 lots proposed along the eastern site boundary	Class D scrub	All upslope or on flat ground from proposed development	35-<100 m	BAL 12.5

3. Bushfire management measures

Strategen has identified a range of bushfire management measures that on implementation will enable all proposed lots to be developed whilst maintaining a manageable level of bushfire risk and compliance with the Guidelines. The bushfire management measures are depicted in Figure 7 (where applicable) and discussed in the following subsections.

3.1 Hazard separation distances (APZs)

Strategen has designated areas of hazard separation between classified vegetation and proposed lots in the form of APZs. The width of each dwelling's APZ has been determined on the basis of compliance with a BAL 12.5 or BAL 19 rating under AS 3959–2009, as outlined in Table 1, to demonstrate that bushfire management compliance can be achieved for this site.

All lots within 100 m of Class D scrub vegetation to the east will be constructed in accordance with BAL 12.5 with a minimum 27 m APZ in the form of a proposed road reserve and existing cleared land within the St John Bosco College site.

Eight lots within 100 m of Class B woodland vegetation to the west will be constructed in accordance with BAL 19 with a minimum 26 m APZ consisting of a road reserve (Nicholson Road).

95 lots adjacent to Nicholson Road within 100 m of Class B woodland vegetation to the west will be constructed in accordance with BAL 12.5 with a minimum 29 m APZ consisting of 26 m wide road reserve (Nicholson Road) and a minimum 3 m wide setback within the project area.

BAL contours have also been identified for the larger proposed mixed business/residential, local centre and residential lots within the southern portion (Brondesbury land) of the project area. A very small portion of the proposed mixed business/residential lot has a BAL 19 rating, with a larger portion of the lot having a BAL 12.5 rating. A small portion of the local centre lot has a BAL 19 rating, with the remainder of the lot having a BAL 12.5 rating. A portion of the residential lot in the southwest has a BAL 12.5 rating.

The APZs are low fuel areas around each building and are required to be maintained on a regular and ongoing basis at a fuel load less than 2 t/ha to achieve a low threat minimal fuel condition status all year round. Overstorey trees can be retained to some extent within the APZ provided all flammable material including understorey grasses, weeds, shrubs and scrub are removed from the fuel profile, essentially creating a managed parkland cleared landscape, which would result in a diminishing level of radiant heat, ember attack and fire rate of spread at the dwelling interface.

This is also consistent with requirements under City of Armadale Firebreak Notice (Appendix 2) for areas of land less than 5000 m² to be clear of all flammable material, with all grasses to be maintained below 5 cm in height.

In addition, all trees, bushes and shrubs are to be trimmed back over driveways and access ways to all buildings to 3 m wide with a clear vertical axis for emergency services access in accordance with the City of Armadale Firebreak Notice (Appendix 2). Lawns, managed gardens, paving, driveways and swimming pools are also suitable within the APZ.

Hazard Separation Zones (HSZs) are not required around individual lot APZs in this instance, since proposed construction for each proposed dwelling meets the standard appropriate to the BAL for that location and does not exceed BAL 29 (WAPC 2015b).

3.2 Increased building construction standards

Strategen has designated BAL requirements for each proposed lot in accordance with AS 3959–2009. This has resulted in a combination of BAL 19 and BAL 12.5 being applied for 129 lots within the project area.

3.3 Vehicular access

The proposed vehicular access network will provide numerous links to the surrounding public road network to the north, west and east, as well as future development areas to the south of the project area. The proposed vehicular access network will also provide buffers and access for emergency service vehicles between proposed residences and adjacent vegetation.

Public roads proposed as part of the subdivision will need to comply with technical requirements of the Guidelines, as outlined in Table 2.

Table 2: Vehicular access technical requirements

Technical requirement	Public road
Minimum trafficable surface (m)	6*
Horizontal distance (m)	6
Vertical clearance (m)	4.5
Maximum grade <50 m	1 in 10
Minimum weight capacity (t)	15
Maximum crossfall	1 in 33
Curves minimum inner radius	8.5

* Refer to E3.2 Public roads: Trafficable surface

Source: WAPC 2015b

3.4 Reticulated water supply

Water supply services will be extended throughout the project area from surrounding areas of residential development, which will result in provision of a reticulated mains water supply for proposed residences.

A network of hydrants will be provided along the internal road network at locations which meet relevant water supply authority and DFES requirements, in particular the Water Corporation Design Standard DS 63 'Water Reticulation Standard Design and Construction Requirements for Water Reticulation Systems up to DN250'. This standard will guide construction of the internal reticulated water supply system and fire hydrant network, including spacing and positioning of fire hydrants so that the maximum distance between a hydrant and the rear of a building envelope (or in the absence of a building envelope, the rear of the lot) shall be 120 m and the hydrants shall be no more than 200 m apart.

3.5 Additional measures

Strategen makes the following additional recommendations to inform ongoing planning stages of the development:

1. Notification on Title: Strategen recommends that a notification on title be placed on all proposed lots with a BAL of 12.5 or greater as a condition of subdivision to ensure all landowners/proponents and prospective purchasers are aware that their lot is in a designated bushfire prone area and that increased building construction standards will apply to future buildings. The notification on title is also to include that the site is subject to a Bushfire Management Plan.
2. BAL assessment at future planning stages: Management measures recommended in the BMP for individual dwellings (i.e. BAL ratings and APZs) are currently based on bushfire prone vegetation which may change in the future as surrounding developments proceed. Consequently, Strategen recommends that BALs be reassessed if any significant reduction to the surrounding vegetation extent occurs prior to building licensing. BALs may also require reassessment for the larger proposed mixed business/residential, local centre and residential lots within the southern portion (Brondesbury land) of the project area, once development detail has been determined.
3. Compliance with the City of Armadale annual firebreak notice: the developer/land manager and prospective land purchasers are to comply with the current City of Armadale annual firebreak notice and bushfire information (Appendix 2).

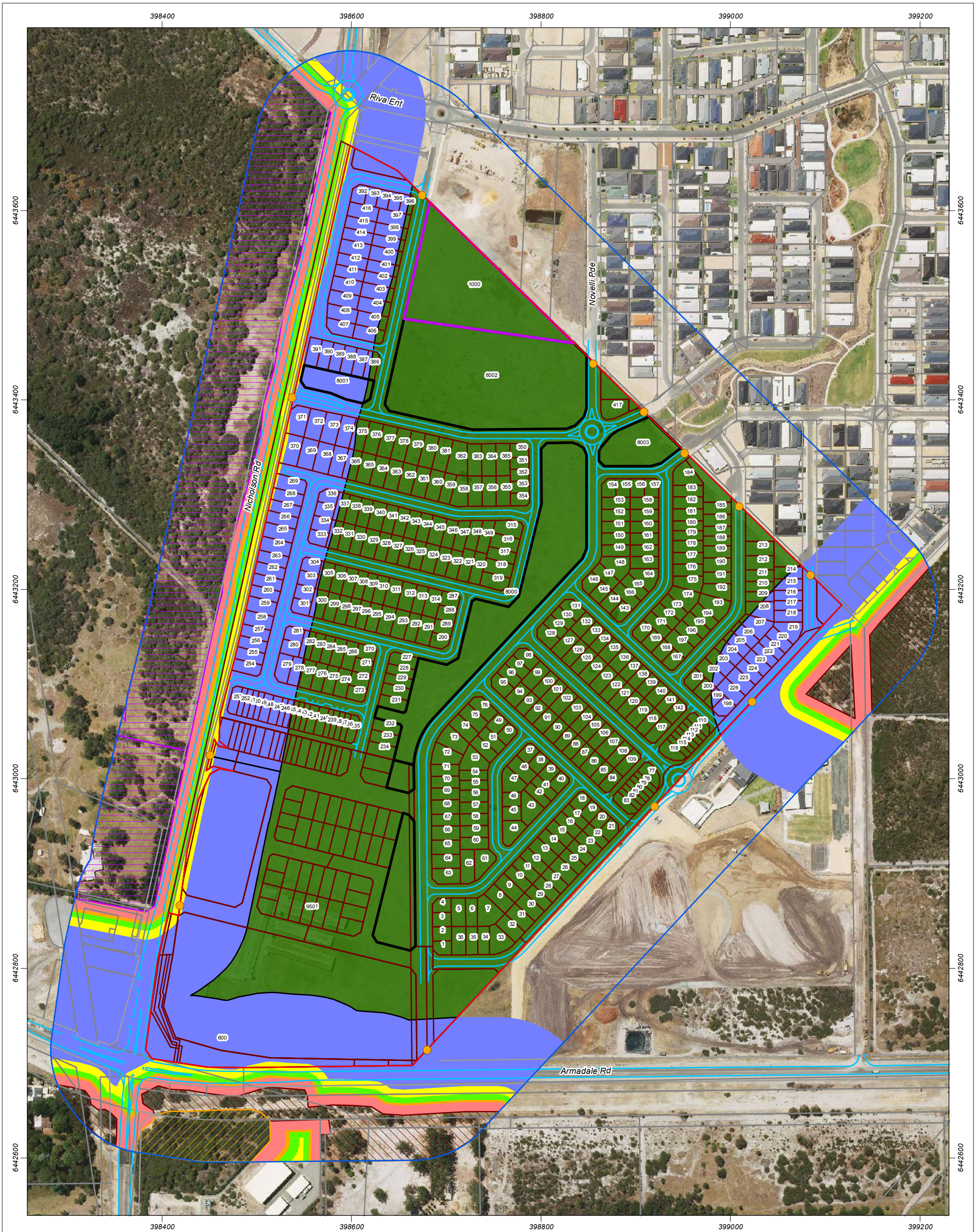
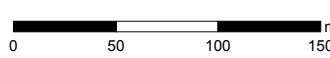


Figure 7: Bushfire management plan: Lot 21 Nicholson Road, Piara Waters.

Scale 1:3,700 at A3



Coordinate System: GDA 1994 MGA Zone 50
 Note that positional errors may occur in some areas
 Date: 21/09/2016
 Author: JCrute

Legend

- | | | | | |
|---------------------------|-------------------|---------------------------------|---------------------|---------|
| Access routes | Lot boundaries | Vegetation class Class A Forest | BAL contours BAL FZ | BAL Low |
| Project area | Carriageways | Class B Woodland | BAL 40 | |
| 100m wide assessment area | Existing cadastre | Class D Scrub | BAL 29 | |
| POS | 100m wide HSZ | | BAL 19 | |
| School | | | BAL 12.5 | |



info@strategen.com.au
 www.strategen.com.au

Source: Aerial image: Landgate, flown 02/2016. Subdivision plan: Client 05/2016.

Path: Q:\Consult\2016\MD\FIMDF16241\ArcMap_documents\R001\Rev0\MD\F16241_01_R001_Rev0_F007_A3.mxd

4. Proposal compliance and justification

Proposed development of Lot 21 Nicholson Road, Piara Waters is required to comply with SPP 3.7 and the Guidelines, as required under the following policy measures:

6.2 Strategic planning proposals, subdivision and development applications

a) Strategic planning proposals, subdivision and development applications within designated bushfire prone areas relating to land that has or will have a Bushfire Hazard Level (BHL) above low and/or where a Bushfire Attack Level (BAL) rating above BAL-LOW apply, are to comply with these policy measures.

b) Any strategic planning proposal, subdivision or development application in an area to which policy measure 6.2 a) applies, that has or will, on completion, have a moderate BHL and/or where BAL-12.5 to BAL-29 applies, may be considered for approval where it can be undertaken in accordance with policy measures 6.3, 6.4 or 6.5.

c) This policy also applies where an area is not yet designated as a bushfire prone area but is proposed to be developed in a way that introduces a bushfire hazard, as outlined in the Guidelines.

6.3 Information to accompany strategic planning proposals

Any strategic planning proposal to which policy measure 6.2 applies is to be accompanied by the following information prepared in accordance with the Guidelines:

a) (i) the results of a BHL assessment determining the applicable hazard level(s) across the subject land, in accordance with the methodology set out in the Guidelines. BHL assessments should be prepared by an accredited Bushfire Planning Practitioner; or

a) (ii) where the lot layout of the proposal is known, a BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines. The BAL Contour Map should be prepared by an accredited Bushfire Planning Practitioner; and

b) the identification of any bushfire hazard issues arising from the relevant assessment; and
c) clear demonstration that compliance with the bushfire protection criteria in the Guidelines can be achieved in subsequent planning stages. This information can be provided in the form of a Bushfire Management Plan or an amended Bushfire Management Plan where one has been previously endorsed.

Implementation of this BMP is expected to meet the following objectives of SPP 3.7:

- 5.1: Avoid increasing the threat of bushfire to people, property and infrastructure. The preservation of life and the management of bushfire impact is paramount
- 5.2: Reduce vulnerability to bushfire through the identification and assessment of bushfire hazards in decision-making at all stages of the planning and development process
- 5.3: Ensure that planning proposals and development applications take into account bushfire protection requirements and include specified bushfire protection measures where land has or will have a moderate or extreme bushfire hazard level, and/ or where a rating higher than BAL-Low applies
- 5.4: Achieve a responsible approach between bushfire management measures and landscape amenity and biodiversity conservation values, with consideration of the potential impacts of climate change.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire management measures, as outlined in Section 3 have been devised for the proposed development accordance with Guideline acceptable solutions where possible to meet compliance with bushfire protection criteria. An 'acceptable solutions' assessment' is provided in Table 3 to assess the proposed bushfire management measures against each bushfire protection criteria in accordance with the Guidelines and demonstrate that the measures proposed meet the intent of each element of the bushfire protection criteria.

Table 3: Acceptable solutions assessment against bushfire protection criteria

Bushfire protection criteria	Intent	Solution	Proposed bushfire management measures	Compliance statement
Element 1: Location	To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure	<u>Acceptable solution</u> A1.1 Development location The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.	Refer to Section 3.2, which demonstrates that development will only occur in areas of BAL 19 or lower. No development is to occur in BAL 40 or BAL FZ areas.	The measures proposed are considered to comply and meet the intent of Element 1 Location.
Element 2: Siting and design of development	To ensure that the siting and design of development minimises the level of bushfire impact	<u>Acceptable solution</u> A2.1 Asset Protection Zone Every building is surrounded by an APZ, depicted on submitted plans, which meets detailed requirements (refer to the Guidelines for detailed APZ requirements).	Refer to Section 3.1, which demonstrates that minimum APZs will be wholly contained within road reserves and existing cleared land between proposed lots and bushfire prone vegetation.	The measures proposed are considered to comply and meet the intent of Element 2 Siting and design of development.
		<u>Acceptable solution</u> A2.2 Hazard Separation Zone Every building and its contiguous APZ is surrounded by an HSZ, depicted on submitted plans, that meets detailed requirements (refer to the Guidelines for detailed HSZ requirements). An HSZ may not be required if the proposed construction meets the standard appropriate to the BAL for that location, and does not exceed BAL-29.	HSZs are not proposed since individual dwelling construction meets the standard appropriate to the BAL for that location.	
Element 3: Vehicular access	To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event	<u>Acceptable solution</u> A3.1 Two access routes Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.	Refer to Section 3.3 and Figure 7, which demonstrate that a minimum of two different vehicular access routes will be provided for all proposed lots via the internal road network.	The measures proposed are considered to comply and meet the intent of Element 3 Vehicular access.
		<u>Acceptable solution</u> A3.2 Public road A public road is to meet the requirements in Table 2, Column 1.	Refer to Section 3.3, which demonstrates that all proposed public roads will meet minimum requirements outlined in Table 2 of the Guidelines.	

Bushfire protection criteria	Intent	Solution	Proposed bushfire management measures	Compliance statement
		<p>A3.3 Cul-de-sac (including a dead-end-road) A cul-de-sac and/or a dead end road should be avoided in bushfire prone areas. Where no alternative exists (i.e. the lot layout already exists and/or will need to be demonstrated by the proponent), detailed requirements will need to be achieved (refer to the Guidelines for detailed cul-de-sac requirements).</p>	<p>N/A No cul-de-sacs are proposed as part of the development.</p>	
		<p>A3.4 Battle-axe Battle-axe access leg should be avoided in bushfire prone areas. Where no alternative exists, (this will need to be demonstrated by the proponent) detailed requirements will need to be achieved (refer to the Guidelines for detailed battle-axe requirements).</p>	<p>N/A No battle-axes are proposed as part of the development.</p>	
		<p>A3.5 Private driveway longer than 50 m A private driveway is to meet detailed requirements (refer to the Guidelines for detailed private driveway requirements).</p>	<p>N/A No private driveways longer than 50 m are proposed as part of the development.</p>	
		<p>A3.6 Emergency access way An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet detailed requirements (refer to the Guidelines for detailed EAW requirements).</p>	<p>N/A No emergency access ways are proposed as part of the development.</p>	
		<p>A3.7 Fire service access routes (perimeter roads) Fire service access routes are to be established to provide access within and around the edge of the subdivision and related development to provide direct access to bushfire prone areas for fire fighters and link between public road networks for fire fighting purposes. Fire service access routes are to meet detailed requirements (refer to the Guidelines for detailed fire service access route requirements).</p>	<p>N/A No fire service access routes are proposed as part of the development.</p>	
		<p>A3.8 Firebreak width Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level as prescribed in the local firebreak notice issued by the local government.</p>	<p>N/A No firebreaks are proposed as part of the development.</p>	

Bushfire protection criteria	Intent	Solution	Proposed bushfire management measures	Compliance statement
Element 4: Water	To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire	<p>A4.1 Reticulated areas</p> <p>The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.</p>	Refer to Section 3.4, which demonstrates that all proposed lots will be provided a reticulated water supply and network of hydrants in accordance with local water authority, City and DFES requirements.	The measures proposed are considered to comply and meet the intent of Element 4 Water.
		<p>A4.2 Non-reticulated areas</p> <p>Water tanks for fire fighting purposes with a hydrant or standpipe are provided and meet detailed requirements (refer to the Guidelines for detailed requirements for non-reticulated areas).</p>	N/A The proposed development will not occur within a non-reticulated area.	
		<p>A4.3 Individual lots within non-reticulated areas (Only for use if creating 1 additional lot and cannot be applied cumulatively)</p> <p>Single lots above 500 square metres need a dedicated static water supply on the lot that has the effective capacity of 10 000 litres.</p>	N/A The proposed development will not occur within a non-reticulated area.	

5. Implementation and enforcement

Implementation of the BMP applies to the developer, local government and prospective landowners to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 4. These measures will be implemented to ensure the ongoing protection of proposed life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 4: Proposed works program

Bushfire management measure	Timing for application	Responsibility
Ongoing maintenance of APZ (continuation of the current road verge maintenance regime)	As required to keep road verges slashed on a regular and ongoing basis (i.e. grasses and weeds to be maintained under 100 mm in height)	As per the current road verge management arrangement
Implementation of increased building construction standards	During construction of proposed dwellings	Local government, builder, prospective landowners
Construction of public roads as per approved subdivision	Prior to development of lots for each respective stage	Developer
Provision of reticulated water supply and fire hydrant network	Prior to development of lots for each respective stage	Developer
Notification on Title	Following subdivision approval	Developer
Reassessment of the BAL and separation distances	Following any significant reduction to the surrounding vegetation extent or changes to development detail	Developer or prospective landowners (if required)
Compliance with current fire control order	All year round as specified in the current fire control order	Developer/land manager/prospective landowners

5.1 Document review

This BMP will be updated as necessary following the date of approval to ensure:

1. Implementation is assessed and corrective actions are applied in cases of non-compliance.
2. The effectiveness and impact of fire prevention work is evaluated and any significant changes in development design or the surrounding environment are reassessed in a revised BMP.

The developer will be responsible for updating and revising the BMP until such time that the development is complete, after which time City of Armadale will be the authority responsible for updating and revising the BMP.

5.2 Stakeholder consultation

Strategen has undertaken consultation with the developer and City of Armadale to ensure aims and objectives of the BMP are in accordance with stakeholder expectations and the BMP maintains compliance with the Guidelines.

6. References

- Bureau of Meteorology (BoM) 2016, *Climate statistics for Australian locations: Monthly climate statistics for Jandakot Area*, [Online], Commonwealth of Australia, available from: http://www.bom.gov.au/climate/averages/tables/cw_009172.shtml, [25 May 2016].
- Commonwealth Science and Industrial Research Organisation (CSIRO) 1999, *Fire Danger and Fire Spread Calculator*, Commonwealth Science and Industrial Research Organisation, Perth.
- Department of Fire and Emergency Services (DFES) 2016, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: <http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>, [25 May 2016].
- Emerson Stewart Consulting 2010, *Urban Water Management Plan: Lot 21 Nicholson Road*, Emerson Stewart Consulting, Perth.
- McCaw L and Hanstrum B 2003, 'Fire environment of Mediterranean south-west Western Australia', in *Fire in Ecosystems of South-West Western Australia: Impacts and Management*, eds I Abbott & ND Burrows, Backhuys Publishers, Leiden, Netherlands, pp. 171–188.
- Standards Australia (SA) 2009, *Australian Standard AS 3959–2009 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.
- Western Australian Planning Commission (WAPC) 2015a, *State Planning Policy 3.7 Planning in Bushfire-Prone Areas*, Western Australian Planning Commission, Perth.
- Western Australian Planning Commission (WAPC) 2015b, *Guidelines for Planning in Bushfire-Prone Areas*, Western Australian Planning Commission, Perth.

Appendix 1
January wind profiles for Jandakot
Aero Weather Station

Rose of Wind direction versus Wind speed in km/h (01 Feb 1989 to 30 Sep 2010)

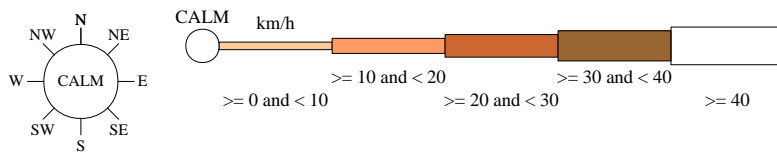
Custom times selected, refer to attached note for details

JANDAKOT AERO

Site No: 009172 • Opened Aug 1972 • Still Open • Latitude: -32.1011° • Longitude: 115.8794° • Elevation 30m

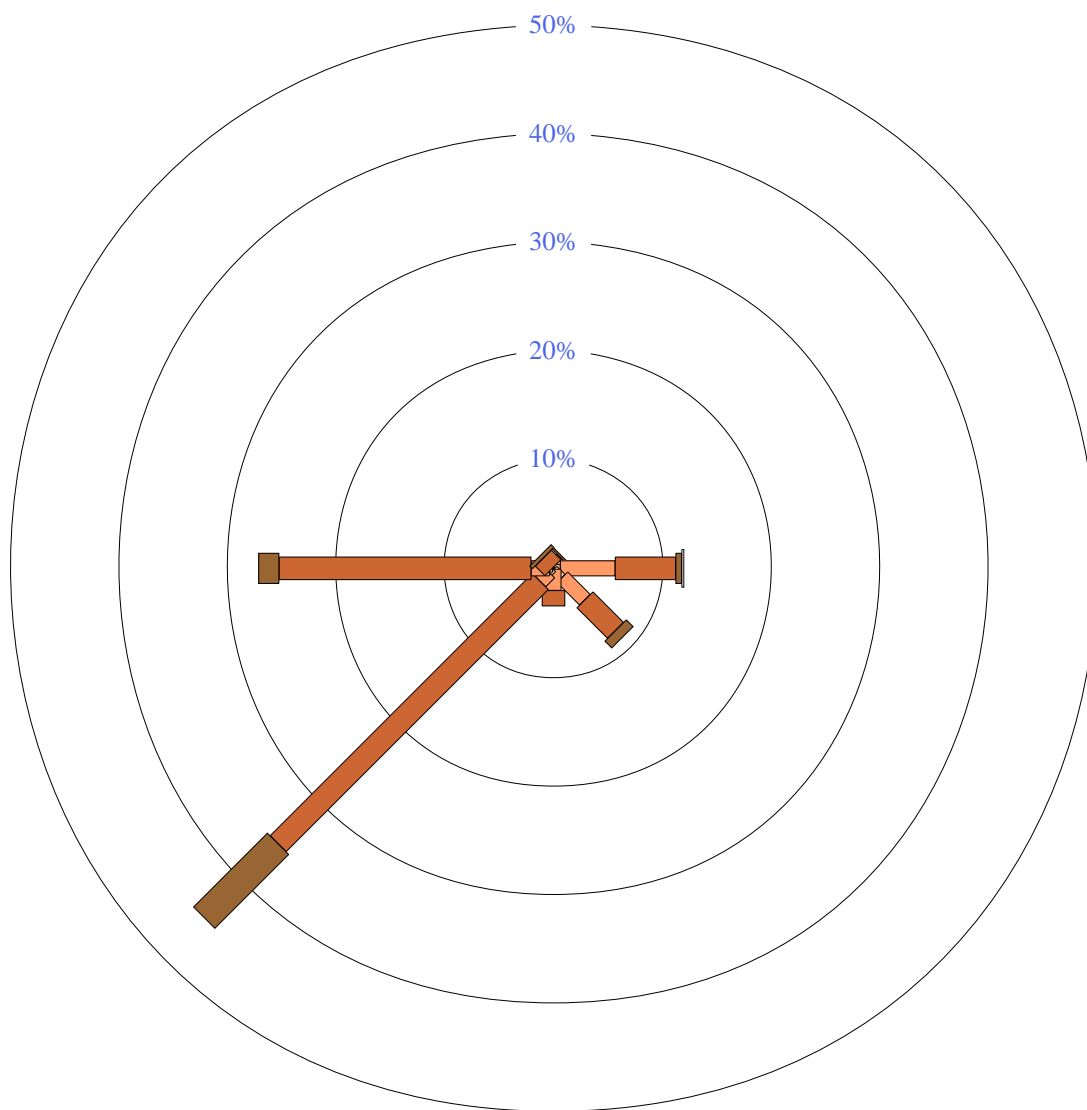
An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm Jan
566 Total Observations

Calm *



Rose of Wind direction versus Wind speed in km/h (01 Feb 1989 to 30 Sep 2010)

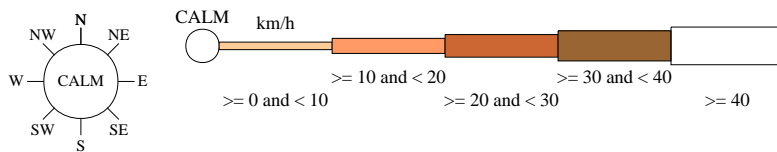
Custom times selected, refer to attached note for details

JANDAKOT AERO

Site No: 009172 • Opened Aug 1972 • Still Open • Latitude: -32.1011° • Longitude: 115.8794° • Elevation 30m

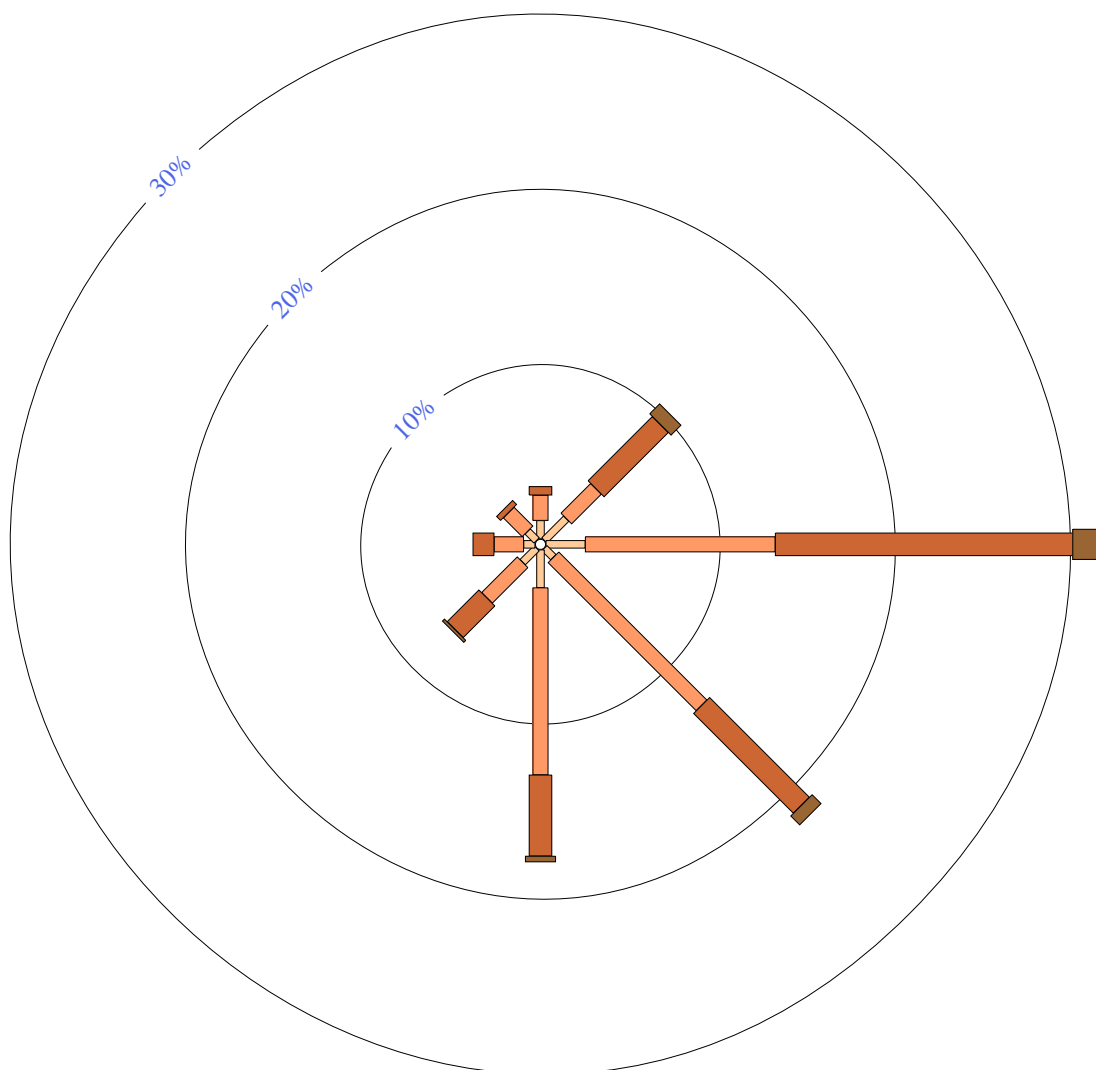
An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am Jan
617 Total Observations

Calm 1%



Appendix 2
City of Armadale Firebreak Notice and
Bushfire Information

Fire Break Notice and Bushfire Information 2015/16



What's Inside

- » Dates to Remember
- » Fire Danger Index
- » Hazard Reduction Program
- » Burning Permits
- » **Firebreak Notice**

Contents

Fire Danger Index	4
Total Fire Ban	4
Hazard Reduction Program	5
Burning Permits	8
When and How to Burn	10
Bushfire Ready Groups	12
Bush Fires Act - Fire Break Notice	13
Emergency Numbers	16

CEO's Message

Our community prides itself on the area's lush bushland and natural beauty. It is one of the things our community tells us they love the most about living in the district. In order to protect this natural beauty and bushland property owners and residents must be vigilant against the threat of fire. Bushfires are a real risk in WA and we must ensure our community is always prepared against the potential threat.

Every household, whether in the hills surrounded by bushland or in the new and developed suburbs, needs to be prepared for the possibility of fire. We all have a responsibility to help reduce the risk of fire and increase safety for everyone.

This booklet is a guide to help you maintain your house and property to protect your home, family, neighbours and community in the event of a fire. It also outlines your legal requirements for maintaining your property against bushfire risk. Please take the time to read it as it will help you reduce the vulnerability of your neighbourhood to bushfire. It will also help you to make the right decisions should a bushfire approach.



R S Tame
Chief Executive Officer

Dates You Must Remember

Due to unseasonal weather conditions these dates may be extended or shortened. You must check with the City of Armadale Ranger Services for details.

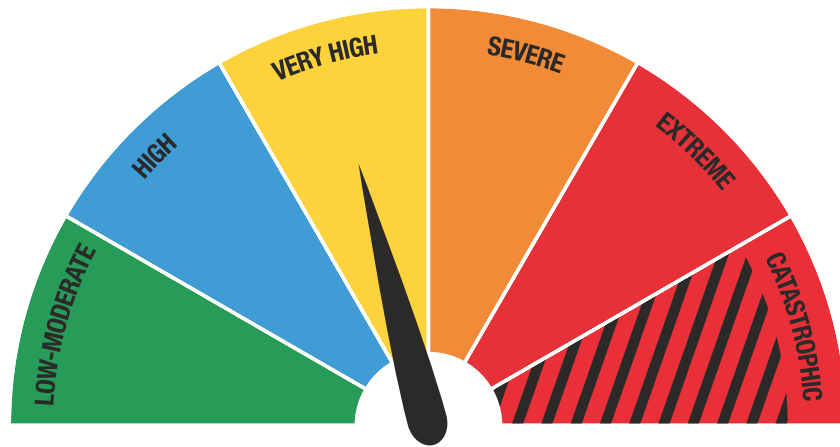
Restricted Burning Period - Permits Required	
1 October to 30 November inclusive	
Burning Garden Refuse	See Page 11
BBQ	Yes
Bush/Grass	Permit Required
BURNING PROHIBITED	
1 December to 31 March inclusive	
Burning Garden Refuse	PROHIBITED
BBQ	PROHIBITED
Bush/Grass	PROHIBITED
Restricted Burning Period - Permits Required	
1 April to 31 May inclusive	
Burning Garden Refuse	See Page 11
BBQ	Yes
Bush/Grass	Permit Required

Note: Fire Danger Rating for a particular day can overrule Permits.

Fire Danger	Burning Garden Refuse	BBQ	Burning Bush/Grass
HIGH	Yes	Yes	Yes
VERY HIGH	No	Gas/Electric only	No
SEVERE	No	Gas/Electric only	No
EXTREME	No	Gas/Electric only	No
CATASTROPHIC	No	Gas/Electric only	No

Firebreaks must be installed before 1 December 2015 and maintained clear of flammable material up to and including 14 March 2016.

FOR ALL FIRES CALL 000



Fire Danger Index

CATASTROPHIC	Total Fire Bans will be declared. Some fires will be unpredictable, difficult to control and move very fast.
EXTREME	Total Fire Bans will be declared. Some fires will be unpredictable, difficult to control and move very fast.
SEVERE	Total Fire Bans are likely. Some fires will be unpredictable, difficult to control and move very fast.
VERY HIGH	Total Fire Bans may be declared. Some fires may be unpredictable, difficult to control and may be fast moving.
HIGH	Fires can be controlled but there is still a potential threat.
LOW	Fires can be easily controlled and are slow moving.

During a Total Fire Ban

You must not light a fire in the open air or use any equipment in the open air that is likely to emit sparks.

This includes lighting wood fuel barbeques, pizza ovens or candles, and using angle grinders, welders or lawnmowers.



Hazard Reduction Program

To reduce fire hazards around your property:

Autumn to Winter

- Tree pruning – remove lower branches and check that power lines are clear. Use a professional contractor.
- Reduce fuel levels around the house – clear long grass, leaves, twigs and flammable shrubs.
- Ensure petrol and other flammables are safely stored, away from the main dwelling.
- Make sure your fire-fighting equipment is in good working order and serviced where required.
- Make sure all residents of your property are aware of your emergency plan including evacuation routes.

Spring

- Move woodpiles and stacked timber away from the main dwelling.
- Keep grass short.
- Clean gutters and roof debris.
- Install firebreaks in accordance with the Firebreak Notice (see page 13), your Variation to Firebreak Order or your Firebreak Management Plan.
- Chemical spraying of firebreaks and low fuel zones – final applications and maintenance.

Early Summer

- Water lawns, trees and shrubs near the buildings to keep them green.
- Re-check fire fighting equipment, screens, water supplies, and that gutters remain clear.

Long Term Precautions

- Ensure firebreaks are prepared in accordance with the latest Firebreak Notice or any Variation to Firebreak Order or Fire Management Plan issued by Council.
- Make sure that the buildings are safe – fit wire fly screens and shutters, fill gaps in roof/wall spaces, fit fire screens to evaporative air conditioners and have them operable to provide a water only supply.
- Give consideration to installing external building sprinkler systems and back up power for emergencies.
- Ensure the access to emergency water supplies has the correct fittings, is unobstructed and the route trafficable.
- Get basic training in fire fighting from your local Bushfire Brigade or even join your local Brigade.
- Join or start a local Bushfire Ready Group.

Firebreak Contractors

As a service to owners and occupiers of land within the district, the City maintains a list of contractors who may be willing to assist landowners to comply with the Firebreak Notice. The City is not recommending any contractor, the list is made available simply as a resource to the owner/occupier of land.

The engagement of a contractor is an agreement between the owner/occupier and the contractor. Therefore it is for the owner/occupier to consider whether a contractor is suitable or otherwise, and to satisfy themselves that the contractor has in place appropriate insurances applicable to the work they are requested to perform.

Landowners, particularly absentee owners should not assume the contractor has undertaken all the work that might be required to achieve compliance with the Firebreak Notice. Regardless of any contractual relationship between the parties the landowner remains legally responsible to ensure full compliance with the Firebreak Notice is achieved.

Evaporative Air Conditioners

Your evaporative air conditioning unit can catch fire from embers coming from bushfires, or even small backyard fires, that can happen in your neighbourhood.

If a fire starts in your air conditioner, it can spread quickly throughout your home. For further information on how to keep your property safe, contact DFES on 1300 657 209 or visit www.dfes.wa.gov.au.

Prepare. Act. Survive

Bushfires happen every summer, they can start suddenly and without warning. People have been killed or seriously injured, and homes destroyed during bushfires. If you live in or near bush, fire is a real risk to you and your family.

You need to understand the bushfire risk to your family and home so you can make decisions now on what you will do if a bushfire starts. Firefighters are preparing for the bushfire season and will do everything they can to make your community safe. Many firefighters are volunteers and take time away from their families during bushfires.

You need to help them by developing your bushfire survival plan and preparing your home to make it as safe as possible. Whether you choose to leave for a safer place or you choose to actively defend, preparation is the key to your survival.

Information in this brochure will help you prepare your home, family and business and develop a plan so you can act to make sure you survive. Before summer starts you need to decide what you will do if a bushfire threatens.

PREPARE your family, home or business – know your bushfire risk and have a bushfire survival plan.

ACT on the fire danger ratings – put your preparations into action, do not wait and see.

SURVIVE by monitoring conditions if a fire starts – know the bushfire warning alert levels and what you will do if you are caught in a fire.

For further information contact DFES on 1300 657 209 or visit www.dfes.wa.gov.au.





Burning Permits

Residents are encouraged to remove and dispose of potential flammable material from their properties before the onset of summer. If you must resort to controlled burning, a permit is required.

When and Where to Obtain a Permit to Burn

A Permit to Burn is required for the burning of any bush, garden rubbish or refuse between 1 October and 30 November, and 1 April and 31 May.

Burning permits can be obtained from the City's Ranger Services between the hours of 3pm and 4pm on Monday, Wednesday and Friday. If you are unable to attend during these hours contact Ranger Services on 9394 5000 for alternative arrangements.

Burning permits may also be issued at the City's Pound on Kilburn Lane, Kelmscott between the hours of 9am and 10am on Saturdays and Sundays, however burning is prohibited on Sundays and public holidays. You may also make arrangements to obtain a permit from a Bush Fire Brigade Fire Control Officer (see telephone numbers on back cover).

Anyone who applies for a Permit to Burn may be required to complete a declaration to ensure that the issuing of a permit will not result in any contravention of the *Bush Fires Act 1954*, or any Local Law.

Even when a Burning Permit has been issued, no fire is to be lit when the fire danger rating is VERY HIGH or above.



Fire Danger Rating information is broadcast on ABC local radio, and displayed on Fire Danger Rating Today sign boards located on Brookton Highway Kelmscott, Roleystone Fire Station and Bedforddale Fire Station.

No permits are issued during the Prohibited Burning Period. Permit holders are required to adhere to all conditions on the permit. Special conditions may apply. For permits (in residential areas) at all other times, contact Ranger Services on 9394 5000.

Please Note: Permits to Burn will not be issued in relation to properties under 1200sqm in size.

Penalties

Failure to maintain 3 metre firebreak	\$250
Offences relating to lighting a fire in open air	\$250
Setting fire to bush during prohibited burning time	\$250
Failure of occupier to extinguish bushfire	\$250
Refusal to provide name and address	\$100
Failure to produce permit to burn	\$100

Major offences result in Court action with fines ranging from \$1000 to \$25,000, imprisonment for fourteen (14) years, or both.

When and How to Burn

Fire Danger

No burning of any type is permitted, including incinerators, on days of **VERY HIGH, SEVERE, EXTREME** or **CATASTROPHIC** fire danger rating.

Please check the Weather Information Service.
Call 1196.

Don't Fuel Fires

- Don't have thick vegetation right up to the walls of your home.
- Clear all flammable material from around houses, sheds and fences.
- Store firewood, timber, petrol and kerosene well away from the house.
- Don't have flammable trees such as conifers near buildings.
- Clear all dead leaves out of gutters regularly.
- Remove dead trees and branches which, when burning, could drop onto your roof.
- Remove rubbish regularly.
- Rake up leaves, twigs and dead material regularly.
- Burn off dry grass and vegetation at the approved times and in the approved manner.

Advice is Available

Further advice on how to protect your home, and when and how to burn-off is available from your local Volunteer Bush Fire Brigade or the City of Armadale's Ranger Services.

Bush and Grass on any Land

Burning of bush and grass is totally prohibited between 1 December and 31 March inclusive. For all other fires, permits are required between 1 October and 30 November inclusive and between 1 April and 31 May inclusive.

Hints for Burning

- Don't light a fire on a hot and windy day.
- Don't try to burn more than you can control.
- Inform your neighbours.
- Make sure smoke and sparks will not affect neighbour's washing or open windows.
- Cut or rake long grass around trees, buildings and fences before burning.
- Burn against the wind.
- On a sloping block, burn from the top down.
- Have a hose or spray pack to dampen down fierce fires.

Garden Refuse and Rubbish

Between 1 October and 30 November and 1 April and 31 May inclusive, small heaps (up to one cubic metre) of garden refuse may be burnt on the ground between 6pm and 11pm, but only after a 5 metre wide fire break has been cleared around the fire and at least one able bodied person must be in attendance at all times.

Burning is PROHIBITED ON DAYS OF VERY HIGH, SEVERE, EXTREME or CATASTROPHIC fire danger rating.

Health Local Law

The City of Armadale Health Local Laws prohibit the burning of any rubber, plastic, food scraps or green garden materials which can cause the generation of smoke or odour in such quantities as to cause a nuisance to other persons.

Barbeques and Incinerators

Gas and electric barbeques are permitted at any time in approved locations.

NO garden refuse, wood, solid fuel barbecues or Webers are permitted to be used under any circumstance ON VERY HIGH, SEVERE, EXTREME or CATASTROPHIC fire danger days.

Bushfire Ready Groups

Bushfire Ready is a community driven program established by DFES in collaboration with local government to increase the resilience of the community to bushfire risk.

Bushfire Ready aims to build community resilience by providing an opportunity for neighbours to network, share ideas and information and develop and implement strategies to reduce their bushfire risk.

In a dangerous bushfire, a fire truck may not be available to protect every home. This means residents and homeowners need to be responsible for their own safety.

The program is coordinated by a trained volunteer Bushfire Ready facilitator and supported by local Fire Services personnel. All Bushfire Ready Group Facilitators are required to be a member of a Bushfire Brigade, Volunteer Fire and Rescue Service or Volunteer Emergency Service.

Local government in collaboration with DFES play a vital role in facilitating activities to reduce bushfire risk throughout the community. Engaging with the community helps people to prepare, act and survive during bushfire season.

For further information about Bushfire Ready or to form a group in your area call 1300 657 209 or free call 1800 199 084.



Bush Fires Act 1954

City of Armadale – Firebreak Notice

Notice to all Owners and Occupiers of land within the City of Armadale

All property owners are required to have mineral earth trafficable firebreaks constructed in accordance with this notice by 30 November 2015 and maintained until 14 March 2016.

Pursuant to the powers contained in Section 33 of the Bush Fires Act 1954, you are hereby required on or before the 30th day of November 2015 or within fourteen days of you becoming the owner or occupier of land should this be after the 30th day of November 2015 to install firebreaks and remove flammable materials from the land owned or occupied by you as specified hereunder and to maintain the specified land and firebreaks clear of all flammable materials up to and including the 14th day of March 2016.

Definitions

FIREBREAK	means a strip of land that has been cleared of all trees, bushes, grasses and any other object or thing or flammable material, leaving clear bare mineral earth. This includes the trimming back of all overhanging trees, bushes, shrubs and any other object or thing over the firebreak area.
FLAMMABLE	means any bush, plant, tree, grass, mineral, vegetable, substance, object, thing or material that may, or is likely to, catch fire and burn.
TRAFFICABLE	means to be able to travel from one point to another in a 4x4 fire vehicle on a firm and stable surface, unhindered without any obstruction or getting stuck bogged or trapped.
VERTICAL AXIS	means a continuous vertical uninterrupted line at a right angle to the horizontal line of the firebreak.

All Areas of Land less than 5000m²

(within the City of Armadale)

Have the entire land clear of all flammable material by mowing, slashing or other means. All grasses are to be maintained below five (5) centimetres in height and all trees, bushes, shrubs are to be trimmed back over driveways and access ways to all buildings to three (3) metres wide with a clear vertical axis over it to afford access for emergency services to all structures and points of the property.

On any lot having an area of less than 5000m², the keeping of grass on the lot at all times covered by this notice to a height less than five (5) centimetres may be accepted in lieu of clearing a firebreak.

All Areas of Land over 5000m²

(within the City of Armadale)

Install bare mineral earth trafficable firebreaks clear of all flammable material to a minimum of three (3) metres wide immediately inside all external boundaries of the land with all overhanging branches, trees, limbs etc. to be trimmed back to four (4) metres wide with a clear vertical axis over the firebreak area. Install bare mineral earth trafficable firebreaks to a minimum of three (3) metres wide immediately surrounding all buildings, sheds and haystacks or groups of buildings situated on the land, with all overhanging branches, trees, limbs etc. to be trimmed back to three (3) metres wide with a clear vertical axis over the firebreak area. This includes driveways and access to all buildings on the land.

Installation methods may vary to suit your property environment, these may include, but are not limited to ploughing, cultivating, scarifying, burning, grading, and chemical spraying.

If the requirements of this notice are carried out by burning, such burning must be in accordance with the relevant provisions of the *Bush Fires Act 1954*.

Mowed firebreaks are Not Permitted.

Hazard Reduction

In addition to the provisions of this notice you may be required to carry out further works which are considered necessary by Council or an Authorised Officer of the City and specified by way of a separate written notice forwarded to the address as shown on the City of Armadale rates record for the relevant land.

Application to Vary Firebreak Requirements

If it is considered impracticable for any reason whatsoever to clear firebreaks or establish other arrangements as required by this notice, you may apply in writing to the City of Armadale, or its duly Authorised Officers no later than the 1st day of November 2015 for permission to provide firebreaks in alternative positions on the land. If permission is not granted by the City or its duly Authorised Officers you must comply with the requirements of this notice.

In some instances naturally occurring features such as rocky outcrops, natural watercourses or landscaping such as reticulated gardens, lawns or driveways may be an acceptable substitute for cleared firebreaks.

This option must first be discussed with an Authorised Officer of the City, and approved in writing. All firebreaks and other alternative arrangements allowed by the preceding parts of this notice must be established on or before the 30th day of November 2015 (or within 14 days of you becoming the owner or occupier should this occur after that date) and remain clear of flammable material up to and including the 14th day of March 2016.

Council does not issue exemptions to the Firebreak Notice.

Does your property have a Fire Management Plan?

All properties with a Fire Management Plan approved as part of subdivision consent shall comply with the plan in its entirety. Penalty: \$5000

Fuel Storage

On all land where fuel drum ramps are located and where fuel dumps (whether containing fuel or not) are stored, clear maintained firebreaks three (3) metres wide are required with a clear vertical axis over it, around any drum, ramp or stack of drums.

No Burning on Sundays or Public Holidays

Except when specifically authorised to do so for purpose of fuel reduction by a Bush Fire Control Officer (BFCO) appointed by the City under the provisions of the *Bush Fires Act 1954*, an owner or occupier of land shall not set fire to, or cause or allow to be set on fire, any bush, rubbish or refuse whatsoever on a Sunday or a day that is a Public Holiday.

Penalties

The penalty for failing to comply with this notice is a fine not exceeding \$5000 and a person in default is also liable whether prosecuted or not to pay the costs of performing the work directed by this notice if it is not carried out by the owner and/or occupier by the date required by this notice.

By order of the City of Armadale

Emergency Numbers

FIRE • AMBULANCE • POLICE • 000

Fire Control Officers

Chief Bush Fire Control Officer

City of Armadale

9394 5000

0419 912 515

Deputy Chief Fire Control Officer

Matthew Plowman

0407 509 128

Roleystone Fire Control Officer

Matthew Plowman

0407 509 128

Fire Station

Jarrah Road Roleystone

Bedforddale Fire Control Officer

Fire Station

0447 722 336

Waterwheel Road Bedforddale

Fire and Rescue Service

Permanent Staff

9497 9046

Volunteer

9399 5611

Ranger Services

9394 5000

Burning Permit Issuing Officers

Roleystone

Matthew Plowman

0407 509 128

Bedforddale

Michael Hall

0447 722 336

Armadale

Fire and Rescue Permanent Staff

9497 9046

Fire and Rescue Volunteer

9399 5611

Ranger Services

9394 5000

7 Orchard Avenue Armadale

9394 5000

info@armadale.wa.gov.au

www.armadale.wa.gov.au



This document is available in alternative formats on request