

BUSHFIRE PROTECTION ASSESSMENT  
FOR THE CONSTRUCTION  
OF THE PROPOSED  
HUNTER MEDICAL RESEARCH INSTITUTE [HMRI]

ON

LOT 132 in DP 1053492

&

LOT 2 in DP 839927

No. 2 LOOKOUT ROAD,

NEW LAMBTON HEIGHTS



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## EXECUTIVE SUMMARY

*Australian Bushfire Protection Planners Pty Limited*, at the request of the *Hunter Medical Research Institute Pty Ltd*, has undertaken the bushfire consultancy to inform the preparation of the Environmental Assessment, under Part 3A [State Environmental Planning Policy – Major Projects SEPP] of the *Environmental Planning & Assessment Act 1979*, on the bushfire protection measures required for the construction of the proposed Hunter Medical Research Institute [HMRI] on Lot 132 in DP 1053492 & Lot 2 in DP 839927, No. 2 Lookout Road at New Lambton Heights.

The site on which it is proposed to construct the HMRI complex comprises land within the northern portion of the John Hunter Hospital. The site extends to the north from the existing perimeter access road, replacing the Staff Amenities building, which will be demolished, and the Tennis Courts and existing Carpark.

The new HMRI building contains an East and ‘West Wing’ with the East Wing running to the northeast along the crown of the ridgeline whilst the West Wing runs to the west, north of the existing Kookaburra Cottages. A Carpark is located to the south-east of the ‘East Wing’.

The Newcastle Bushfire Prone Land Map indicates that the site contains Bushfire Prone Vegetation.

The Director-General’s requirements for the Environmental Assessment, issued on the 29.1.2009, includes under Key Assessment Requirements, “Bushfire”, the following requirements:

- Compliance with NSW *Planning for Bushfire Protection 2006*, with particular regard to ensuring Special Fire Protection purpose developments are located away from the bushland interface; and
- Identify vegetation types, ownership and ongoing management of any proposed Asset Protection Zones.

The DGRs also require an appropriate and justified level of consultation should be undertaken with the NSW Rural Fire Service during the preparation of the Environmental Assessment.

Correspondence to the Department of Planning [DoP] from the NSW Rural Fire Service dated 7<sup>th</sup> January 2009 states:

“The NSW Rural Fire Service notes that the subject site is identified as bushfire prone land on the Newcastle Bushfire Prone Land Map. The proposal is a Special Fire Protection Purpose development and is subject to the requirements of *Planning for Bushfire Protection 2006*.

In this regard the following key issues and assessment requirements shall be included in the Director-Generals Environmental Assessment requirements:

- The design of the development will need to consider minimising the impact of radiant heat and direct flame contact by separating the development from the bushfire hazard by identifying the extent to which the development can provide for Asset Protection Zones in accordance with *Planning for Bushfire Protection 2006*.
- The ability to provide for adequate egress/access to the proposed development as outline within *Planning for Bushfire Protection 2006*.
- The ability to site and provide for adequate future water supply for bushfire suppression operations.
- Minimising the vulnerability of buildings to ignition from radiant heat and ember attack by addressing the construction of assets in accordance with Australian Standard AS 3959 – 1999 ‘*Construction of Buildings in Bushfire Prone Areas*’.

In reference to the NSW Rural Fire Service’s classification of the building as being a ‘*Special Fire Protection Purpose*’ development, whilst being located on the Hospital land, the HMRI complex does not form part of the Hospital functions and is not a ‘core’ hospital landuse and is therefore not deemed to be a ‘*Special Fire Protection Purpose*’ development.

This matter has been discussed with the NSW Rural Fire Service Development Control Department with confirmation that the Rural Fire Service now considers the HMRI complex not to be a ‘*Special Fire Protection Purpose*’ development.

This report undertakes an assessment to address the Director DGRs and determines the deemed-to-satisfy bushfire protection requirements for the proposed HMRI, in accordance with the provisions of *Planning for Bushfire Protection 2006*, and provides recommendations on the provision of Asset Protection Zones to the buildings; emergency access/egress; fire-fighting access and water supplies; construction standards of the buildings, the management of the Asset Protection Zones/residual vegetation and evacuation protocols necessary to address the bushfire risk to the future occupants of the HMRI and to address the aim and objectives of *Planning for Bushfire Protection 2006* and the advice provided by the NSW Rural Fire Service.



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

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## SECTION 1

### INTRODUCTION

#### **1.1 Development Proposal.**

The development proposal is for the construction of the proposed Hunter Medical Research Institute [HMRI] on Lot 132 in DP 1053492 & Lot 2 in DP 839927, No. 2 Lookout Road, New Lambton Heights. The building will be utilised for medical research and contains four floor levels plus roof, configured in an East Wing and West Wing, connected by a central Lift and Stair/Lobby space.

A Carpark is located to the southeast of the East Wing with access, via a ramp, off the existing perimeter access road to the Hospital precinct. The building and Carpark will occupy an area of the Hospital site which currently contains the Staff Amenities building, Tennis Courts and Staff Carpark. These existing facilities will be demolished.

*ADW Johnson* submitted a Preliminary Assessment to the Department of Planning for the construction of the proposed HMRI complex. On the 16<sup>th</sup> December 2008 the Director General formed the opinion that under Clause 6 of the State Environmental Planning Policy – Major Project, the proposal is a Major Project to which Part 3A of the *Environmental Planning & Assessment Act* applies.

The Director General issued, under Major Project No. MP08\_0250 (Project Application), the Director General's Requirements [DGRs] for the preparation of the Environmental Assessment for the project.

The DGRs include, under Key Assessment Requirements, subheading – Bushfire, the following requirements:

- Demonstrate compliance with NSW *Planning for Bushfire Protection 2006*, with particular regard to ensuring Special Fire Protection purpose developments are located away from the bushland interface; and
- Identify vegetation types, ownership and ongoing management of any proposed Asset Protection Zone.

The DGRs also require an appropriate and justified level of consultation should be undertaken with the NSW Rural Fire Service during the preparation of the Environmental Assessment, having regard to any previous consultation.



### **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 1<sup>st</sup> 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 other 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:

- Director Generals Environmental Assessment Requirements dated 29/1/2009;
- Letter from the NSW Rural Fire Service to the Department of Planning, dated 7<sup>th</sup> January 2009;
- Flora & Fauna Assessment prepared by Ecobiological;
- Architectural Plans prepared by DCM & S2F Pty Ltd;
- *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*;
- Newcastle 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 27<sup>th</sup> of November 2008 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 require written evidence that an appropriate level of consultation has been undertaken with the NSW Rural Fire Service during the preparation of the environmental assessment.

In accordance with the Director Generals Requirements, a meeting with Mr Patrick Schell and Corey Shackleton, Development Control Officers of the NSW Rural Fire Service was held on the 21<sup>st</sup> January 2009.

The purpose of the meeting was to resolve whether the intended use of the proposed complex represented a 'Special Fire Protection Purpose' use as defined by *Planning for Bushfire Protection 2006*.

Further conversations have taken place with the NSW Rural Fire Service during which it has been confirmed that the proposed complex is not considered to be a 'core' hospital use, will not house medical patients and is therefore not a 'Special Fire Protection Purpose' development.

## SECTION 2

### PROPERTY DESCRIPTION

#### 2.1 Location & Description.

The site on which it is proposed to construct the HMRI complex forms part of the John Hunter Hospital site and is located to the north of the existing Hospital precinct, east of the large Hospital Carpark.

Part of the site currently contains the existing Staff Amenities building, Tennis Court and Staff Carparking with the remainder of the site being vacant land that is covered with forest vegetation.

**Figure 2 – Location of the HMRI Development Site.**



#### 2.2 Existing Land Use.

The HMRI development site contains the existing Staff Amenities building facility, Tennis Courts and Staff Carpark and vacant land which forms the curtilage to the Hospital precinct.

#### 2.3 Surrounding Land Use.

The landuse adjoining the HMRI development site is as follows – refer to Figure 3 – Aerial Photograph of HMRI site and adjoining lands on following page:

- a) **North & Northwest**  
The land to the north & north-west of the HMRI complex is vacant land within the Hospital site.
- b) **East**  
The land to the east of the HMRI complex is vacant land within the Hospital site
- c) **South**  
The land to the south of the HMRI complex contains the John Hunter Hospital.

**Figure 3 – Aerial Photograph of the HMRI site & adjoining lands.**



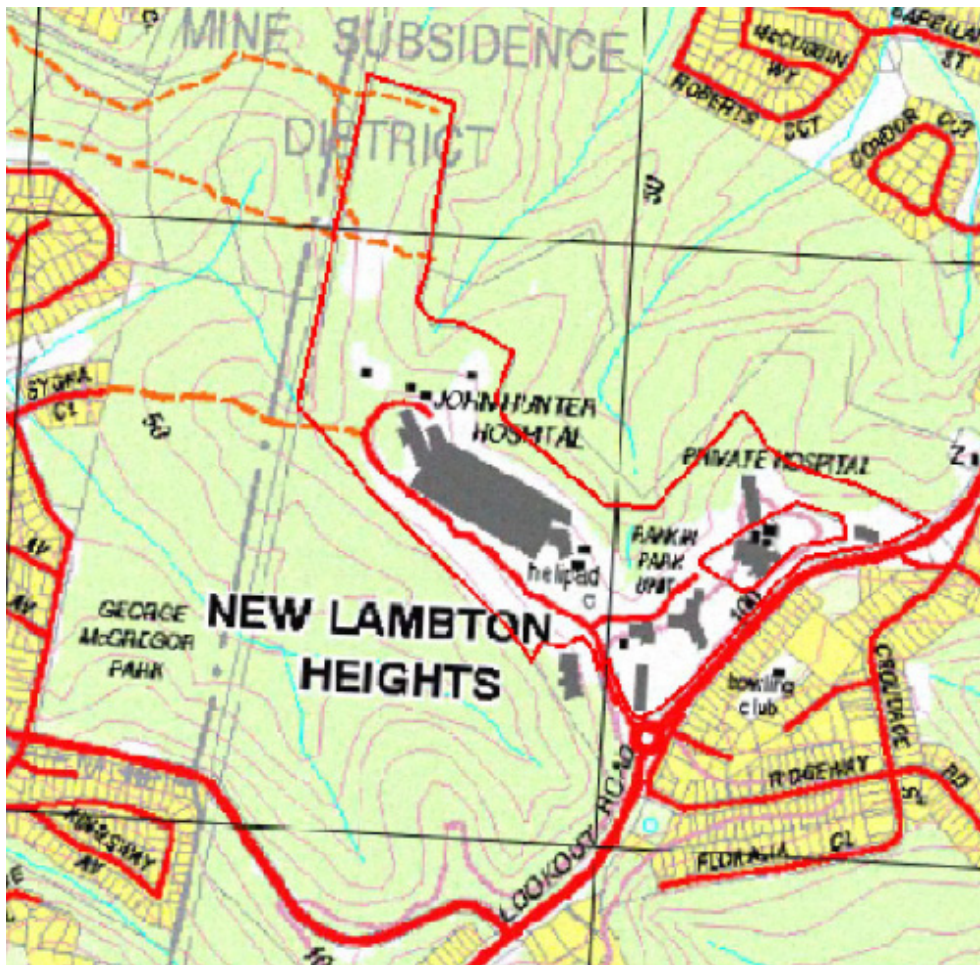
## 2.4 Topography.

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.

The HMRI development site is located on the crest of a flat spur that runs in a north-easterly direction from the perimeter road to the Hospital precinct.

The spur falls to the northeast at 2 – 3 degrees whilst the side slopes fall to the northwest and southeast into gully lines at 8 – 10 degrees.

**Figure 4 – Topographic Map.**



## **2.5 Vegetation.**

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 proposed building.

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 vegetation within the HMRI site consists of managed and unmanaged Dry Sclerophyll Low Open Forest. The managed forest vegetation is located within the managed Asset Protection Zone which is located beyond the Hospital precinct.

The predominant vegetation within 140 metres of the HMRI complex is therefore Dry Sclerophyll Low Open Forest to the west, northwest, north and east of the site.

## **2.6 Significant Environmental Features on the Development Site.**

The development site does not contain areas of Geological interest; Land slip areas or National Parks Estate, SEPP 14 Wetland, SEPP 44 Koala Habitat or Steep Lands [>18 degrees] however a riparian corridor to a watercourse exists in the gully to the northwest of the HMRI complex.

The extent of the bushfire protection measures does not impact on this corridor.

## **2.7 Known Threatened Species, population or ecological community within the Development Site.**

The vegetation within the development site and on land to the west, north and east of the site has been examined by Ecobiological. This examination has recorded the existence of a patch of *Tetratheca Juncea*, listed under Schedule 2 of the NSW Threatened Species Conservation Act, to the northeast of the proposed Carpark. The proposed fire protection measures will not have an impact on this threatened species.

## **2.8 Details and location of Aboriginal relics or Aboriginal place.**

No known Aboriginal relics or place has been recorded on the development site.

## SECTION 3

### FIRE MANAGEMENT RESPONSIBILITIES

Fire management within the development site is the responsibility of:

#### **3.1 Newcastle City Council.**

Newcastle 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 Bush Fire Coordinating Committee.**

The NSW Bush Fire Coordinating Committee has the responsibility for planning for co-ordinated fire fighting activities / hazard management activities on a state level.

#### **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 66(1)** states that a local authority of an area may, by notice in writing, require the occupier or owner [not being a public authority] of any land within the area to carry out bushfire hazard reduction work specified in the notice on the land.
- **Section 66(2)** states that the local authority must serve a notice under this section if required to do so by a bushfire risk management land applicable to the land that is in force.
- **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 Fuel Management within the Hunter Medical Research Institute.**

The HMRI complex will contain managed landscaped gardens, Asset Protection Zones and fuel managed native vegetation. The management of this vegetation will remain the responsibility of HMRI and will be maintained in accordance with a Fire Management Plan prepared for the facility.

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 detailed in the Fire Management Plan.

## SECTION 4

### BUSHFIRE PROTECTION ASSESSMENT

#### **4.1 Introduction.**

The Director General issued DGRs for the Environmental Assessment under Part 3A of the *Environmental Planning & Assessment Act* and requires that the development demonstrate compliance with the requirements of *Planning for Bushfire Protection 2006*.

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:

- (1) 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;
- (2) Access for fire fighting operations;
- (3) Water Supplies for fire fighting operations;
- (4) Construction standards of buildings located within 100 metres of the bushfire hazard interface, dependant on 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;

- (5) Emergency Planning;
- (6) Landscape Management – in particular the management of the Asset Protection Zones / Defendable Spaces and residual bushfire prone vegetation.

The document also identifies types of development and provides deemed-to-satisfy fire protection measures for residential development [Class 1, 2 & 3 buildings]; “*Special Fire Protection Purpose*” developments [Hospitals, Nursing Homes / Retirement Villages / Schools / Childcare Centres & Tourist Accommodation]; Industrial / Commercial Development and residential and “*Special Fire Protection Purpose*” infill development.

In reference to the Hunter Medical Research Institute [HMRI] the proposed building will be utilised for Medical Research and has been accepted by the NSW Rural Fire Service not to be a ‘*Special Fire Protection Purpose*’ development. Therefore, the construction of the complex falls within the provisions of Section 4.3.6(f) of *Planning for Bushfire Protection 2006* which states that the Building Code of Australia [BCA] does not provide for bushfire specific performance requirements for Class 5 – 8 and Class 10 of the BCA and as such Australian Standard A.S. 3959 does not apply as a set of ‘deemed-to-satisfy’ provisions. The general fire safety construction provisions 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.

#### **4.2 Provision of Asset Protection Zones / Defendable Spaces:**

Appendix 2 of *Planning for Bushfire Protection 2006* provides a methodology to determine the Asset Protection Zones/Defendable Spaces for residential development and ‘*Special Fire Protection Purpose*’ developments that are located within or within 100 metres of bushfire prone vegetation.

However, *Planning for Bushfire Protection 2006* does not provide ‘deemed-to-satisfy’ widths of defendable spaces to Class 5 – 8 and Class 10 buildings however the NSW Rural Fire Service require that a ‘defendable space’ be provided which is determined as the tilted flame length of a fire burning in the bushfire prone vegetation adjoining the building. That is, the building must be located beyond the ‘flame zone’

The following section examines these prerequisites and provides a summary of this assessment and the resultant widths of the Asset Protection Zones / Defendable Spaces for the HMRI complex.

The Fire Danger Index [FDI] for the site is 100.

#### 4.2.1 Determination of the Defendable Space to the HMRI Building.

The predominant bushfire prone vegetation within 140 metres of the building is the Dry Sclerophyll Low Open Forest to the west, northwest, north, northeast and east of the development site.

The effective slope of the land on which this vegetation is located is 8 – 10 degrees downslope to the northwest; 2 – 3 degrees downslope to the north and 8 – 10 degrees downslope to the east and southeast. Table 1 examines the required width of the defendable space to the proposed building.

**Table 1. Determination of the Defendable Space to the proposed HMRI building. The Fire Danger Index [FDI] for the site is 100.**

Aspect	Vegetation within 140m of development	Predominant Vegetation Formation (Table A2.1 of PfBFP 2006)	Effective Slope of Land	Width of Defendable Space	Defendable Space width provided
North West	Low Open Forest	Forest	10 degrees downslope to the northwest	35 metres Flame Zone width for Forest vegetation	40 metres
North East	Low Open Forest	Forest	2 - 3 degrees downslope to the northeast	25 metres Flame Zone width for Forest vegetation	40 metres
South east	Low Open Forest	Forest	10 degrees downslope to the southeast	35 metres Flame Zone width for forest vegetation	> 100 metres provided by Carpark

The width of the defendable space [Asset Protection Zone] to the proposed building exceeds the calculated width of flame extension from the Low Open Forest vegetation surrounding the HMRI complex to the west, northwest, north and southeast.

The width of the Carpark to the southeast removes the potential for the building to be directly impacted by fires burning from the east and southeast [in addition to the fact that this vegetation is shielded from south-easterly winds by the multi-storey John Hunter Hospital building]. In order to reduce the potential bushfire risk from a fire burning under north-westerly and northerly wind influences it is recommended that the vegetation between the defendable space and the managed Power Line Easement shall be fuel managed to maintain the accumulated ground litter loading to 8 – 10 tonnes/hectare.

The management of the fire protection zones shall be undertaken in accordance with a Fire Management Plan prepared for the site.

### **4.3 Access for Fire-fighting Operations.**

Access to the proposed HMRI building and Carpark is via a two-way access ramp off the perimeter road to the Hospital. This provides suitable fire appliance access for structural fire events in the building.

Access for bushfire fighting operations is also provided via the access ramp, with an access road/fire trail provided to the northeast of the building, turning to the southwest to link to the existing fire trail that runs to the north of the existing Kookaburra Cottages. This fire trail links to the western Carpark access and also to the Power Line access track, providing trail network which encircles the entire HMRI development precinct.

The internal road network shall comply with the deemed-to-satisfy provisions of Section 4.1.3(1) [Access - Public Roads] and Section 4.2.7 [Access – Internal Roads] of *Planning for Bushfire Protection 2006*. A minimum pavement width of 6.5 metres shall be provided with 'No Parking' to one side.

A parking lay-by shall be provided adjacent to hydrant booster valves so as to permit fire service vehicles to park clear of the road width.

Fire trails shall be constructed to comply with the provisions of Section 4.1.3(3) of *Planning for Bushfire Protection 2006* and shall have a minimum width of 4.0 metres within a cleared width of 6.0 metres. Passing bays shall be provided at 200 metre intervals.

### **4.4 Water Supplies for Fire-fighting Operations.**

A reticulated water supply and hydrants shall be installed to the HMRI complex in accordance with the Building Code of Australia and Australian Standard 2419.2 - 2005.

Fire hydrants shall be accessible and located such that a fire appliance can park within a maximum distance of 20 metres from the hydrant and located such that a fire at the furthest extremity of the building can be attacked by fire-fighters using two 30 metre hose lines and a 10 metre water jet. A clear unobstructed path between the hydrant and the most distant point of the building cannot exceed 90 metres.

Hydrants shall be located to the northwest of the building to provide a water supply for bushfire fighting operations.

### **4.5 Bushfire Construction Standards to Buildings.**

The BCA does not specify deemed-to-comply construction standards for Class 5 – 10b buildings. However, the north-western elevation of the building shall be constructed to comply with the 29kW/m<sup>2</sup> radiant heat specifications as defined by A.S. 3959 – 2009.

The remainder of the building shall be constructed to comply with the 12.5kW/m<sup>2</sup> radiant heat specifications as defined by A.S.3959 – 2009.

#### **4.6 Emergency Planning.**

An Emergency Management Plan shall be prepared for the HMRI which establishes the emergency management protocols to address the safety of staff and visitors during emergencies which occur within or external to the Institute.

HMRI shall be responsible for establishing and maintaining an Emergency Management Committee [EMC] within the Institute. HMRI and the EMC shall be responsible for the daily management of the welfare of persons working in or visiting the Institute.

A copy of the Emergency Management Plan shall be provided to the Local Emergency Management Committee [LEMC] and the local Emergency Services.

#### **4.7 Landscape Management - in particular the management of the Defendable Spaces, Landscaped Gardens and residual bushfire prone vegetation.**

The intention of landscape 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 staff, visitors and fire-fighters.

Careful attention shall be given to species selection of landscaping within the HMRI complex, their location relative to their flammability, avoidance of continuity of vegetation [separation horizontally and vertically] and ongoing maintenance to remove flammable fuels.

Methods of bushfire hazard management include mowing of lawns and manual removal of combustible material, particularly within the landscaped areas and hazard reduction burning within the residual vegetation on the site.

The landscaped gardens and requisite Defendable Spaces within the HMRI complex shall be maintained as an Inner Protection Area as defined by Appendix 5 of *Planning for Bushfire Protection 2006* and the Rural Fire Service's '*Specifications for Asset Protection Zones*'.

The residual land between the Defendable Space and the Power Line Easement, to the northwest of the building, shall be fuel managed to maintain a maximum dry litter weight of 8 – 10 tonnes/hectare.

A Fire Management Plan shall be prepared for the landscaped gardens, Defendable Spaces and residual vegetation within the development site.

Landscape management within the HMRI complex shall remain the responsibility of HMRI [or its successors] and a Positive Covenant, under the provisions of the Conveyancing Act of 1919, shall be created on the title of the land to ensure compliance with the recommendations of the Fire Management Plan.

## SECTION 5

### RECOMMENDATIONS

#### **Recommendation 1:**

##### ***Defendable Spaces to HMRI Building:***

A Defendable Space of minimum 40 metre width shall be provided to the west, north, northwest and northeast of the HMRI Building. *[Refer to Attachment A].*

#### **Recommendation 2:**

##### ***Management of Defendable Space:***

The Defendable Spaces shall be maintained as an Inner Protection Area in accordance with Appendix 5 *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service's '*Specifications for Asset Protection Zones*'.

#### **Recommendation 3:**

##### ***Fuel Managed Area:***

The area of retained vegetation between the building and the Power Line Easement shall be managed as a fuel reduced zone. *[Refer to Attachment A].*

#### **Recommendation 4:**

##### ***Fire Management Plan for the Defendable Space/Fuel Managed Area:***

There shall be a Fire Management Plan prepared for the Defendable Spaces and fuel managed area. The Fire Management Plan shall provide the protocols for the management of the bushfire fuels and the maintenance of the fire trail network.

#### **Recommendation 5:**

##### ***Covenant for the management of the Asset Protection Zones:***

An 88b covenant shall be created on the title of the lot to ensure the ongoing management of the Defendable Spaces/Fuel Managed Area and Fire Trail.

#### **Recommendation 6:**

##### ***Construction Standards to the HMRI building:***

The north-western elevation of the building shall be constructed to comply with the 29kW/m<sup>2</sup> radiant heat specifications as defined by A.S. 3959 – 2009. The remainder of the building shall be constructed to comply with the 12.5kW/m<sup>2</sup> radiant heat specifications as defined by A.S.3959 – 2009.

#### **Recommendation 6:**

##### ***Access for fire-fighting operations:***

The internal road network shall comply with the deemed-to-satisfy provisions of Section 4.1.3(1) [Access - Public Roads] and Section 4.2.7 [Access – Internal Roads] of *Planning for Bushfire Protection 2006*. A minimum pavement width of 6.5 metres shall be provided with 'No Parking' to one side.

A parking lay-by shall be provided adjacent to hydrant booster valves so as to permit fire service vehicles to park clear of the road width.

Fire trails shall be constructed to comply with the provisions of Section 4.1.3(3) of *Planning for Bushfire Protection 2006* and shall have a minimum width of 4.0 metres within a cleared width of 6.0 metres. Passing bays shall be provided at 200 metre intervals.

**Recommendation 7:**

***Water Supply for fire-fighting operations:***

Hydrants shall comply with the specifications of Australian Standard A.S 2419.2 and have a flow rate of 10 litres / second.

Fire hydrants shall be accessible and located such that a fire appliance can park within a maximum distance of 20 metres from a hydrant and the habitable building must be located such that a fire at the furthest extremity can be attacked by fire-fighters using two 30 metre hose lines and a 10 metre water jet. A clear unobstructed path between the hydrant and the most distant point of the building cannot exceed 90 metres.

Hydrants shall also be located to the northwest of the building to provide a water supply for bushfire fighting operations.

**Recommendation 8:**

***Evacuation Plan:***

An Emergency Evacuation Plan shall be prepared for the HMRI which establishes the emergency management protocols to address the safety of staff and visitors during emergencies which occur within or external to the Institute.

HMRI shall be responsible for establishing and maintaining an Emergency Management Committee [EMC] within the Institute. HMRI and the EMC shall be responsible for the daily management of the welfare of persons working in or visiting the Institute.

A copy of the Emergency Evacuation Plan shall be provided to the Local Emergency Management Committee [LEMC] and the local Emergency Services.

## SECTION 6

### CONCLUSION

A Project approval is being sought, under Part 3A [Major Projects] of the *Environmental Planning & Assessment Act 1979* for the development of the Hunter Medical Research Institute [HMRI] on Lot 132 in DP 1053492 & Lot 2 in DP 839927, No. 2 Lookout Road, New Lambton Heights.

The Director General issued, under Major Project No. MP08\_0250, the requirements for the preparation of the Environmental Assessment for the project which under 'Key Assessment Requirements' – requires that the development demonstrate compliance with *Planning for Bushfire Protection 2006*, including:

- Ensuring Special Fire Protection purpose developments are located away from the bushland interface; and
- Identify vegetation types, ownership and ongoing management of any proposed Asset Protection Zones.

This report has therefore reviewed the proposed development of the Hunter Medical Research Institute [HMRI] against the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006* and the requirements contained in the DGRs, including consultation with the Development Control Officers of the NSW Rural Fire Service to obtain their advice on the clarification of whether the proposed use of the Institute constitutes a 'Special Fire Protection Purpose' development classification. This advice confirmed that the NSW Rural Fire Service considers the project not to be a 'Special Fire Protection Purpose' development.

Table 2 summarises the extent to which the proposed development conforms to the deemed-to-satisfy specifications of *Planning for Bushfire Protection 2006* for a Class 5 building [as defined by the Building Code of Australia [BCA].

Table 3 summarises the extent to which the development conforms to the requirements of the Director General's Requirements [DGR's].

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

<b>Bushfire Protection Measure</b>	<b>Compliance with deemed-to-satisfy provisions of <i>Planning for Bushfire Protection 2006</i>.</b>
Provision of Defendable Space to the building	YES – widths of Defendable Spaces comply with, or exceed the minimum setback required for flame separation to the building
The siting and adequacy of water supplies for fire fighting	YES – Hydrant supply to be installed in accordance with AS 2419.2 – 2005 with hydrants provided for bushfire fighting operations.
Design of Public Roads	YES – Proposed internal access roads shall comply with the specifications of Section 4.1.3(1) of <i>Planning for Bushfire Protection 2006</i> .
Design of Fire Trail network	YES – New fire trail provided, connecting with existing access/fire trail network. Fire Trail to be constructed to comply with the performance standards of Section 4.1.3(3) of <i>Planning for Bushfire Protection 2006</i> .
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 shall be prepared for the land and maintained, under the provisions of a Positive Covenant, by the owners of the land.
Building construction standards	YES – North-western elevation of the building to comply with the 29kW/m <sup>2</sup> construction standards as defined by AS3959 – 2009. Remainder of building shall comply with 12.5Kw/M <sup>2</sup> construction standards.
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 the building required.
Emergency Management	An Emergency Management Plan to be prepared and Emergency Management Committee to be established by HMRI [or its successors].

**Table 3. Compliance with the additional Draft Director General's Requirements [DGRs].**

<b>Requirement</b>	<b>Compliance with the additional DGRs</b>
Ensuring Special Fire Protection purpose developments are located away from the bushland interface	The NSW Rural Fire Service has determined that the proposed use of the building is not a ' <i>Special Fire Protection Purpose</i> ' development – therefore this requirement is not applicable to the development.
Identify vegetation types, ownership and ongoing management of any proposed Asset Protection Zone	YES – The type of vegetation within the Defendable Space will be either landscaped gardens or managed vegetation within the landscaping to the Carpark. Within the HMRI complex, the ownership and management of the Defendable Space and residual vegetation shall be the responsibility of HMRI [or its successors] under the provisions of an 88B Easement and in accordance with the Fire Management Plan

**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*”;
- *Newcastle City Council Bushfire Prone Land Map*;



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ATTACHMENT A – Site Plan showing Defendable Space/Fuel Managed Area.

