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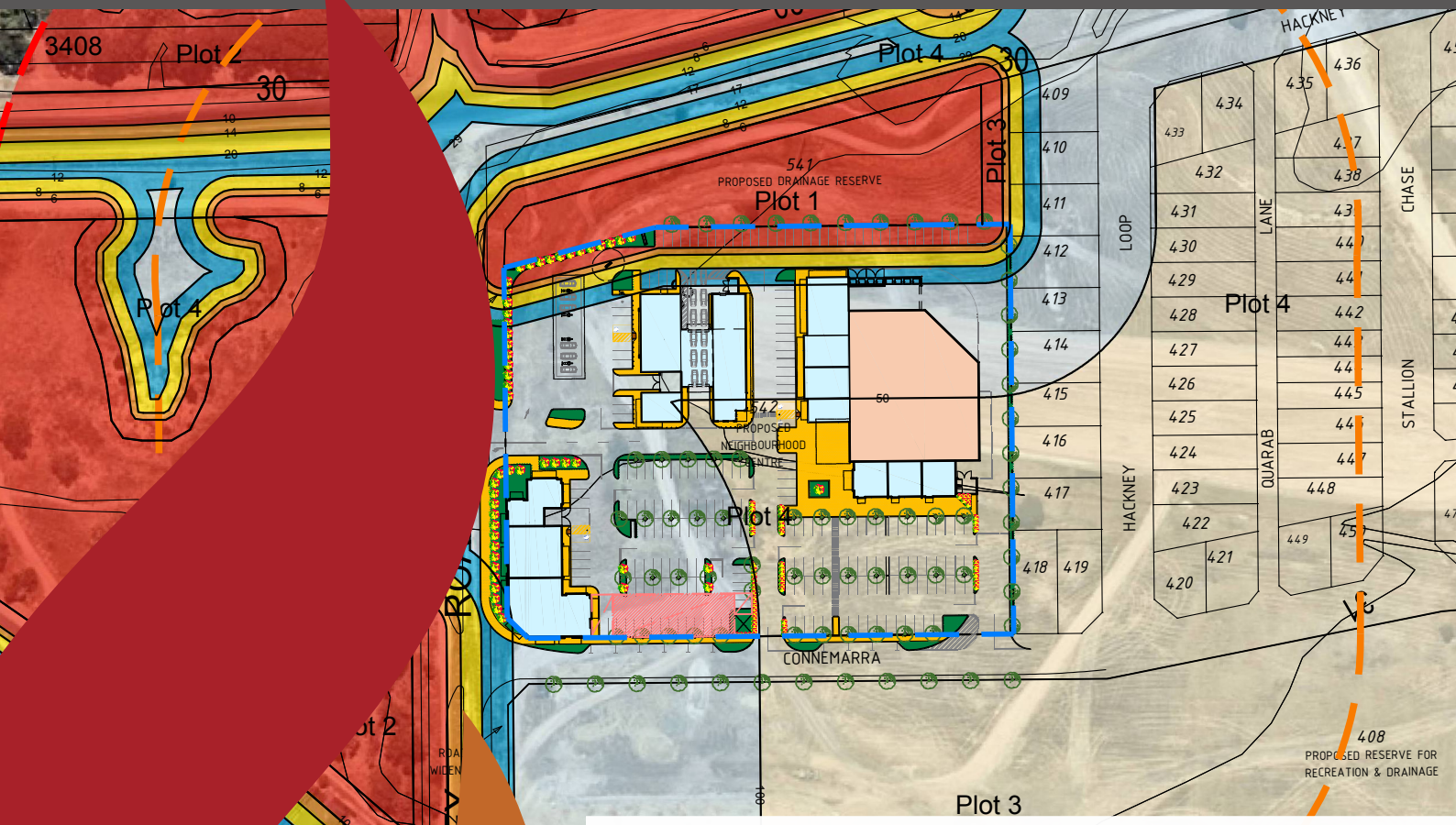
Bushfire Management Plan



Development Application

Byford Meadows Neighbourhood Centre
Lot 9500 Briggs Road, Byford

Shire of Serpentine - Jarrahdale

September 5, 2019
Prepared for: G & G Corp - Version 3.0

Document Information

Prepared for:	G & G Corp
Project Name:	Byford Meadows Neighbourhood Centre
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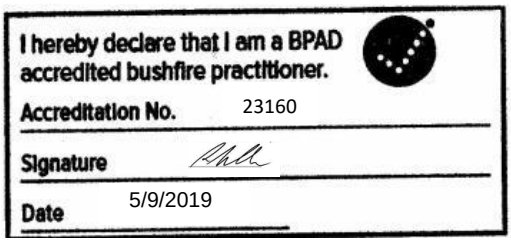

Document Control

Bushfire Management Plan – Lot 9500 Briggs Road, Byford			
REPORT VERSION	**PURPOSE**	**AUTHOR/REVIEWER AND ACCREDITATION DETAILS**	**DATE SUBMITTED**
V1	Draft for review	Dr Karen Brown (BPAD 48364) Rohan Carboon (BPAD 23160)	14/3/2019
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V3	Final Submission	Rohan Carboon (BPAD 23160)	5/9/2019

Front cover photo: Post-development Bushfire Hazard Rating levels over the site

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EXECUTIVE SUMMARY

This Bushfire Management Plan (BMP) has been prepared to support the development of a Neighbourhood Centre consisting of three buildings containing between them a supermarket, nine specialty shops, medical centre, and petrol station, at the corner of Malarkey and Thomas Roads, Byford. The site is approximately 1.7 hectares (ha) in size and is located within a larger residential subdivision currently being developed, known as Byford Meadows. It is located approximately 40 kilometres (km) south-east of the Perth Central Business District (CBD) and 2 km west of the Byford town site within the Shire of Serpentine Jarrahdale. The proposed petrol filling station is a high-risk land use and a Bushfire Risk Management Plan has been developed specifically for this development application.

The site and surrounding area has previously been cleared for broad scale agricultural purposes and is now largely characterised by extensive coverage of pasture grasses and weeds. It is bounded by Thomas Road to the north, and will be adjacent to the soon to be constructed Malarkey Road in the west and Connemarra Street in the south.

Land immediately to the east and south of the site is zoned 'Urban' and will be developed in the near future for residential housing and associated public open spaces (POS) as part of the approved Byford Meadows Local Structure Plan.

There are no landscape plans for the drainage reserve immediately north of the site, and the size and location of the reserve is not yet confirmed. However, to ensure a worst case scenario has been considered in this report, the drainage reserve (if retained) will contain sedge and rush vegetation and is subsequently assessed as Class G Grassland vegetation. This is mapped in Figure 4 as Plot 1 grassland.

A previous developed landscape masterplan in 2015 for the Multiple Use Corridor (MUC) has been withdrawn because it is inaccurate and does not reflect the future landscaping of the site which has evolved significantly in the last 4 years and ongoing discussions means final design has not been confirmed. Importantly, for this assessment consultation has occurred with the hydrology consultant and it has been confirmed that the landscape treatment for the MUC can accommodate and will be guided by the following landscape design principles: The Central Drain will be 10m wide and will contain gravel, rocks, reeds, sedges, rushes, some trees and shrubs to 1m and will be considered as an unmanaged landscape. The balance of the MUC varies in width and will contains managed landscape features including irrigated turf, gardens, footpaths, furniture, shelters play equipment and possibly a pump bike track. The unmanaged portion of the MUC will be isolated from dwellings and buildings within the Neighbourhood Centre by greater than 20 metres thereby complying with Exclusion Clause 2.2.3.2(d) and will not pose a threat to the site.

Bushfire hazard to the west of the site will remain in the short term until planned adjacent land developments proceed. Bushfire hazard to the north of Thomas Road in the rural residential lots will pose a longer term grass and bushfire threat.

All areas within 150 metres (m) of the site boundary have been assessed for vegetation classification and a Method 1 BAL assessment has been conducted. It has been determined that all proposed future commercial buildings constructed on the site will have a BAL rating of BAL – 19 or less and fall within the acceptable level of risk.

It is expected that the implementation of this BMP will reduce the threat to future employees, customers and fire fighters in the areas proposed for commercial development.

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1 PROPOSAL DETAILS

This Bushfire Management Plan (BMP) has been prepared to support the development of a proposed Neighbourhood Centre in the Shire of Serpentine Jarrahdale (see Figure 1). The site is approximately 1.7 hectares (ha) in size and is located approximately 40 km south-east of the Perth Central Business District (CBD). This area is herein referred to as "the site" and its location is shown in Figure 2. The proposed Neighbourhood Centre will consist of three building complexes, the largest of which being situated to the north-east of the site containing a supermarket, and nine specialty shops. A building containing a medical centre, pharmacy and café is proposed for the south-west corner of the site, with a final building to the north-west consisting of a petrol station, take away shop and drive through liquor store.

The subject site is zoned 'Commercial' under the provisions of the Metropolitan Region Scheme (MRS). Land to the east, west and south of the subject site is zoned 'Urban'. Land immediately to the south and east is currently being developed as part of a larger Byford Meadows residential development and will present a low bushfire threat. An area of Class G Grassland to the west, and small area of Class B Woodland to the south-west, on the neighbouring property, will likely be cleared in the future for development. Longer term bushfire hazard is present from Class G Grassland and Class B Woodland on semi-rural properties to the north of the site and Thomas Road.

The area will be reticulated, and scheme water provided. In addition, there will be fire hydrants within regulated access. There will also be a number of entry/egress routes using proposed public roads. Internal access roads will surround and intersect the site providing good access from the proposed commercial buildings to the two access points that will connect the development with Malarkey Road, and the one access point providing egress to Connemarra Road. The site is bounded by Thomas Road to the north, the soon to be constructed Malarkey Road to the west, and the currently being constructed Connemarra Street to the south. These three arterial roads will provide excellent egress in all directions from the site.

The development site will be provided with a reticulated water supply, together with fire hydrants that will be installed by the developer/s to meet the specifications of Water Corporation (Design Standard DS 63) and the design requirements for the specific buildings.

The objective of this BMP is to address bushfire management issues within the proposed site. If there is a bushfire within or near the site, implementing this BMP will reduce the threat to the public, property and emergency response personnel.

This document sets out the roles and responsibilities of the developer, future land owners and the Shire of Serpentine Jarrahdale. It is important that the measures and procedures outlined in this BMP are adopted across the various stages of the land use planning and dwelling construction approvals processes.

This BMP has been prepared to support a development application pertaining to the site. It addresses conditions relevant to this and responds to the performance criteria in the *Guidelines for Planning in Bushfire Prone Areas* V1.3 (WAPC *et.al*. 2017).

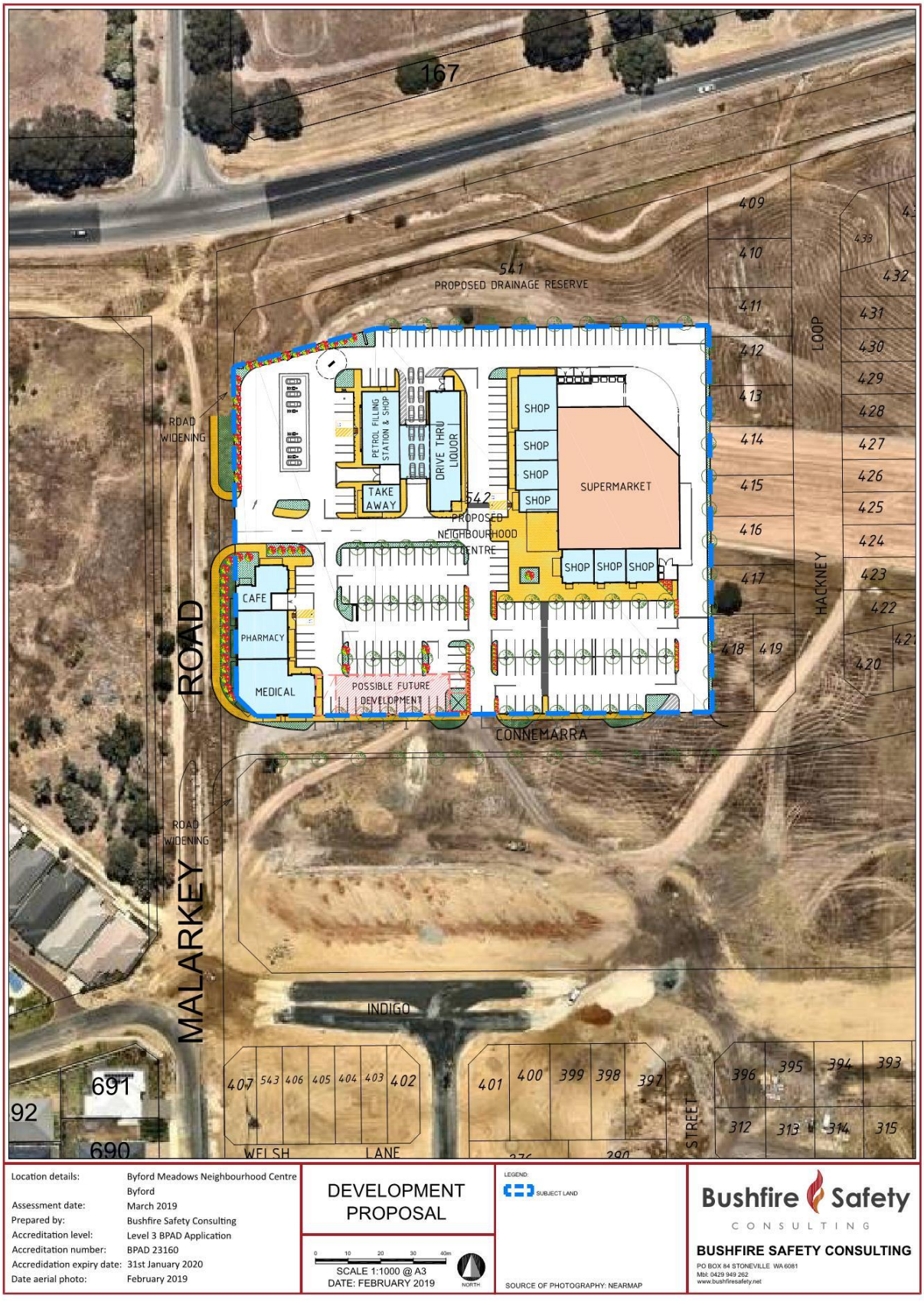


Figure 1: Proposed Development Plan

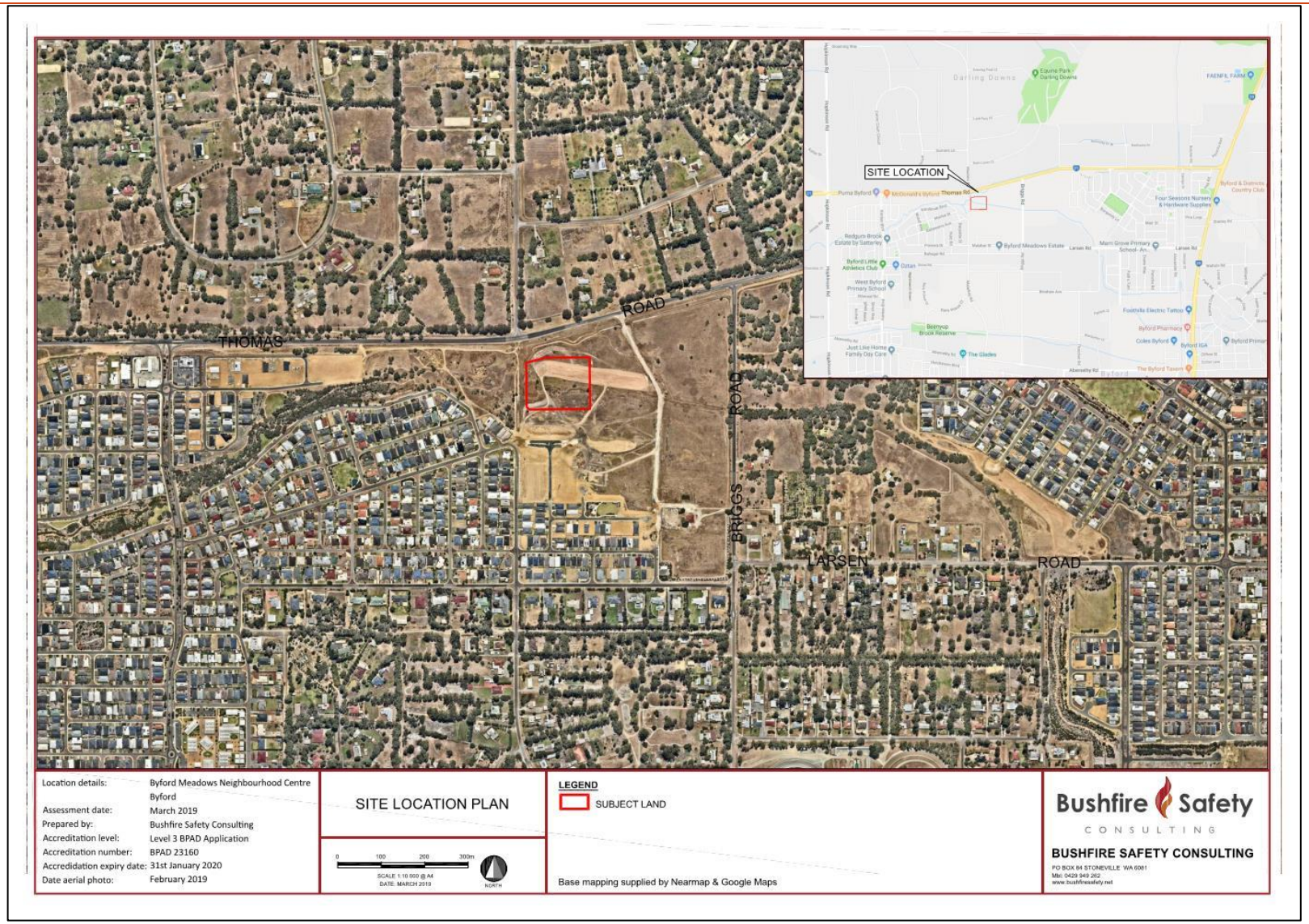


Figure 2: Site Overview and Location

Policy and Guidelines

1.1 Application of SPP 3.7

The *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7)* provides the foundation for land use planning to address bushfire risk management in Western Australia. It is used to inform and guide decision makers, referral agencies and land owners / proponents to help achieve acceptable bushfire protection outcomes.

The policy contains objectives and policy measures as well as reference to the bushfire protection criteria as outlined in the Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 V1.3; the Guidelines). The policy applies to this proposal because the development site is located in a designated bushfire prone area on the WA Map of Bushfire Prone Areas (Figure 3).

The following policy measures will need to comply with SPP 3.7:

Table 1. Policy measures

Policy Measure 6.2	The development application is located within a designated bushfire prone area and will have a Bushfire Hazard Level above low and a Bushfire Attack Level rating above BAL-LOW.
Policy Measure 6.5	Policy measure 6.2 applies meaning the development proposal will be accompanied by: - BAL Contour Plan - BAL assessment - Identification of relevant issues; and - Demonstration of compliance with the guidelines
Policy Measure 6.6	Policy measure 6.6 applies to high-risk land use applications. The development application proposes a petrol filling station within the site which is a high-risk land use because the site includes the bulk storage of hazardous materials. The development application therefore includes a comprehensive Bushfire Risk Management Plan for the proposed petrol filling station.

1.2 Guidelines for Planning in Bushfire Prone Areas V1.3 (2017)

The Department of Planning has released the *Guidelines for Planning in Bushfire Prone Areas V1.3 (2017).* The requirements of this document are accommodated within this BMP. The *Guidelines for Planning in Bushfire Prone Areas V 1.3(2017)* is intended to inform and guide decision makers, referral authorities and proponents to achieve acceptable bushfire protection outcomes, including expectations at the different stages of planning.

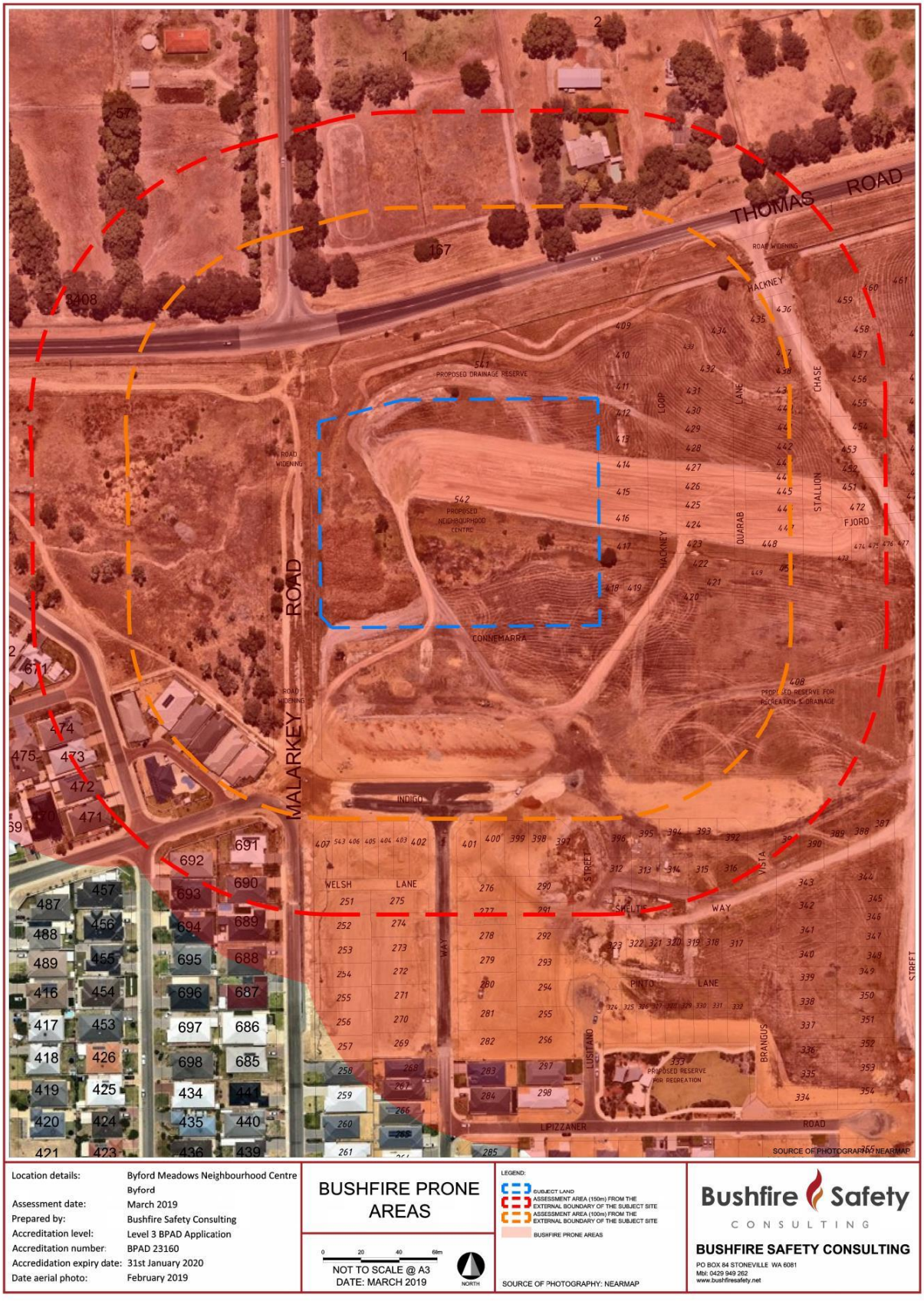


Figure 3: The site contains areas within the declared Bushfire Prone Area of WA

2 ENVIRONMENTAL CONSIDERATIONS

2.1 Native Vegetation – modification and clearing

The site has historically been cleared for broad scale agricultural purposes, and because of this there is no remnant native vegetation present within the site.

2.2 Revegetation/Landscape Plans

There are currently no valid landscape plans for either the drainage reserve north of the site or the MUC south of Connemarra Drive. The ultimate size and location of the drainage reserve is not yet confirmed. However, to ensure a worst case scenario has been considered in this report, the drainage reserve (if retained) will contain sedge and rush vegetation and is subsequently assessed as Class G Grassland vegetation. This is mapped in Figure 4 as Plot 1 grassland. It will not contain any vegetation that exceeds this classification.

A previous developed landscape masterplan in 2015 for the Multiple Use Corridor (MUC) has been withdrawn because it is inaccurate and does not reflect the future landscaping of this area. Discussions around the final landscaping in the MUC is still ongoing and a final design has not been confirmed. Importantly, for this assessment consultation has occurred with the hydrology consultant and it has been confirmed that the landscape treatment for the MUC will be guided by the following landscape design principles: The Central Drain will be 10m wide and will contain gravel, rocks, reeds, sedges, rushes, some trees and shrubs to 1m and will be considered as an unmanaged landscape. The balance of the MUC either side of the drain varies in width and will contain managed landscape features including irrigated turf, gardens, footpaths, furniture, shelters play equipment and possibly a pump bike track. The unmanaged central 10m wide portion of the MUC will be isolated from dwellings and buildings within the Neighbourhood Centre by distances greater than 20 metres thereby complying with Exclusion Clause 2.2.3.2(d) and will not pose a threat to the site.

Maintenance of this final landscaped portion of the MUC will involve standard management actions such as irrigating the landscape and mowing turf, mulching of garden beds and removal of dead plants and dead plant material. A thorough maintenance program will be developed to support the MUC design and future masterplan

3 BUSHFIRE ASSESSMENT RESULTS

Bushfires are common in the Shire of Serpentine Jarrahdale and local brigades respond to numerous bushfires in the district annually. Given the bushfire threat in the area, this BMP plays a critical role in ensuring that the proposed development appropriately mitigates the risk from bushfire.

3.1 Assessment Inputs

The methodology used to assess the site is outlined in the *Guidelines for Planning in Bushfire Prone Areas V1.3 (2017).* A post development vegetation classification plan is provided and a BAL Contour plan is provided in accordance with Appendix 3 of the guidelines.

Assessing bushfire hazards at the site-specific level accounts for the predominant class of vegetation on the site and surrounding area for a minimum of 150m, as shown in Figure 4.

3.1.1 Vegetation Classification

Vegetation within the site, and to the east and south of the site, is dominated by pasture grass with no remnant bushland present. All areas within the broader LSP development within 100 metres of the previous subdivision stages have been actively managed by the mowing of grasses to maintain them less than 100mm in height. The developer owns the property and has demonstrated this management strategy over a number of years. The developer has the ongoing responsibilities to continue this strategy until the entire development has been completed. The classification of the drainage reserve north of the neighbourhood centre and the MUC south of the future Connemarra Road are classed as per detailed explanation in section 2.2 Revegetation and Landscape Plans.

The post development condition off the MUC will be a managed landscape with a 10m wide unmanaged strip in the middle drainage line. The post development condition of the drainage reserve north of the site is classed as Class G Grassland.

The Thomas Road reserve vegetation is composed of grasses and is managed by the Shire of Serpentine Jarrahdale with their roadside slashing program. This maintains grass fuels less than 100 mm in height over the summer fire season and is the accepted management strategy along the entire Thomas Road reserve where grasses grow adjacent to existing developments.

To the west of the site is an area of temporary Class G Grassland in a future approved development, while to the south-west exists a small pocket of Class B Woodland. Class G Grassland and Class B Woodland exists to the north of the site and Thomas Road.

The vegetation plots on and surrounding the site and within 150 metres of the site boundary are found in Figure 4 with plot descriptions below.

Photo ID: 1 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class G Grassland **Description/justification of classification:** Annual pasture grasses to 0.5m high. Occasional Eucalypt tree and small shrub with canopy cover less than 10%.	
Photo ID: 2 **Plot Number:** 1 **Vegetation classification or exclusion clause:** Class G Grassland **Description/justification of classification:** Existing annual pasture grasses to 0.5m high in the future drainage reserve. The drainage reserve (if constructed) will contains sedges and rushes in the future and will retain this classification as a worst case scenario.	
Photo ID: 3 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification** Eucalypts 10 to 15m tall with canopy cover 10 to 30%. Understorey consisting regenerating Eucalypt saplings and annual grasses.	

Photo ID: 4 **Plot Number:** 2 **Vegetation classification or exclusion clause:** Class B Woodland **Description/justification of classification** Eucalypts 10 to 15m tall with canopy cover 10 to 30%. Sparse understorey consisting primarily of annual grasses.	
Photo ID: 5 **Plot Number:** 3 **Description/justification of classification:** Exclusion clause 2.2.3.2 (f) **Description/justification of classification:** Low-threat vegetation currently consisting of managed grass adjacent to road and drain currently under construction. Area to be developed into MUC consisting of a 10m wide drain with sedges and managed vegetation on either wide of the drain including maintained turf and cultivated gardens.	
Photo ID: 6 **Plot Number:** 4 **Description/justification of classification:** Exclusion clause 2.2.3.2 (e) **Description/justification of classification:** Non-vegetated areas including cleared mineral earth, buildings, roads and footpaths.	

3.1.2 Effective Slope

The landscape across most of the site is generally flat and low lying. The effective slope of the landscape surrounding the site is the slope that will affect the behaviour of an approaching bushfire. The effective slope of the surrounding landscape is flat (Table 2).

Table 2. Summary of vegetation type and effective slope

Vegetation Area/ Plot	Applied Vegetation Classification	Effective Slope under the Classified Vegetation (degrees)
1	Class G Grassland	Flat
2	Class B Woodland	Flat
3	Exclusion Clause 2.2.3.2 (f)	N/A
4	Exclusion Clause 2.2.3.2 (e)	N/A

3.2 Assessment Outputs

The post-development vegetation plots surrounding the site for a distance of 150 metres are found in Figure 4 with plot descriptions below.

A post-development BAL contour assessment was undertaken according to Appendix 3 of the Guidelines and the results are found in Figure 5.

A method 1 BAL Assessment was undertaken to determine the BAL contours impacting the site and the outputs are provided in Table 3. Figure 6 outlines the final developed scenario where the entire site is fuel reduced and managed to Asset Protection Zone (APZ) standards.

Table 3. Summary of assessment outputs from a Method 1 assessment

Building Complex	Applied Vegetation Classification	Plot No. & Effective slope & Site Slope	BAL Assessment Methodology	Separation distance to Classified Vegetation	Highest BAL Contour
Petrol/ Liquor/ Takeaway	North - Class G Grassland	Flat	1	19.2m	BAL – 12.5
	Southwest – Class B Woodland	Flat	1	91.2m	BAL – 12.5
Supermarket/ Shops	North - Class G Grassland	Flat	1	14.9m	BAL – 19
Medical/ Pharmacy/ Cafe	Southwest – Class B Woodland	Flat	1	28.7m	BAL – 19
	West - Class G Grassland	Flat	1	26.3m	BAL – 12.5

4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

During development, the grassland vegetation within the site and the surrounding approved LSP area will be maintained in a managed condition as it has been demonstrated during the completed subdivision stages to the south of the site.

The drainage reserve (if retained) will ultimately contains as worst case scenario Class G vegetation and the MUC south of the site will be landscaped according to the details outlined in section 2.2.

The Shire of Serpentine Jarrahdale will maintain grass fuels in a managed condition in Thomas Road reserve as they have demonstrated over many years on this road verge.

The largest bushfire hazard exists on the northern and western boundaries of the site due to the existing areas of Class G Grassland and Class B Woodland.

Predicted radiant heat flux and ember attack could impact the site as evident in the BAL contour plan (Figure 5).

The bushfire threat to the proposed development will comply with SPP 3.7 and the *Guidelines for Planning in Bushfire Prone Areas V1.3(2017)* based on the establishment of Asset Protection Zones including public road reservations and an internal lot setback to the north.

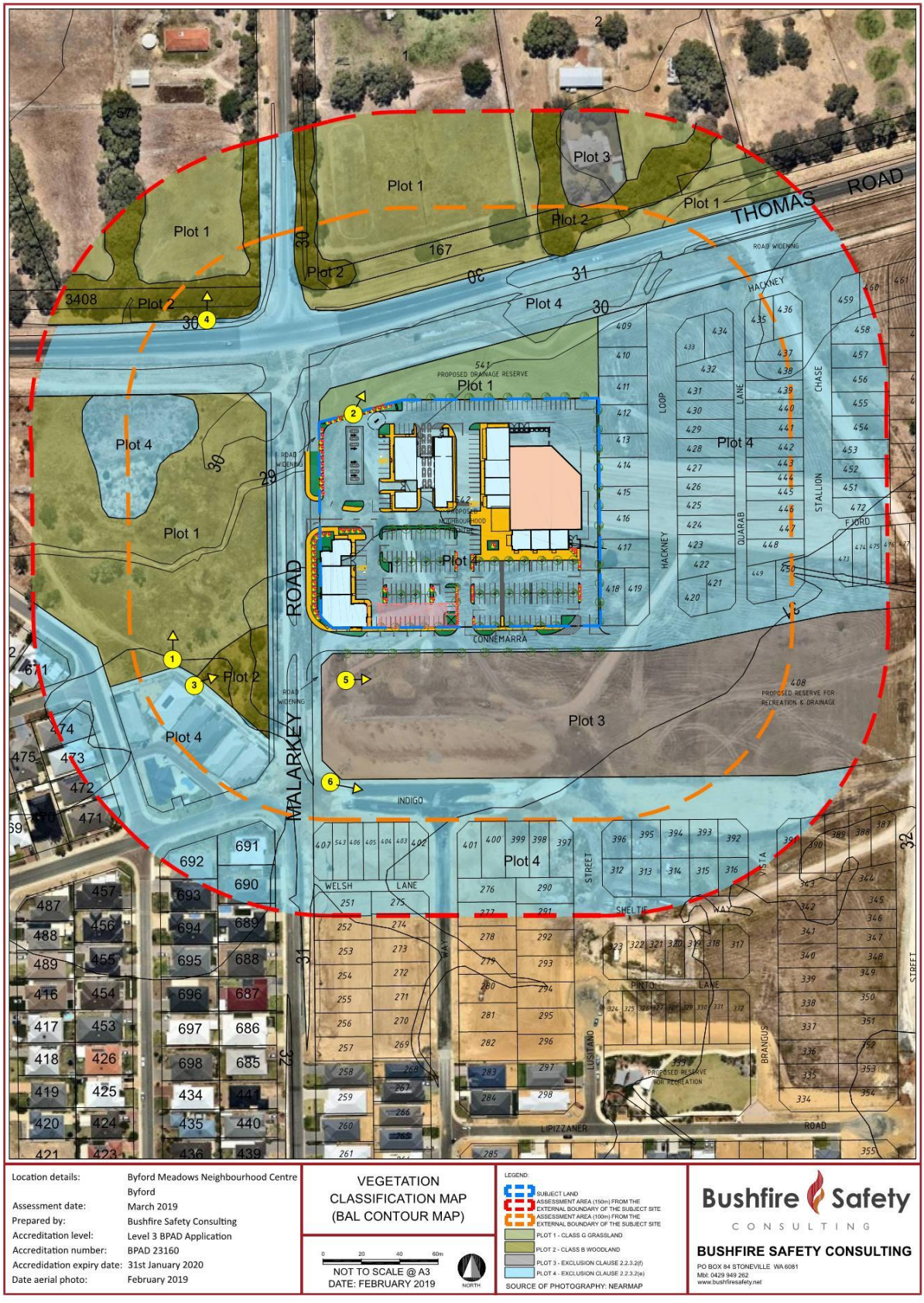


Figure 4: Vegetation classification and effective slope

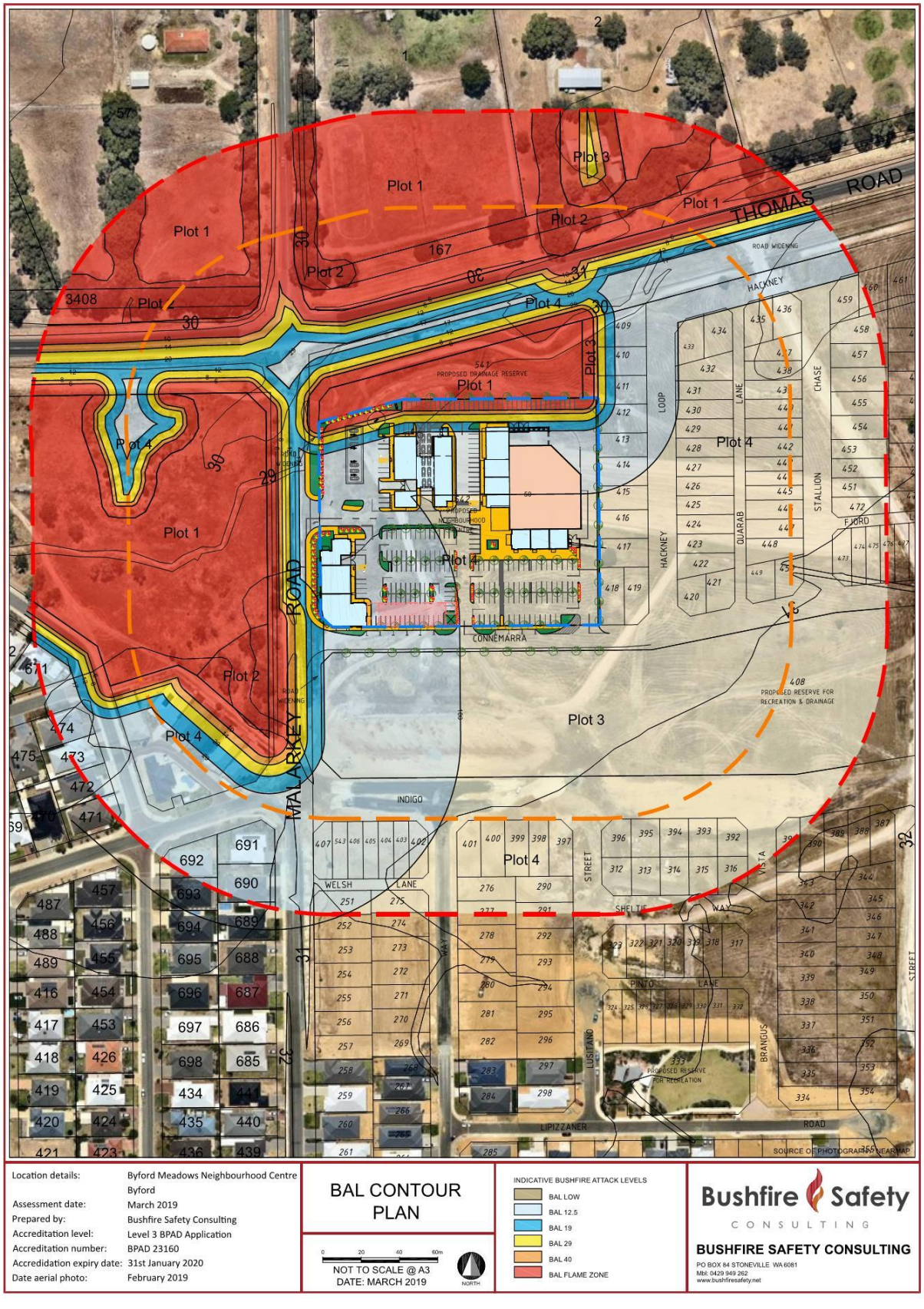


Figure 5: BAL Contour Plan

5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA

This BMP outlines strategies for compliance with the bushfire protection criteria based on the proposed development plan as illustrated in Figure 1.

This report adopts an acceptable solution and performance-based system of control for each bushfire protection criteria. This methodology is consistent with Appendix 4 of the *Guidelines for Planning in Bushfire Prone Areas, Version 1.3 (2017).* The management issues are:

- Location of the development
- Siting and Design of Development
- Vehicular access.
- Water

Acceptable solutions are proposed for all of the bushfire protection criteria and each illustrates a means of satisfactorily meeting the corresponding performance criteria. Land use planning bushfire risk mitigation strategies are comprehensively detailed in the following sections by providing responses to the performance criteria that fulfil the intent of the bushfire hazard management issues outlined in the *Guidelines for Planning in Bushfire Prone Areas V1.3(2017).* The compliance checklist is attached as Table 4 and a spatial representation of the bushfire management strategies are illustrated in Figure 6.

Table 4: Compliance Table

Bushfire Protection Criteria	Method of compliance Acceptable Solutions	Proposed bushfire management strategies
Element 1: Location	A1.1 Development Location	The Method 1 BAL Assessment in this report demonstrates the classified vegetation in the area surrounding the site does impact the proposed development, but a rating of BAL-19 or lower can be achieved for the three commercial building complexes proposed.
Element 2: siting and Design	A2.1 Asset Protection Zone (APZ)	The Asset Protection Zone (APZ) will occupy the entire site in combination with the surrounding internal and external roads and carparks. The site is designed with carparks, driveways and roads which provide a low fuel perimeter APZ that ensures all buildings are exposed to BAL-19 or lower. Future development of the site will be exposed to BAL-19 or lower at the completion of the development as confirmed by the Method 1 BAL assessment. The APZ is managed in accordance with the requirements of the standards in Appendix 1.
Element 3: Vehicular Access	A3.1 Two access routes	Development of the site will include three access roads which lead to two adjoining roads, Marlarkey Road to the west and Connemarra Street to the south. These roads will be constructed prior to development and are part of a larger subdivision of residential lots to the south and east of the site. Marlarkey Road will connect to Thomas Road approximately 70 metres to the north of the neighbourhood centre access road entrance. Thomas Road is a main arterial road which gives good access to the east and west. Therefore, there is provision for good egress from the site.
	A3.2 Public Road	Existing public roads and proposed roads comply with minimum public road standards outlined in Appendix 2.
	A3.3 Cul-de-sac	There are no cul-de-sacs proposed.
	A3.4 Battle-axe	There are no battle axes proposed.
	A3.5 Private driveway longer than 50 metres	There are no private driveways longer than 50 metres proposed.

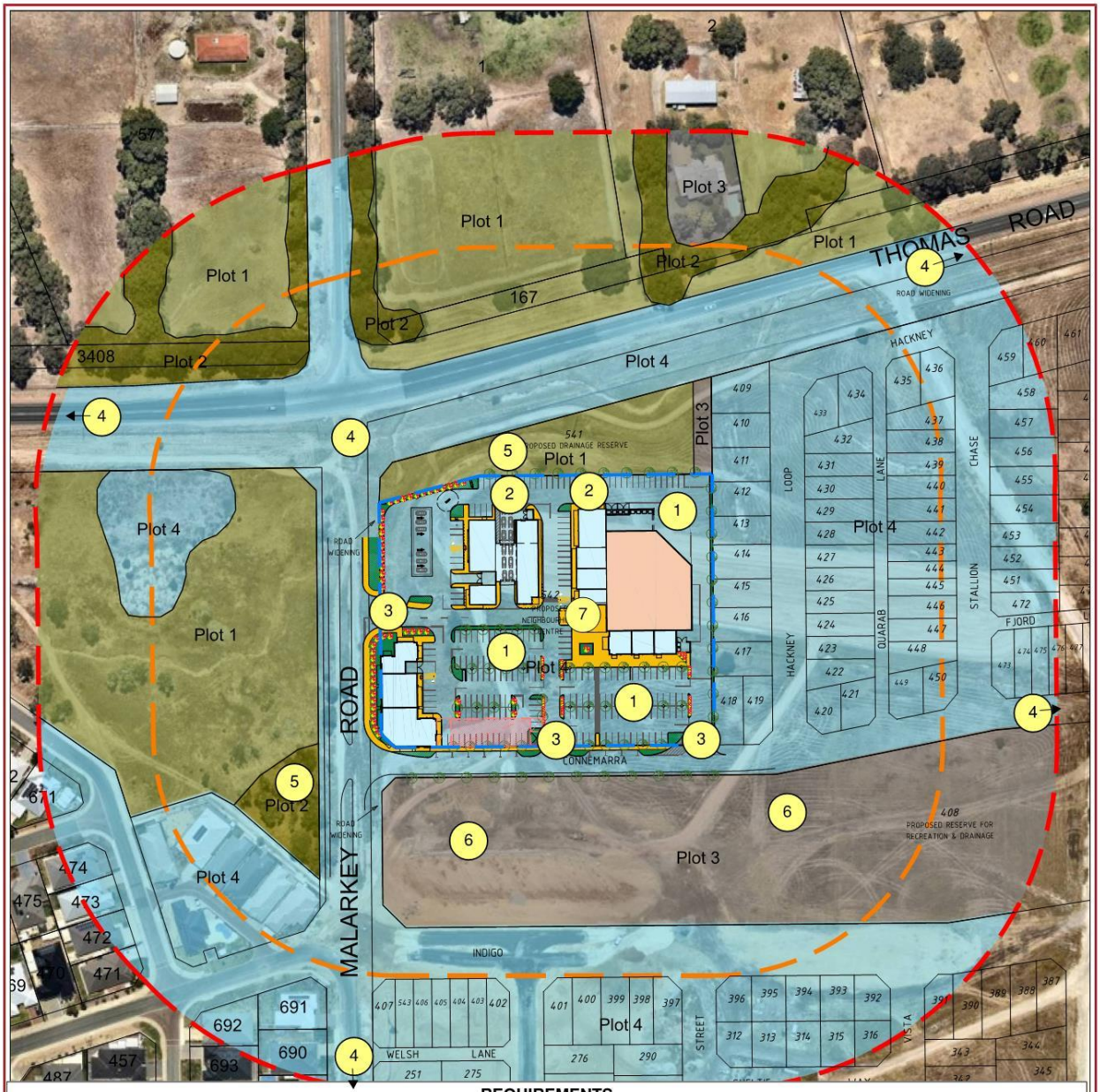
Element 3: Vehicular Access (cont)	A3.6 Emergency access way	There are no emergency access ways proposed.
	A3.7 Fire Emergency access routes	There are no fire emergency access ways proposed.
	A3.8 Firebreak width	Compliance will be achieved with the current Shire of Serpentine Jarrahdale Firebreak Notice (Appendix 3).
Element 4: Water	A4.1 Reticulated areas	Reticulated water will be provided to the entire development. Fire hydrants will be spaced according to Water Corporation and DFES standards and provide emergency services with access to an adequate water supply. Commercial and public buildings such as shops will require the proponent to outline the compliance with current standards. The process to determine hydrant coverage and compliance for commercial buildings with Australian and DFES standards is outlined in DFES guideline No: GL-07 titled "Submission of documents to DFES for assessment". Commercial buildings are Class 6 buildings in the Building Code of Australia (BCA) and require compliance with the BCA, in particular E1.5 including the Specifications and with AS 2118.4 and AS 2419.1 – also noting that hydraulic water supplying both systems (hydrant and sprinklers) will need to achieve required flow rates simultaneously. As required by Regulation 18B (1) of the amended (19 Dec 2012) Building Regulations 2012, the application for the building permit for a Class 2-9 building is required to have plans and specifications of sufficient detail for assessment purposes deposited with DFES. This documentation will be provided to DFES for assessment.
	A4.2 Non-reticulated areas	Not applicable
	A4.3 Individual lots within non-reticulated areas	Not applicable

5.1 Additional Management Strategies

The site could be developed in stages which will not impact the level of bushfire risk because surrounding grass fuels can be managed within the site and broader development area under management control of the same developer.

A summary of management strategies is outlined in Figure 6.

There is a proposed petrol filling station which is considered a High-Risk Land Uses proposed at the site. This application does trigger the necessary requirements under State Planning Policy 3.7 and the development of a Bushfire Risk Management Plan.



REQUIREMENTS

1. The site will have an internal Asset Protection Zone (APZ) that occupies the entire site in combination with the public road reserves.

2. There will be an internal lot setback of minimum 12 metres on the northern boundary consisting of the car park and internal access road.

3. There is access to surrounding public roads via 3 different locations providing access to two different directions.

4. Surrounding public roads provide good egress from the site. Connemarra Road provides access to the east. Malarkey Road provides egress to the south, as well as access to Thomas Road approximately 70 metres to the north from the site access road. Thomas Road provides good access to both the east and west.

5. A fire in the proposed drainage reserve (classed as Class G Grassland) to the north provides the most significant threat to the site. Predicted radiant heat and ember attack is also possible from the Class B Woodland vegetation to the south-west of the site.

6. Landscape Plans for the MUC are not yet finalised, but design features include a single strip of unmanaged sedges and rushes less than 20m wide on the middle and separation of > 20m from all buildings north and south of the site. This design feature will guide the future landscape design

7. The area is provided with a reticulated water supply. The provision of scheme water together with fire hydrants will meet the specifications of Water Corporation Standard DS63 and DFES. Hydrant coverage and water supply for individual buildings proposed will be determined at the building approval stage. Commercial buildings are Class 6 buildings under the Building Code of Australia and require compliance with the BCA, in particular E1.5 including specifications , and with AS 21118.4 and AS 2419.1.

Location details:	Byford Meadows Neighbourhood Centre Byford
Assessment date:	March 2019
Prepared by:	Bushfire Safety Consulting
Accreditation level:	Level 3 BPAD Application
Accreditation number:	BPAD 23160
Accreditation expiry date:	31st January 2020
Date aerial photo:	February 2019

SPATIAL REPRESENTATION OF BUSHFIRE MANAGEMENT STRATEGIES

0 20 40 60m
NOT TO SCALE @ A3
DATE: MARCH 2019
NORTH

LEGEND:
SUBJECT LAND
ASSESSMENT AREA (150m) FROM THE EXTERNAL BOUNDARY OF THE SUBJECT SITE
ASSESSMENT AREA (100m) FROM THE EXTERNAL BOUNDARY OF THE SUBJECT SITE

SOURCE OF PHOTOGRAPHY: NEARMAP

Bushfire Safety CONSULTING
BUSHFIRE SAFETY CONSULTING
PO BOX 84 STONEVILLE WA 6081
Mbl: 0429 949 262
www.bushfiresafety.net

Figure 6: Spatial representation of bushfire management strategies

6 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE MEASURES

Table 5 outlines the initial and ongoing responsibilities, actions and associated works that need to be undertaken by the developer and the Shire of Serpentine Jarrahdale. The check boxes for implementation actions will be used for development clearance. A Bushfire Planning Practitioner will certify the BAL rating is correct and necessary implementation actions that have been completed.

Table 5. Responsibility for bushfire measures

DEVELOPER – PRIOR TO OCCUPATION OF FACILITIES		
No.	**Implementation Action**	**DA Clearance**
1	**Establish vehicular access standards and internal APZs.**	☐
2	**If establish in current position, ensure the drainage reserve contains only sedge and rush vegetation consistent with Class G Grassland classification**	☐
3	**Ensure the MUC reserve south of Connemarra Road contains an unmanaged strip of sedge and wetland dominated vegetation within a strip less than 20 metres wide and greater than 20 metres from areas of building development.**	☐
4	**Recommendation the facilities are constructed to AS3959 standards.**	
5	**As required by Regulation 18B (1) of the amended (19 Dec 2012) Building Regulations 2012, the application for the building permit for a Class 2-9 building is required to have plans and specifications of sufficient detail for assessment purposes deposited with DFES. This documentation will be provided to DFES for assessment at this stage.**	
6	**Ensure the site complies with the Shire of Serpentine Jarrahdale's Firebreak Notice as published.**	
7	**As part of the building license application stage, have any proposed building(s) assessed for the BAL rating by a qualified consultant with BAL rating submitted to the Shire of Serpentine Jarrahdale.**	
8	**Update the Bushfire Management Plan as requested by the Shire of Serpentine Jarrahdale if it has reason to believe site conditions have substantially changed, or new methodologies or practice are adopted as identified in future revisions of the "Guidelines".**	

FACILITY MANAGEMENT - ONGOING MANAGEMENT	
9	**Maintain the Asset Protection Zone (APZ) to standards stated in this BMP (Appendix 1).**
10	**Ensure the site complies with the Shire of Serpentine Jarrahdale's Firebreak Notice as published**
SHIRE OF SERPENTINE JARRAHDALE – ONGOING MANAGEMENT	
11	**Maintain grass slashing in Thomas Road reserve as annually undertaken to reduce grass fuels to managed condition.**
12	**Maintain public roads to appropriate standards and ensure compliance with the Shire of Serpentine Jarrahdale's Firebreak Notice.**

Certification by Bushfire Consultant

I _____ certify that at the time of inspection, the BAL rating contained within this BMEEP is correct; and implementation actions 1-3 has been undertaken in accordance with the BMEEP.

Clearance is recommended.

Signature: _____

Date: _____

APPENDICES

Appendix 1: Asset Protection Zone Standards
Appendix 2: Vehicular Access Technical Requirements
Appendix 3: Shire of Serpentine Jarrahdale – Firebreak Notice 2017/18
Appendix 4: Bushfire Risk Management Plan - Proposed Petrol Filling Station

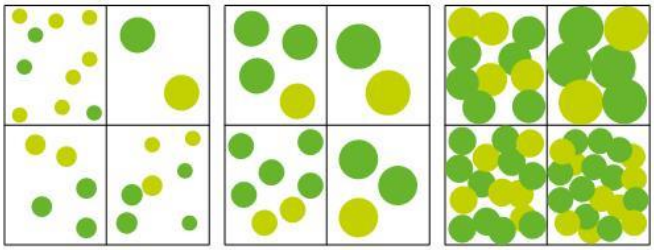
Appendix 1: Asset Protection Zone Standards

ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

- **Fences:** within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.
- **Objects:** within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.
- **Fine Fuel load:** combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.
- **Trees (> 5 metres in height):** trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy.

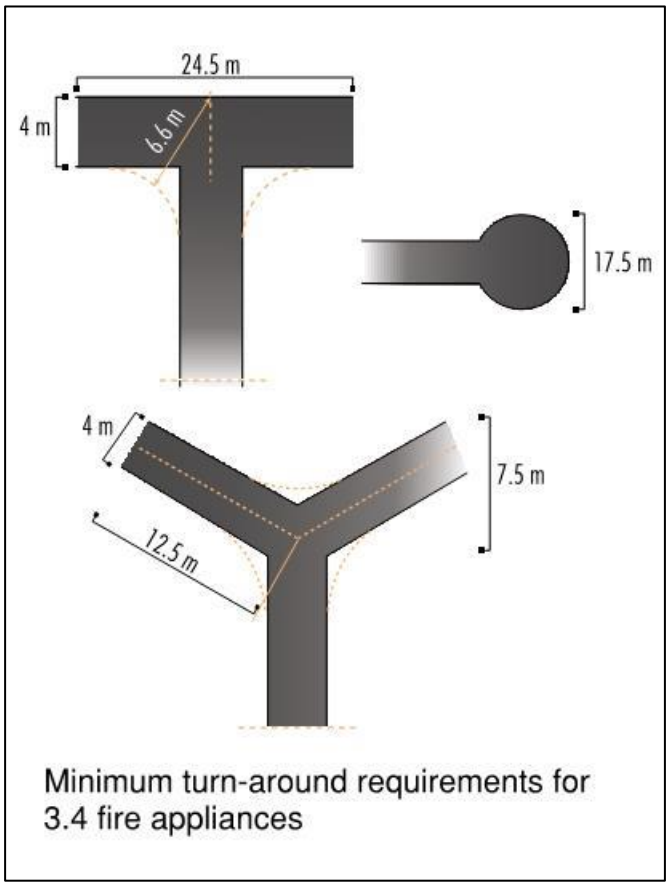
Figure 18: Tree canopy cover – ranging from 15 to 70 per cent at maturity



- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.
- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.
- **Grass:** should be managed to maintain a height of 100 millimetres or less.

APPENDIX 2: Vehicle Access Technical Requirements

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5
*Refer to E3.2 Public roads: Trafficable surface					



Minimum turn-around requirements for 3.4 fire appliances

APPENDIX 3: Shire of Serpentine Jarrahdale Firebreak Notice 2018/2019

Firebreak Notice
Legal Requirements

Firebreak
Installation guide

Firebreak
Variations

Hazard
Reduction

Burning
Information & Permits

Be Bushfire Ready

Firebreak and Fuel Hazard Reduction Notice 2018/19

Shire of Serpentine Jarrahdale

Definitions

Acre
4047m² area of land.

Agricultural buildings
Any sheds or groups of buildings on agricultural zoned land.

Asset Protection Zone (APZ)
An area required to achieve a BAL of 29 or less, measured from the outer edge of the building or as stated in your approved BAL assessment (within the boundaries of your land). Fuel loads in this zone may not exceed 2 tonnes per hectare.

Bushfire Attack Level (BAL) Assessment
A measurement of the buildings potential exposure to a bushfire, in accordance with Australian Standard 3959 – Construction of buildings in bushfire prone areas.

Firebreak
A strip of land that has been cleared of all flammable material, leaving bare mineral earth. This includes the trimming back of anything overhanging the fire break area. Mowed firebreaks are not acceptable.

Flammable material
Any vegetation (bushes, grasses, trees, mulch and green waste), object or material that is likely to catch fire.

Fire Management Plan
A document forming part of a building, development or subdivision approval that sets out short, medium and long-term bushfire risk management strategies for the life of the development.

Firebreak Notice
Legal Requirements

Fuel and vegetation storage
Storage of hydrocarbons and/or fuel dumps (containing fuel or not) including drums, piles or stacks and any other flammable material.

Trafficable
The ability for 4x4 vehicles to access your land on a firm surface without obstruction. No firebreak is to terminate without provision for egress to a safe place or a cleared turnaround area of not less than a 21 metre radius (prior written approval from the Shire is required).

You
Owner or occupier of any land within the Shire of Serpentine Jarrahdale.

Vertical axis
An uninterrupted vertical line at a right angle to the horizontal line of the firebreak.

Firebreak Notice

Please read carefully as these are your legal requirements.

This notice applies to all owners and/or occupiers of land within the Shire of Serpentine Jarrahdale.

Pursuant to Section 33 of the Bush Fires Act 1954 you are required to take action in accordance with this notice for the duration indicated in your category.

The following categories detail what you must do to comply, with no exemptions. Failure to comply may result in you being fined and/or Council entering your land to install firebreak works at the owners expense.

This Notice and information has effect **1 October 2018.** All previous Firebreak Notices are hereby cancelled.

By order of Council, KR Donohoe, Chief Executive Officer.

Firebreak Notice
Legal requirements

Your legal requirements

1. If you live on 1 acre or less

On your land

- ☐ Cut all grass to less than 25mm in height.
- ☐ Trim all trees and bushes that overhang driveways, access ways and firebreaks to leave a 4 metre wide clearance and a clear vertical axis.

OR

- ☐ Install firebreaks that are:
- ✓ Immediately inside all external boundaries.
- ✓ Immediately surrounding all agricultural buildings, sheds or group of buildings.
- ✓ A minimum of 3 metres wide, but not wider than 5 metres.
- ✓ Trim all trees and bushes that overhang driveways, access ways and firebreaks to leave a 4 metre wide clearance and a clear vertical axis.

For your dwellings

- ☐ Maintain 20m asset protection zones or as per your approved BAL/FMP assessment.
- ☐ Trim back all trees overhanging buildings.

Prior approval by Shire Officers may be required for the removal of any vegetation on existing properties.

Compliance is required by **30 November** and must be maintained until **31 May** each and every year.

Firebreak Notice
Legal Requirements

2. If you live on more than 1 acre

On your land

- ☐ Keep grasses short.
- ☐ Trim all trees and bushes that overhang driveways, access ways and firebreaks to leave a 4 metre wide clearance and a clear vertical axis.
- ☐ Install firebreaks that are:
- ✓ Immediately inside all external boundaries.
- ✓ Immediately surrounding all agricultural buildings, sheds or group of buildings.
- ✓ A minimum of 3 metres wide, but not wider than 5 metres.

For your dwellings

- ☐ Maintain 20m asset protection zones or as per your approved BAL/FMP assessment.
- ☐ Trim back all trees overhanging buildings.

Prior approval by Shire Officers may be required for the removal of any vegetation on existing properties.

- ☐ Locate new structures 4 metres or more from the perimeter fence of your land.

Compliance is required by **30 November** and must be maintained until **31 May** each and every year.

3. To vary your firebreak

Apply in writing to the Shire from 1 June to 31 October requesting your variation and the reasons for your application. If approved all firebreak conditions will be as per your variation.

Firebreak Notice
Legal requirements

If your variation is not approved or your previous variation is cancelled, you must comply with the Firebreak Notice requirements for your land.

You don't need to apply for a variation every year. **Remember, variations are provided to the property owner, not the land.**

To apply for a variation call **9526 1111** and request a Firebreak Variation application form.

Compliance is required by **15 November** and must be maintained until **31 May** each and every year.

See the firebreak variation guidelines on pages 14 to 15 for more information.

4. If you have a plantation

You must comply with:

- ☐ The Shire's conditions of approval.
- ☐ Any approved Bushfire Management Plan.
- ☐ Australian Standard 3959 - Construction of buildings in bushfire prone areas.

On your land

- ☐ Install firebreaks that are:
- ✓ Immediately inside all external boundaries.
- ✓ Immediately surrounding all agricultural buildings, sheds or group of buildings.
- ✓ A minimum of 20 metres wide, or as per your planning approval.
- ✓ Have a clear vertical axis.

Compliance is required throughout the **whole year.**

Firebreak Notice
Legal Requirements

5. Storing fuel and haystacks

Around fuel storage areas

☐ Install firebreaks that are:

✓ Immediately surrounding each stack or pile.

✓ A minimum of 4 metres wide, but not wider than 20 metres, with a clear vertical axis.

✓ Include where possible additional low fuel zones outside of the firebreak area. Cut all grass within these zones to less than 100mm in height.

Around haystacks

Your haystack area can't be bigger than 25m long x 10m wide x 5m high.

☐ Install firebreaks that are:

✓ Immediately surrounding each stack or pile.

✓ A minimum of 5 metres wide, but not wider than 20 metres. If only 5 metres wide then have an additional 5m low fuel area directly adjacent to the firebreak.

✓ Include where possible additional low fuel zones outside of the firebreak area. Cut all grass within these zones to less than 100mm in height.

Compliance is required by **30 November** and must be maintained until **31 May** each and every year.

6. Other flammable materials

Stacks of other flammable materials, such as mulch, compost or combustible materials, can't be bigger than 20m long x 10m wide x 3m high.

Firebreak Notice
Legal requirements

☐ Install firebreaks that are:

✓ Immediately surrounding each stack or pile.

✓ A minimum of 10 metres wide, but not wider than 20 metres. If only 10 metres wide then have an additional 5m low fuel area directly adjacent to the firebreak.

✓ Include where possible additional low fuel zones outside of the firebreak area. Cut all grass within these zones to less than 100mm in height.

If you have to clear any trees or shrubs to install your firebreaks, you may need planning approval from the Shire.

Any tree or shrub with at least one well defined trunk higher than 4 metres or wider than 150mm in diameter, measured at a height of 1.2 metres above ground level will need planning approval for removal.

For more information see the **Trees on my property** page on the Shire's website.

Remember Australian Standard 3959 - Construction of buildings in bushfire prone areas applies to new buildings on your land.

Compliance is required by **30 November** and must be maintained until **31 May** each and every year.

7. Bushfire and Emergency Management Plans and BAL Assessments

Some properties need to comply with approved:

- ✓ Bushfire Management Plans.
- ✓ Emergency Management Plans.
- ✓ Bushfire Attack Level (BAL) assessments.

This is because of conditions approved under a subdivision approval, development approval or building permit.

These requirements are in addition to the requirements of this Notice.

Failure to comply may result in a $5,000 fine.

Compliance is required throughout the **whole year.**

8. Any other requirements

Further to the firebreak requirements listed above, the Shire may instruct property owners or occupiers in writing to comply with additional firebreak prevention works.

These works are to reduce hazards and may include a Bushfire Risk Treatment Plan derived from the Shire's Bushfire Risk Management Plan.

9. Burning your garden waste

In accordance with Section 24G of the Bush Fires Act 1954 as amended.

If you want to burn your garden waste you need to:

- ☐ Let your neighbours know 72 hours before you burn.
- ☐ Do a maximum of 2 burns per calendar month within the restricted burning period.

- ☐ Each pile can be no bigger than 1 cubic metre.
- ☐ Only one pile may be alight at any one time.
- ☐ Only burn dry garden waste from your property without accelerants.

Don't burn at all during the prohibited burning period.

During restricted burning period don't burn on Sundays or public holidays.

Failure to comply may result in a $3,000 fine.

Compliance is required during the **restricted** and **prohibited** burning periods.

More information about burning your garden waste is on page 28.

Bushfire Safety
CONSULTING

Bushfire Risk Management Plan

Proposed Petrol Filling Station

Lot 9500 Briggs Road, Byford

Shire of Serpentine - Jarrahdale

April 4, 2019
Prepared for: G & G Corp. - Version 2.0

Document Information

Prepared for:	G & G Corp
Project Name:	Proposed Petrol Filling Station
Project Address:	Lot 9500 Briggs Road, Byford
Prepared by:	Rohan Carboon (Level 3 - BPAD 23160)
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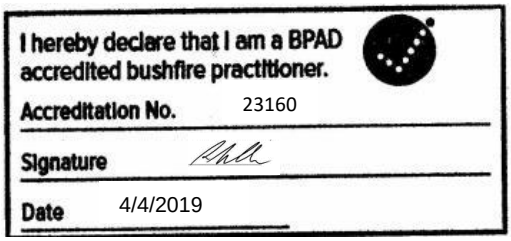
	Bushfire Safety Consulting Pty Ltd



Document Control

Bushfire Risk Management Plan – Proposed Petrol Filling Station			
REPORT VERSION	**PURPOSE**	**AUTHOR/REVIEWER AND ACCREDITATION DETAILS**	**DATE SUBMITTED**
V1	Draft for review	Dr Karen Brown (BPAD 48364) Rohan Carboon (BPAD 23160)	24/3/2019
V2	Submission	Dr Karen Brown (BPAD 48364) Rohan Carboon (BPAD 23160)	4/4/2019

Front cover photo: Development site including petrol filling station

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1 INTRODUCTION

1.1 Proposal details

This Bushfire Risk Management Plan (BRMP) has been prepared to support the development of a proposed Petrol Filling Station in the future Neighbourhood Centre in the Shire of Serpentine Jarrahdale (see Appendix 1). The site is approximately 1.7 hectares (ha) in size and is located approximately 40 km south-east of the Perth Central Business District (CBD). This area is herein referred to as "the site". The proposed Petrol Filling Station complex will include construction of a petrol filling station and shop, take away food outlet and drive through liquor store.

Two other building complexes are proposed in the Neighbourhood Centre, the largest of which being situated to the north-east of the site containing a supermarket, and nine specialty shops. A building containing a medical centre, pharmacy and café is proposed for the south-west corner of the site.

An area of Class G Grassland to the west of the site, and small area of Class B Woodland to the south-west, on the neighbouring property, will likely be cleared in the future for development. Longer term bushfire hazard is present from Class G Grassland and Class B Woodland on semi-rural properties to the north of the site and north of Thomas Road.

1.2 PURPOSE OF PLAN AND APPLICATION

The primary objective of this BRMP is to act as a technical document to inform planning assessment and support the BMP and responses required under SPP 3.7. SPP 3.7 (Policy Measure 6.6) requires development applications for high-risk land uses (such as petrol filling stations) in areas between BAL-12.5 and BAL-29 to be accompanied by a risk management plan for any flammable on-site hazards.

The Bushfire Management Plan (BMP) prepared by BSC for the subject site identifies the proposed petrol filling station and accompanying buildings within the subject site are located within areas subject to a BAL rating of BAL-12.5 (Figure 5 in BMP).

The Building Code of Australia (BCA) bushfire construction requirements only apply to residential buildings and associated structures. The Guidelines therefore require the planning process to focus on location and siting of high-risk land uses rather than application of bushfire construction requirements. As the proposed building is not a Class 1, 2 or 3 buildings and/or Class 10a buildings or decks associated with a Class 1, 2 or 3 building, it is suggested that consideration of section 5 of AS 3959-2009 occur and all buildings are constructed to AS3959-2009 BAL ratings for increased bushfire protection:

Under the Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007 (the Regulations), the site operator will also be required to complete a separate risk assessment that addresses risks other than bushfire for the proposed development. The Regulations also require operators to prepare an emergency plan for petrol stations.

2 POTENTIAL BUSHFIRE SCENARIOS

The BMP identifies surrounding classified vegetation within 150 metres of the site including effective slope and setback distances which in combination provide an indication of threat level to the site and predicted radiant heat flux levels.

The potential bushfire scenarios that could impact the site and have been assessed in this bushfire risk assessment include:

- Bushfire approaching the site from the north; and
- Bushfire approaching from the west.

Wind roses are provided for Jandakot Aero (Station No: 009172, and 18.2 kms from the site) for the summer months of December, January and February to identify potential directions of bushfire attack on the site.

The potential bushfire scenarios for the site have been selected based on the location of the classified vegetation and the prevailing winds and are examined in the following sections.

2.1 Scenario 1: Bushfire approaching the site from the north

A bushfire could approach the site from the north through the rural lots and rural paddocks that extend for over 7kms to Armadale Road. Further north woodland and forest vegetation occurs in parks and reserves between Armadale Road and Southern River. Immediately north of the site, the POS drainage reserve will be revegetated with low sedges and rushes which pose a grassland fuel structure adjacent to the site. Northernly winds are uncommon, but can occur during periods of unstable weather when a low pressure trough crosses the west coast. Northerly winds usually are followed by west and south westerly winds after a trough crosses the coast.

2.2 Scenario 2: Bushfire approaching the site from the west

Land west of the future Malarky Road contains mostly grass fuels and a fast moving grass fires could impact the site from a localised ignition and strong westerly winds which are relatively common. The site is separated from this bushfire fuel by the public road which would assist fire suppression efforts and reduce the ember attack on the site.

3 BUSHFIRE RISK ASSESSMENT METHODOLOGY

The Australian and New Zealand Standard AS/NZS ISO 31000:2009 Risk Management– Principles and Guidelines (SA & SNZ 2009) provides principles and generic guidelines on risk management. The methodology for this process is further described in Risk Management Guidelines: Companion to AS/NZS 4360/2004 (SA & SNZ 2004), which defines the risk assessment process as outlined in Figure 1.

AS/NZS ISO 31000:2009 is adopted by DFES, as documented in the agency's Bushfire Risk Management Framework (DFES 2015), to formalise and communicate the approach of managing bushfire risk across the department in the aim of leading to improved coordination and effectiveness of bushfire risk management processes.

From a bushfire management perspective, this methodology is useful in determining:

1. The inherent bushfire risk (i.e. the initial level of risk prior to risk treatment and mitigation); and

2. The residual bushfire risk (i.e. the level of risk remaining following risk treatment and mitigation).

Inherent and residual bushfire risk can be determined for individual bushfire events on the basis of the following risk criteria, which is used to inform the likelihood and consequence of such events:

• Likelihood of ignition and bushfire occurrence takes into consideration the bushfire history of the area, risk of ignition, arson activities, land use & vegetation type, fuel age and load, slope under vegetation and predominant fire weather conditions; and

• Consequence or impact from bushfire on life, property and the environment takes into consideration the degree and severity of potential bushfire scenarios, location of bushfire threat, assets present in the site and the level of management and suppression response available.

The two bushfire scenarios identified in Section 2 have been subject to bushfire risk assessment through determination of likelihood and consequence in accordance with the rating tables outlined in Table 1 and Table 2.

This process determines the inherent bushfire risk of the event and informs the level of mitigation or management response required to reduce the risk to an acceptable level. The risk assessment matrix used to determine inherent and residual bushfire risk is outlined in Table 3.

Likelihood Rating	Description
Almost Certain	Consequence expected to occur in most circumstances; may occur once every year or more
Likely	Consequence will probably occur in most circumstances; may occur once every 5 years
Possible	Consequence might occur at some time; may occur once every twenty years
Unlikely	Consequence is not expected to occur; may occur once every one-hundred years
Rare	Consequence may occur only in exceptional circumstances; may occur once every fire-hundred or more years

Table 1: Likelihood rating system

Consequence Rating	Description
Catastrophic	A large number of severe injuries, widespread damage and displacement of the community, significant impact on the environment
Major	Extensive number of injuries requiring hospitalisation, significant damage and impact on the community, longer term impacts on the environment
Moderate	Some injuries requiring medical treatment but no fatalities, localised damage and short-term impact on the environment
Minor	Small number of injuries but no fatalities, some damage and disruption but no lasting effects
Insignificant	No injuries or fatalities, little damage or disruption

Table 2: Consequence rating system

	Consequence				
Likelihood	**Insignificant**	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost Certain	High	High	Extreme	Extreme	Extreme
Likely	Medium	High	High	Extreme	Extreme
Possible	Low	Medium	High	Extreme	Extreme
Unlikely	Low	Low	Medium	High	Extreme
Rare	Low	Low	Medium	High	High
Risk Level	**Risk response**				
Low	Acceptable risk. Application of standard management measures will ensure risk level remains low and risk should be eliminated or reduced as time permits.				
Medium	Potentially unacceptable risk. Development of site specific management measures may be required to lower the risk level and risk should be reduced as soon as reasonably practicable.				
High	Potentially unacceptable risk. Development of additional site specific management measures will be required to lower the risk level and requires urgent action as soon as possible.				
Extreme	Unacceptable risk. Additional site-specific mitigation will be required to lower the risk level and an immediate mitigation response is required.				

Table 3 : Risk Assessment Matrix

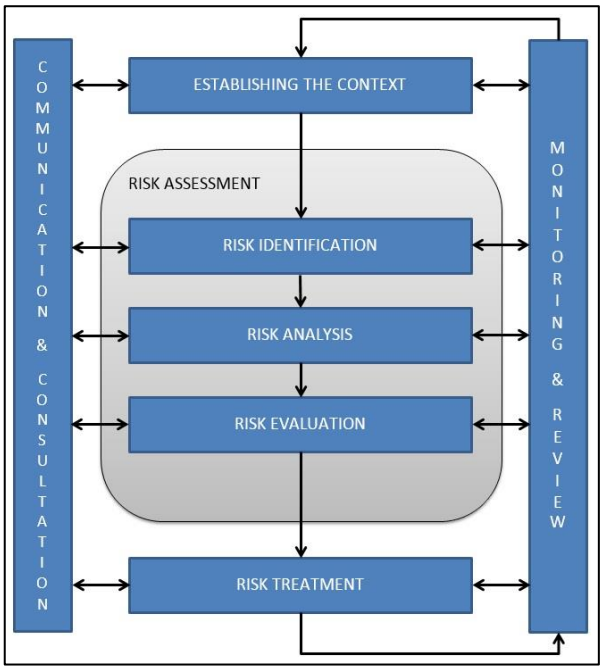

Figure 1: Risk Management Process as per AS/NZ ISO 31000:2009

4 BUSHFIRE RISK ASSESSMENT

4.1 Risk context

Risk is assessed for the site for the protection of life and property within and adjacent to the site and to inform bushfire risk mitigation strategies. This risk assessment considers the broader area that includes different land tenure to ensure all relevant potential risk impacts are assessed to adequately address potential risk.

4.2 Risk identification

Bushfire risk in the form of potential fire runs towards the site is outlined in Section 2, which highlight the potential bushfire incidents that could impact life and property within the site. The two scenarios cover the bushfire events that could occur locally in the area in order to develop adequate bushfire risk mitigation strategies.

4.3 Risk analysis and evaluation

Risk analysis and evaluation for both potential bushfire scenarios is provided in Table 4, which specifies the likelihood and consequence of each scenario with and without management measures to determine inherent and residual risks.

Due to the storage and handling of flammable materials within the subject site, the potential consequence of a bushfire entering the site would be greater than if flammable materials were not present.

The bushfire risk management strategies are likely to reduce the level of consequence resulting from the bushfire event, rather than the likelihood of the event occurring.

Bushfire Scenario	Comments	Likelihood	Consequence	Inherent risk	Mitigation	Likelihood	Consequence	Residual risk
Scenario 1: Bushfire approaching the site from the north	Potential long fire run, however the widened Thomas Road Reserve provides significant fuel break north of the POS drainage reserve thereby breaking up the continuous fuel source turning the fire impact into a series of spot overs that will ignite in the POS area and have a very short secondary fire run. Northernly winds are uncommon. Consequence is expected not to occur, may occur every one-hundred years based on response suppression, fire history, fuel types and rate of spread and flame heights. Some injuries may be sustained that require medical treatment but no fatalities. Damage restricted to local area and short term impact based on analysis of assets.	Possible	Moderate	High	As per management measures being implemented as identified in **Section 5**	Possible	Minor	Medium
Scenario 2: Bushfire approaching the site from the west	Very short fire run in degraded vegetation classes with area proposed for development according to approved LSP. Consequence is expected not to occur, may occur every one-hundred years based on response suppression, fire history, fuel types and rate of spread and flame heights. Some injuries may be sustained that require medical treatment but no fatalities. Local damage only restricted to site and short term impact based on analysis of assets.	Possible		High		Possible	Minor	Medium

Table 4: Bushfire Risk Assessment

5 BUSHFIRE MANAGEMENT MEASURES

The bushfire risk assessment indicates that both bushfire scenarios pose an similar level of inherent risk to property and life. Implementation of the risk mitigation measures outlined below focus on the protection of life and property and reduce the bushfire risk (residual risk) at the site.

Under the Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007 (the Regulations), the future operator will be required to complete a separate risk assessment that addresses risks other than bushfire for the proposed development.

The Regulations also require operators to prepare an emergency plan for petrol stations. An emergency management plan will be developed for the site, which will set guidelines for the management of an emergency, disaster or major incident at the site. The emergency plan for the fuel station will reflect the site layout and bushfire risk post-construction.

5.1 Evacuation Plan and Assembly Points

The Petrol Station Operator is required to develop an emergency management plan for the site in accordance with Australian Standard 3745-2010 Planning for emergencies in facilities (SA 2010), identifying on-site muster points and evacuation triggers.

5.2 Fire Protection Equipment

The proposed petrol filling station should be fitted with a monitored alarm system. When activated, this triggers an automatic response to the nominated security company. Fire extinguishers will be located within the subject site at each filling point, and inside the building as required. There will be emergency stop buttons for the fuel system at each Point of Sale and externally on the front of the building.

Only personnel trained in the use of extinguishers should be utilising this equipment and only if safe to do so. A Spill Response Kit will be available and maintained on the subject site at the front of the building. Fire services are to be immediately called in the event of a spill that covers more than 2m² and cannot be cleaned with a spill kit at site if it is not considered safe to do so.

5.3 Personnel Training

All employees working at the site must be trained in responding to and managing all emergency incidents in accordance with the emergency management plan for the site. A record of training must be kept up to date and debrief sessions held after all training exercises or incidents. An evacuation exercise must be carried out at least annually. All occupants working on the site are required to participate.

5.4 Bushfire Suppression

The Oakford Volunteer Fire Brigade is located approximately 8.2 km from the site and is expected to provide a best-case emergency suppression response time of 20 minutes in the event of an emergency. The Mundijong fire station with Career fire fighters is located approximately 12 km south of the site and is expected to provide a best-case emergency suppression response time of 15 minutes to attend an emergency.

5.5 Asset Protection Zone and Landscaping

All landscaping areas within the subject site will be maintained in accordance with Standards for Asset Protection Zones (WAPC 2017).

5.6 Additional Measures

Manifest

A current manifest must be maintained at Dangerous goods sites including a dangerous goods site plan, to allow an adequate safe response by Emergency responders in the event of emergencies such as fires.

The manifest and dangerous goods site plan for dangerous goods that will be stored and handled at the service station will need to be developed in accordance with the relevant Dangerous Goods Safety Guidance Note (DMP 2014).

The emergency management plan refers to critical information for emergency response being located in the HAZMAT/HAZCHEM emergency boxes which will be located at the front of the building and inside the retail building. This information includes the Emergency Plan, Dangerous Goods Manifest, Register of Dangerous Goods and Hazardous Materials, Safety Data Sheets for bulk products kept on site and dangerous goods site layout plan.

Ignition sources

Staff or contractors at dangerous goods sites are required to manage potential ignition sources, such as hot works and electrical equipment, within any on-site hazardous areas.

Placard and marking

A placard, readily visual for Emergency responders and providing visual warnings of the hazards associated with storage of fuel, will be required at the subject site in accordance with DMP Storage and handling of dangerous materials Code of Practice (DMP 2010). Signage and notices will also be required in accordance with AS 1940-2004 The storage and handling of flammable and combustible liquids (AS 1940-2004; SA 2004) and all relevant state legislation.

6 CONCLUSION

The implementation of the risk mitigation strategies outlined in this report results in the reduction of bushfire risk to life and property at the site.

Rohan Carboon

Managing Director – Certified Level 3 BPAD Practitioner (BPAD23160)

Bushfire Safety Consulting Pty Ltd

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

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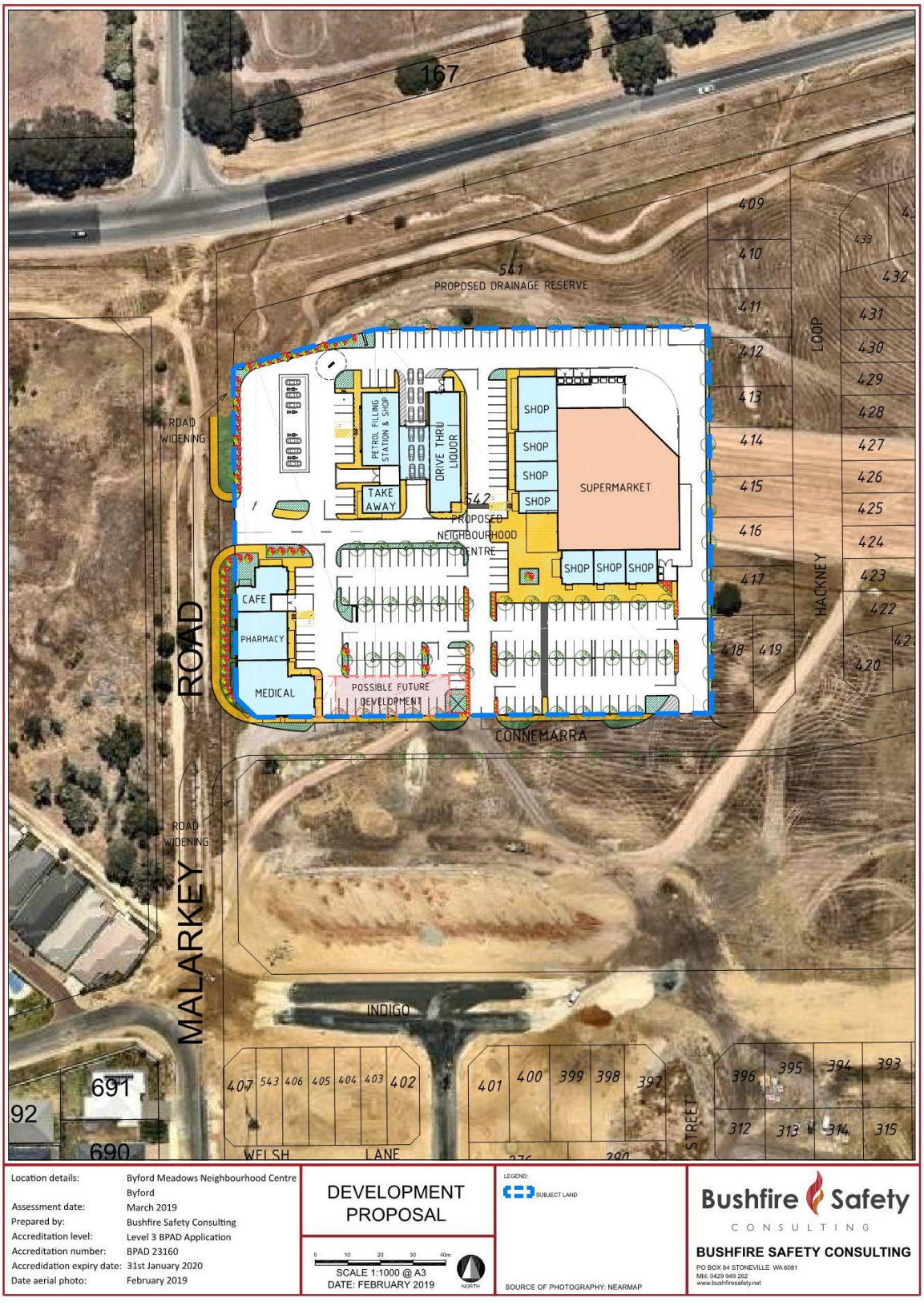
Appendix 1- Proposed Development



Appendix 2- Wind Roses for December to February for Jandakot Aero (Station No: 009172)

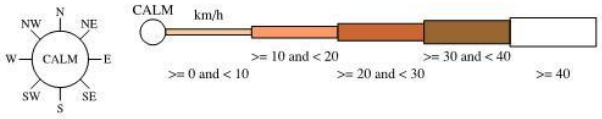
Rose of Wind direction versus Wind speed in km/h (01 Feb 1989 to 11 Aug 2018)

Custom times selected, refer to attached note for details

JANDAKOT AERO

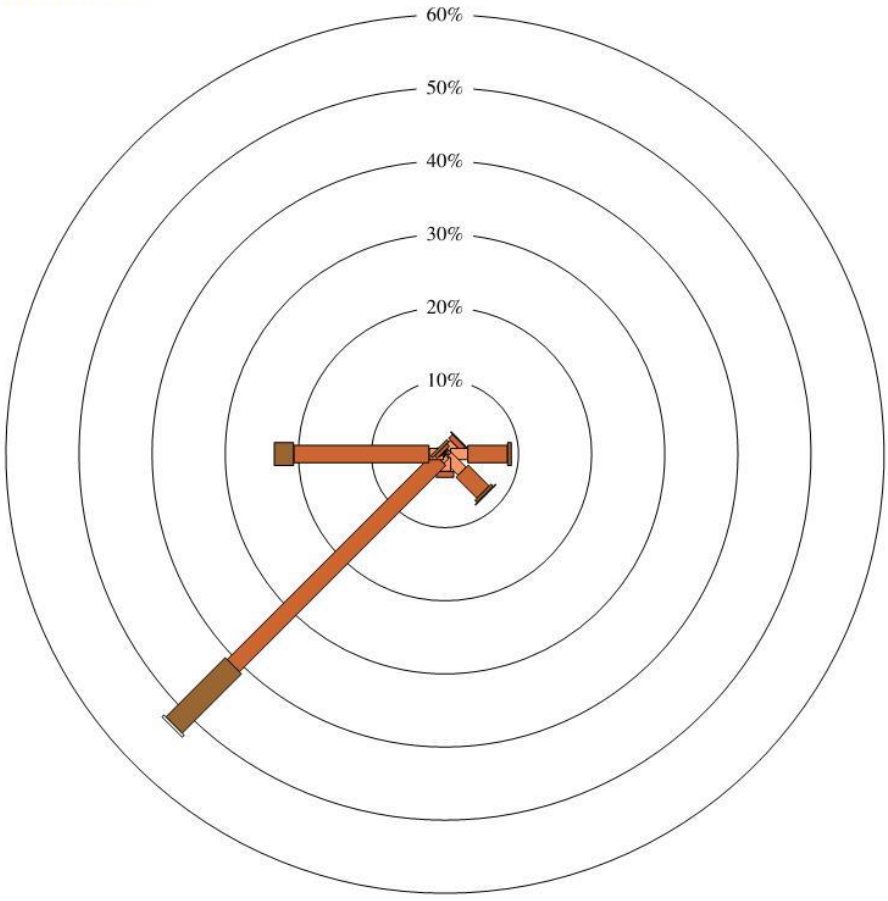
Site No: 009172 • Opened Aug 1972 • Still Open • Latitude: -32.1011° • Longitude: 115.8794° • Elevation 30m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.



3 pm Dec
795 Total Observations

Calm *



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Rose of Wind direction versus Wind speed in km/h (01 Feb 1989 to 11 Aug 2018)

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

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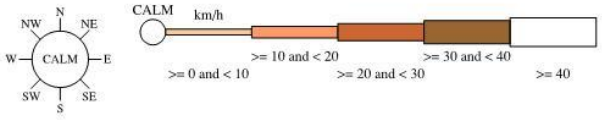
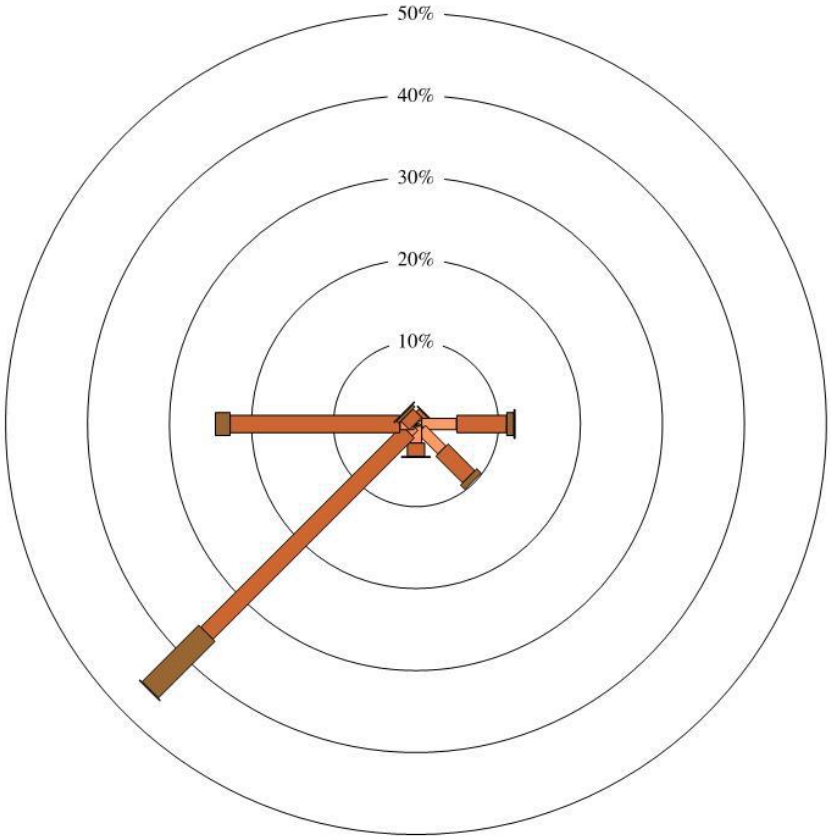


3 pm Jan
814 Total Observations

Calm *



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Rose of Wind direction versus Wind speed in km/h (01 Feb 1989 to 11 Aug 2018)

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

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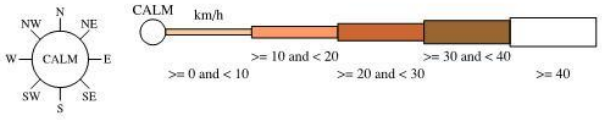

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747 Total Observations

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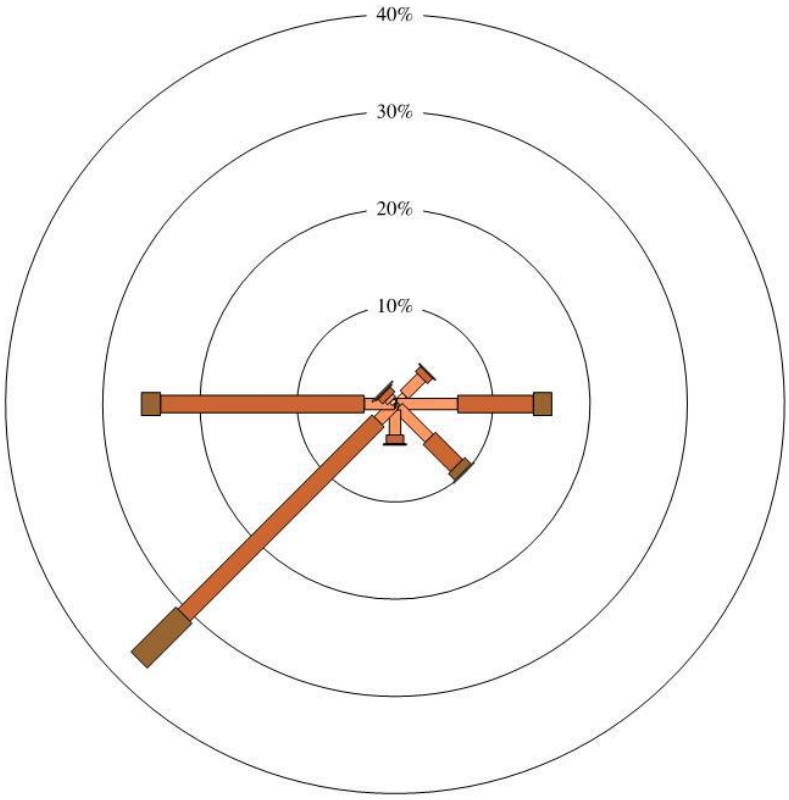

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