

**BUSHFIRE ASSESSMENT**



**PROPOSED INDUSTRIAL WAREHOUSE  
ALTERATION/ADDITION**

**LOT 413 DP 1058215  
11 Warren Road, Warnervale**

Date: **14/03/2022**

Prepared for: **Woolworths**

**NEWCASTLE BUSHFIRE CONSULTING**  
5 Chartley Street, Warners Bay NSW 2282  
(ph) 02 40230149 (mob) 0423 923284  
email: mail@newcastlebushfire.com.au

<b>I hereby declare that I am a BPAD accredited bushfire practitioner.</b>		
<b>Accreditation No.</b>	<b>BPAD16132</b>	
<b>Signature</b>		
<b>Date</b>	<b>14/3/2022</b>	

Couch Family Trust T/A  
Newcastle Bushfire Consulting Pty Ltd A.B.N. 96 831 374 298  
Bushfire and Building Sustainability Consultants

**Document Status**

Revision No.	Issue	Description	Reviewed	Approved by Director
1	08/02/2022	Draft	C. Couch	P. Couch
2	07/03/2022	Final	C. Couch	P. Couch
3	14/03/2022	Rev A – revised site plan	C. Couch	P. Couch

Prepared By:



Phillip Couch GFireE  
Bach Info Science  
Grad Dip Design for Bushfire Prone Areas  
FPAA BPAD – Level 3 Accreditation Number BPD-PA-16132  
Director Newcastle Bushfire Consulting



1.0 EXECUTIVE SUMMARY AND COMPLIANCE TABLES .....	4
2.0 INTRODUCTION .....	8
2.1 PURPOSE OF REPORT .....	8
2.2 PROPOSED DEVELOPMENT .....	8
3.0 BUSHFIRE ATTACK ASSESSMENT .....	9
3.1 VEGETATION CLASSIFICATION .....	9
3.2 EFFECTIVE SLOPE.....	9
3.3 BUSHFIRE ATTACK LEVELS.....	9
3.4 COMPLIANCE WITH AIMS AND OBJECTIVES OF PLANNING FOR BUSH FIRE PROTECTION (2019) .....	13
4.0 UTILITY SERVICES AND INFRASTRUCTURE .....	14
4.1 WATER SERVICES.....	14
4.2 ELECTRICITY SERVICES.....	14
4.3 GAS SERVICES.....	16
5.0 PROPERTY ACCESS .....	16
6.0 LANDSCAPING MAINTENANCE .....	16
7.0 POTENTIAL IGNITION SOURCES DURING CONSTRUCTION AND OPERATION .....	17
8.0 FIRE RESPONSE PROCEDURE FROM STAFF .....	18
9.0 PERFORMANCE BASED SOLUTION .....	18
10.0 COMPLIANCE WITH PERFORMANCE REQUIREMENTS OF PLANNING FOR BUSH FIRE PROTECTION.....	19
11.0 RECOMMENDATIONS .....	22
12.0 CONCLUSION.....	22
13.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY .....	23
14.0 REFERENCES AND DISCLAIMER.....	24

### LIST OF TABLES

TABLE 1 – PROPERTY DETAILS AND TYPE OF PROPOSAL.....	4
TABLE 2.0 – BUSHFIRE THREAT ASSESSMENT WAREHOUSE ADDITION.....	4
TABLE 2.1 – BUSHFIRE THREAT ASSESSMENT WORKSHOP .....	5
TABLE 2.2 – BUSHFIRE THREAT ASSESSMENT TRUCK WASH.....	5
TABLE 2.3 – BUSHFIRE THREAT ASSESSMENT DIESEL FUELLING STATION.....	5
TABLE 3 – PLANNING FOR BUSH FIRE PROTECTION (2019) COMPLIANCE.....	6
TABLE 4 – ADDITIONAL CONSIDERATIONS FOR STATE SIGNIFICANT DEVELOPMENT ..	7

### LIST OF FIGURES

FIGURE 1 – SITE CONSTRAINTS MAP .....	11
FIGURE 2 – LOCALITY MAP.....	12
FIGURE 3 – COUNCIL’S BUSHFIRE PRONE LAND MAP .....	12
FIGURE 4 – SITE PLAN .....	15

### LIST OF PHOTOGRAPHS

PHOTOGRAPH 1 – WESTERN WAREHOUSE ADDITION LOCATION.....	10
PHOTOGRAPH 2 – SOUTHWESTERN GRASSLAND AND FOREST.....	10
PHOTOGRAPH 3 – SOUTHERN DRAINAGE BASIN AND FOREST.....	14

## 1.0 EXECUTIVE SUMMARY AND COMPLIANCE TABLES

This report has been prepared in response to SEAR No. 22 for the Woolworths Wyong Regional Distribution Centre Expansion State Significant Development (SSD) Application. This report assesses the proposed industrial alteration/addition against the requirements of Planning for Bush Fire Protection (2019).

This report establishes that the development is capable of complying with the acceptable solutions of Planning for Bush Fire Protection (2019).

TABLE 1 – PROPERTY DETAILS AND TYPE OF PROPOSAL

<b>Applicant Name</b>	Woolworths		
<b>Site Address</b>	11 Warren Road, Warnervale	<b>Lot/Sec/DP</b>	Lot 413 DP 1058215
<b>Local Government Area</b>	Central Coast	<b>FDI</b>	100
<b>Bushfire Prone Land</b>	Yes, mapped bushfire prone land		
<b>Type of development</b>	Industrial Alterations/Additions and New Buildings	<b>Type of Area</b>	Urban
<b>Special Fire Protection Purpose</b>	No	<b>Flame Temperature</b>	1090K
<b>Application Complies with Acceptable Solutions</b>	The site is a performance based assessment as the proposed development is BAL-40.	<b>Referral to NSW Rural Fire Service (NSW RFS)required</b>	No

TABLE 2.0 – BUSHFIRE THREAT ASSESSMENT WAREHOUSE ADDITION

	<b>North</b>	<b>East</b>	<b>South</b>	<b>West</b>
<b>Vegetation Structure</b>	Forest	Maintained Lands	Forest	Grassland
<b>Asset Protection Zone (APZ)</b>	133 metres	140 metres	35 metres	33 metres
<b>Accurate Slope Measure</b>	N/A	N/A	1 degree downslope	6 degrees upslope
<b>Slope Range</b>	N/A	N/A	1 to 5 degrees downslope	Level/Upslope
<b>AS3959 (2018) Bushfire Attack Level (BAL)</b>	BAL-LOW	BAL-LOW	BAL-29	BAL-12.5

TABLE 2.1 – BUSHFIRE THREAT ASSESSMENT WORKSHOP

	North	East	South	West
<b>Vegetation Structure</b>	Managed Land	Forest	Forest	Managed Land
<b>Asset Protection Zone</b>	140 metres	26 metres	45 to 100 metres	140 metres
<b>Accurate Slope Measure</b>	N/A	Level/Cross-slope	Level/Cross-slope	N/A
<b>Slope Range</b>	N/A	Level/Upslope	Level/Upslope	N/A
<b>Bushfire Attack Level (BAL)</b>	BAL-LOW	BAL-29	BAL-12.5	BAL-LOW

TABLE 2.2 – BUSHFIRE THREAT ASSESSMENT TRUCK WASH

	North	East	South	West
<b>Vegetation Structure</b>	Managed Land	Forest	Forest	Managed Land
<b>Asset Protection Zone</b>	140 metres	18 metres	45 to 100 metres	140 metres
<b>Accurate Slope Measure</b>	N/A	Level/Cross-slope	Level/Cross-slope	N/A
<b>Slope Range</b>	N/A	Level/Upslope	Level/Upslope	N/A
<b>Bushfire Attack Level (BAL)</b>	BAL-LOW	BAL-40	BAL-12.5	BAL-LOW

TABLE 2.3 – BUSHFIRE THREAT ASSESSMENT DIESEL FUELLING STATION

	North	East	South	West
<b>Vegetation Structure</b>	Managed Land	Forest	Forest	Managed Land
<b>Asset Protection Zone</b>	140 metres	48 metres	45 to 100 metres	140 metres
<b>Accurate Slope Measure</b>	N/A	Level	Level/Cross-slope	N/A
<b>Slope Range</b>	N/A	Level/Upslope	Level/Upslope	N/A
<b>Bushfire Attack Level (BAL)</b>	BAL-LOW	BAL-12.5	BAL-12.5	BAL-LOW

TABLE 3 – PLANNING FOR BUSH FIRE PROTECTION (2019) COMPLIANCE

Performance Criteria	Proposed Development Determinations	Method of Assessment
<b>Asset Protection Zone</b>	<p>Asset Protection Zones have been determined in accordance with Planning for Bush Fire Protection (2019).</p> <p>The Asset Protection Zone will be maintained for the life of development and defensible space is provided onsite.</p> <p>The site is a performance based assessment as the proposed development is BAL-40.</p>	<b><u>Performance Based Solution</u></b>
<b>Siting and Design</b>	Buildings have been designed to minimise the risk of bushfire attack.	Acceptable Solution
<b>Construction Standards AS3959 (2018)</b>	<p>Bushfire Attack Levels have been determined in accordance with Planning for Bush Fire Protection (2019).</p> <p>The highest Bushfire Attack Level to the proposed truck wash was determined to be BAL-40.</p> <p>The highest Bushfire Attack Level to the proposed warehouse additions and workshop was determined to be BAL-29.</p> <p>Non-residential Class 5 to 8 buildings require no specific level of construction in accordance with AS3959 (2018) and National Construction Code 2019.</p> <p>Structural fire protection measures are deemed adequate if located outside the flame zone.</p>	<b><u>Performance Based Solution</u></b>
<b>Private and or Public Road Infrastructure</b>	The public road system is not affected or changed as part of this application.	Acceptable Solution
<b>Property Access</b>	The proposed property access shall comply with Planning for Bushfire Protection (2019) Section 7.	Acceptable Solution
<b>Water and Utility Services</b>	Water, electricity and gas services offer compliance with Planning for Bush Fire Protection (2019) Section 7.	Acceptable Solution
<b>Landscaping</b>	Landscaping to comply with Planning for Bush Fire Protection (2019) Appendix 4.	Acceptable Solution

TABLE 4 – ADDITIONAL CONSIDERATIONS FOR STATE SIGNIFICANT DEVELOPMENT

<b>Assessment Criteria</b>	<b>Compliance</b>
<b>The aims and objectives of Planning for Bushfire Protection (2019)</b>	The aims and objectives are addressed in section 3.4 of this report.
<b>Identification of potential ignition sources during construction and operation of the development</b>	Potential ignition sources are detailed in section 7.0 of this report.
<b>Handling and use of hazardous or dangerous goods – diesel</b>	The storage of fuels and hazardous materials are detailed in section 7.0 of this report.
<b>Proposed bushfire protection measures for the development including vegetation management and fire suppression capabilities</b>	Asset protection zones are based on Planning for Bushfire Protection (2019) and have the buildings located outside BAL-FZ. Fire response procedures from staff have been included in section 8.0 of this report.
<b>Operational access for firefighting appliances to the site</b>	Property access to the buildings complies with Planning for Bush Fire Protection (2019). Recommendations have been made on the safe access and egress of workers and firefighters throughout the site.
<b>Emergency and evacuation planning</b>	An emergency management plan shall be prepared for the site which considers bushfire and the additional risks of a diesel storage tank.

## 2.0 INTRODUCTION

---

### 2.1 PURPOSE OF REPORT

The purpose of this report is to establish suitable bushfire mitigation measures for the proposed development to be constructed at Lot 413 DP 1058215, 11 Warren Road, Warnervale. The report addresses SEAR No. 22 for the Woolworths Wyong Regional Distribution Centre Expansion State Significant Development (SSD) Application clause 22. Bush Fire Risk “If the development is on bush fire prone land, provide a bush fire assessment that details proposed bush fire protection measures and demonstrates compliance with Planning for Bush Fire Protection.”

The recommendations within this report address the aims and objectives of Planning for Bush Fire Protection (2019) to reduce the risk of ignition of the development in a bushfire event, protecting life and property.

#### Features on or adjoining the site that may mitigate the impact of a bushfire on the proposed development

Asset protection zones surround the building with the loop road around the building affording good access for medium rigid vehicles to fight fire.

#### Likely environmental impact of any proposed bush fire protection measures

Vegetation modification within a wetland will be required to build the workshop and to maintain asset protection zones south of the warehouse.

### 2.2 PROPOSED DEVELOPMENT

The proposed development includes:

- Alterations and additions to the existing warehouse or distribution centre building including:
  - 7,038m<sup>2</sup> extension of the existing temperature controlled warehouse (including new exhaust fans)
  - 14,190m<sup>2</sup> extension of the ambient warehouse including B-double drive-through
  - 4,215m<sup>2</sup> extension of the Return Transfer Facility warehouse including B-double drive-through
  - Expansion of the confectionary storage floorspace
  - 13 new banana ripening rooms
  - Refurbishment of the existing canteen, locker rooms and amenities
- Expansion of the existing hardstand areas to accommodate a truck wash and maintenance facility and refuel station, with two new weigh bridges and total on-site parking provided as follows:
  - 485 car parking spaces (existing)
  - 98 pan-tech parking spaces, including 48 new spaces

- 17 existing truck parking spaces, including five new spaces.
- Site services infrastructure including relocation of existing fire tank and pumphouse.
- Vehicle access will continue to be provided via Warren Road with provision for additional entry/exit movements via the existing driveway to Woolworths Way.

### **3.0 BUSHFIRE ATTACK ASSESSMENT**

---

#### **3.1 VEGETATION CLASSIFICATION**

Potential bushfire hazards were identified from Central Coast Council's Bushfire Prone Mapping as occurring within the investigation area. Aerial mapping and inspection of the site reveals that the bushfire prone land map is reasonably accurate in respect to the current bushfire hazard.

The major vegetative threats have been determined using Keith (2004) to derive vegetation structures listed in Planning for Bush Fire Protection (2019).

Primary vegetation structures have been identified in Figure 1 – Site Constraints Map and separation distances shown in Table 2 – Bushfire Attack Assessment.

#### **3.2 EFFECTIVE SLOPE**

Effective Slope was measured using 2-metre contour data obtained from the Department of Lands and verified by a laser hypsometer on site. The laser hypsometer verified slope within the vegetation, calculating effective fire run slope from 5 separate measurements in each dominant direction.

Effective Slopes have been identified in Figure 1 – Site Constraints Map and slope ranges are shown in Table 2 – Bushfire Threat Assessment.

#### **3.3 BUSHFIRE ATTACK LEVELS**

BALs and relevant construction levels in accordance with Planning for Bush Fire Protection (2019) have been demonstrated in Section 1 Executive Summary and Compliance Tables.



PHOTOGRAPH 1 – WESTERN WAREHOUSE ADDITION LOCATION

View of the existing industrial warehouse looking north. An asset protection zone is already managed to the west of the building.



PHOTOGRAPH 2 – SOUTHWESTERN GRASSLAND AND FOREST

View of grassland and forest located southwest of the warehouse. The forest is dominated by eucalypts and casuarinas in the upper stratum with an understorey of native shrubs and grasses.

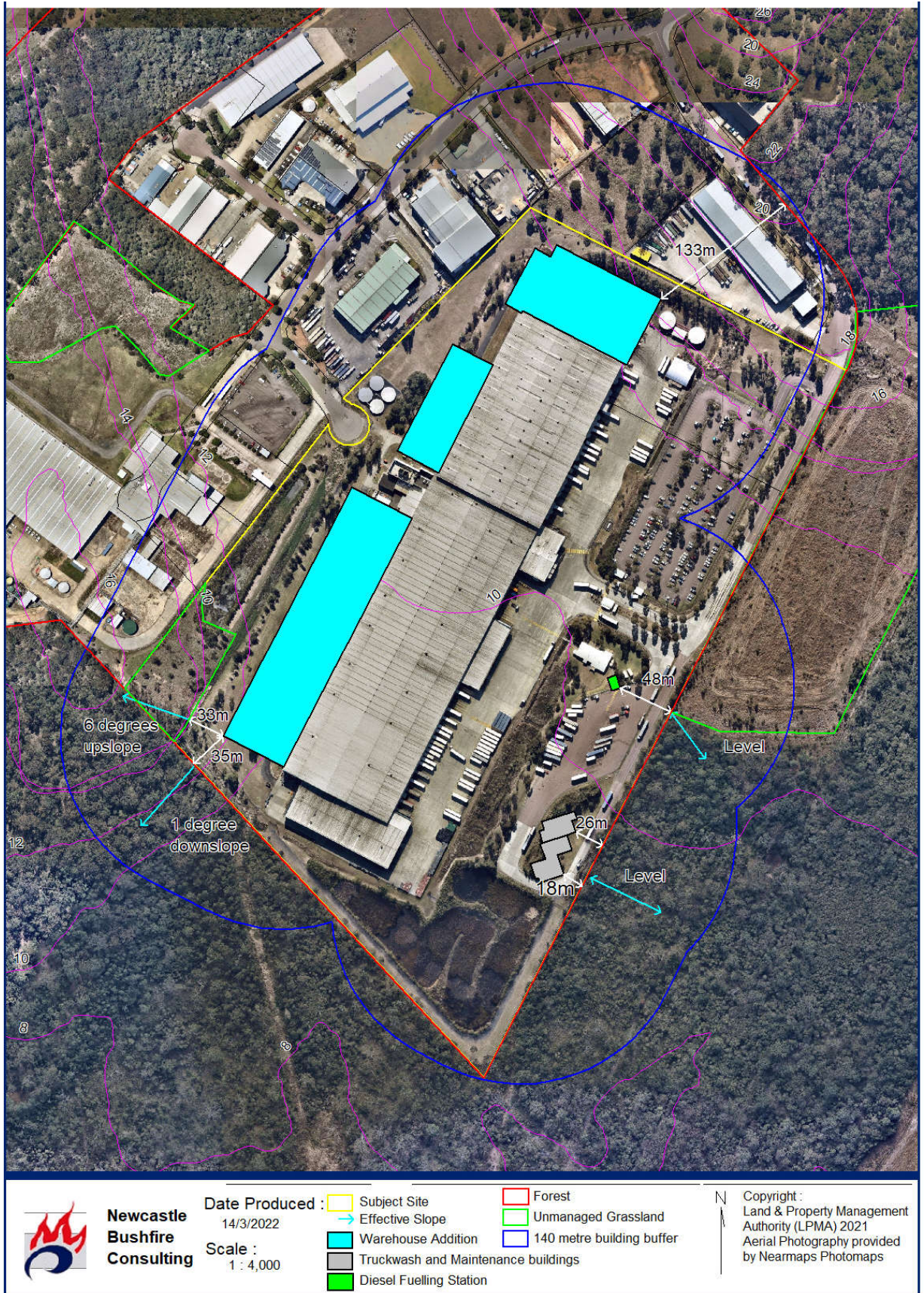


FIGURE 1 – SITE CONSTRAINTS MAP

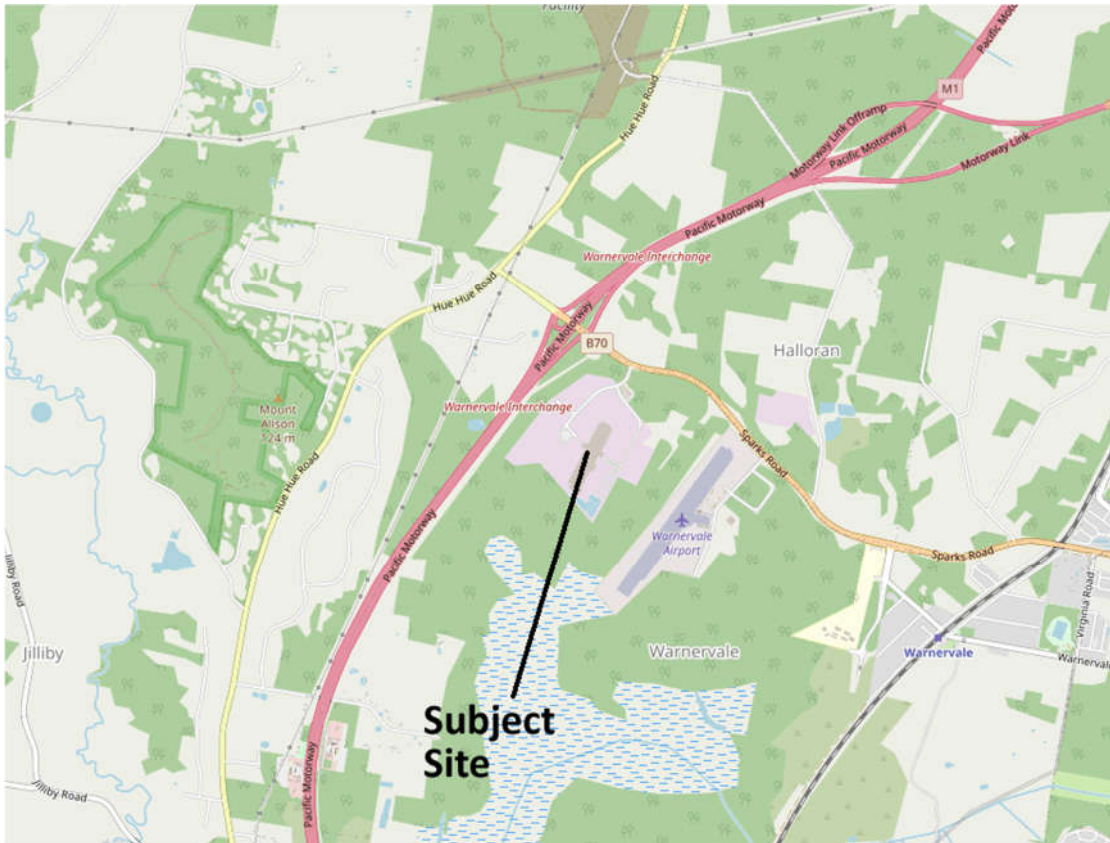


FIGURE 2 – LOCALITY MAP  
Courtesy of OpenStreetMap



FIGURE 3 – COUNCIL'S BUSHFIRE PRONE LAND MAP

### **3.4 COMPLIANCE WITH AIMS AND OBJECTIVES OF PLANNING FOR BUSH FIRE PROTECTION (2019)**

The aims and objectives of Planning for Bush Fire Protection (2019) are addressed below for the proposed development.

**Afford occupants of any building adequate protection from exposure to a bushfire**

A significant Asset Protection Zone is provided around the building. Evacuation planning in the event of bushfire should clearly indicate to building occupants to evacuate in a direction away from the fire.

**Provide for a defensible space to be located around buildings**

Defensible space is available around the buildings. In the event of bushfire, firefighters will have direct access to the bushland and grassland which will support firefighting efforts.

**Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition**

All existing buildings, proposed new buildings and proposed alterations/additions to the existing warehouse are located outside of the flame zone. Any new building works shall be built to the National Construction Code 2019 structural fire safety regulations. The proposed truckwash will be non-combustible in construction due to the potential BAL-40 building exposure.

**Ensure that safe operational access and egress for emergency service personnel and building users is available**

The primary access to the facility offers compliance with Planning for Bush Fire Protection (2019) access requirements.

**Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the Asset Protection Zone**

The building manager shall maintain landscaping and fuel management in accordance with Appendix 4 of Planning for Bush Fire Protection (2019) and the NSW RFS' Standards for Asset Protection Zones.

**Ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting)**

Hydrant spans are compliant with AS2419.1. (2005). Electrical supplies to the local area are located underground.

## **4.0 UTILITY SERVICES AND INFRASTRUCTURE**

---

### **4.1 WATER SERVICES**

A reticulated water supply and hydrant access is available. The existing hydrant network shall be expanded to provide coverage of the development in accordance with AS 2419.1 – 2005.

### **4.2 ELECTRICITY SERVICES**

The existing electrical transmission lines are located underground and require no additional protection measures.



**PHOTOGRAPH 3 – SOUTHERN DRAINAGE BASIN AND FOREST**

View of drainage basin and forest located south of the warehouse and the proposed workshop.



### **4.3 GAS SERVICES**

- Reticulated or bottled gas to be installed and maintained in accordance with AS1596 (2002) and the requirements of the relevant authorities. Metal piping is to be used.
- Fixed gas cylinders to be kept clear of flammable material by a distance of 10 metres and shielded on the hazard side of the installation.
- Gas cylinders close to buildings are to have the release valves directed away from the building and be at least 2 metres from flammable material with connections to and from the gas cylinder being of metal.
- Polymer-sheathed, flexible gas supply lines to gas meters adjacent to the buildings are not to be used.

### **5.0 PROPERTY ACCESS**

---

Property access is by way of Warren Road providing access from the public road system directly to the private land, giving firefighters access to the buildings. Additional entry/exit movements are available via the existing driveway to Woolworths Way.

The property access provides a loop road around the building and complies with Section 7 of Planning for Bush Fire Protection (2019).

### **6.0 LANDSCAPING MAINTENANCE**

---

It is recommended that landscaping is undertaken in accordance with Planning for Bush Fire Protection (2019) Appendix 4 and be maintained for the life of the development.

Trees should be located greater than 2 metres from any part of the roofline of a building. Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10 metres from an exposed window or door. Trees should have lower limbs removed up to a height of 2 metres above the ground.

The landscaped area should be maintained free of leaf litter and debris. The gutter and roof should be maintained free of leaf litter and debris.

Landscaping should be managed so that flammable vegetation is not located directly under windows.

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

## **7.0 POTENTIAL IGNITION SOURCES DURING CONSTRUCTION AND OPERATION**

---

The following potential ignition sources are identified that could affect the occurrence and growth of a fire:

- Equipment faults, such as electrical short circuit or fuel leak on a machine;
- Lightning strike;
- Hazard reduction burn;
- Intentional arson; and
- Lit cigarettes or matches being carelessly thrown on the ground.

The primary use of the site is storage and transport of goods. The proposed development will involve modification of an existing wetland and slashing of grass within a drainage basin. There is limited opportunity for fire to start if machinery is maintained.

### **Storage of Hazardous Materials**

The proposed development incorporates a diesel refueling station and above ground diesel store. The proposed workshop is expected to hold a number of hazardous and flammable materials, with the building locked up when no workers are onsite. The following flammable items and mitigation strategies have been utilised onsite:

- 50,000 litre diesel storage tank and 7,000 litre adblue tank (combined tank). The diesel tank is located greater than 10 metres from the nearest building, being the contractors office and fire control centre. Emergency management planning procedures shall be prepared for isolation and protection of the diesel fuel store and refuelling station in a bushfire event.
- the workshop shall have an approved flammables cabinet for any flammable items stored onsite;
- any onsite oil storage shall consider potential impact from bushfire.
- ammonia and ethylene are presently stored onsite which represent a potential flaming source or explosion if rapid heating from bushfire occurs. Emergency management plans shall be in accordance with manufacturers recommendations.
- a metal shipping container shall be used to store tyres onsite.

There are no explosives stored onsite however some gases and liquids may represent explosive risks in certain situations. Any mobile machinery is recommended to be stored within a building or undercover, when the site is unmanned, if possible.

## **8.0 FIRE RESPONSE PROCEDURE FROM STAFF**

---

The following procedure shall be detailed in the Bushfire Emergency Management Plan however should be used for initial response to a fire:

- Ensure the safety and wellbeing of oneself.
- Removing where possible any further danger(s).
- Ensuring the safety of uninjured people and preventing where possible further injury to victims.
- Informing the fire warden and any firefighters of the nature and the location of the emergency.
- Administer or organise first aid care for the injured if trained.
- Search area if practicable.
- Keep doors and windows of buildings closed to minimise fire spread.
- Consider the risk of further fire, explosions or of the fire spreading.

Mechanical tools, or plant machinery may be used to extinguish a small fire if it is safe to do so. The existing water cart may assist firefighters in extinguishing small fires.

Any fires shall be responded to as quickly as possible if they are deemed safe to extinguish.

Employees are not trained as firefighters and any larger fires which may place the health of staff in danger, shall not be fought. NSW Fire and Rescue or NSW Rural Fire Service may respond to the site. Employees may assist the firefighters through the use of heavy machinery.

## **9.0 PERFORMANCE BASED SOLUTION**

---

At the request of the client I have been asked to provide an unbiased safety model for the proposed development. The proposed performance based solution offers compliance with National Construction Code 2019 performance measure of reducing the chance of ignition to the building from the firefront and the objectives of Planning for Bush Fire Protection (2019).

### **Proposed Performance based solution**

The proposed development being BAL-40 development is identified under Planning for Bush Fire Protection (2019) section 7.4 as a performance based assessment.

The performance based solution reviews the performance requirements of Planning for Bush Fire Protection (2019) and applies the acceptable solutions for bushfire attack level defined in table A1.12.5.

**Construction Standard Performance Criteria**

It is demonstrated that the proposed building can withstand bushfire attack in the form of wind, smoke, embers, radiant heat and flame contact.

**Evaluation of Performance based solutions**

Planning for Bush Fire Protection (2019) details the acceptable solutions for simplified fire modelling within table A1.12.15 and is deemed the basic benchmark of community accepted risk for construction, defined by New South Wales Rural Fire Service and New South Wales Government.

The truck wash development whilst being BAL-40, complies with all acceptable solutions of Planning for Bush Fire Protection (2019) excepting the compliance of table A1.12.15. The truck wash is not expected to have significant flammables present due to the nature of the building. The truck wash shall be entirely non-combustible in construction in addition to structural fire separation requirements.

**Compliance with National Construction Code 2019**

The combination of building recommendations, fire resistant design, maintenance of landscaping/asset protection zones and acknowledgment of risk achieves the performance requirements of the National Construction Code 2019.

**National Construction Code 2019 P2.3.4 Bushfire areas**

A Class 1 building or a Class 10a building or deck associated with a Class 1 building that is constructed in a designated bushfire prone area must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the—

- a. potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire; and
- b. intensity of the bushfire attack on the building.

**10.0 COMPLIANCE WITH PERFORMANCE REQUIREMENTS OF PLANNING FOR BUSH FIRE PROTECTION**

---

The compliance with performance requirements of Planning for Bush Fire Protection is listed below.

Performance Criteria	Acceptable Solution	Performance based solution
<b>In relation to Asset Protection Zones:</b>		
APZs are provided commensurate with the construction of the building; A defendable space is provided.	An APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.	The site is infill development and cannot comply with Table A1.12.2 for the truck wash, however defendable space is provided. Construction complies with NCC structural provisions.

APZs are managed and maintained to prevent the spread of a fire to the building.	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	Complies with acceptable solution.
The APZ is provided in perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised	APZs are wholly within the boundaries of the development site. APZs are located on lands with a slope less than 18 degrees	Complies with acceptable solution.
<b>In relation to construction standards:</b>		
The proposed building can withstand bushfire attack in the form of embers, radiant heat and flame contact.	BAL is determined in accordance with Tables A1.12.5 to A1.12.7; and construction provided in accordance with the NCC and as modified by section 7.5.	Complies with acceptable solution.
Proposed fences and gates are designed to minimise the spread of bush fire.	Fencing and gates are constructed in accordance with section 7.6.	Complies with acceptable solution. Fencing and gates shall be non-combustible.
Proposed Class 10a buildings are designed to minimise the spread of bush fire.	Class 10a buildings are constructed in accordance with section 8.3.2.	Not applicable
<b>In relation to access requirements:</b>		
Safe, operational access is provided (and maintained) for emergency services personnel in suppressing a bushfire while residents are seeking to relocate, in advance of a bushfire (satisfying the intent and performance criteria for access roads in section 7.	Compliance with section 7 for property access roads.	Complies with acceptable solution.
<b>In relation to water supplies:</b>		
An adequate water supply is provided for firefighting purposes.	Reticulated water is to be provided to the development, where available.	Complies with acceptable solution.
Water supplies are located at regular intervals; and  The water supply is accessible and reliable for firefighting operations.	Fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005; Hydrants are not located within any road carriageway; and Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	Complies with acceptable solution.
The integrity of the water supply is maintained.	All above-ground water service pipes external to the building are metal, including and up to any taps.	Can comply with acceptable solution.

<b>In relation to electrical services:</b>		
Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings.	Where practicable, electrical transmission lines are underground;	Complies with acceptable solution.
<b>In relation to gas services:</b>		
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used; All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side; Connections to and from gas cylinders are metal; Polymer-sheathed, flexible gas supply lines are not used; and Above-ground gas service pipes are metal, including and up to any outlets.	Can comply with acceptable solution.
<b>In relation to landscaping:</b>		
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Compliance with the NSW RFS 'Asset protection zone standards' (see Appendix 4); A clear area of low-cut lawn or pavement is maintained adjacent to the house; Fencing is constructed in accordance with section 7.6; and Trees and shrubs are located so that: the branches will not overhang the roof; the tree canopy is not continuous; and any proposed windbreak is located on the elevation from which fires are likely to approach.	Can comply with acceptable solution.

## **11.0 RECOMMENDATIONS**

---

Based upon an assessment of the plans and information received for the proposal, it is recommended that development consent be granted subject to the following conditions.

1. The proposed building works shall comply with National Construction Code 2019 Structural Fire Safety requirements.
2. The proposed truck wash shall be non-combustible in construction.
3. Following the approval of the development and for the life of the building, the property around the buildings for a minimum 33 metres where onsite, shall be maintained as an inner protection area (IPA) as outlined within Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service's document Standards for Asset Protection Zones.
4. The property access shall comply with section 7 of Planning for Bush Fire Protection 2019.
5. The diesel storage tank and refuelling station shall have specific emergency management response procedures developed with consideration of bushfire.
6. Water, electricity and gas are to comply with section 7 of Planning for Bush Fire Protection (2019).

### Water Services

- a. Additional hydrants shall be installed in accordance with AS2419.1.
7. Landscaping for the site is to be undertaken in accordance with Appendix 4 of Planning for Bush Fire Protection (2019) and managed and maintained in perpetuity.
8. The site manager shall update the existing emergency evacuation plans prepared for the workplace to cover all buildings with specific consideration of bushfire evacuation and management planning.

## **12.0 CONCLUSION**

---

The final recommendation is that the proposed development offers compliance with Planning for Bush Fire Protection (2019). There is potential for bushfire attack at this site and a list of recommendations has been included in the above assessment to reduce that risk.

## **13.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY**

---

Below is a summary of asset protection zones (APZ) outlined in Planning for Bush Fire Protection (2019) Appendix 4 and the NSW RFS' Standards for Asset Protection Zones. The property owner(s) should obtain these two documents and familiarise themselves with their content.

### **Generally**

APZ refer to the area between the bushfire threat and the asset (i.e. building). The APZ may contain two areas; the Inner Protection Area (IPA) and the Outer Protection Area (OPA). Some areas should be managed entirely as an IPA. Refer to the plans for locations of APZ and distances from assets.

### **IPA**

The IPA is located adjacent to the asset and is identified as a fuel-free zone.

#### **A. Shrubs** (consisting of plants that are not considered to be trees)

1. Shrubs must be located away from a building's glazing and vent openings.
2. Avoid planting around entryways if the vegetation is flammable.
3. A maximum 20% of the IPA may contain shrubs.
4. A minimum 1.5 metre separation of shrubby vegetation from the building shall be maintained.
5. Shrubs must not have a connection with the tree canopy layer; remove/trim shrubs or underprune trees.
6. Ensure turf is suitably mown and/or grasslands are continually slashed to restrict to maximum 100 millimetres high.

#### **B. Trees:** Maintain a minimum 2-5 metre canopy separation.

1. Trees are allowed in the IPA however they should not touch or overhang buildings. No tree should be within 2 metres of the roofline.
2. Underprune branches between the shrub layer and the canopy layer.
3. Ensure branches do not overhang buildings.
4. Ensure all trees in the IPA within 3 metres of buildings do not provide a serious fire threat.
5. Trees should have lower limbs removed up to a height of 2 metres above the ground.

### **OPA**

The OPA is located adjoining the vegetation. The OPA should be maintained as a fuel-reduced area. This assumes trees may remain but with a significantly reduced shrub, grass, and leaf litter layer. In many situations leaf litter and the shrub layer may not require maintenance at all.

#### **A. Shrubs:**

1. Reduce or trim large stands of shrubs.

#### **B. Trees:**

1. Existing trees can be retained.
2. Ensure a separation is available between shrubs and tree canopy.
3. Reduce tree canopy so there is no interlocking canopy.

## **14.0 REFERENCES AND DISCLAIMER**

---

### **References**

Standards Australia AS3959 (2018) Construction of buildings in bushfire-prone areas.

Keith D. "Ocean Shores to Desert Dunes", Department of Environment and Conservation, Sydney, (2004).

Environmental Planning and Assessment Act 1979.

New South Wales Rural Fire Service Planning for Bush Fire Protection (2019).

### **Disclaimer**

Despite the recommendations in this report, it is impossible to remove the risk of fire damage to the building entirely. This report assesses and provides recommendations to reduce that risk to a manageable level. It is of paramount importance that the recommendations are adhered to for the life of the structure and that all maintenance is performed to ensure a level of protection is provided to the building, occupants and firefighters.

Planning for Bush Fire Protection (2019) states that notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small, always remains.

AS3959 (2018) Construction of buildings in bushfire-prone areas states that the standard is designed to lessen the risk of damage to buildings occurring in the event of the onslaught of bushfire. There can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.