

BUSHFIRE PROTECTION ASSESSMENT

FOR THE

LOGOS KEMPS CREEK LOGISTICS PROJECT

LOT 1 in DP 104958,

No. 708 MAMRE ROAD,

KEMPS CREEK

FOR

LOGOS PROPERTY

AUGUST 2010



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Assessment Number	Document	Preparation Date	Issue Date	Directors Approval
B101295 - 1	Final	23.5.2010	8.8.2010	<i>G.L.Swain</i>

EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited, at the request of *PJEP Environmental Planning*, on behalf of *Logos Property*, has undertaken the bushfire consultancy to inform the concept planning process, under Part 3A [State Environmental Planning Policy – Major Development SEPP] of the *Environmental Planning & Assessment Act 1979*, on the bushfire protection measures required for the construction of the proposed Logos Kemps Creek Logistics Project on Lot 1 in DP 104958, No. 708 Mamre Road, Kemps Creek.

There are two tenants currently finalising major logistic developments on the site – DHL for 145,880 m² staged over five years and Metcash for 80,386 m² staged over two years.

The site on which it is proposed to construct the new warehouses and distribution centres comprises 52 hectares of land on the corner of Bakers Lane and Mamre Road, Kemps Creek. The development proposal includes the construction of an estate road for access off Bakers Lane.

The Director-General's requirements for the Environmental Assessment contain no specific bushfire protection requirements for the Concept Plan and Project Application. The DGR's under 'Other Issues – Hazards' states 'fire risk and management'.

In addition, the Penrith City Council Bushfire Prone Land Map indicates that the site contains the buffer zone to the Category 1 Bushfire Prone Vegetation located within the School site, located to the north of Bakers Lane

Therefore this report undertakes an assessment to examine the measures required to minimise bushfire risk on the proposed development and determines the deemed-to-satisfy bushfire protection requirements in accordance with the provisions of *Planning for Bushfire Protection 2006*, and provides recommendations on the provision of Asset Protection Zones [Defendable Spaces] to the future Distribution Centre and Warehouse buildings. This report also assesses the adequacy of fire-fighting access and water supplies; construction standards of the buildings, the management of the Asset Protection Zones [Defendable Spaces] and evacuation protocols necessary to address the bushfire risk to the proposed development and to address the aim and objectives of *Planning for Bushfire Protection 2006*.

The report has found that no modifications are required to the development proposal in order to address the provision of a defendable space [Asset Protection Zone] to the buildings; the provision of access and water supplies for fire-fighting operations.



Graham Swain,
Managing Director,
Australian Bushfire Protection Planners Pty Limited.

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SECTION 1

INTRODUCTION

1.1 Development Proposal.

Australian Bushfire Protection Planners Pty Limited, at the request of *Logos Property*, has undertaken the bushfire consultancy to inform the concept planning process on the bushfire protection measures required for the construction of the proposed LOGOS Kemps Creek Logistics Project on Lot 1 in DP 104958, No. 708 Mamre Road, Kemps Creek.

Logos Property has submitted an application, under Part 3A [State Environmental Planning Policy – Major Development SEPP] of the *Environmental Planning & Assessment Act 1979*, for the construction of the DHL & Metcash and associated infrastructure.

The site on which it is proposed to construct the new distribution centres and warehouses comprises 52 hectares of land on the corner of Mamre Road and Bakers Lane. The Master Plan proposal for the site proposes the Metcash Main Warehouse, Office and Cold Stores on the eastern portion of the site and eight DHL Warehouse buildings across the western portion of the site.

Access to the site will be off Bakers Lane and Mamre Road

Figure 1 – Master Plan of the DHL & Metcash Distribution Centres and Warehouse development.



1.2 Aim of this Report.

The aim of this report is to address the Director General's Requirements [DGRs] and to provide a bushfire protection assessment report for the project pursuant to the aim and objectives of *Planning for Bushfire Protection 2006*.

1.3 Statutory Requirements.

This report has been prepared having regard to the following legislative and planning requirements:

1.3.1 Legislation.

Environmental Planning and Assessment Act - 1979 (EPA Act)

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 1979* (EPA Act). Part 3A [Major Projects] of the Act commenced on the 1st August 2005 and consolidated the assessment and approval regime for all major projects previously addressed under Part 4 [Development Assessment] or Part 5 [Environmental Assessment] of the Act.

1.3.2 Planning Policies.

Planning for Bushfire Protection – 2006. [Rural Fire Service]

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for rural residential and residential subdivision, “*Special Fire Protection*” and Class 5 – 8 and 10 buildings in bushfire prone areas.

The document provides deemed-to-satisfy specifications on the provision of Asset Protection Zones to residential and “*Special Fire Protection*” developments; defensible space requirements to Class 5 – 8 & 10 developments and access/water supply provisions for developments in bushfire prone areas. Provision for the assessment of construction standards to buildings and management / maintenance of the Asset Protection Zones/defensible space to buildings is also provided.

1.4 Documentation reviewed in this Assessment.

To achieve the aim of this report, a review of information relevant to the property was undertaken. Information sources reviewed included the following documents:

- Planning Presentation Report prepared by LOGOS Property & PJEP Environmental Planning including proposed Master Plan;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service/Planning N.S.W;
- Australian Standard AS3959 *Construction of Buildings in Bushfire Prone Areas*;
- *Rural Fires Regulation 2008*;
- Penrith City Council *Certified Bushfire Prone Land Map*.

1.5 Site Inspection.

Graham Swain of ***Australian Bushfire Protection Planners Pty Limited*** inspected the development site on the 26th of May 2010 to assess the topography, gradients of the land within and external to the site and vegetation classification within and adjoining the development property, existing bushfire mitigation measures and a visual assessment of bushfire threat.

The land adjoining the development site was also inspected to determine the surrounding land use / land management practices and extent of bushfire prone vegetation.

1.6 Authority Consultation.

The DGRs do not specifically require consultation with the NSW Rural Fire Service in order to obtain advice on bushfire protection measures to the development. Therefore, the recommendations provided in this report are drawn from the NSW Rural Fire Service's *Planning for Bushfire Protection 2006*.

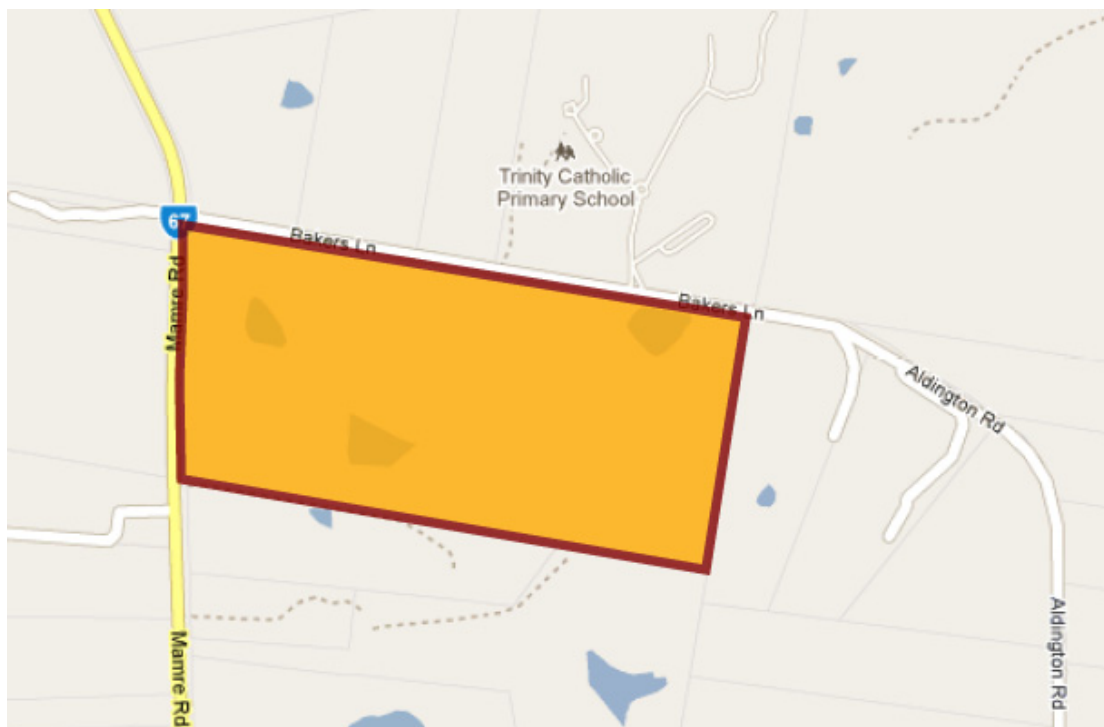
SECTION 2

PROPERTY DESCRIPTION

2.1 Location.

The development site occupies Lot 1 in DP 104958, No. 708 Mamre Road, Kemps Creek and is located on the corner of Mamre Road and Bakers Lane in the Local Government Area of Penrith City Council.

Figure 4 – Location of Development Site.



2.2 Existing Land Use.

The development site contains an existing farm house and is used for cattle grazing.

2.3 Surrounding Land Use.

The landuse adjoining the boundaries of the development site is as follows:

(a) North

The development to the north of Bakers Lane consists of the Emmaus Catholic College; Trinity Catholic Primary School; Mamre Christian College and rural land within Lots 2 & 3 in DP 587334.

(b) East

The land adjoining the eastern boundary of the development site consists of rural residential development with grazing land.

(c) South

The land adjoining the southern boundary of the development site consists of agricultural land within Lots 59 & 60 in DP 259135. Both of these allotments contain existing dwellings and associated sheds.

(d) West

The Mamre Road carriageway adjoins the western boundary of the development site with agricultural land use on Lots X & Y in DP 421633 to the west of the road. Both of these allotments contain existing dwellings and associated sheds.

Figure 5 – Cadastre Plan.

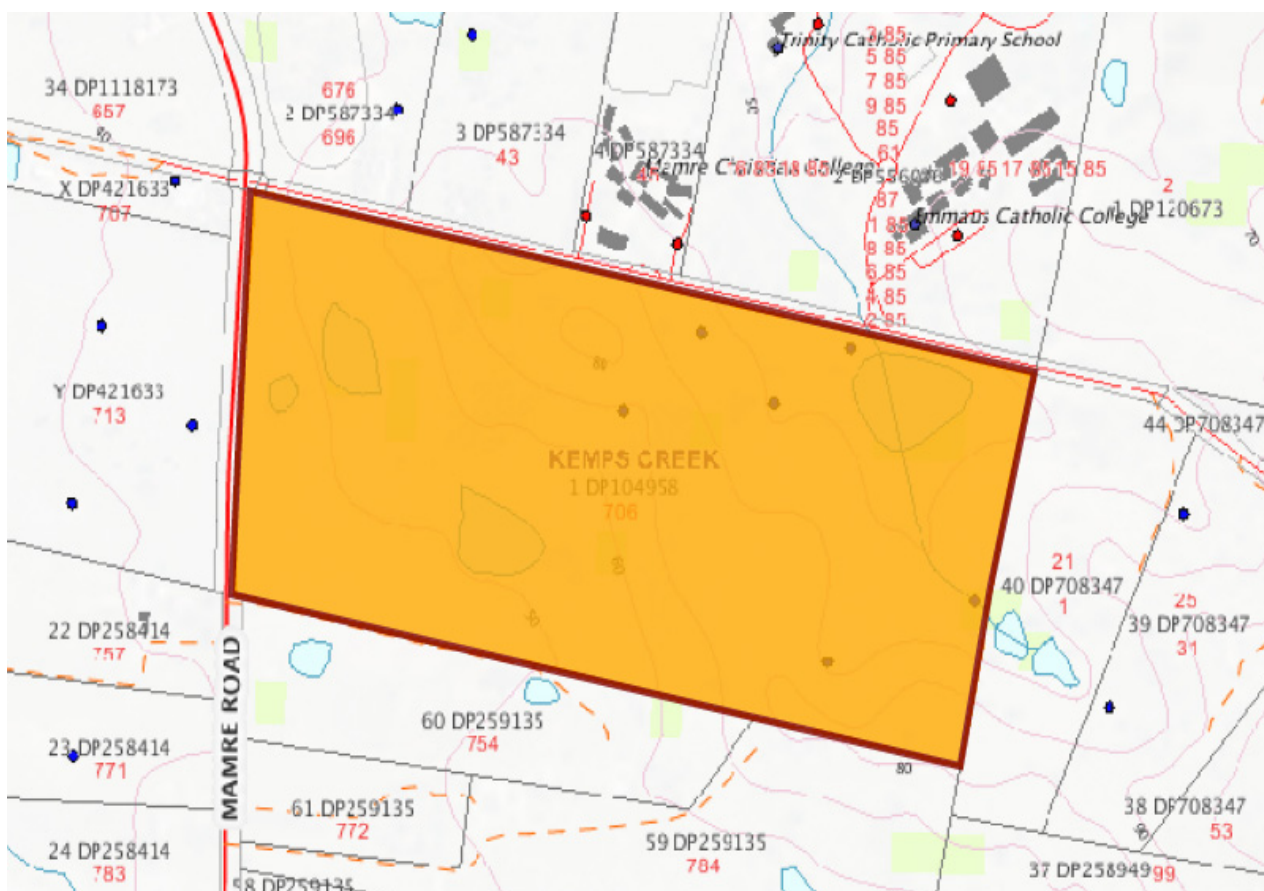


Figure 6 – Aerial Photograph of Site.



2.4 Topography.

Appendix 2 of *Planning for Bushfire Protection 2006* states that slopes should be assessed, over a distance of at least 100m from a development site and that the gradient of the land should be determined which will most significantly influence the fire behaviour on the site.

a) Within the Development Site.

The landform within the development site is dominated by a ridge line that extends in a northwest to southeast orientation across the central portion of the site, turning to the east along the southern boundary – refer to Figure 7 Topographic Map.

The land within the western portion of the site slopes to the west from the ridgeline whilst the land within the eastern portion of the site forms into a valley which falls from the ridgeline, rising across the eastern boundary to the ridgeline further to the east.

b) Beyond the Development Site.

(a) North.

The topography to the north of Bakers Lane generally falls to the north and northwest from the ridgeline within the development site whilst the land within the Catholic Schools site continues to slopes to the northwest and an extension to the valley which rises within the development site.

(b) East.

The topography to the east of the development site, within the adjoining rural residential development, rises to the east at < 10 degrees.

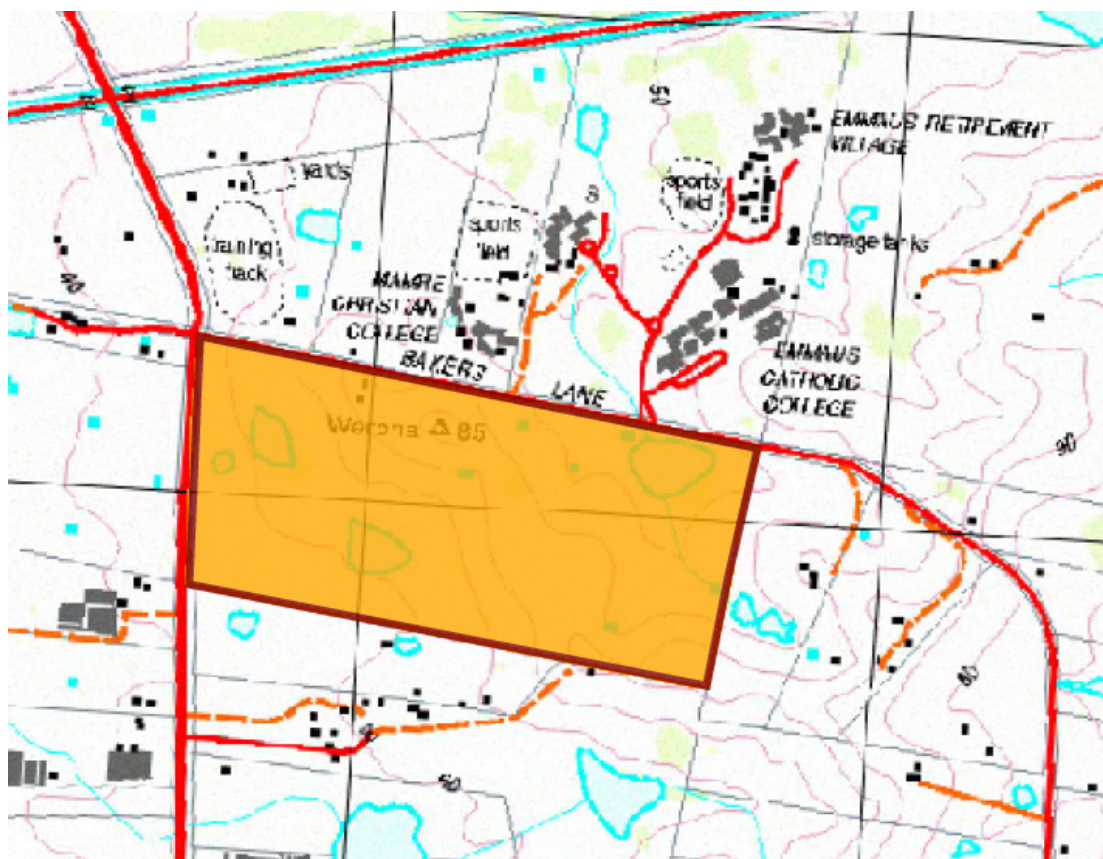
(c) South.

The topography of the land to the south of the development site falls to the southwest at 5 – 6 degrees across the adjacent farming land.

(d) West.

The topography of the land to the west of the development site, beyond the Mamre Road carriageway, falls to the west at 1 – 2 degrees across the farming land.

Figure 7 – Topographic Map of development site and adjoining lands.



2.5 Vegetation within the Development Site.

Appendix A2.3 of *Planning for Bushfire Protection 2006* provides a methodology for determining the predominant bushfire prone vegetation for at least 140 metres in all directions from the buildings. Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection 2006*, which classifies vegetation types into the following groups:

- (a) *Forests [wet & dry sclerophyll forests];*
- (b) *Woodlands;*
- (c) *Plantations – being pine plantations not native plantations;*
- (d) *Forested Wetlands;*
- (e) *Tall Heaths;*
- (f) *Freshwater Heaths;*
- (g) *Short Heaths;*
- (h) *Alpine Complex;*
- (i) *Semi – arid Woodlands;*
- (j) *Arid Woodlands; and*
- (k) *Rainforests.*

The development site contains pasture grass with scattered shade trees which form remnant areas of Cumberland Plain Woodland.

2.6 Vegetation within 140 metres of the Development Site.

(a) North.

The adjoining School lands contain managed gardens and remnant Cumberland Plain Woodland. This woodland community represents the mapped Category 1 Bushfire Prone Vegetation recorded on the Penrith Bushfire Prone Land Map.

The vegetation on the farming land consists of grassland with scattered shade trees.

(b) East.

The adjoining rural residential development contains Cumberland Plain Woodland with a grassy understorey. This vegetation is not recorded as being bushfire prone vegetation on the Penrith Bushfire Prone Land Map.

(c) South.

The adjoining farming land contains grassland vegetation and areas of which are sown to crops.

(d) West.

The Mamre Road corridor contains unmanaged remnant Cumberland Plain Woodland with a grassy understorey. The farming land to the west contains grazed grassland.

2.7 Significant Environmental Features within the Development Site.

The development site does not contain significant environmental features such as SEPP 44 Koala Habitat; SEPP 14 Wetlands; SEPP 26 Littoral Rainforests; land slip areas or National Parks Estate; areas of geological interest. The valley in the eastern portion of the development site contains a watercourse which is shown on the 1:25,000 topographic map as a blue line and is therefore a designated stream pursuant to the Water Management Act.

2.8 Known Threatened Species, Population or Ecological Community on the Site.

There are small patches of remnant Cumberland Plain Woodland [EEC] within the development site. The Ecological Assessment prepared by Cumberland Ecology concludes that this vegetation is highly degraded and will be replaced with replanting of Cumberland Plain Woodland within the proposed landscaping in the development site.

2.9 Details and location of Aboriginal Relics or Aboriginal Place.

The Aboriginal & Non Aboriginal Heritage Impact Assessment Report prepared by Dominic Steele Consulting – Archaeology records findings that identify that the site contains some Aboriginal relics and potential scar trees.

The report recommends that these items should be recorded and removed from the site as part of the development works.

SECTION 3

FIRE MANAGEMENT RESPONSIBILITIES

Fire management within the development site is the responsibility of:

3.1 Penrith City Council.

Penrith City Council has responsibility, under Section 66 of the *Rural Fires Act*, to issue a notice in writing requiring an owner / occupier of any land within the LGA to carry out bushfire hazard reduction works on that land. Section 100E of the *Rural Fires Act* requires Council to issue bushfire hazard Reduction certificates for hazard reduction to be undertaken on private lands.

3.2 New South Wales Rural Fire Service.

The NSW Rural Fire Service (RFS) has the responsibility for undertaking fire suppression activities, hazard management activities and other functions relative to emergency management, within its areas of operation. *Section 73* of the *Rural Fires Act (1997)* enables the Commissioner to carry out bush fire hazard reduction works on any land as required by a bush fire risk management plan if the work has not been carried out satisfactorily. Incurred costs can be recovered as a debt owed to the Crown.

3.3 New South Wales Fire Brigade.

The NSW Fire Brigade has the responsibility for undertaking fire suppression activities, and other functions relative to emergency management, within its area of operation and through Mutual Aid Agreements, provide assistance to the NSW Rural Fire Service, particularly for structural fire operations within the NSW Rural Fire Brigade Districts. Hazmat management within New South Wales is the responsibility of the NSW Fire Brigade.

3.4 Penrith Bush Fire Management Committee.

The Penrith Bushfire Management Committee has the responsibility for planning for co-ordinated fire fighting activities / hazard management activities on a local government level. It is not an operational organization, a fire fighting organization or a funding source for fire management activities.

The Bush Fire Management Committee is supported by the following provisions of the Rural Fires Act 1997:

- **Section 52** requires each Bush Fire Management Committee to prepare a draft bush fire management plan for their local areas which includes a plan of operations and a bush fire risk management plan.
- **Section 54** of the Act specifies that a draft bush fire risk management plan is to 'set out schemes for the reduction of bush fire hazards in the rural fire district or other part of the State'.

A draft bush fire risk management plan may also restrict or prohibit the use of fire or other fire hazard reduction activities in all or specified circumstances or places to which the plan applies.

3.5 Public Authorities & owners/occupiers of land.

The Rural Fires Act, 1997 provides several legislative opportunities to require Public Authorities, land owners and occupiers to manage hazardous fuels. These are listed below:

- **Section 63(1)** states that it is the duty of a public authority to take any practicable steps to prevent the occurrence of bushfires on, and to minimise the danger of the spread of a bushfire on or from:
 - (a) any land vested in or under its control or management, or*
 - (b) any highway, road, street, land or thoroughfare, the maintenance of which is charged on the authority.*
- **Section 63(2)** states that *'it is the duty of the owner or occupier of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of fires on, and to minimise the danger of the spread of fires on or from that land'.*
- **Section 65A** states that the *'Commissioner may nominate a member of the Service as a hazard management officer'.*
- **Section 65(2)** states that *'an authorised person may, with the permission of the fire fighting authority or other authority responsible for unoccupied Crown land or managed land or a person nominated by the authority to give such permission, enter the land and carry out bushfire hazard reduction work with the assistance of such other persons as the authorised person considers to be necessary for the purpose'.*
- **Section 65(3)** states that *'the authority responsible for unoccupied Crown land or managed land is to be taken to have given the permission under this section to the extent necessary to give effect to a bushfire risk management plan'.*
- **Section 65(4)** states that *'if permission under this section is given subject to conditions, the conditions must be complied with'.*
- **Section 66(1)** states that *'a hazard management officer may, by notice in writing, require the owner or occupier [not being a public authority] of any land to carry out bushfire hazard reduction work specified in the notice on the land'.*

- **Section 66(2)** states that *‘a hazard management officer must serve a notice under this section if required to do so by a bushfire risk management plan applicable to the land that is in force’.*
- **Section 66(3)** states that *‘a hazard management officer must issue a bushfire hazard reduction certificate in respect of any bushfire hazard reduction work required by a notice issued in accordance within section (2)’.*
- **Section 66(6)** states that *‘the requirements and conditions so specified must include any requirements in a bushfire risk management plan that is applicable to the land and is in force and may include a requirement or condition that the burning of fire breaks or of combustible material;*
(a) must in fire district constituted under the Fire Brigades Act 1989 be carried out by or under the supervision of the fire brigade or an officer in charge of the fire brigade;
(b) must outside a fire district, be carried out by or under the supervision of the rural fire brigade specified in the notice or an appropriate officer of the rural fire brigade or any hazard management officer.
- **Section 66(7)** states that *‘a notice requiring the establishment of a firebreak cannot require an occupier or owner to kill or remove any trees that are reasonably necessary for shade, shelter, windbreak or fodder purposes or the protection of threatened species, populations, ecological communities or critical habitats within the meaning of the ‘Threatened Species Conservation Act 1995’.*
- **Section 66(8)** states that *‘an occupier or owner to whom a bushfire hazard reduction notice is given must, despite the fact that a fire permit has not been granted under Division 5, comply with the requirements specified in the notice’.*
- **Section 70(2)** states that *‘if within the time specified in the relevant notice the owner or occupier to whom it is given fails to comply with any requirement of the notice, the Commissioner may, without prejudice to liability of the owner or occupier, enter on the land and carry out the bushfire hazard reduction work the owner or occupier was required to do under the notice’.*
- **Section 70(3)** states that *‘any costs incurred by the Commissioner in carrying out such work may be recovered from the owner or occupier of the land as a debt due to the Crown in a court of competent jurisdiction’.*
- **Section 87** allows the removal of hazards in the bush fire danger period by the provision of a permit system. The permits are valid for 21 days, excluding TOBAN days.

Section 10 permits are not required to adhere to *Part V* provisions of the EPA Act 1979 in the assessment of impact, except for public authorities. An owner/occupier of private land must obtain from the NSW Rural Fire Service, a bushfire hazard reduction certificate before undertaking hazard reduction works on that land (Section 100E of the *Rural Fires Act 1997*).

3.6 Bushfire Hazard Management within the Development Site.

The management of the landscaped gardens and the vegetation within the development site will remain the responsibility of the property owner or their successor/s.

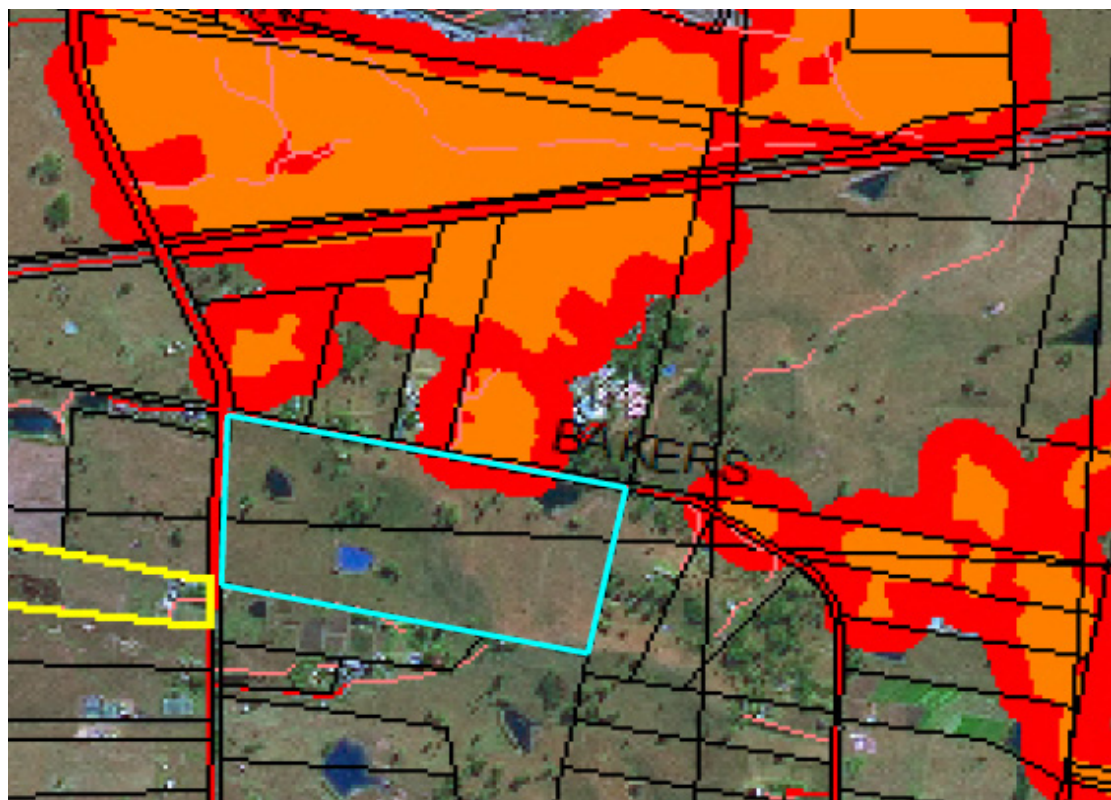
SECTION 4

PRECINCT LEVEL ASSESSMENT

4.1 Certified Bushfire Prone Land Map.

Section 146 of the *Environmental Planning & Assessment Act 1979* requires councils, where a Bushfire Risk Management Plan applies, to prepare a Bushfire Prone Land Map in consultation with the Commissioner of the NSW Rural Fire Service. The Commissioner will designate lands to be Bushfire Prone within an area and, when satisfied that the lands have been recorded on a map, will certify the map as a Bushfire Prone Land Map for the purposes of this or any other Act.

Figure 8 – Extract from the Penrith Bushfire Prone Land Map



Bushfire Prone Land

- BFPL Vegetation Category 1
- BFPL Vegetation Category 2
- BFPL Vegetation Buffer -100m & 30M

The map shows that the site is impacted by the 100 metre wide buffer zone to the Category 1 Bushfire Prone Vegetation within the School site to the north of Bakers Lane. The site inspection confirmed the accuracy of the Bushfire Prone Land Map although the vegetation on the land to the east was also identified as woodland vegetation and therefore a bushfire hazard.

SECTION 5

BUSHFIRE PROTECTION ASSESSMENT

5.1 Introduction.

Planning for Bushfire Protection 2006 provides deemed-to-satisfy fire protection measures for residential development [Class 1, 2 & 3 buildings]; “Special Fire Protection Developments [Hospitals, Nursing Homes / Retirement Villages / Schools / Childcare Centres & Tourist Accommodation]; Industrial / Commercial Development and residential and Special Fire Protection “infill” development.

In reference to the construction of the proposed Warehouses and Distribution Centres these structures are classified as Class 7 buildings as defined by the Building Code of Australia [BCA].

Chapter 1, Section 1.3 of *Planning for Bushfire Protection 2006* states that the construction of Class 5 – 10 buildings on bushfire prone land, or land impacted by bushfire prone vegetation, must meet the aim and objectives of the document.

Chapter 4, Section 4.3.6(f) discusses the bushfire protection to buildings of Class 5 to 8 and 10b of the Building Code of Australia and states:

“The Building Code of Australia does not provide for any bushfire specific performance requirements and as such AS 3959 -1999 does not apply as a set of “deemed-to-satisfy” provisions.

The general fire safety construction provisions [of the BCA] are taken as acceptable solutions, but the aim and objectives of Planning for Bushfire Protection 2006 apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management”.

“Where the aim and objectives of PfPFP [Section 1.1] are not met, then the construction requirements for bushfire protection will need to be considered on a case-by-case basis”.

“In many cases, these types of developments will require on-site parking and loading areas. In such cases, it is prudent to place these facilities in the most appropriate location in order to establish defensible space for fire-fighting purpose”.

The objectives of *Planning for Bushfire Protection 2006* are:

- (i) Afford occupants of any building adequate protection from exposure to a bushfire;
- (ii) Provide for a defensible space to be located around buildings;
- (iii) Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;
- (iv) Ensure that safe operational access and egress for emergency service personnel and residents is available;
- (v) Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zones;

and
- (vi) Ensure that utility services are adequate to meet the needs of fire-fighters and others assisting in bushfire fighting.

The document identifies six core bushfire protection requirements. These are:

- Provision of Asset Protection Zones / Defensible Spaces in accordance with the specific landuse, the predominant bushfire prone vegetation type within 140 metres of the development and the topography of the land containing the bushfire prone vegetation;
- Access for fire fighting operations;
- Water Supplies for fire fighting operations;
- Construction standards of buildings located within 100 metres of the bushfire hazard interface, dependant on specification landuse, the predominant bushfire prone vegetation type within 140 metres of the development and the topography of the land containing the bushfire prone vegetation;
- Emergency Planning;
- Landscape Management – in particular the management of the Asset Protection Zones / Defensible Spaces and residual bushfire prone vegetation.

Planning for Bushfire Protection 2006 provides a methodology to determine the Asset Protection Zones [defensible space] and Bushfire Attack [Construction Standards] required for **habitable buildings** in development for **residential purposes** that are designated as bushfire prone.

The document does not provide deemed to satisfy solutions for Class 5 – 10 buildings constructed in bushfire prone areas but states that where the aim and objectives of the document are not met, then the construction requirements for bushfire protection will need to be considered on a case by case basis.

Sections 5.2 and 5.3 of this report examine the layout of the development in relation to the provision of a suitable “defendable space” between the bushfire hazard and the new building and the protection against the potential impacts of a future fire occurrence in the vegetation adjoining the development site and provides recommendations on the bushfire protection measures required to be implemented to mitigate the potential bushfire threat.

The provision of access and water supplies for fire-fighting operations; management of the defendable space [Asset Protection Zone] and evacuation planning are examined in Sections 5.4 – 5.9 of this report.

5.2 The provision of Defendable Space/s [Asset Protection Zones].

Appendix 2 of *Planning for Bushfire Protection 2006* provides the following procedure for determining setback distances (Asset Protection Zones) for **residential development** in bushfire prone areas:

- (a) *Determine vegetation formations as follows:*
 - Identify vegetation in all directions from the site for a distance of 140 metres;
 - Consult Table A2.1 to determine the predominant vegetation type; and
 - Select the predominant vegetation formation as described in Table A2.1.
- (b) *Determine the effective slope of the land under the predominant vegetation Class.*
- (c) *Determine the appropriate fire [weather] area in Table A2.2.*
- (d) *Consult Table A2.3 and determine the appropriate setback [APZ] for the assessed land use, vegetation formation and slope range.*

The methodology does not determine the requisite Defendable Space requirements for Class 5 – 10 developments as defined by the Building Code of Australia [BCA].

Table 1 examines the width of defensible space requirements based on the widths required to provide a separation distance which is sufficient to minimise flame contact with the building/s and to provide a fire-fighting platform wide enough to permit the safe extinguishment of a bushfire, after the fire front has passed.

Table 1. Determination of Defendable Space to the proposed Distribution and Warehouse Complexes. Fire Danger Index for the site is 100

Aspect	Vegetation within 140m of development	Predominant Vegetation Formation Class [Table A2.1 Planning for Bushfire Protection 2006]	Effective Slope of Land for 100 metres from buildings	Flame Zone Width determined by calculation	Available width of Defendable Space to proposed building
North of DHL & Metcash complex	Grassland & Cumberland Plain Woodland	Grassland / Woodland	< 2 degrees fall to the north across the woodland vegetation	12 metres flame length for Woodland vegetation on 2° downslope to the north	Defendable Space of more than 60 metres to DHL/Metcash buildings provided by road width + managed 'Landscape Setback'
East of Metcash complex	Cumberland Plain Woodland within adjoining property	Woodland	< 10 degrees upslope to the east	7 metres flame length for Woodland vegetation on 8° upslope to the east	Minimum 35 metres to the east of the Metcash Building
South of DHL & Metcash complex	Grassland	Nil Classification	5 – 6 degrees downslope to the southwest	Nil – no bushfire threat	Defendable Space more than 100 metres wide
West of DHL complex	Grassland	Nil Classification	1 – 2 degrees downslope to the west	Nil – no bushfire threat	Defendable Space more than 20 metres wide provided by managed 'Landscape Setback'

Note 1:

The assessment to determine the minimum defendable space width to the north of the proposed complex and to the east of the proposed Metcash Distribution Centre has determined that the minimum prescribed width of defendable space should be 12.00 metres to the north, measured off the face of the proposed buildings and 7 metres to the east of the Metcash building.

The available separation [defendable space] to the north, across Bakers Lane is more than 60 metres and includes the road width and a 20 metre wide managed Landscaped Setback Zone.

The available separation [defendable space] to the east is more than 35 metres and includes the perimeter access road width and a 10 metre wide managed Landscaped Setback Zone.

All of these setbacks exceed the minimum 'flame zone' setback widths.

5.3 Construction Measures to Buildings.

The assessment provided in Table 1 identifies that the minimum Defendable Space width required to be provided between the proposed buildings and the adjoining bushfire prone vegetation [in order to minimise flame contact on the structures] is 12.00 metres to the north and 7 metres to the east of the proposed buildings.

The minimum Defendable Space width has been found to be approximately 60 metres to the woodland vegetation on the School site to the north and 35 metres to the woodland vegetation on the property to the east.

The 60 metre wide Defendable Space to the north results in a radiant heat loading of 7.07 kW/m^2 on the northern elevation to the proposed DHL & Metcash buildings, reducing to 4.09 kW/m^2 on the eastern wall of the Metcash Distribution Centre building.

These setback distances reduce the level of radiant heat exposure on the buildings and remove the need for the application of bushfire construction standards to the buildings within the complex.

However, there is the possibility that burning embers from a grass fire event on the land to the west and south may impact upon the buildings. The following construction standards are therefore recommended:

- Any operable windows shall be fitted with aluminium/stainless steel mesh flyscreens having a maximum mesh aperture size of 2mm;
- Access doors [PA and Vehicle] to the buildings shall be fitted with seals that seal the bottom, stiles and head of the door against the opening/frame to prevent the entry of embers into the building. Particular attention shall be paid to the gap at the head of the curtain of the roller doors, where mohair type seals can be used;
- Any external vents, grilles and ventilation louvres shall have stainless steel mesh with a maximum aperture of 2mm square fitted to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm.

- Roof ventilators shall be fitted with stainless steel flymesh [2mm aperture] to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm.

5.4 Access Standards for Firefighting Operations.

Chapter 4, Section 4.2 “Access” of *Planning for Bushfire Protection 2006* provides specifications on the access provisions for fire-fighting operations within developments which are subject to bushfire attack.

Vehicular access to the proposed complex is from Bakers Lane and Mamre Road via a new internal estate road network which in turn provides heavy rigid and articulated vehicle access to each of the proposed buildings. This internal road network provides suitable access for fire-fighting appliances similar to NSW Rural Fire Service Category 1 Tankers and NSW FB Composite and Aerial Appliances.

Access to the bushfire prone vegetation on the land adjoining the eastern boundary of the site is available via the perimeter road along the eastern side of the Metcash Main Warehouse building.

5.5 Water Supplies for Firefighting Operations.

A reticulated water supply for potable water supply and fire hydrants is to be extended into the site from mains located in Bakers Lane. Both Distribution Centre complexes include onsite static water supply tanks for fire-fighting operations.

The fire-fighting water supply to the new buildings shall comply with the Building Code of Australia [BCA] and A.S. 2419.1 – 2005.

5.6 Emergency Management for Fire Protection / Evacuation.

The new buildings will not be exposed to radiant heat levels which will necessitate the evacuation of the buildings during bushfire events in the woodland vegetation to the north and east of the site with a calculated maximum radiant heat rating on the Metcash complex being 7.07kW/m².

Due to the low bushfire risk to the facilities on the site there is no requirement for the preparation of a specific Bushfire Evacuation Plan or a Bushfire Management Plan.

5.7 Bushfire Hazard Management.

The intention of bushfire hazard management is to prevent flame contact with a structure, reduce radiant heat to below the ignition thresholds for various elements of a building, to minimize the potential for wind driven embers to cause ignition and to reduce the effects of smoke on occupants and fire-fighters.

The management of the Defendable Spaces and the site generally shall comply with the recommendations of Appendix A5.4 & Appendix A5.5 of *Planning for Bushfire Protection 2006* and *Standards for Asset Protection Zones*.

Management of the Defendable Spaces within the development, including the Landscape Setback Zones, shall comply with the following:

- Maintain a clear area of low cut lawn or pavement adjacent to the buildings; Utilise non-flammable materials such as Scoria, pebbles and recycled crushed bricks as ground cover to landscaped gardens in close proximity to building;
- Keep areas under shrubs and trees raked and clear of combustible fuels;
- Trees and shrubs should be maintained in such a manner that tree canopies are separated by 2 metres and understorey vegetation is not continuous [retained as clumps].

SECTION 6

BUSHFIRE MANAGEMENT STRATEGIES

Strategies to mitigate the potential bushfire risk to the proposed DHL & Metcash Distribution Centres are as follows:

6.1 Strategy 1 – Management of Defendable Space/Landscape Management:

The new buildings shall be located generally as shown on the LOGOS Kemps Creek Logistics Masterplan.

Management of the defendable spaces/landscaped areas within the development site shall comply with the following:

- Maintain a clear area of low cut lawn or pavement adjacent to the building;
- Keep areas under shrubs and trees raked and clear of combustible fuels;
- Utilise non-flammable materials such as Scoria, pebbles and recycled crushed bricks as ground cover to landscaped gardens in close proximity to building;
- Trees and shrubs should be maintained in such a manner that tree canopies are separated by 2 metres and understorey vegetation is not continuous [retained as clumps];

6.3 Strategy 2 – Construction Standards to the Building:

The following bushfire construction standards shall be applied to the proposed DHL & Metcash Distribution Centres;

- Any operable windows shall be fitted with aluminium/stainless steel mesh flyscreens having a maximum mesh aperture size of 2mm;
- Access doors [PA and Vehicle] to the buildings shall be fitted with seals that seal the bottom, stiles and head of the door against the opening/frame to prevent the entry of embers into the building. Particular attention shall be paid to the gap at the head of the curtain of the roller doors, where mohair type seals can be used;

- Any external vents, grilles and ventilation louvres shall have stainless steel mesh with a maximum aperture of 2mm square fitted to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm.
- Roof ventilators shall be fitted with stainless steel flymesh [2mm aperture] to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm.

6.4 Strategy 3 – Water Supplies for Firefighting Operations:

The fire-fighting water supply to the proposed buildings shall comply with the Building Code of Australia [BCA] and Australian Standard A.S. 2419.1 – 2005.

SECTION 7

CONCLUSION

A Concept and Project approval is being sought, under Part 3A [Major Projects] of the *Environmental Planning & Assessment Act 1979*, for the construction of the DHL & Metcash Distribution Centres on a 52 hectare site located on the corner of Mamre Road and Bakers Lane in the suburb of Kemps Creek.

The Director General's Requirements [DGRs] for the preparation of the Environmental Assessment for the project do not include specific bushfire protection requirements except the reference to '*fire risk and management*'.

However, the development site is recorded on the Penrith Certified Bushfire Prone Land Map as being impacted by the buffer zone to the Category 1 Bushfire Prone Vegetation located on the Emmaus Catholic College to the north of Bakers Lane. Furthermore, the site inspection found that the vegetation on the adjoining property to the east also contains Cumberland Plain Woodland which is not mapped as being Bushfire Prone Vegetation but is a hazard to the development site.

The development site is deemed to be bushfire prone and the provisions of *Planning for Bushfire Protection 2006* apply to the proposed development.

In this respect this report has reviewed the proposed development against the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006* and found that the width of the Bakers Lane carriageway plus the managed Landscaped Setback Zone provides a 60 metre wide defensible space setback to the north and the managed Landscaped Setback Zone plus the internal perimeter access road to the east of the Metcash complex provides a minimum 35 metre wide defensible space to the east of the proposed buildings.

These setback widths exceed the 'flame zone' widths required to address the NSW Rural Fire Service's requirements for Class 5 – 10 buildings as defined by the Building Code of Australia.

Table 2 summarises the extent to which the Concept Plan conforms to the deemed-to-satisfy specifications of *Planning for Bushfire Protection 2006*.

Table 2. Compliance with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

Bushfire Protection Measure	Compliance with deemed-to-satisfy provisions of <i>Planning for Bushfire Protection 2006</i>.
Asset Protection Zone/Defendable Space setbacks	YES – widths of the Defendable Spaces to the proposed Class 7 Buildings exceed the minimum ‘flame zone’ setback width required by the NSW Rural Fire Service.
The siting and adequacy of water supplies for fire fighting	YES – Hydrant supply to be installed in accordance with AS 2419.2 – additional on site static fire-fighting water supply to be provided in accordance with BCA requirements.
Design of Public Roads	YES – Existing and proposed Public Roads and proposed internal access roads comply with the specifications of Section 4.1.3(1) of <i>Planning for Bushfire Protection 2006</i> and provide satisfactory emergency access for fire-fighting appliances.
Design of Fire Trail network	No fire trail network required – perimeter road provided between bushfire hazard to the east and Metcash Building.
Adequacy of emergency response access and egress	YES – Existing and proposed road network provides safe, two-way access/egress for emergency service vehicles.
Adequacy of bushfire maintenance plans and fire emergency procedures	YES – A Fire Management Plan and bushfire emergency procedures are not required for the development due to the low bushfire risk.
Building construction standards	YES – Construction standards recommended in order to minimise ember entry into the buildings.
Adequacy of sprinkler systems and other fire protection measures to be incorporated into the development	Bushfire Sprinkler Systems not applicable. BCA fire protection measures to be implemented including hydrant supply, booster system and static water supply for fire-fighting operations.
Emergency Management	No specific Bushfire Evacuation Plan is required due to low bushfire risk.

REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection* 2006;
- *Environmental Planning & Assessment Act* – 1979;
- *Rural Fires Act* – 1997;
- *Rural Fires Regulation* 2008;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping* 2002;
- *Bushfire Environmental Assessment Code* 2003;
- Building Code of Australia;
- Australian Standard A.S 3959-1999 “*Construction of Buildings in Bushfire Prone Areas*”;
- *Penrith City Council Bushfire Prone Land Map*;



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ATTACHMENT A – Concept Masterplan showing Defendable Space widths – DHL & Metcash Distribution Centres.

