

BUSHFIRE PROTECTION ASSESSMENT

FOR THE CONSTRUCTION OF THE PROPOSED

**BIG W & DICK SMITH DISTRIBUTION CENTRES;
WAREHOUSES;**

STORMWATER BASIN/SPILL ZONE;

**ROAD AND BRIDGE OVER HINCHINBROOK CREEK
ON**

**LAND FORMERLY OCCUPIED BY THE
HOXTON PARK AIRPORT,**

**COWPASTURE ROAD,
WEST HOXTON**



January 2010.

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Assessment Number	Document	Preparation Date	Issue Date	Directors Approval
BO91174	Final	13.1.2010	11.2.2010	<i>G.L.Swain</i>

EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited, at the request of *Mirvac*, 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 BIG W and Dick Smith Distribution Centres; Warehouses; Stormwater Basin/Spill Zone, road and bridge over Hinchinbrook Creek on land formerly occupied by the Hoxton Park Airport, Cowpasture Road, West Hoxton.

The site on which it is proposed to construct the new distribution centres and warehouses comprises the land located to the east of the Westlink/M7 Motorway and Hinchinbrook, extending north from Cowpasture Road [Lot 400 in DP 1141990; Lot 216 in DP 1111381 and part of Lot 101 in DP 1130459]. The development proposal includes the construction of a northern access link across Hinchinbrook Creek and a Stormwater Basin/Spill Zone within the northern portion of the site [concept only].

The proposed BIG W and Dick Smith Distribution Centres will occupy most of the site, except for residual land within the southern portion of the site. This land contains an OSD pond located in the south-western corner whilst the remainder will be subdivided into two lots upon which it is proposed to construct warehouse buildings.

The Director-General's requirements for the Environmental Assessment contain no specific bushfire protection requirements for the Concept Plan and Project Application. However, Council has identified that the site requires a bushfire assessment to be prepared.

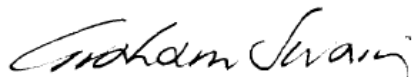
The DGR's under the Key Issue of Flora & Fauna states 'measures to minimise impacts of the proposal on Hinchinbrook Riparian Corridor, particularly in relation to the proposed creek crossing and fire management'.

In addition, the Liverpool Bushfire Prone Land Map indicates that the site contains the buffer zone to the Category 1 Bushfire Prone Vegetation located within the Hinchinbrook Creek corridor.

Therefore this report undertakes an assessment to examine the measures required to minimise impact on Hinchinbrook Creek from fire management activities and determines the deemed-to-satisfy bushfire protection requirements for the proposed development, 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 *Mirvac*, has undertaken the bushfire consultancy to inform the concept planning process on the bushfire protection measures required for the construction of the proposed BIG W and Dick Smith Distribution Centres; Warehouses; future Stormwater Basin/Spill Zone, future road and bridge over Hinchinbrook Creek on land formerly occupied by the Hoxton Park Airport, Cowpasture Road, West Hoxton.

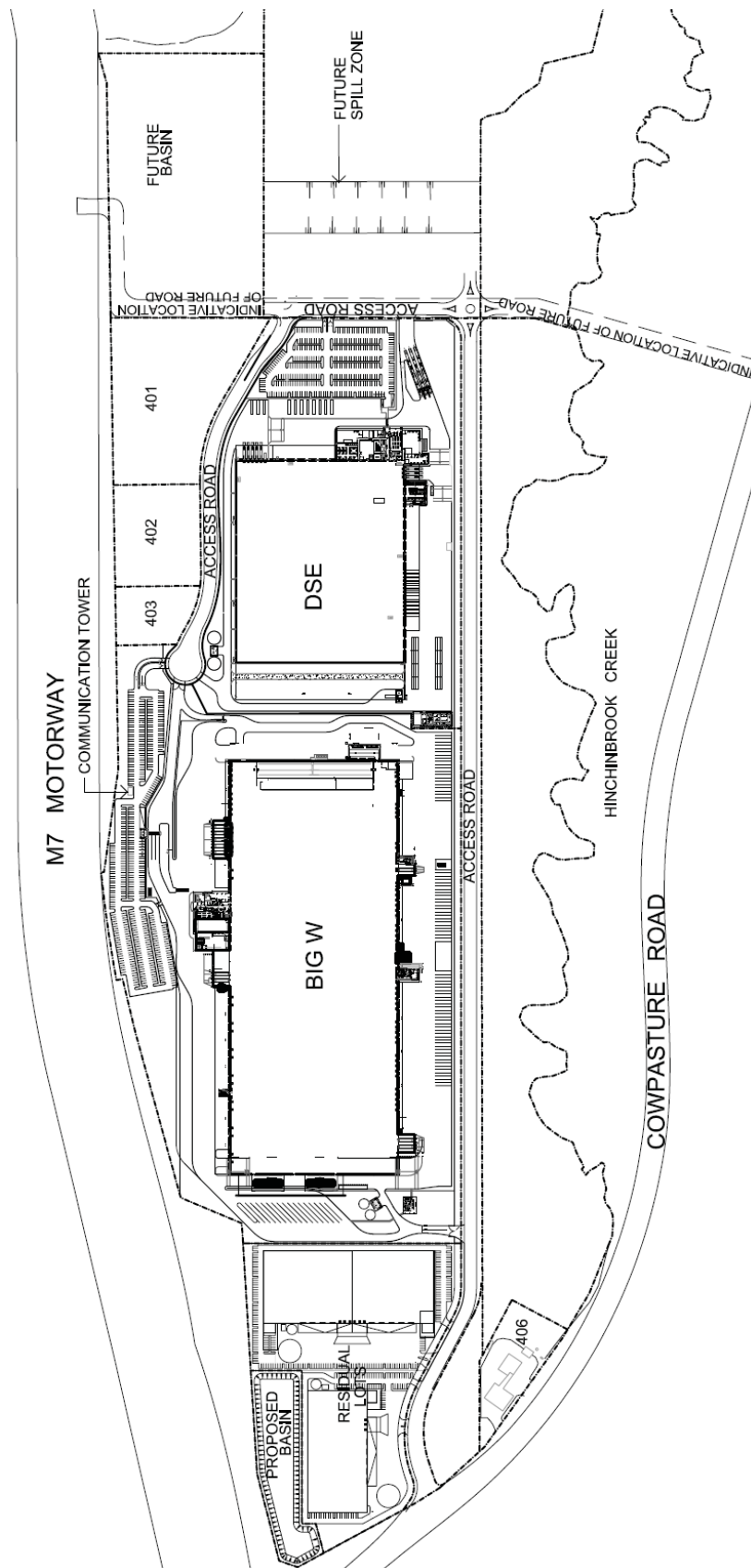
Mirvac has submitted an application, under Part 3A [State Environmental Planning Policy – Major Development SEPP] of the *Environmental Planning & Assessment Act 1979*, for the construction of the BIG W and Dick Smith Distribution Centres; Warehouses on land formerly occupied by the Hoxton Park Airport, Cowpasture Road, West Hoxton.

The site on which it is proposed to construct the new distribution centres and warehouses comprises the land located to the east of the Westlink/M7 Motorway and Hinchinbrook, extending north from Cowpasture Road [Lot 400 in DP 1141990; Lot 10 in DP 1139171 and part Lot 101 in DP 1130459]. The overall development proposal for the site proposes a future northern access link across Hinchinbrook Creek and a future Stormwater Basin/Spill Zone within the northern portion of the site.

The proposed BIG W and Dick Smith Distribution Centres will occupy most of the site, except for residual land within the southern portion of the site. This land contains an OSD pond located in the south-western corner whilst the remainder will be subdivided into two lots upon which it is proposed to construct warehouse buildings.

Figure 1 – Concept Plan of the BIG W & Dick Smith Distribution Centres and Warehouse development.

[Source: Mirvac]



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 of the project in accordance with 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:

- Site Master Plan prepared by Mirvac Design, dated January 2010;
- Plan of proposed Warehouse – Lots 1 & 2 prepared by Mirvac Design, dated 10.12.2009;
- Concept Site Plans BIG W & Dick Smith Distribution Centres prepared by MNIA Architects;

- Site & Floor Plan – BIG W Distribution Centre prepared by MNIA Architects;
- Elevations – BIG W Distribution Centre prepared by MNIA Architects;
- Floor Plan – Dick Smith Distribution Centre prepared by MNIA Architects;
- Elevations – Dick Smith Distribution Centre prepared by MNIA Architects;
- Plan & Elevations of Transport Office – Dick Smith Distribution Centre, prepared by MNIA Architects;
- *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*;
- Liverpool 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 7th of January 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 Draft 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 overall development site occupies the former Hoxton Park Airport and is located within the Liverpool Local Government Area to the north of the intersection of the M7 Motorway and Cowpasture Road, West Hoxton Park, within Lot 400 in DP 1141990, Lot 10 in DP 1139171 and part Lot 101 in DP 1130459. The site is bounded to the west by the M7 Motorway, to the east by the land within the Hinchinbrook Creek corridor and to the north by vacant land.

Figure 2 – Plan of overall Development Site.

[Source – Mirvac]



2.2 Existing Land Use.

The development site formally contained the Hoxton Park Airport. Most of the Airport Infrastructure has been removed.

2.3 Surrounding Land Use.

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

(a) North

Grassland paddocks adjoin the northern boundary, with residential development located further to the north within the suburb of Cecil Park.

(b) East

The land adjoining the eastern boundary of the development site consists of vacant land within the Hinchinbrook Creek riparian corridor. Cowpasture Road and residential development are located further the east, beyond the creek corridor.

(c) South

A major road intersection adjoins the southern boundary and includes the M7 motorway. A golf driving range and detention ponds extend further to the south of Cowpasture Road.

(d) West

The M7 Motorway adjoins the western boundary of the development site, except for existing Lots 401 – 403 upon which a warehouse complex is currently under construction. Residential development is located within the land adjoining the western side of the M7 Motorway – to the west of the northern portion of the site whilst industrial development is located to the west of the southern portion of the development site, west of the M7 Motorway – refer to Figure 3 – Aerial Photograph of Development Site on Page 12.

Figure 3 – 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 topography within the development site is level.

b) Beyond the Development Site.

(a) North.

The topography to the north is relatively flat.

(b) East.

The topography to the east of the development site, within the Hinchinbrook Creek corridor falls at less than 2 degrees towards Hinchinbrook Creek, before rising at a similar gradient to the east of the creek line.

(c) South.

The topography of the land to the south of the development site, beyond Cowpasture Road, is level.

(d) West.

The topography of the land to the west of the development site, beyond the M7 Motorway, rises to the west. The M7 road formation is elevated above the surrounding landform.

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 has previously been cleared for the construction of Airport runways and associated infrastructure. Scattered trees exist within the area occupied by the service buildings, with low exotic grassland covering the remainder of the site.

2.6 Vegetation within 140 metres of the Development Site.

(a) North.

The adjoining vacant land contains grassland paddocks.

(b) East.

A riparian corridor of Cumberland Plain Woodland extends along the Hinchinbrook Creek line which runs in a northerly direction, adjacent to the eastern site boundary. This woodland community represents the mapped Category 1 Bushfire Prone Vegetation recorded on the Liverpool Bushfire Prone Land Map.

(c) South.

The adjoining golf driving range to the south contains grassland vegetation

(d) West.

The M7 Motorway adjoins the southern section of the western boundary with residential development extending further to the west. The northern section of the western boundary of the development site is adjoined by Lots 401 – 403 which have been cleared of all vegetation as part of the current building works.

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 or riparian corridors.

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

There are no known threatened species within the sites to be developed.

2.9 Details and location of Aboriginal Relics or Aboriginal Place.

There are no known Aboriginal relics or Aboriginal places on the sites to be developed.

SECTION 3

FIRE MANAGEMENT RESPONSIBILITIES

Fire management within the development site is the responsibility of:

3.1 Liverpool City Council.

Liverpool 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 Liverpool Bush Fire Management Committee.

The Liverpool 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 BIG W and Dick Smith Distribution Centres, Warehouses and Stormwater Basin/Spill Zone.

The management of the landscaped gardens and the vegetation within the stormwater management ponds and spill zone will remain the responsibility of the property owner.

A Positive Covenant, created under the provisions of the *Conveyancing Act of 1919*, shall be placed on the title of the land to ensure compliance with the management prescriptions for the Defendable Spaces detailed in this report [Refer to Section 5.7].

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 4 – Extract from the Liverpool 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 Hinchinbrook Creek corridor. The vegetation in the northern portion of the site is mapped as Category 1 Bushfire Prone Vegetation however this vegetation will be modified as part of the works to establish the proposed Stormwater Basin resulting in the Cumberland Plain Woodland in the creek line along the eastern boundary being the only bushfire prone vegetation impacting upon the development site.

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 BIG W and Dick Smith Distribution Centres and Warehouses on proposed Lots 1 & 2 these structures are classified a Class 7 building 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 bushfire prone 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 building	Flame Zone Width determined by calculation	Available width of Defendable Space to proposed building
North of DS DC complex	Alluvial Woodland	Woodland	< 2 degrees fall to the north into tributary to Hinchinbrook Creek	12 metres flame length for Woodland vegetation on 2 ⁰ downslope to the north	Defendable Space of more than 140 metres to Office of DSDC building
East of BIG W & DS plus Warehouse on residual lot	Cumberland Plain Woodland within Hinchinbrook Creek corridor & mass planting to the west of the existing Service Station	Woodland	< 2 degrees down slope across riparian corridor/flood plain to creek	12 metres flame length for Woodland vegetation on 2 ⁰ downslope to the east	Minimum 30 metres to the east of the proposed Transport Building – 55 metres to DS DC Office – 70 – 90 metres to Distribution Centre buildings; 45 metres to future Warehouse on residual lot
South of Warehouse on the residual lot	Grassland	Nil Classification	Level	Nil – no bushfire threat	Defendable Space more than 100 metres wide
West of BIG W & DS plus Warehouse on residual lot	M7 Motorway + Industrial Development on Lots 401 - 403	Nil Classification	Level	Nil – no bushfire threat	Defendable Space more than 100 metres wide

Note 1:

The assessment to determine the minimum defendable space width to the north of the Dick Smith Distribution building, to the east of the proposed BIG W and Dick Smith Distribution buildings and to the east of the future Warehouse building on the proposed residual lot has determined that the minimum prescribed width of defendable space should be 12.00 metres, measured off the eastern boundary of the Development Site.

The closest building to the eastern boundary is the Transport Office which is located approximately 30 metres from the eastern boundary with the Office Building to the Dick Smith complex being 55 metres from the eastern boundary. The Distribution Buildings are setback 70 – 90 from the eastern boundary whilst the future Warehouse building on the residual lot is setback 45 metres from the eastern boundary of the development site.

The Defendable Space to the north of the Dick Smith Distribution building is more than 140 metres to the north of the Office Building

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 vegetation within the Hinchinbrook Creek corridor, to the east of the development site.

The minimum Defendable Space width has been found to be approximately 30 metres to the Transport Office in the BIG W Distribution Centre complex, increasing up to 70 - 90 metres for the Distribution Centre buildings.

The 30 metre wide Defendable Space to the Transport Office results in a radiant heat loading of 10.28 kW/m² on the eastern elevation to this building, reducing to 2.42 – 1.97 kW/m² on the eastern walls of the Distribution Centre buildings.

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 bushfire event in the bushfire prone vegetation to the east of the development site [within the Hinchinbrook Creek corridor] may impact upon the buildings. The following construction standards, to that part of the building/s located within 100 metres of the bushfire hazard interface, 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 Cowpastures Road via new intersection to the south of the development site. The southern access point, the perimeter road along bushfire hazard interface combined with the internal access road network provide access for heavy articulated vehicles which will also provide suitable access for fire-fighting appliances similar to NSW Rural Fire Service Category 1 Tankers and NSW FB Composite and Aerial Appliances.

Future additional access is proposed across the Hinchinbrook Creek corridor from the northern end of the site. This future access is not required from day one as the southern access to the site provides satisfactory emergency service access to the buildings.

Access to the bushfire prone vegetation on the land adjoining the site is available via the perimeter road along the eastern boundary.

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 Cowpasture Road. 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 in the Hinchinbrook Creek corridor with a calculated maximum radiant heat rating on the Dick Smith Office Building being less than 11.00kW/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 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 BIG W and Dick Smith Distribution Centres and the future Warehouse building on the residual lot are as follows:

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

The new building shall be located as shown on the Site Plans prepared by MNIA Architects.

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 BIG W and Dick Smith Distribution Centres and the future Warehouse building on the residual lot:

To that part of the building/s located within 100 metres of the bushfire hazard interface:

- 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 BIG W and Dick Smith Distribution Centres on land formerly occupied by the Hoxton Park Airport, Cowpasture Road, West Hoxton.

The Director General's Requirements [DGRs] for the preparation of the Environmental Assessment for the project includes no specific bushfire protection requirements except the effect of fire management on flora and fauna in the Hinchinbrook Creek corridor.

In this respect this report has found that there is no requirement for the placement of bushfire management measures beyond the limits of the site boundaries, therefore there is no requirement for fire management activities to occur in the Hinchinbrook Creek corridor, other than to address the provisions of Section 63 of the Rural Fires Act and this is the responsibility of the owner of the land to the east of the development site.

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

This report has therefore reviewed the proposed development against the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006* and found that the construction of the proposed Warehouses complies with the intent of these provisions.

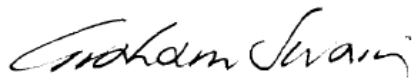
Table 2 summarises the extent to which the Concept Plan conforms to the deemed-to-satisfy specifications of *Planning for Bushfire Protection 2006*.

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 and development.
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:

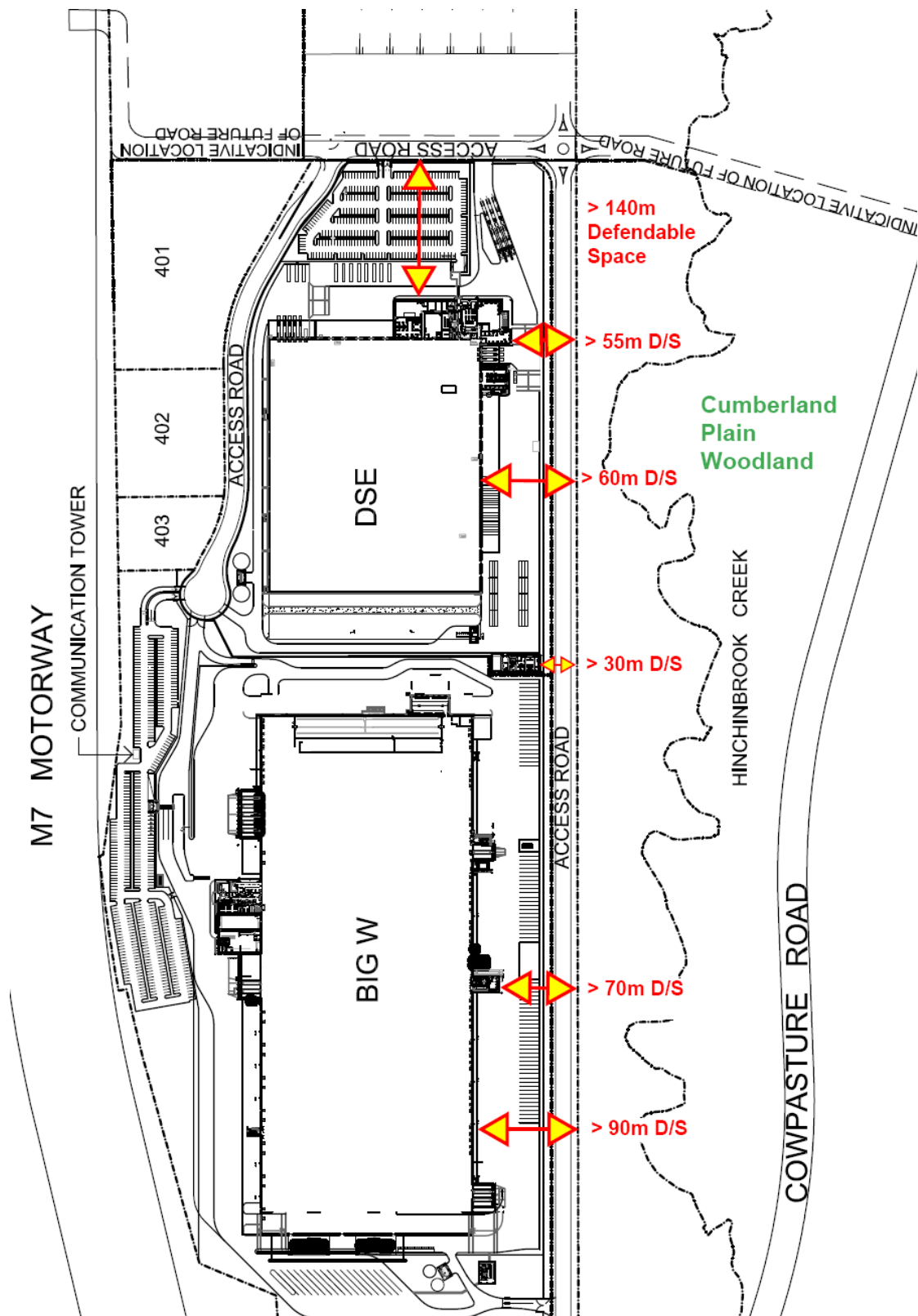
- N.S.W Rural Fire Service – *Planning for Bushfire Protection* 2006;
- *Environmental Planning & Assessment Act* – 1979;
- *Rural Fires Act* – 1997;
- *Rural Fires Regulation* 2008;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping* 2002;
- *Bushfire Environmental Assessment Code*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



Graham Swain,
Managing Director,
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ATTACHMENT A – Concept Masterplan showing Defendable Space widths – BIG W & Dick Smith Distribution Centres.

[Source of base plan – Mirvac]



ATTACHMENT B – Concept Masterplan showing Defendable Space widths – Warehouse on the residual lot.

[Source of base plan – Mirvac]

