



BUSHFIRE PROTECTION ASSESSMENT

Proposed Warehouse & Internal Modifications within
Approved Warehouse / Logistics Hub

Lot 10 and 11, DP 271141

No. 2 and 14 Distribution Drive
Orchard Hills

State Significant Development (SSD)

17 June 2021

BUSHFIRE PROTECTION ASSESSMENT

Warehouse development

Lot 10 and 11, DP 271141, No. 2 and 14 Distribution Drive, Orchard Hills

Report Authors:	Nicole van Dorst B. App. Sc., Grad. Dip., BPAD-L3 23610 Emma Buxton B. Sc.
Plans prepared:	Emma Buxton B. Sc.
Checked by:	Nicole van Dorst B. App. Sc., Grad. Dip., BPAD-L3 23610
Date:	17/06/21
File:	21TMX02

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The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

EXECUTIVE SUMMARY

This bushfire protection assessment has been undertaken for the proposed warehouse development located. Warehouse development within Lot 10 and 11 DP 271141, No. 2 and 14 Distribution Drive, Orchard Hills, Western Sydney.

Both lots form part of a broader warehouse and logistics hub approved by the NSW Government as a State Significant Development (SSD 7173). The NSW RFS issued conditions in relation to the proposal on 17th June 2016 (RFS Ref: D15/2396).

The current proposal involves:

- construction of a new purpose-built industrial food manufacturing facility (approximately 20,225m² of GFA) at 14 Distribution Drive, Orchard Hills; and
- an adjustment to the operations of the existing warehouse and distribution facility at 2 Distribution Drive, Orchard Hills, to include industrial food manufacturing (conversion of 3,500m² of GFA).

The proposed development is considered a state significant development (SSD) (application no. SSD 18_9429). As a result, the *NSW Department of Planning, Industry and Environment* (DPIE) is responsible for assessing the proposal, with the Minister for Planning being the consent authority.

The proposed warehouse development is considered a 'Class 7' structure in accordance with the National Construction Code (NCC). It is categorised by the NSW Rural Fire Service (NSW RFS) planning policy document *Planning for Bush Fire Protection* (PBP) as 'other non-residential development', and more specifically 'commercial and industrial development'.

For this type of development, the NSW RFS requires that development applications should satisfy the aims and objectives of *PBP*, propose an appropriate combination of bushfire protection measures and provide evidence that the intent of each measure can be satisfied.

This assessment has found that bushfire can potentially affect the proposed development from unmanaged grassland to the east of the site. However given the narrow width of the grassland (20m) and the adequate APZ setback provided the bushfire risk is considered low.

This assessment has concluded that the proposed development will comply with the aims and objectives of *PBP*, and will maintain compliance with the NSW RFS conditions as outlined in the following table:

NSW RFS Condition	Comment
Prior to the issue of construction of subdivision certificate (whichever comes first) and in perpetuity, all proposed lots shall be entirely managed as an inner protection area (IPA) as outlined within Section 4.1.3 and Appendix 5 of ' <i>Planning for Bush Fire Protection 2006</i> ' and the NSW Rural Fire Services document 'Standards to asset protection zones'	The proposal is consistent with this condition.
Water, electricity and gas are to comply with Section 4.1.3 of ' <i>Planning for Bush Fire Protection 2006</i> '	The proposal is consistent with this condition. The following assessment has been undertaken with <i>PBP 2019</i> .

GLOSSARY OF TERMS

AHIMS	Aboriginal Heritage Information System
APZ	asset protection zone
AS1596	<i>Australian Standard – The storage and handling of LP Gas</i>
AS2419	<i>Australian Standard – Fire hydrant installations</i>
AS3745	<i>Australian Standard – Planning for emergencies in facilities</i>
AS3959	<i>Australian Standard – Construction of buildings in bushfire-prone areas 2018</i>
BAL	<i>bushfire attack level</i>
BCA	<i>Building Code of Australia</i>
BSA	bushfire safety authority
DA	development application
DLUP	Development Land Use Plan
EEC	Endangered ecological community
EP&A Act	<i>Environmental Planning & Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
FFDI	forest fire danger index
IPA	inner protection area
LEP	Local Environmental Plan
LGA	local government area
m	metres
NCC	<i>National Construction Code</i>
OPA	outer protection area
PBP 2019	<i>Planning for Bush Fire Protection 2019</i>
RF Act	<i>Rural Fires Act 1997</i>
RFS	NSW Rural Fire Service
SFR	short fire run
SFPP	special fire protection purpose
SSD	State Significant Development
TBE	<i>Travers bushfire & ecology</i>

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1. INTRODUCTION

Travers bushfire & ecology has been engaged to undertake a bushfire protection assessment for the proposed Warehouse development located at Lot 10 and 11, DP 271141, Orchard Hills, Western Sydney.

The proposed development is identified as bushfire prone on the Penrith City Bushfire Prone Land Map (refer Figure 1-1). This triggers a formal assessment by Council in respect of the NSW Rural Fire Service (RFS) policy against the provisions of *Planning for Bush Fire Protection (PBP)*. The proposed development is also considered a state significant development (SSD). As a result, the NSW Department of Planning, Industry and Environment (DPIE) is responsible for assessing the development application, with the Minister for Planning being the consent authority.

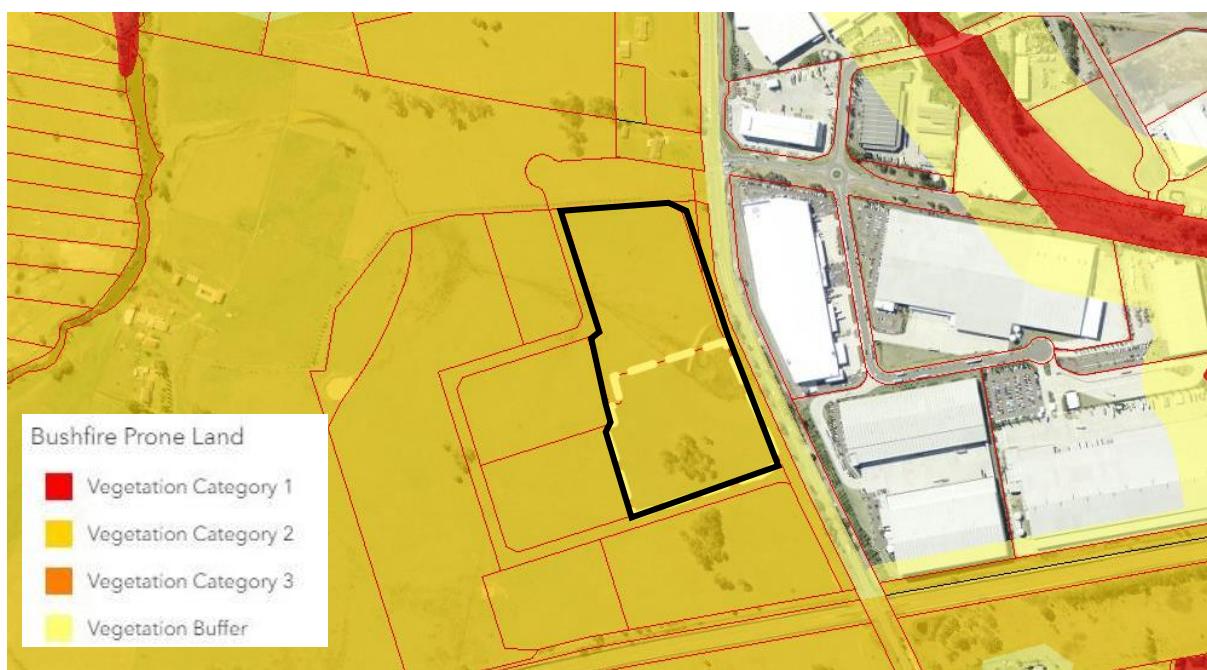


Figure 1-1 – Bushfire Prone Land Map
 (source: Planning Portal, 2021)

1.1 Aims of the assessment

The aims of the bushfire protection assessment are to:

- address the requirement of the Secretary's Environmental Assessment Requirements (SEARs) to demonstrate the project's compliance with *Planning for Bush Fire Protection (PBP) 2019*;
- assess the current proposal in relation to the conditions received from the NSW RFS;
- review the bushfire threat to the landscape;
- undertake a bushfire attack assessment in accordance with *PBP*
- propose a suitable package of bushfire protection measures commensurate with the level of risk to the development
- assess the degree to which the proposed package of bushfire protection measures meets the aim and objectives of *PBP* and any relevant performance criteria

1.2 Development history

Development consent was granted in December 2016 for the construction and operation of a warehouse and logistics hub (SSD 7173) with consent permitting:

- subdivision of the site into 10 lots;
- construction of three warehousing buildings between 9,400m² to 41,500m² and ancillary offices;
- 357 car parking spaces;
- bulk earthworks, infrastructure and services;
- internal access road from Mamre Road to the northern site boundary;
- intersection works between Mamre Road and an internal estate road.

Development consent has since been modified on five (5) occasions as summarised in Table 1.1.

Table 1-1 – Bushfire attack assessment

Mod No.	Summary of Modifications	Approval Authority	Type	Approval Date
MOD 1	Amended site layout on Lot 8 and tenant specific fit-out of Linfox on Lot 8A, including Dangerous Goods storage, and N&A Fruit operation on Lot 8B1.	Planning Minister	4.55(1A)	15 August 2017
MOD 2	Amendments to the internal road and subdivision layout to: <ul style="list-style-type: none">• amalgamate lots 4,5 and 6 into one lot• reduce the number of lots from 10 to nine• relocate the internal cul-de-sac further to the eastern side of the estate road.	Planning Minister	4.55(1A)	20 December 2017
MOD 3	Amendments to proposed drainage channel.	Planning Minister	4.55(1A)	19 December 2018
MOD 4	Construction and operation of two warehouse facilities	Planning Minister	4.55(1A)	19 December 2018
MOD 5	Amendment to the subdivision plan to create new lots 10, 11 and 12 in place of approved lots 7 and 9	Planning Minister	4.55(1A)	9 April 2019

The current precinct context is depicted in Figure 1.2 with latest subdivision layout provided in Figure 1.3



Figure 1-2 – Surrounding development context
(source: Willowtree Planning, 2021)

1.3 Proposal synopsis

The current proposal seeks development consent for the construction and operational use of a manufacturing facility, adjacent to the recently constructed warehouse facility of SSD-9429. The proposed development would be operated by Snack Brands Australia (SBA), concurrently with the neighbouring site and entails the following:

- Bulk earthworks involving cut and fill works;
- Infrastructure comprising civil works and utilities servicing;
- Construction of an industrial manufacturing facility (Lot 10) comprising:
 - Warehouse area;
 - Second stage addition;
 - Ancillary office;
 - 160 car parking spaces; and
 - Waste treatment plant
- Change of use of 3,500m₂ of existing warehouse to food manufacturing (Lot 11) ;
- Storage of dangerous goods, comprising:
 - Approximately 30kL of Class 8 – Packing Group II
 - Approximately 10kL of Class 2.2 (Nitrogen)

Whilst operating concurrently, SBA do not own both properties, and as such both properties will need to remain on separate lot titles.

The site seeks to operate 24 hours per day, seven (7) days per week, and would generate approximately 70 (full time equivalent (FTE)) construction jobs for the new purpose-built industrial food manufacturing facility and approximately 415 operational jobs for consolidated facility.

Schedule 1 shows the proposed extent of the proposed development and bushfire protection measures, including APZs.

1.4 Secretary's environmental assessment requirements (SEARs)

The DPIE issued the below SEARs on 27/05/2021 for the current application:

- *'Bushfire and Incident Management'* – :
 - *assess the level of hazard posed to future development on adjacent land and how the hazards may change as a result of development; and*
 - *address the requirements of Planning for Bush Fire Protection 2019 (RFS), in particular the provision of access (including perimeter roads) and water supply for firefighting purposes.*

This report has been prepared to address the revised site layout and outlines the proposals compliance with the RFS conditions and the newly adopted *Planning for Bush Fire Protection 2019*.

The vegetation posing a hazard to the proposal consists of the grassland vegetation located to the east and external to the north resulting in possible ember and radiant heat attack.

The proposed development, however, will provide for adequate defendable and therefore, the bushfire risk has been mitigated with the provision of APZs to ensure defendable space is achieved in compliance with the aims and objectives and performance criteria outlined in *PBP*.

In addition, the new industrial manufacturing facility (within Lot 10) will provide compliance with the *PBP 2019* requirements for water supply, access, landscaping and evacuation as detailed within Section 3 of this report.

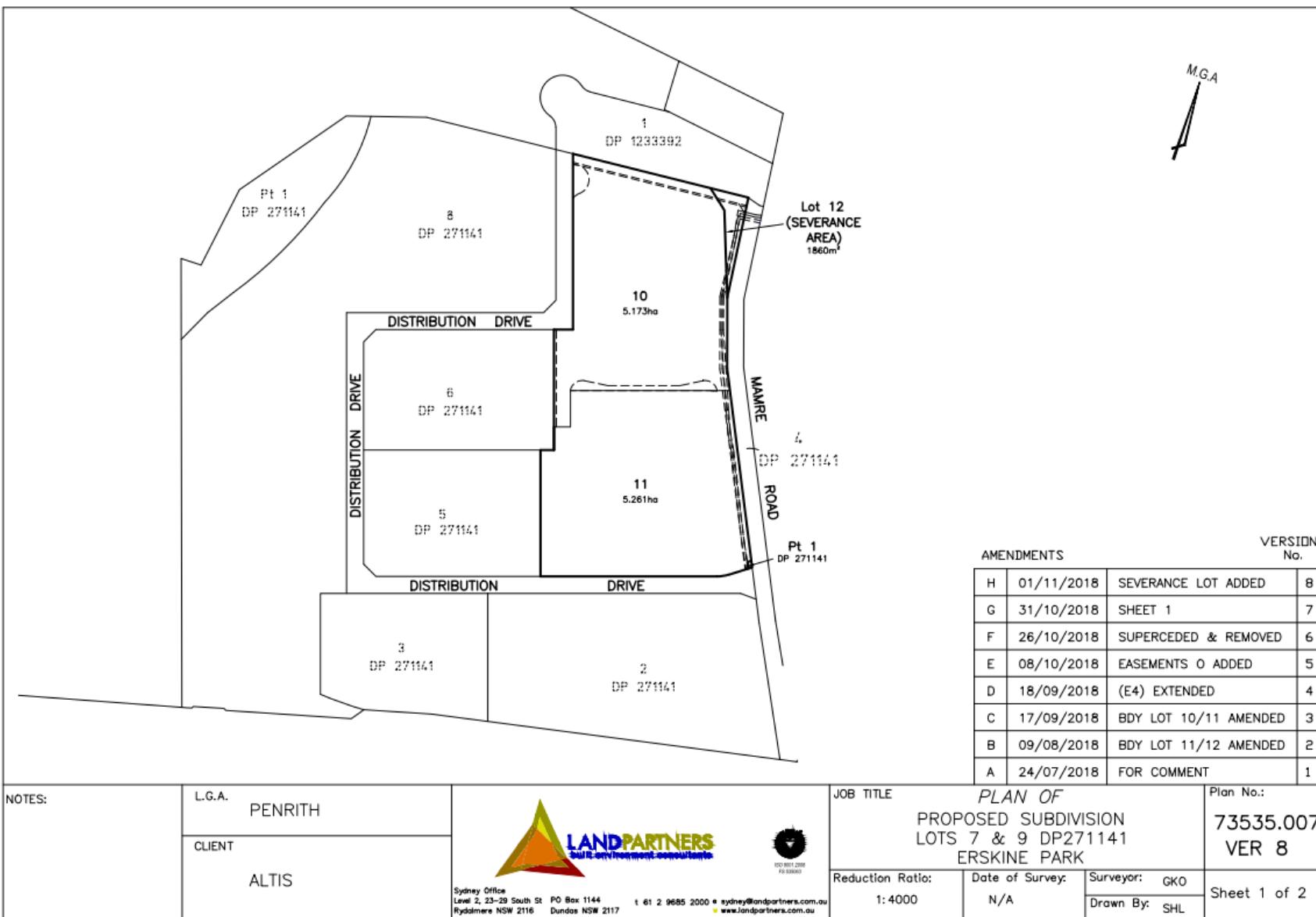



Figure 1-3 – Approved plan of subdivision (Mod 6)

(source: Land Partners, Plan No. 73535.007 Version 8, Sheet 1-2 dated 01/11/2018)



1.5 Information collation

Information sources reviewed for the preparation of this report include the following:

- Overall Site Plan (Proposed Lots 10 & 11) prepared by *HL Architects, Job No. HLA-AR-A001 – P12*, dated 09.06.2021
- Approved subdivision plan (Mod 6) prepared by *Land Partners*, Plan No. 73535.007 Version 8, Sheet 1-2, dated 01/11/2018;
- General Terms of Approval, NSW Rural Fire Service, Ref D15/2396, dated 17 June 2016
- Bushfire Assessment for Lot 7, prepared by Peterson Bushfire dated 31 July 2018
- Bushfire Assessment for *Proposed Warehouse and Logistics Hub: Concept Approval for the Estate and Stage 1 Works*, prepared by Peterson Bushfire, ref: 15013, dated 16 March 2016
- *NearMap* aerial photography
- Topographical maps DLPI of NSW 1:25,000
- *Australian Standard 3959 Construction of buildings in bushfire-prone areas (2018)*
- *Planning for Bush Fire Protection 2019 (PBP)*

An inspection of the proposed development site and surrounds was undertaken by Nicole van Dorst on 11/05/2021 to assess the topography, slopes, aspect, drainage, vegetation and adjoining land use. The identification of existing bushfire measures and a visual appraisal of bushfire hazard and risk were also undertaken.

1.6 Site description

The proposed Warehouse development area subject to this assessment is identified as No. 2 and 14 Distribution Drive, Orchard Hills, being Lot 10 and 11 DP 271141.

The subject site comprises a total area of approximately 104,323m², with the following split:

- Lot 10 (proposed facility): 51,711m²
- Lot 11 (existing facility): 52,612m²

The development site forms part of the “First Estate Precinct”, and is situated on the western side of Mamre Road opposite the Erskine Business Park, within the Penrith City Council local government area (LGA) (refer Figure 1-5).

The site contains the newly constructed SBA warehouse and distribution facility (within Lot 11) and is bound by Buildings 3, 4, 6A, 6B and 6C to the west, Building 1 and associated office to the south and dedicated access road to the immediate north. The northern portion of the site (Lot 10) is undeveloped with unmanaged grassland located beyond Distribution Drive to the north and within a drainage easement to the east.



Figure 1-5 – Aerial appraisal
(source: NearMap, 2019)

1.7 Legislation and planning instruments

Is the site mapped as bushfire prone?	Yes
Proposed development type	Other non-residential development / buildings of Class 5 to 8 under the NCC / commercial and industrial development
Is the development considered integrated for the purposes of Section 100B of the <i>Rural Fires Act 1997</i> ?	The proposed development is considered an SSD. As a result, DPE is responsible for assessing the development application, with the Minister for Planning being the consent authority. The SSD is exempt from requiring a bushfire safety authority (BSA) and is not required to be assessed under s4.14 of the <i>EP&A Act</i> .
Is the proposal located in an Urban Release Area as defined under Clause 273 of the EP&A Regulations?	No
Zoning	IN1 General Industrial
Significant environmental features	No known.
Details of any Aboriginal heritage	No known.
Does the proposal rely on an alternative solution?	No

1.5.1 National Construction Code (NCC) and the Australian Standard AS3959

The NCC is given effect through the *EP&A Act* and forms part of the regulatory environment of construction standards and building controls. The NCC outlines objectives, functional statements, performance requirements and deemed to satisfy provisions.

In NSW, the construction of buildings in bushfire prone areas relates to Classes 1, 2, 3, 4 and Class 9 buildings that are a special fire protection purpose (SFPP) or a Class 10a building or deck associated with the aforementioned building classes. The design and construction manual for the deemed to satisfy requirements is the Australian Standard *Construction of buildings in bushfire-prone areas 2009* (AS3959). These classes of buildings must therefore be constructed in accordance with AS3959.

The NCC does not provide for any bushfire specific performance requirements for commercial and industrial buildings (Classes 5-8) and, as such, AS3959 does not apply as a set of deemed to satisfy provisions. However compliance with AS3959 and the NASH Standard must be considered when meeting the aims and objectives of PBP.

1.5.2 Planning for Bush Fire Protection 2019 (PBP)

PBP outlines the bushfire protection measures required to be assessed for new development in bushfire prone areas. For building identified of Class 5 to 8 under the NCC the following objectives will be applied in relation to access, water supply and services, and emergency and evacuation planning:

- to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation;
- to provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development;
- to provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building; and
- provide for the storage of hazardous materials away from the hazard wherever possible.

The general fire safety construction provisions of the NCC are taken as acceptable solutions however construction requirements for bush fire protection will need to be considered on a case-by-case basis.

In accordance with section 8.3.10 of *PBP* a suitable package of bushfire protection measures should be proposed commensurate with the level of risk to the development. The provisions of Chapter 7 of *PBP* should be used as a base for the development of this package of measures.

2. BUSHFIRE THREAT ASSESSMENT

To assess the bushfire threat and to determine the required width of an APZ for a development, an assessment of the potential hazardous vegetation and the effective slope within the vegetation is required. These elements include the potential hazardous landscape that may affect the site and the effective slope within that hazardous vegetation.

2.1 Hazardous fuels

PBP guidelines require the identification of vegetation formation in accordance with David Keith (2004) if using the simplified acceptable solutions in *PBP 2019*, or alternatively the vegetation class if adopting the comprehensive vegetation fuel loads (as allowable when undertaking an assessment under Method 2 of AS3959). The hazardous vegetation is assessed for a distance of at least 140m from a proposed building envelope. The results of this assessment are detailed in **Error! Reference source not found..**

2.2 Effective Slope

The effective slope (post earthworks) has been assessed for up to 100m from the development site. Effective slope refers to that slope which provides the most effect upon likely fire behaviour. A mean average slope may not in all cases provide sufficient information such that an appropriate assessment can be determined. The effective slope is described within **Error! Reference source not found..**

2.3 Bushfire attack assessment

The following assessment has determined the APZ via the following approach;

- Table A1.12.5 of *PBP 2019*.

A forest fire danger index (FFDI) of 100 has been used to calculate bushfire behaviour on the site based on its location within the Greater Sydney Region. Table 2-1 provides a summary of the bushfire attack assessment.

Note: There are no predetermined minimum APZ requirements for industrial / commercial development under *PBP*. The distances provided in Column 1 (of Table 2.1), coupled with the provision of adequate access will provide appropriate defendable space. Setbacks in column 4 represent minimum setbacks to avoid potential flame contact on the buildings.

Table 2-1 – Bushfire attack assessment (Lot 10 proposed warehouse)

Aspect	Vegetation Class	Effective Slope	Minimum APZ recommended	APZ provided
North & East	Grassland	Level	10m	>26m
South & west	Managed land	N/A	10m	>100



Figure 2-1 – Grassland vegetation to east of Building 7 & Proposed Building 2A



Figure 2-2 – Grassland vegetation associated with existing drainage to the north

3. SPECIFIC PROTECTION ISSUES

The intent of bushfire protection measures for commercial development is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.

In accordance with section 8.3.10 of *PBP* a suitable package of bushfire protection measures should be proposed commensurate with the level of risk to the development, with the provisions of Chapter 7 (Residential Infill Development) of *PBP* are used as a base for the development of this package of measures.

This section outlines the proposed package of bushfire protection measures and where possible assesses their compliance with the relevant performance criteria by comparison to the acceptable solutions for residential infill development.

Where issues listed for the specific development purpose have no specific performance criteria the proposed performance solutions are assessed by comparison to the relevant Australian Standards.

3.1 Asset protection zones (APZs)

Table 3.1 outlines the proposed performance solution and compliance with the performance criteria for APZs.

Table 3-1 – Performance criteria for asset protection zones (PBP 2019 guidelines pg. 65)

Performance criteria	Solution	Compliance	
		Acceptable solution	Performance criteria
APZs are provided commensurate with the construction of the building; and a defendable space is provided.	The entirety of the development area is maintained as an Inner Protection Area in accordance with Appendix 4 of <i>PBP</i> .	<input checked="" type="checkbox"/>	
APZs are managed and maintained to prevent the spread of a fire to the building.	APZs to be managed in accordance with the requirements of Appendix 4 of <i>PBP</i> .	<input checked="" type="checkbox"/>	
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. A portion of the APZ is located on land with a slope greater than 18°. See note below.	<input checked="" type="checkbox"/>	

3.2 Access for firefighting operations

Table 3-2 outlines the proposed performance solution and compliance with the performance criteria for access.

Table 3-2 – Performance criteria for access (PBP 2019 Guidelines pg. 66)

Performance criteria	Solution	Compliance	
		Acceptable solution	Performance criteria
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Property access roads are two-wheel drive, all weather roads.	<input checked="" type="checkbox"/>	
The capacity of access roads is adequate for firefighting vehicles.	The capacity of road surfaces and any bridges/ causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating.	<input checked="" type="checkbox"/>	
There is appropriate access to water supply.	Hydrants are to be provided in accordance with the relevant clauses of AS 2419.1:2005;	<input checked="" type="checkbox"/>	
Firefighting vehicles can access the building/s and exit the property safely.	A perimeter access road and two ingress/egress points are provided for the development	<input checked="" type="checkbox"/>	

3.3 Water supplies

Table 3-3 outlines the proposed performance solution and compliance with the performance criteria for water supply.

Table 3-3 – Performance criteria for water supplies (PBP guidelines pg. 67)

Performance criteria	Solution	Compliance	
		Acceptable solution	Performance criteria
Adequate water supply is provided for firefighting purposes.	Reticulated water is to be provided to the development, where available.	<input checked="" type="checkbox"/>	
Water supplies are located at regular intervals, and The water supply is accessible and reliable for firefighting operations.	Fire hydrant spacing, design and sizing is to comply with the relevant clauses of AS 2419.1:2005; Hydrants are not to be located within any road carriageway;	<input checked="" type="checkbox"/>	
Flows and pressure are appropriate.	Fire hydrant flows and pressures are to comply with the relevant clauses of AS 2419.1:2005.	<input checked="" type="checkbox"/>	

Performance criteria	Solution	Compliance	
		Acceptable solution	Performance criteria
The integrity of the water supply is maintained.	<p>All above-ground water service pipes are metal, including and up to any taps.</p> <p>Any above ground water storage tank shall be of concrete or metal</p>	<input checked="" type="checkbox"/>	
A static water supply is provided for firefighting purposes in areas where reticulated water is not available.	N/A – reticulated water is provided		N/A

3.4 Electricity services

Table 3-4 outlines the proposed performance solution and compliance with the performance criteria for electricity services.

Table 3-4 – performance criteria for electricity services (PBP guidelines pg. 68)

Performance criteria	Solution	Compliance	
		Acceptable solution	Performance criteria
Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings.	<p>Where practicable, electrical transmission lines are underground.</p> <p>Where overhead electrical transmission lines are proposed:</p> <ul style="list-style-type: none"> • lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and • no part of a tree is closer to a power line than the distance set out in ISSC3 Guideline for Managing Vegetation Near Power Lines. 	<input checked="" type="checkbox"/>	

3.5 Gas services

Table 3-5 outlines the proposed performance solution and compliance with the performance criteria for gas supply.

Table 3-5 – Performance criteria for gas supplies (PBP Guidelines pg. 68)

Performance criteria	Solution	Compliance	
		Acceptable solution	Performance criteria
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Any reticulated or bottled gas bottles are to be installed and maintained in accordance with AS/NZS 1596 (2014), the requirements of relevant authorities and metal piping is to be used.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	All fixed gas cylinders are to be kept clear of flammable materials to a distance of 10m and shielded on the hazard side.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Connections to and from gas cylinders are metal.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Polymer sheathed flexible gas supply lines are not used.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Above ground gas service pipes are metal, including and up to any outlets.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

3.6 Construction standards

The NCC does not provide any bushfire specific requirements for buildings of Class 5-8 and as such AS 3959 and the NASH Standard are not considered as a set of Deemed to Satisfy provisions. Compliance with AS3959 and the NASH Standard must, however, be considered when meeting the aims and objectives of *PBP*. Bushfire construction recommendations are dependent on the level of bushfire risk and the provision of adequate access opportunities.

The bushfire risk posed to the site is low, with the only hazard being a narrow strip of roadside grassland (approximately 20m in width) located to the east of the site. The development provides adequate access, water supply and defendable space. As a result no additional building construction standards have been recommended. Compliance with AS3959 (2018) is not required.

3.7 Landscaping

Table 3-6 outlines the proposed performance solution and compliance with the performance criteria for landscaping

Table 3-6 – Performance criteria for construction standards (PBP Guidelines pg. 68)

Performance criteria	Solution	Compliance		Comments
		Acceptable solution	Performance criteria	
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 building/s; fencing is constructed in accordance with section 7.6 of <i>PBP</i> ; and trees and shrubs are located so that: <ul style="list-style-type: none">the branches will not overhang the roof;the tree canopy is not continuous; andany proposed windbreak is located on the elevation from which fires are likely to approach.	<input checked="" type="checkbox"/>		<i>TBE</i> have undertaken a review of the Landscape Plan prepared by Geoscapes dated 09.06.2021 Job No. 210222 (refer Attachment 3) and can confirm general compliance with the acceptable solutions.

3.8 Issues specific to buildings of Class 5 to 8 under the NCC

Whilst bush fire is not captured in the NCC for Class 5-8 buildings, a number of objectives are applied under section 8.3.1 of *PBP* in relation to access, water supply and services, and emergency and evacuation planning. Table 3-7 outlines the proposed performance solutions and compliance with the specific objectives for buildings of Class 5-8.

Table 3-7 – Objectives and proposed solutions specific to buildings of Class 5-8 under the NCC

Objective	Solution	Compliance
To provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation.	Access provided in accordance with Section 3.2 of this report.	<input checked="" type="checkbox"/>
To provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development.	A Bush Fire Emergency Management and Evacuation Plan is prepared by the operator consistent with the NSW RFS publication: <i>A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan</i> , and AS3745:2010.	<input checked="" type="checkbox"/>
To provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building	Services provided in accordance with Sections 3.3, 3.4 and 3.5 of this report.	<input checked="" type="checkbox"/>
Provide for the storage of hazardous materials away from the hazard wherever possible.	As depicted in Figure 1.3 the proposed hazardous materials (i.e., nitrogen gas / lubricating oil) is surrounded by hardstand area and is located greater than 90m from the unmanaged grassland to the north.	<input checked="" type="checkbox"/>

4. CONCLUSION & RECOMMENDATIONS

4.1 Conclusion

This bushfire protection assessment has been undertaken for the proposed warehouse development located within Lot 10 and 11 DP 271141, No. 2 and 14 Distribution Drive, Orchard Hills, Western Sydney.

This assessment has found that bushfire can potentially affect the proposed development from unmanaged grassland to the east of the site. However, given the narrow width of the grassland (20m) and the adequate APZ setback provided the bushfire risk is considered low.

This assessment has concluded that the proposed development will comply with the aims and objectives of *PBP*, and will maintain compliance with the NSW RFS conditions as outlined in their correspondence.

The following recommendations are provided to ensure that the development is in accordance with, or greater than, the requirements of *PBP*.

4.2 Recommendations

Recommendation 1 - The development is as generally indicated on the attached SCHEDULE 1 - Plan of Bushfire Protection Measures .

Recommendation 2 – From the start of building works and in perpetuity, the entire property must be managed as an inner protection area (IPA) in accordance with the requirements of Appendix 4 of *Planning for Bush Fire Protection 2019*.

Recommendation 3 - Access is provided in accordance with Section 3.2 of this report.

Recommendation 4 - Water, electricity and gas supply is provided in accordance with sections 3.3, 3.4 and 3.5 of this report.

Recommendation 5 - Fencing is to comply with Section 7.6 of PBP. All fences should be made of non-combustible material.

Recommendation 6 – A Bush Fire Emergency Management and Evacuation Plan is prepared by the operator consistent with the NSW RFS publication: *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan*, and AS3745:2010.

5. REFERENCES

Australian Building Codes Board (2010) – *Building Code of Australia*, Class 1 and Class 10 Buildings Housing Provisions Volume 2.

Chan, K.W. (2001) – *The suitability of the use of various treated timbers for building constructions in bushfire prone areas*. Warrington Fire Research.

Councils of Standards Australia AS3959 (2009) – *Australian Standard Construction of buildings in bush fire-prone areas*.

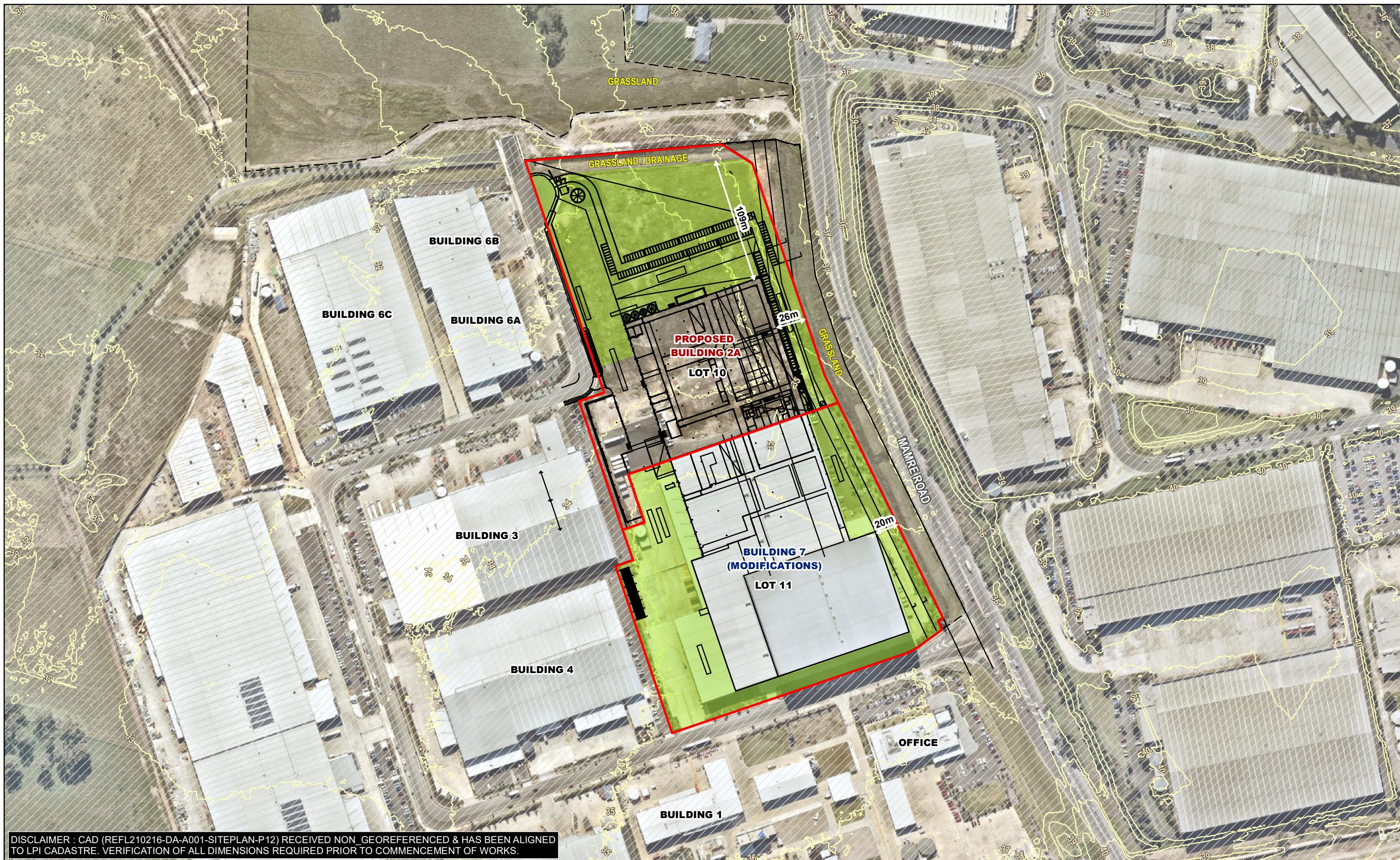
NSW Department of Planning (2011) *Hazardous and Offensive Development Application Guidelines - Applying SEPP 33*. State of New South Wales through the Department of Planning

Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT*. The Department of Environment and Climate Change.

Rural Fire Service (2019) - *Planning for bushfire protection – a guide for councils, planners, fire authorities and developers*. NSW Rural Fire Service.

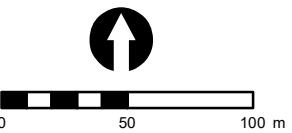
Tan, B., Midgley, S., Douglas, G. and Short (2004) - *A methodology for assessing bushfire attack*. RFS Development Control Service.

SCHEDULE 1. PLAN OF BUSHFIRE PROTECTION MEASURES



Legend

- Site boundary (source: LPI)
- Contour 1m (source: LiDAR)
- Asset Protection Zone (APZ)



Aerial source: Nearmap

Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

PROJECT & MXD REFERENCE
Distribution Drive, Orchard Hills
21TMX02_BF001

DATE & ISSUE NUMBER
11/06/2021
Issue 1

SCALE & COORDINATE SYSTEM
1:3,000 @A3
GDA 1994 MGA Zone 56

EB

TITLE

Schedule 1 - Bushfire Protection Measures

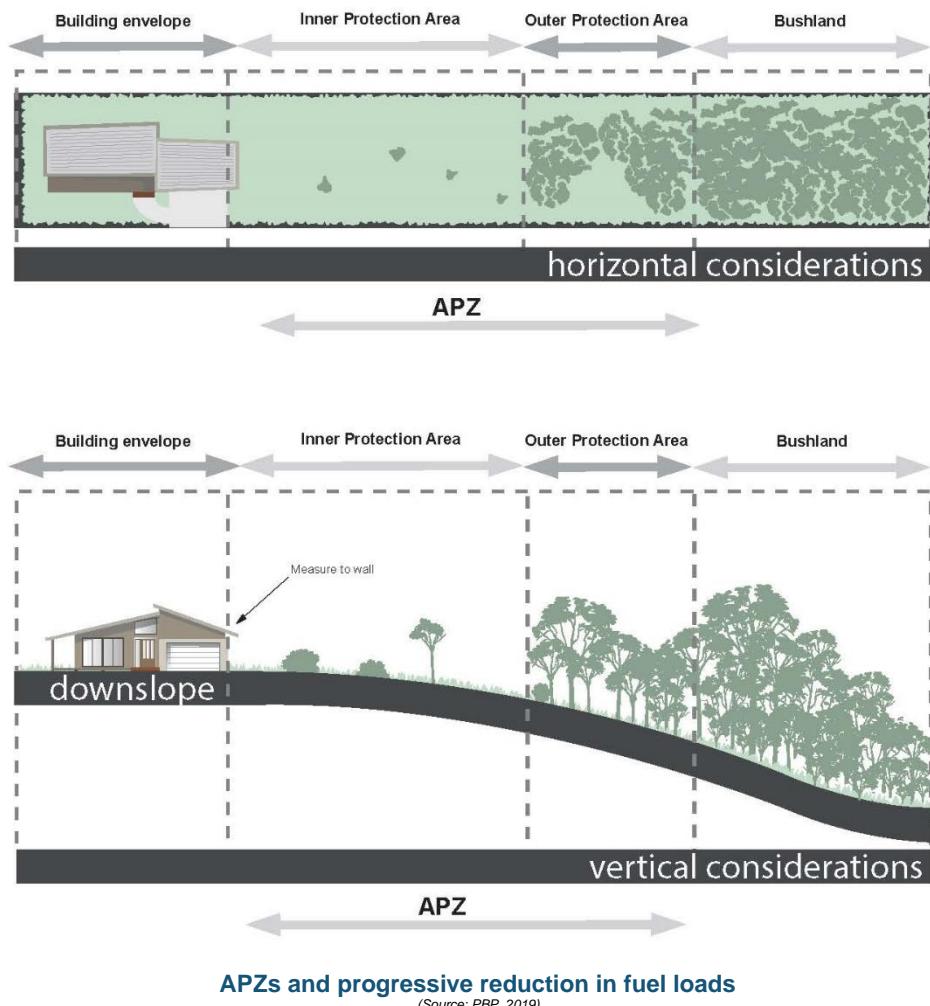
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APPENDIX 1. MANAGEMENT OF ASSET PROTECTION ZONES

The RFS provides basic advice in respect of managing APZs through documents such as, *Standards for Asset Protection Zones* (RFS, 2005), with landscaping to comply with Appendix 4 of *PBP*.

In forest vegetation an APZ may consist of two subordinate areas, an inner protection area (IPA) and an outer protection area (OPA). The IPA is the area immediately surrounding the building and the OPA (up to 30% of the total APZ width) is between the IPA and the hazard.

A typical APZ is graphically represented below.



Note: Vegetation management as shown is for illustrative purposes only. Specific advice is to be sought regarding vegetation removal and retention from a qualified and experienced expert to ensure APZs comply with the RFS performance criteria.

The following table adapted from *PBP 2019* provides maintenance advice for vegetation within the IPA and OPA. The APZ is to be maintained in perpetuity and maintenance should be undertaken regularly, particularly in advance of the bushfire season.

	Inner Protection Area	Outer Protection Area
Trees	<ul style="list-style-type: none"> ➤ Tree canopy cover should be less than 15% at maturity; ➤ Trees at maturity should not touch or overhang the building; ➤ Lower limbs should be removed up to a height of 2m above the ground; ➤ Tree canopies should be separated by 2 to 5m; and ➤ Preference should be given to retaining smooth barked and evergreen trees. 	<ul style="list-style-type: none"> ➤ Tree canopy cover should be less than 30%; and ➤ Canopies should be separated by 2 to 5m.
Shrubs	<ul style="list-style-type: none"> ➤ Large discontinuities or gaps in the vegetation should be provided to slow down or break the progress of fire towards buildings; ➤ Shrubs should not be located under trees; ➤ Shrubs should form less than 10% ground cover; and ➤ Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation. 	<ul style="list-style-type: none"> ➤ Shrubs should not form a continuous canopy; and ➤ Shrubs should form less than 20% of ground cover.
Grass and Leaf Litter	<ul style="list-style-type: none"> ➤ Grass should be kept mown to a height of less than 100mm; and ➤ Leaves and other debris should be removed 	<ul style="list-style-type: none"> ➤ Grass should be kept mown to a height of less than 100mm; and ➤ Leaf and other debris should be removed.

	All Management Zones
Weeds	<ul style="list-style-type: none"> ➤ All weeds should be removed in accordance with best practice guidelines, and measures taken to prevent their further spread
Landscaping	<ul style="list-style-type: none"> ➤ Suitable impervious areas being provided immediately surrounding the building such as courtyards, paths and driveways; ➤ Restrict planting in the immediate vicinity of the building which may over time and if not properly maintained come into contact with the building; ➤ When considering landscape species consideration needs to be given to estimated size of the plant at maturity; ➤ Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies; ➤ Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown; ➤ Avoid planting of deciduous species that may increase fuel at surface / ground level (i.e. leaf litter); ➤ Avoid climbing species to walls and pergolas; ➤ Locate combustible materials such as woodchips / mulch, flammable fuel stores away from the building; ➤ Locate combustible structures such as garden sheds, pergolas and materials such timber garden furniture way from the building; and ➤ Use of low flammability vegetation species.

APPENDIX 2. NSW RFS Conditions of Consent



Department of Planning & Environment
Industry Assessments
GPO Box 39
SYDNEY NSW 2001

Your reference: SSD 7173
Our reference: D15/2396

17 June 2016

Attention: Jane Flanagan

Dear Sir/Madam,

Proposed Warehouse and Logistics Hub - 585-649 Mamre Road, Orchard Hills (Penrith LGA)

Reference is made to the Department of Planning & Environment's correspondence dated 3 May 2016 seeking advice regarding bush fire protection in relation to the above Development Application in accordance with the *Environmental Planning and Assessment Act 1979*.

The New South Wales Rural Fire Service (NSW RFS) provides the following recommended conditions:

Asset Protection Zones

The intent of measures is to provide sufficient space and maintain reduced fuel loads so as to ensure radiant heat levels of buildings are below critical limits and to prevent direct flame contact with a building. To achieve this, the following conditions shall apply:

1. Prior the issue of construction or subdivision certificate (whichever comes first) and in perpetuity, all proposed lots shall be entirely managed as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.

Water and Utilities

The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building. To achieve this, the following conditions shall apply:

2. Water, electricity and gas are to comply with section 4.1.3 of 'Planning for Bush Fire Protection 2006'.

If you have any queries regarding this advice, please contact Simon Derevnin, Development Assessment and Planning Officer, on 1300 NSW RFS.

Postal address

NSW Rural Fire Service
Records Management
Locked Bag 17
GRANVILLE NSW 2141

Street address

NSW Rural Fire Service
Planning and Environment Services (East)
42 Lamb Street
GLENDENNING NSW 2761

T 1300 NSW RFS

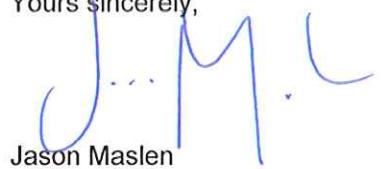
F (02) 8741 5433

E csc@fs.nsw.gov.au

www.rfs.nsw.gov.au



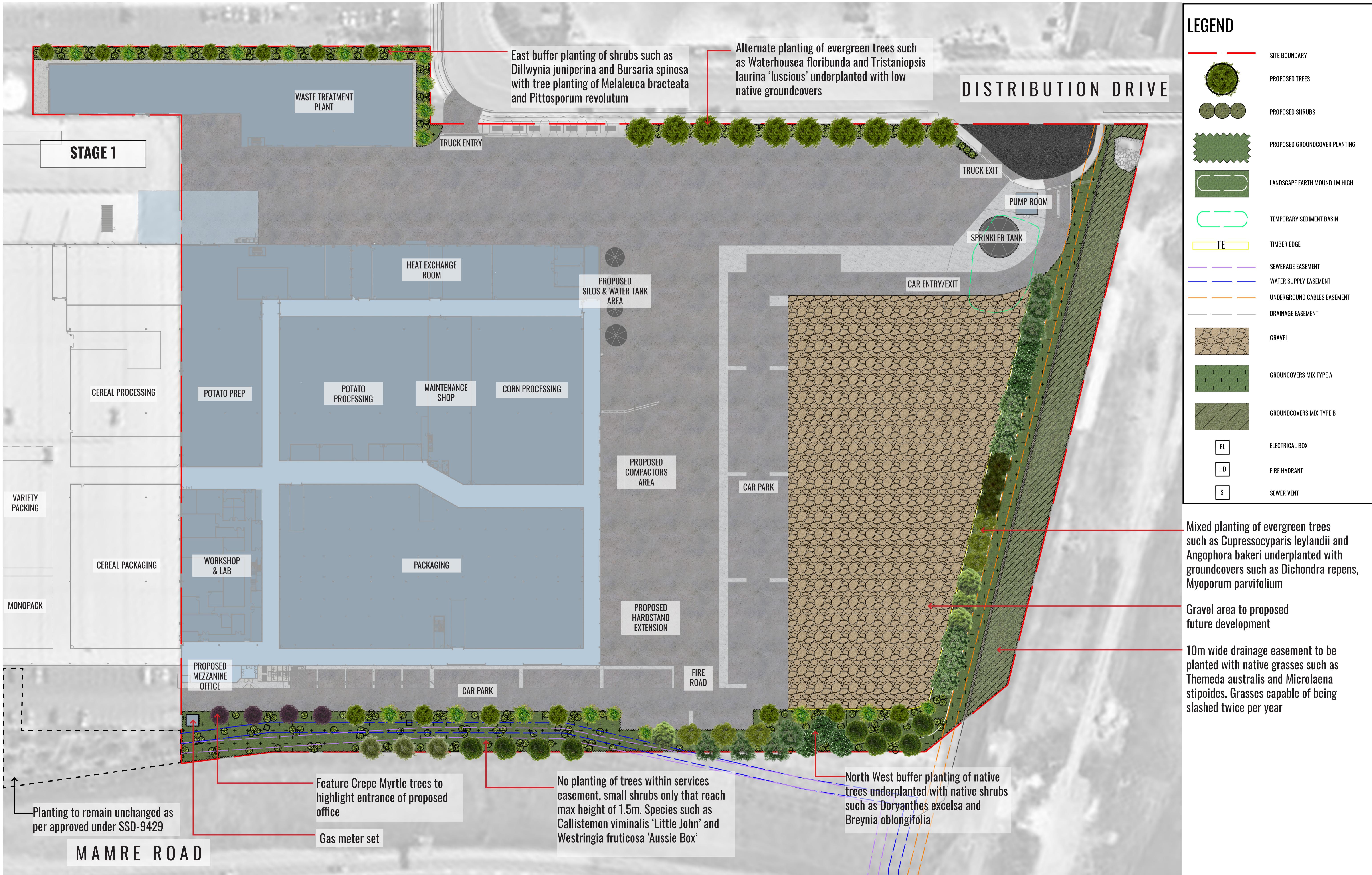
Yours sincerely,

A handwritten signature in blue ink, appearing to read "J. M. L".

Jason Maslen

Team Leader, Development Assessment and Planning
Planning and Environment Services (East)

APPENDIX 3. LANDSCAPE PLAN



Drawing Title:
Landscape Plan
DWG No:

SSD-01

GEOSCAPES
LANDSCAPE ARCHITECTS
Suite 215, 284 Victoria Ave, Chatswood NSW 2067 Ph. (02) 9411 1485
www.geoscapes.com.au
ABN 84 620 205 781 ACN 620 205 781

Architect: **hlc** architects

Project Manager: **TMX** invent tomorrow

Client: **snackbrands** AUSTRALIA

Rev	Date	Description	Drawn	Checked
-	21.04.21	FOR SSD DRAFT	KC	BG
A	09.06.21	FOR SSD	KC	BG

Scale: 1:500 @ A1 Date: 09.06.21 Job Number: 210222 North:

Project: Snack Brands Horizon
685-649 Mamre Road, Orchard Hills, NSW 2748