AMENDED

BUSHFIRE PROTECTION ASSESSMENT

FOR THE

PROPOSED RESIDENTIAL DEVELOPMENT

ON

LOT 621 in DP 1128314

FOX VALLEY ROAD

WAHROONGA

PREPARED FOR THE

SYDNEY ADVENTIST HOSPITAL

Australian Bushfire Protection Planners Pty Limited

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Report Number	Document	Preparation Date	Issue Date	Directors Approval
B121882 - 4	Final	28.9.2012	21.5.2014	*G.L.Swain*

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EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has been commissioned to prepare a Bushfire Protection Assessment for a Development Application to Ku-ring-gai Council for the proposed Residential Development on Lot 621 in DP 1128314 Fox Valley Road, Wahroonga.

The Residential Development is proposed to be located to the west of the existing Wahroonga Adventist Primary School complex which is located on the corner of Fox Valley Road and The Comenarra Parkway. The proposed complex consists of four buildings which rise above three basement levels.

The two buildings located adjacent to The Comenarra Parkway extend four levels above the ground level whilst the two northern buildings rise six floors above ground level.

Vehicular access to the carpark basement floors is from Hospital internal road network, to the north, which extends off Fox Valley Road with a service access from The Comenarra Parkway to the south.

The existing landuse to the north of the development site consists of the Sydney Adventist Hospital complex and the landuse to the west consists of the recently completed Education Centre [Nurses Training facility] and existing residential development.

Residential development extends to the south of The Comenarra Parkway and the existing Wahroonga Adventist Primary School is located to the east of the development site.

The approved Concept Plan for the redevelopment of the Wahroonga Estate provides that the existing Adventist School will be replaced with a mixed use development.

Whilst the land upon which it is proposed to construct the residential complex is not shown to be impacted by the Ku-ring-gai Bushfire Prone Land Map, the land within Lot 621 in DP 1128314, being the lot on which the proposed residential complex is proposed to be erected, contains unmanaged vegetation. This vegetation is recorded on the Bushfire Prone Land Map as Category 1 Bushfire Prone Vegetation.

The lot, being recorded as containing bushfire prone vegetation and the development, being the construction of a multi-unit residential development within a bushfire prone area is therefore required to comply with the provisions of Section 79BA of the *Environmental Planning & Assessment Act 1979* and provide bushfire protection measures in accordance with *Planning for Bushfire Protection 2006.*

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This report therefore examines the proposed development against the deemed to satisfy requirements of *Planning for Bushfire Protection 2006* and provides advice on the suitability of the development in addressing the availability of complying Asset Protection Zones/Defendable Spaces, access and water supplies for fire-fighting operations and the requisite level of construction to the building in order to address the potential levels of radiant heat exposure on the building.

Graham Swain
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Australian Bushfire Protection Planners Pty Limited.

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SECTION 1

INTRODUCTION

1.1 Aim of this Assessment.

The aim of this Bushfire Protection Assessment is to review the proposed Development Application to determine compliance with the intent of *Planning for Bushfire Protection 2006* and in particular:

- Determine the formation of the vegetation on and adjoining the development footprint in accordance with the vegetation classification system contained in *Planning for Bushfire Protection 2006*;

- Undertake an assessment to determine the effective slope of the land which will cause the most insignificant fire behaviour on the facility;

- Determine the Fire Danger Index [FDI] for the site;

- Undertake an assessment to determine the adequacy of the bushfire protection measures, including the following matters:

  (i) The provision of setbacks from vegetated areas;
  (ii) Fire fighting water supplies;
  (iii) Access requirements for emergency service vehicles;
  (iv) Land management responsibilities; and
  (v) Evacuation management.

1.2 Development Proposal.

A Development Application is to be lodged with Ku-ring-gai Council for the construction of a proposed multi-storey residential development on Lot 621 in DP 1128314, Fox Valley Road, Wahroonga – refer to Figure 1 on Page 7 showing Site Plan of the proposed residential development.

Vehicular access to the carpark basement floors is from the Hospital internal access road network, to the north, which extends off Fox Valley Road with a service access from The Comenarra Parkway, to the south.

Pedestrian access to the building is off the Hospital internal access road network to the north with a link to the Education Centre to the west. Pedestrian access is also available to The Comenarra Parkway, to the south, via the pedestrian link from the Education Centre.

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Figure 1 – Site Plan of the proposed residential development.

1.3 Statutory Requirements.

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

1.3.1 Legislation.

***(a) Environmental Planning and Assessment Act* (EPA Act)**

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 1979* (EPA Act). This Act was amended in August 2002 by the *Rural Fires & Environmental Assessment Legislation Amendment Act, 2002.* In relation to bushfire planning for new residential, rural residential and special fire protection developments in bushfire prone areas in NSW, the following sections of the Act apply:

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(i) **Section 79BA** states:

"Development consent cannot be granted for any purpose (other than a subdivision of land that could lawfully be used for residential or rural residential purposes or development for a special fire protection purpose) on bushfire prone land unless the consent authority:

- *Is satisfied that the development conforms to the specifications and requirements of Planning for Bushfire Protection 2006 or:*

- *Has been provided with a certificate by a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment stating that the development conforms to the relevant specifications and requirements".*

(ii) **Section 79C(1)** states:

"In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

- *The likely impacts of the development (e.g. natural hazards such as bushfire threat);*

- *The suitability of a site for development (e.g. bushfires).*

(b) Rural Fires Act 1997

The objectives of the *Rural Fires Act* are to provide:

- The prevention, mitigation and suppression of fires;

- Coordination of bushfire fighting and prevention;

- Protection of people and property from fires; and

- Protection of the environment.

In relation to the management of bushfire fuels on public and private lands within NSW, Sections 63(1) and 63(2) require public authorities and owners / occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimize the danger of, the spread of bushfires.

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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 development in bushfire prone areas.

1.4 Documentation reviewed in this Assessment.

The following documents were reviewed in the preparation of this report:

- Architectural Plans, Elevations and Sections of the proposed residential development prepared by Morris Bray Martin Ollman Architects;
- Aerial Photograph of the development site and adjoining land;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service;
- Australian Standard AS3959 – 2009 - *"Construction of Buildings in Bushfire Prone Areas"*;
- *Rural Fires Act 1997;* and
- Ku-ring-gai Council Certified Bushfire Prone Land Map.

1.5 Site Inspection.

Graham Swain of *Australian Bushfire Protection Planners Pty Limited* inspected the site on the 29th September 2012 to assess the topography, slopes and vegetation classification within and adjoining the development site.

The inspection also examined the management of the vegetation on the adjoining properties to determine the actual extent of any vegetation within 100 metres of the development site which could lawfully be mapped as being bushfire prone vegetation.

An additional inspection of the site and adjoining landuse was undertaken on the 1st May 2014.

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SECTION 2

DESCRIPTION OF DEVELOPMENT SITE

2.1 Location & Description.

The land on which it is proposed to erect the multi unit residential complex consists of Lot 621 in DP 1128314, Fox Valley Road, Wahroonga.

Figure 2 – Location of the development site.

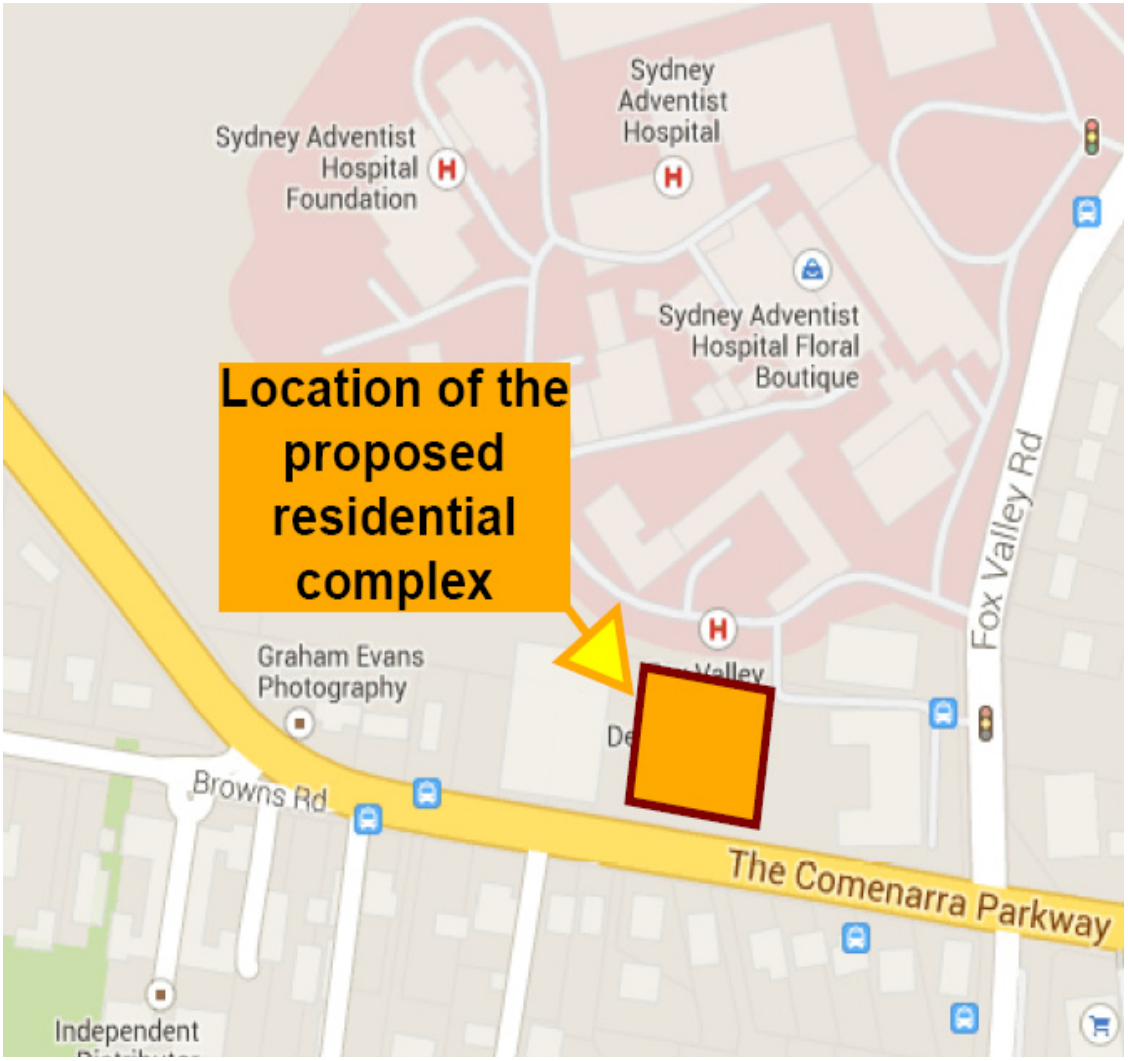

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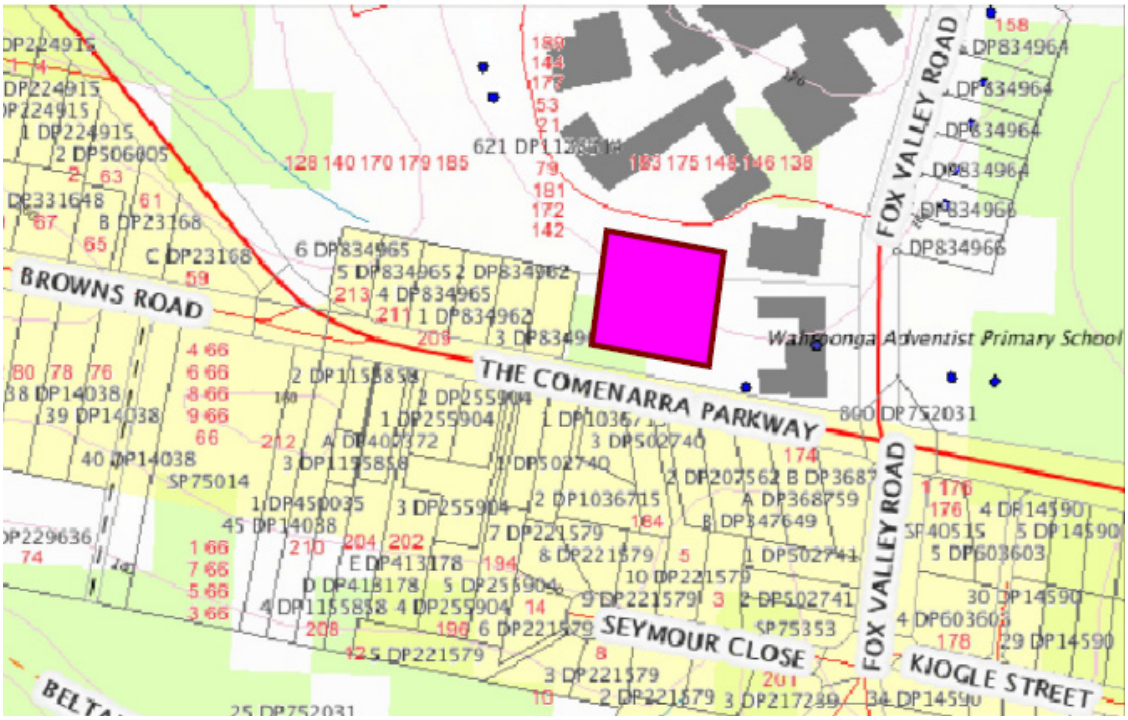
Figure 3 – Cadastre Plan.



2.2 Adjoining Land Use.

The landuse to the north of the proposed residential building contains the Sydney Adventist Hospital complex. The land to the east contains the existing Wahroonga Adventist Primary School which is planned to be replaced with a new mixed use development. The land to the south of The Comenarra Parkway contains existing residential development whilst the recently completed Education Centre and existing residential development occupies the land to the west. *[Refer to Figure 4 – Aerial Photograph on Page 12].*

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Figure 4 – Aerial Photograph showing location of the proposed Residential Development Site.

2.3 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 to the site.

The development site and surrounding development is located on the apex of a broad ridgeline which rises gently across the Hospital site to the north and falls to the east, west and south.

The landform within 100 metres to the east falls across the existing developed land at less than 5 degrees. The landform to the south also falls across the existing developed land at less than 5 degrees whilst the land to the west falls across the existing developed land at less than 10 degrees.

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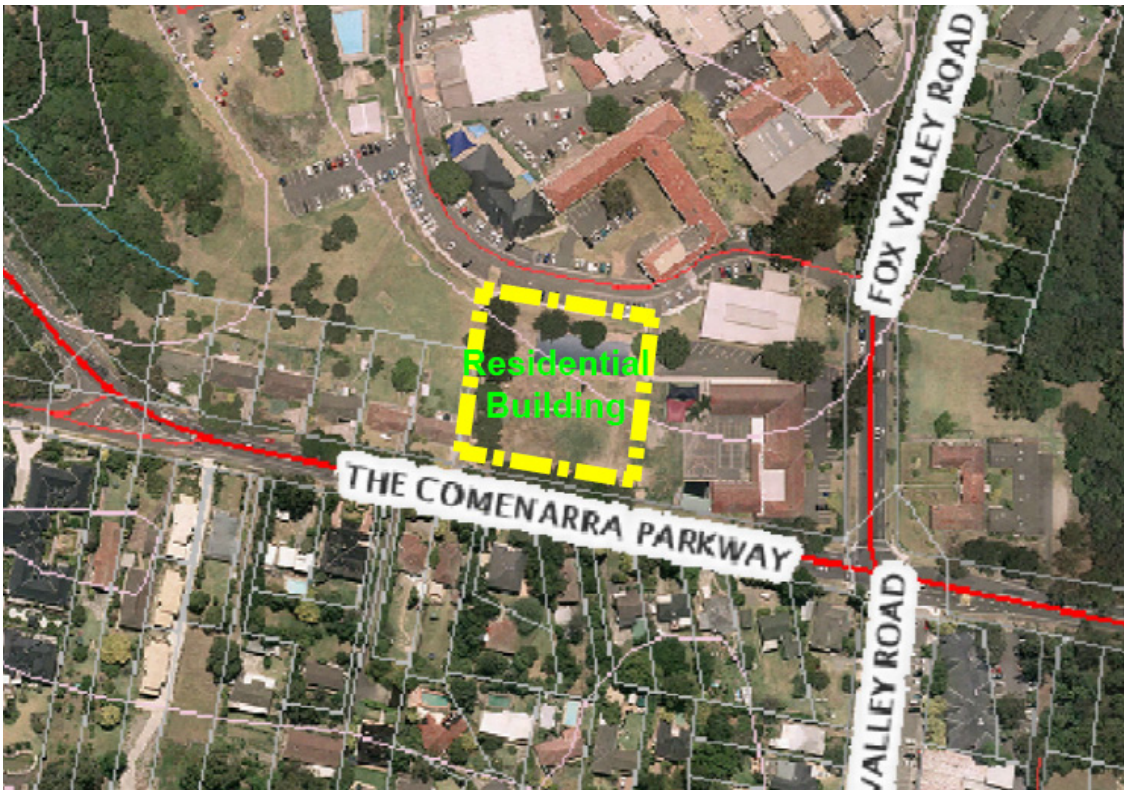
Figure 5 – Aerial Photograph showing contours.



2.4 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 future development on the site. 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.

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2.4.1 Vegetation within the Development Site.

The development site contains landscaped gardens.

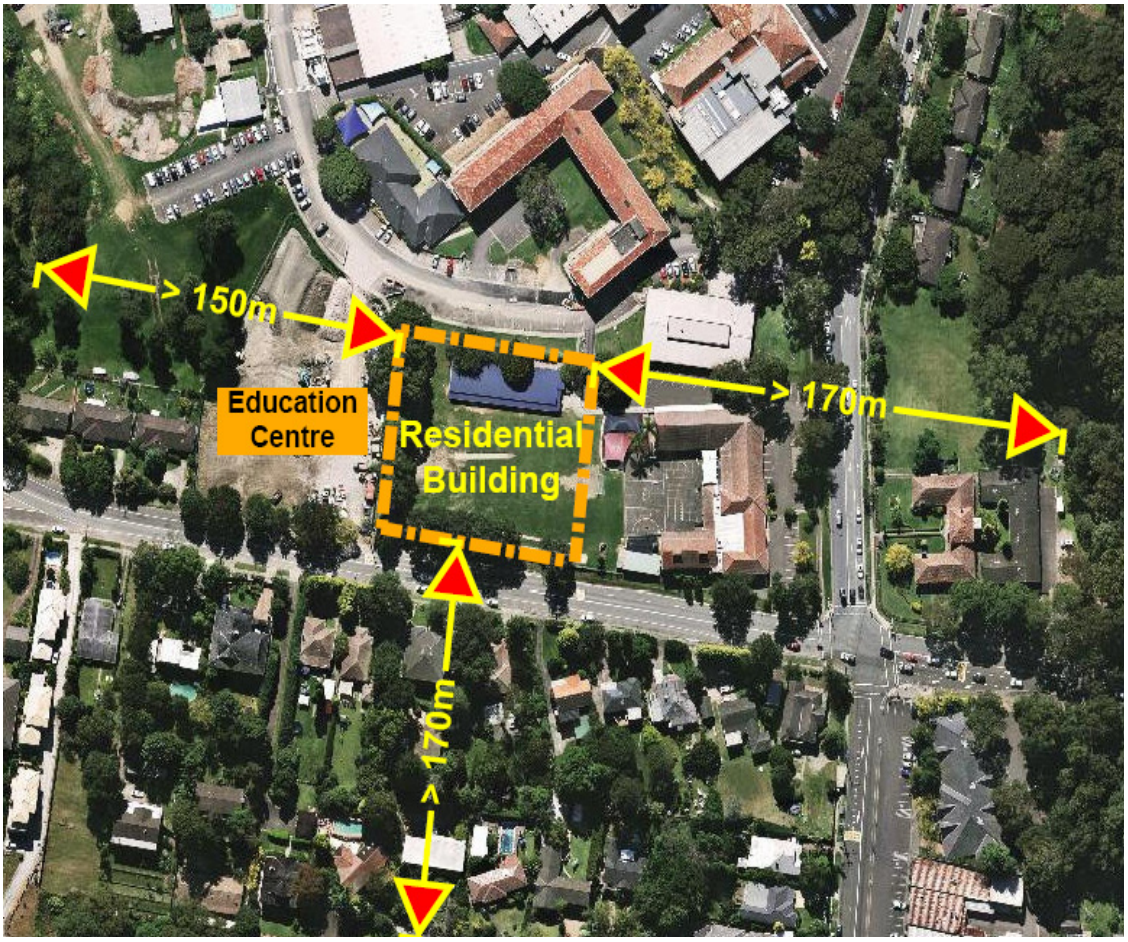
2.4.2 Vegetation within 140 metres of the Development Site.

The closest bushfire prone vegetation is located more than 150 metres to the west, more than 170 metres to the east and to the south of the proposed Residential Flat development.

The 100 metre wide Buffer Zone to the unmanaged Category 1 Bushfire Prone Vegetation does not impact on the site of the building.

Refer to Figure 6 – Aerial Photograph showing separation to unmanaged vegetation, below.

Figure 6 – Aerial Photograph showing separation distances to unmanaged vegetation.



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2.6 Significant Environmental Features within the Development Site.

The land within the development site does not contain significant environmental features such as SEPP 14 Wetlands, SEPP 44 Koala Habitat, SEPP 26 Littoral Rainforests; land slip areas or National Parks Estate; areas of geological interest; steep lands [>18 degrees] or riparian corridors.

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

There are no known threatened species, population or ecological community within the development site.

2.8 Details and location of Aboriginal relics or Aboriginal place.

There are no sites of Aboriginal heritage significance within the proposed development site.

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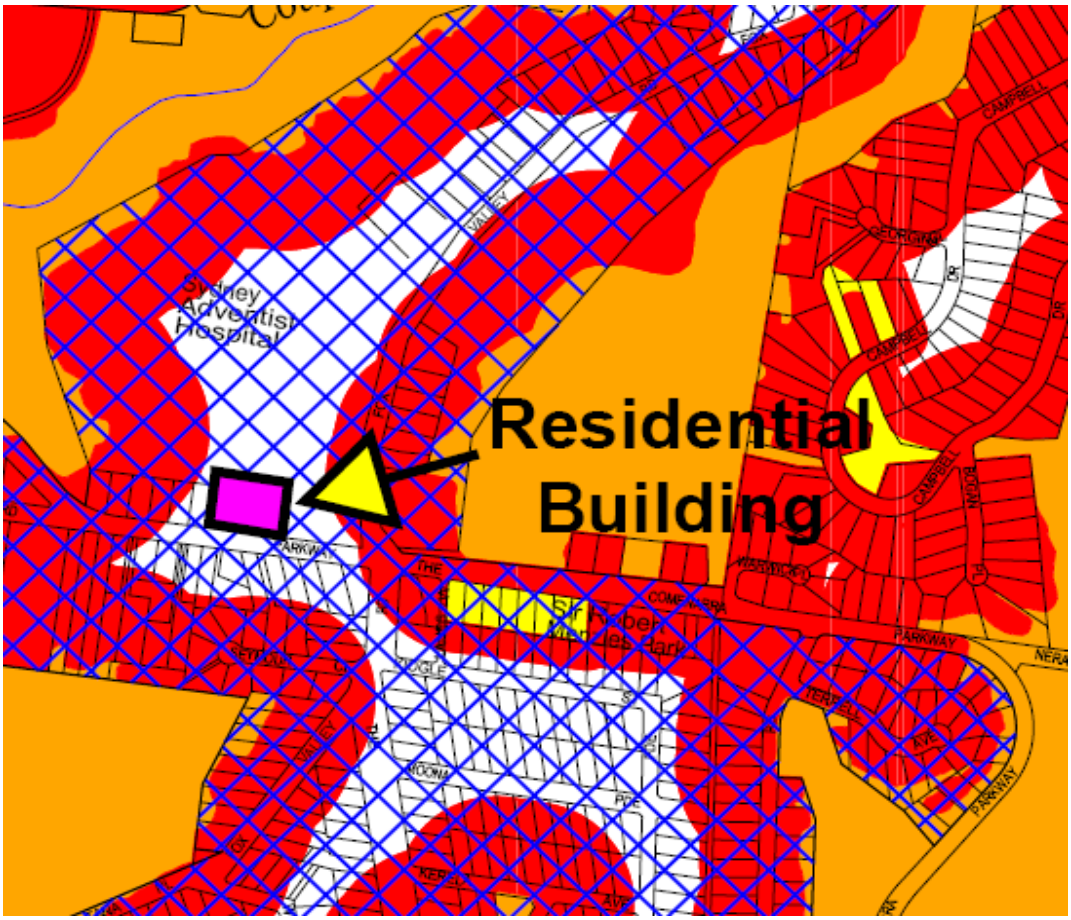
SECTION 3

PRECINCT LEVEL ASSESSMENT

4.1 Introduction.

Figure 7 below is an extract from the Ku-ring-gai Bushfire Prone Land Map showing the extent of the Category 1 Bushfire Prone Vegetation and Buffer Zone on land which adjoins the development.

Figure 7 – Extract of the Ku-ring-gai Bushfire Prone Land Map showing the location of the proposed building and the location of the bushfire prone vegetation and buffer zone.



Legend: Orange – Category 1 Bushfire Prone Vegetation; Yellow – Category 2 Bushfire Prone Vegetation; Red – 30 & 100m wide Buffer Zone to the Category 1 & 2 Bushfire Prone Vegetation

The inspection of the development site confirmed that the proposed building is not located within a Bushfire Prone Area.

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SECTION 5
BUSH FIRE PROTECTION ASSESSMENT

5.1 Introduction.

The development proposal is for the construction of a new multi storey residential development within Lot 621 in DP 1128314, Fox Valley Road, Wahroonga.

Whilst Lot 621 in DP 1128314 contains Category 1 Bushfire Prone Vegetation the proposed residential complex is located more than 100 metres from unmanaged vegetation which constitutes bushfire prone vegetation. Therefore, the development proposal is not subject to the provisions of Section 79BA of the *Environmental Planning & Assessment Act 1979.*

However, as the lot on which it is proposed to construct the building contains bushfire prone vegetation this report considers the developments compliance with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006.*

The proposed development is defined as "infill development" by *Planning for Bushfire Protection 2006.* Section 4.3.2 of *Planning for Bushfire Protection 2006* provides the following specific objectives for infill development:

- Ensure that the bushfire risk to adjoining lands is not increased;
- Provide a minimum defendable space;
- Provide better bushfire protection, on a re-development site, than the existing situation. This should not result in new works being exposed to greater risk than an existing building;
- Ensure that the footprint of the proposed building does not extend towards the hazard beyond existing building lines on neighbouring land;
- Not result in an increased bushfire management & maintenance responsibility on adjoining land owners unless they have agreed to the development; and
- Ensure building design, and construction, enhance the chances of occupant and building survival.

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The Rural Fire Service states in *Planning for Bushfire Protection 2006*:

"Ideally, APZs, access and service supply standards for infill developments should be provided in accordance with the acceptable solutions applied to residential subdivision.

However, in most cases, infill development proposals will be constrained by pre-existing subdivision patterns and existing built forms surrounding the development site.

Consequently, each proposal must be considered on its merits and in accordance with the intent and performance criteria for infill development" [Section 4.3.5 of *Planning for Bushfire Protection 2006*].

The performance criteria for Infill Development is summarised below:

Asset Protection Zones:

- A defendable space is provided onsite;

- An Asset Protection Zone is provided and maintained for the life of the development.

Siting & Design:

Buildings are sited and designed to minimise the risk of bushfire attack.

Construction Standards:

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

Access:

Safe, operational access is provided [and maintained], for emergency services personnel in suppressing a bushfire while residents are seeking to relocate, [satisfying the intent and performance criteria for access roads in Section 4.1.3 of *Planning for Bushfire Protection 2006*].

Water & Utility Services:

- Adequate water and electricity services are provided for fire-fighting operations;

- Gas & electricity services are located so as not to contribute to the risk of fire to a building.

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Landscaping:
Landscaping is designed and managed to minimise flame contact and radiant heat impact on buildings, and the potential for wind driven embers to cause ignitions.

These performance criteria are examined in the following sections of this report.

5.2 Asset Protection Zones:

The location of the proposed building provides a separation of more than 150 metres to the bushfire prone vegetation within the Coupes Creek corridor, to the west and more than 170 metres to the bushfire prone vegetation on the land to the east of Fox Valley Road and also to the bushfire prone vegetation within Lane Cove National park, to the south.

These separation widths exceed the maximum Asset Protection Zone width required for residential development as required under Table A2.4 of *Planning for Bushfire Protection 2006.*

Refer to Figure 6 – Aerial Photograph showing separation distance to unmanaged bushfire prone vegetation – Page 15.

5.3 Siting, Design and construction standards to the proposed building:

The proposed building is located within the southern portion of the Sydney Adventist Hospital site, clear of affection by the Ku-ring-gai Bushfire Prone Land Map. The design of the building is therefore not subject to the requirements of Part 2.3.4 of the Building Code of Australia or the specifications of A.S. 3959 – 2009 – *'Construction of Buildings in Bushfire Prone Areas'.*

5.4 Access for Fire Fighting Operations.

5.4.1 Adequacy of Public Roads:

The proposed building is located adjacent to The Comenarra Parkway with vehicular access to the basement carpark provided off the internal road network which is accessed off Fox Valley Road. Both of these roads are arterial roads which provide two-way access for heavy rigid and articulated vehicles and therefore provide satisfactory public road access for fire-fighting appliances and other emergency service vehicles.

5.4.2 Emergency Response Access / Egress:

The emergency response access/egress to the proposed building is provided directly off The Comenarra Parkway and also off the exiting two-way internal road network within the Hospital site.

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5.5 Water & Utility Services:

The Sydney Adventist Hospital Estate has an internal reticulated ring main fire-fighting water supply which has been upgraded as part of the Hospital redevelopment, under the Concept Plan for the redevelopment of the Wahroonga Estate. This upgraded supply provides a reticulated mains supply, complete with hydrants installed in compliance with A.S.2419. 1 – 2005, to the proposed residential development.

No additional water supplies are required for fire-fighting operations.

Existing and new gas & electricity services are located underground.

5.6 Landscape Management:

The approved Master Plan for the redevelopment of the Wahroonga Estate provides for the creation and maintenance of complying Asset Protection Zones to the existing and future development within the site.

The approved Asset Protection Zones will be maintained as an Inner Protection Area as defined by the NSW Rural Fire Service's *'Specifications for Asset Protection Zones'.*

5.7 Emergency Management for Fire Protection.

Due to the low bushfire risk to the proposed residential development there is no requirement for the preparation of a Bushfire Emergency Management Plan.

5.8 Adequacy of Sprinkler Systems & other Fire Protection Measures.

There are no sprinkler systems required or recommended.

5.9 Evacuation.

There shall be prepared an Evacuation Plan for the residential complex incorporating protocols for defined emergencies including bushfire occurrences.

The Evacuation Plan shall be prepared in accordance with Australian Standard A.S. 3745-2002 *"Emergency Control Organisation and Procedures for dwellings, structures and workplaces"* and the Rural Fire Service's "*Bushfire Evacuation Plan Guideline"* and will remain in draft format until completed by the management committee.

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SECTION 6

BUSHFIRE MANAGEMENT STRATEGIES

Strategies to address the aim and objectives of *Planning for Bushfire Protection 2006* are as follows:

Strategy 1 – Landscape Management:

The design and maintenance of the landscaped gardens to the complex shall comply with the prescriptions of an Inner Protection Area [IPA] pursuant to the specifications of Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Services document *'Specifications for Asset Protection Zones'.*

Strategy 2 – Water Supplies for Firefighting Operations:

The existing Sydney Water reticulated service shall be extended to the development with hydrants installed in accordance with A.S. 2419.1 – 2005.

Strategy 3 – Evacuation Plan:

There shall be prepared an Evacuation Plan which incorporates protocols for defined emergencies, including bushfire occurrences.

The Evacuation Plan shall be prepared in accordance with Australian Standard A.S. 3745-2002 *"Emergency Control Organisation and Procedures for dwellings, structures and workplaces"* and the Rural Fire Service's "*Bushfire Evacuation Plan Guideline"* and will remain in draft format until completed by the management committee.

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SECTION 7

CONCLUSION

This report has been prepared to accompany a Development Application to Ku-ring-gai Council seeking consent for the construction of a proposed residential building on Lot 621 in DP 1128314, Fox Valley Road, Wahroonga.

The development site [Lot 621 in DP 1128314], is recorded on the Ku-ring-gai Bushfire Prone Land Map to contain Category 1 Bushfire Prone Vegetation, therefore development which occurs within the lot falls under the requirements of Section 79BA of the *Environmental Planning & Assessment Act 1979*.

The proposed building is separated from the bushfire prone vegetation to the west, east and south by more than 100 metres. This separation is provided by the managed landscaped gardens within the development site and the adjoining development.

This separation width places the proposed building beyond the maximum Asset Protection Zone width [60m] for residential development, as required by Table A2.4 of *Planning for Bushfire Protection 2006.*

The proposed development, being located more than 100 metres from bushfire prone vegetation, is not required to satisfy Part 2.3.4 of the Building Code of Australia and the bushfire construction specifications of Australian Standard A.S. 3959 – 2009 – *'Construction of Buildings in Bushfire Prone Areas'.*

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REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- *Environmental Planning & Assessment Act – 1979;*
- *Rural Fires Act – 1997;*
- *Rural Fires and Environmental Assessment Legislation Amendment Act 2002;*
- *Rural Fires Regulation 2008;*
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2006;*
- *Threatened Species Conservation Act 1995;*
- *Native Vegetation Act;*
- *Bushfire Environmental Assessment Code 2006;*
- Building Code of Australia;
- Australian Standard A.S 3959-2009 "*Construction of Buildings in Bushfire Prone Areas";*
- *Ku-ring-gai Bushfire Prone Land Map.*

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