

BUSHFIRE PROTECTION ASSESSMENT

SECTION 96 APPLICATION FOR THE CONSTRUCTION OF ALTERATIONS & ADDITIONS TO THE

ADMINISTRATION BUILDING

WITHIN THE

JOHN COLET SCHOOL

**LOT 1 in DP 601101 & LOT 101 in DP 874509,
No. 6 - 8 WYATT AVENUE,
BELROSE**



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SECTION 96 APPLICATION

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BELROSE

Assessment Number	Document	Preparation Date	Issue Date	Directors Approval
B162744 - 1	Final	5.7.2016	14.7.2016	<i>G.L.Swain</i>

EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has been commissioned to undertake the Bushfire Consultancy on the proposed Section 96 Application to permit alterations and additions to the Administration Building within the John Colet School sited on Lot 1 in DP 601101 and Lot 101 in DP 874509, No. 6 – 8 Wyatt Avenue, Belrose.

The John Colet School Site contains approximately 1.2 hectares of land which is located to the north of Wyatt Avenue, opposite Wyatt Reserve, which contains Amenities and a Sports Fields.

The buildings on the site consist of the Administration/Classroom building, the Shakespeare and Chisholm House building, both located within the southern portion of the site. To the rear of these buildings a covered walkway has been approved to link to a Staff Common Room; Lunch Room; Classroom 1 & 2, a Library and Amenities. Beyond this precinct of buildings is the Music Room and Top House building.

Vehicular access to the School is via a driveway off Wyatt Avenue, extending along the eastern boundary to at-grade carparking.

This Application seeks approval for an extension to the Ground Floor of the Administration Building and a corresponding extension to Class Rooms 1 & 2, on the First Floor Level.

The additional area of the building extends the southern wall of the Administration Building and Class Rooms 1 & 2 approximately 3.0 metres to the south, towards Wyatt Avenue. The proposed works also include internal alterations to the existing layout to the Administration Building.

The land to the immediate west of the School contains a fire trail within a Crown Road Reserve which is also utilised to provide equine access to the land at the rear of the School. The land to the west of the road reserve contains a large residential dwelling set amongst landscaped gardens.

The land to the north of this property and to the northwest, north and east of the School is Crown Land originally identified for the development of a new TAFE College. This land remains vacant as the vegetation on the land has been identified as Duffys Forest, an Endangered Ecological Community [EEC].

The Warringah Council Bushfire Prone Land Map records this vegetation and the vegetation within the northern portion of the School site as Category 1 Bushfire Prone Vegetation.

The proposed alterations and additions to the existing Administration Building and Class Rooms 1 & 2 is therefore deemed to be a '*Special Fire Protection Purpose Development*' pursuant to the provisions of Section 100B of the *Rural Fires Act 1997* and requires the issue of a Bushfire Safety Authority from the Commissioner of the NSW Rural Fire Service.

Clause 44 of the Rural Fires Regulation 2013 requires that, for the issue of a Bushfire Safety Authority pursuant to Section 100B of the *Rural Fires Act 1997*, the following matters shall be addressed:

- (a) A description (including the address) of the property on which the development the subject of the application is proposed to be carried out;
- (b) A classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in *Planning for Bush Fire Protection*;
- (c) An assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property);
- (d) Identification of any significant environmental features on the property;
- (e) The details of any threatened species, population or ecological community identified under the *Threatened Species Conservation Act 1995* that is known to the applicant to exist on the property;
- (f) The details and location of any Aboriginal object (within the meaning of the *National Parks and Wildlife Act 1974*) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property;
- (g) A bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters:
 - (i) the extent to which the development is to provide for setbacks, including asset protection zones;
 - (ii) the siting and adequacy of water supplies for fire fighting;
 - (iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency;
 - (iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access;
 - (v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response;
 - (vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site;

- (vii) the construction standards to be used for building elements in the development;
- (viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development.
- (h) An assessment of the extent to which the proposed development conforms with or deviates from the standards, specific objectives and performance criteria set out in Chapter 4 (Performance Based Controls) of *Planning for Bush Fire Protection*.

Section 4.2.5 of *Planning for Bush Fire Protection 2006* identifies alterations and additions to existing 'Special Fire Protection Purpose Development', constructed prior to the amendments to the *Environmental Planning & Assessment Act 1979* and the *Rural Fires Act 1997*, introduced on the 1st August 2002, as infill development.

Section 4.2.5 of *Planning for Bushfire Protection 2006* states:

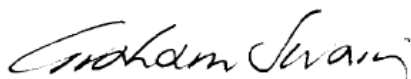
"In circumstances where alterations and additions to existing 'Special Fire Protection Purpose Developments' are proposed, the RFS requires an appropriate combination of bushfire protection measures and compliance with the intent and performance criteria of each measure within Section 4.3.5.

Alterations and additions to existing 'Special Fire Protection Purpose Developments' [i.e. approved prior to 1st August 2002], which may involve an increase in size and footprint of the building or redevelopment of an existing building are considered to be infill development.

This type of development should also seek to achieve a better bushfire risk outcome [such as improved construction standards] than if the development did not proceed.

The new building work should comply with A.S.3959 – 2009 or be no closer to the hazard than the existing building. Existing facilities such as water supply should be upgraded".

This report undertakes an assessment to review compliance with those matters identified by Clause 44 of the *Rural Fires Regulation 2013* and determines the deemed-to-satisfy bushfire protection requirements for the proposed development, in accordance with the provisions of Section 4.2.5 'Infill Development' of *Planning for Bushfire Protection 2006*.



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

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SECTION 1

INTRODUCTION

1.1 Aim of this Assessment.

The aim of this report is to prepare a bushfire protection assessment report that addresses the requirements of Clause 44 of the NSW Rural Fires Regulation 2013 and the requirements for ‘*Special Fire Protection Purpose Development*’ Infill Development as detailed in Section 4.2.5 *Planning for Bushfire Protection 2006*.

1.2 Statutory Requirements.

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

1.2.1 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). Section 91 identifies certain development which is deemed to be ‘*Integrated Development*’ requiring the issue of a Bushfire Safety Authority pursuant to Section 100B of the *Rural Fires Act 1997*.

1.2.2 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 Purpose Developments*” 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 Purpose Developments*” – which include Health Retreats; 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.

1.3 Documentation reviewed in this Assessment.

- Master Plan showing the approved staged development works within the John Colet School prepared by Templum Design Architects;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service/Planning N.S.W;
- Australian Standard AS3959 - 2009 *Construction of Buildings in Bushfire Prone Areas*;
- *Rural Fires Regulation 2013*.

1.4 Site Inspection.

Graham Swain of Australian Bushfire Protection Planners Pty Limited inspected the John Colet School on the 16th May 2013 to assess the topography, slopes and vegetation classification within and adjoining the School Site.

1.5 Development Proposal.

This Development Application seeks approval, under Section 96 of the *Environmental Planning & Assessment Act 1979* for construction of an extension to the Ground Floor of the Administration Building and a corresponding extension to Class Rooms 1 & 2, on the First Floor Level.

The additional area of the building extends the southern wall of the Administration and Class Rooms 1 & 2 approximately 3.0 metres to the south, towards Wyatt Avenue.

The proposed works also include internal alterations to the existing layout to the Administration.

Refer to Figures 1 – 5 – Site Plan and Architectural Plans and Elevations of the proposed alterations and additions on Pages 10 – 14.

Figure 1 – Site Plan of the existing buildings and the proposed extension to the Administration Building.

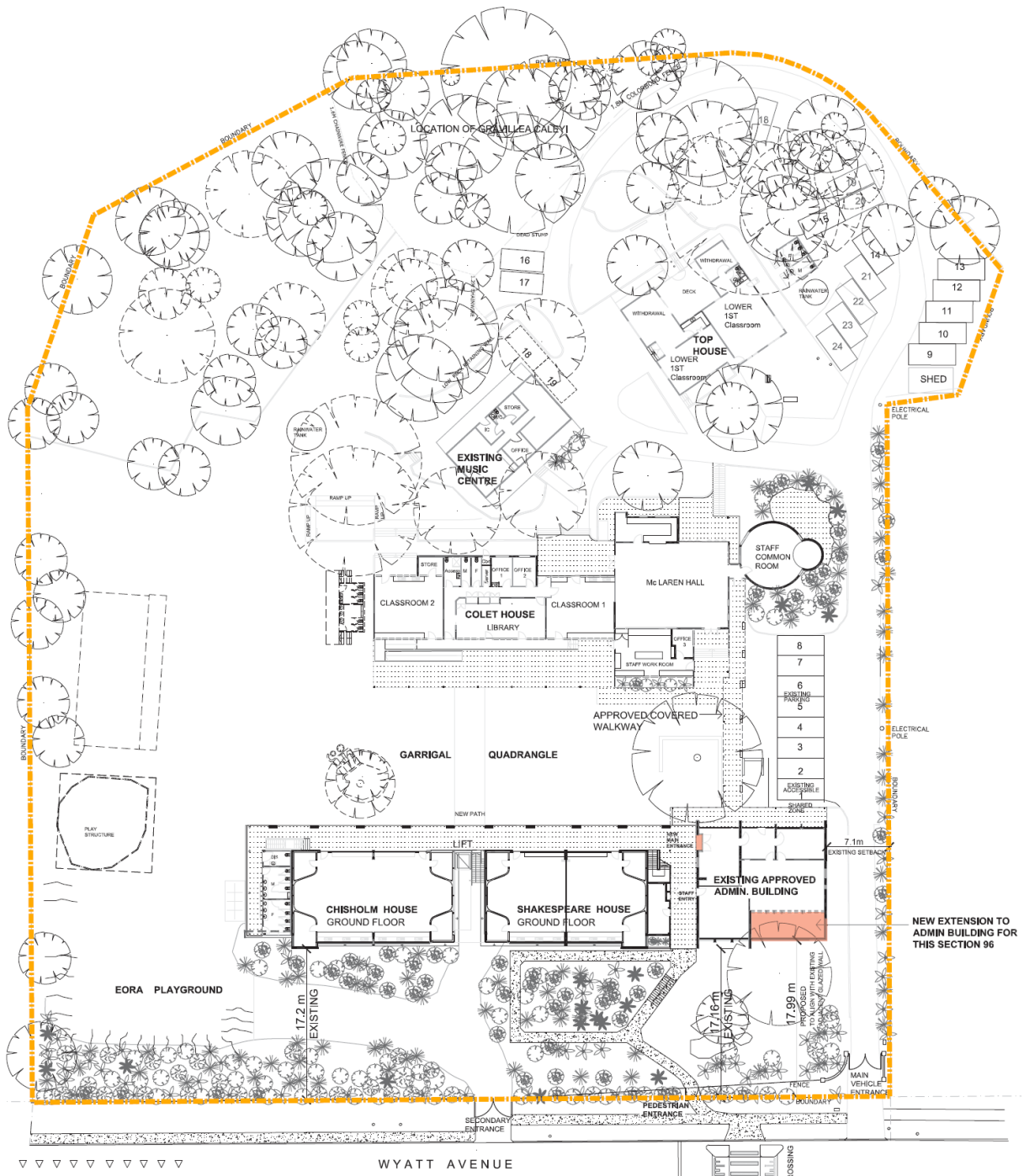


Figure 2 – Ground Floor Plan showing the proposed extension to the Administration Building.

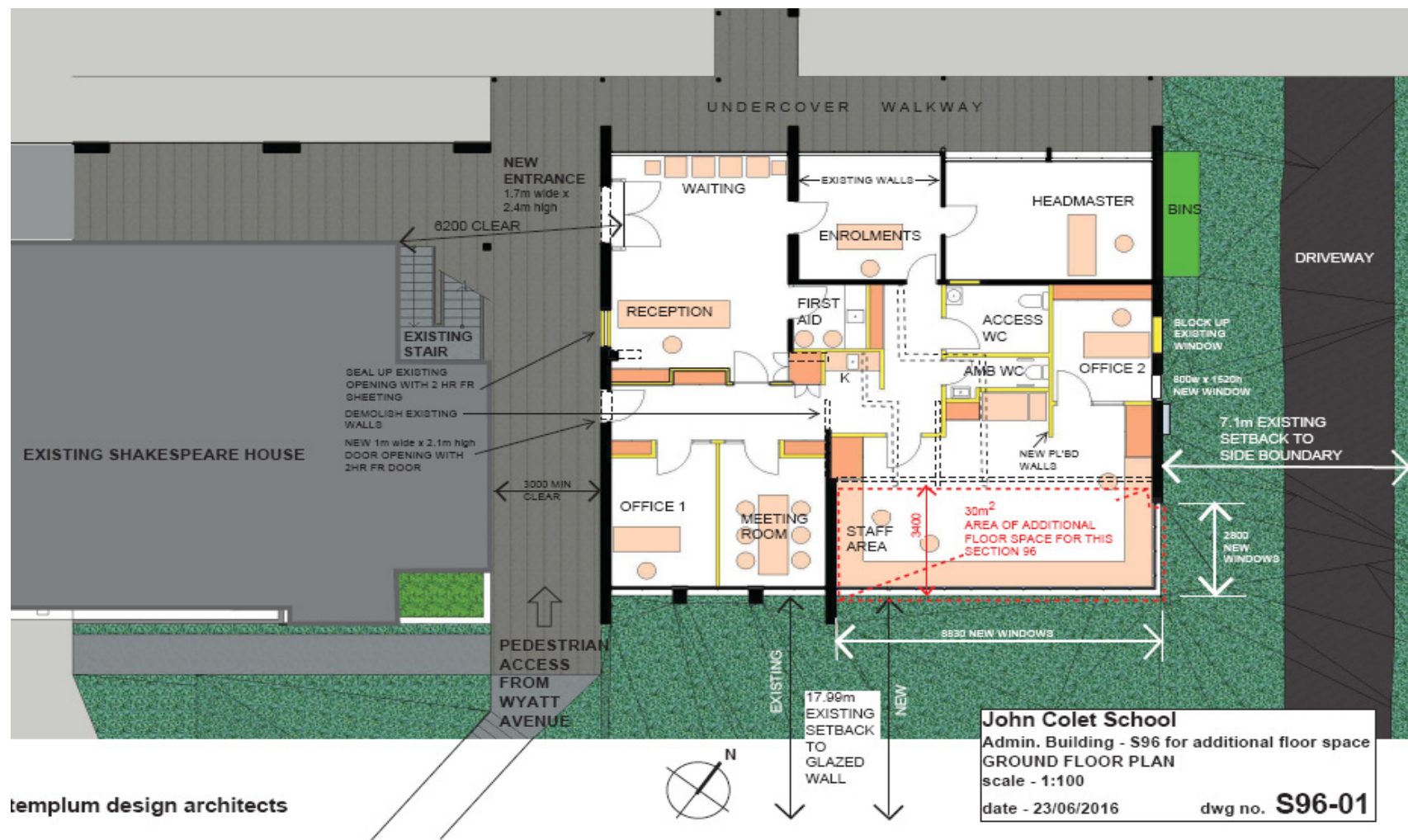


Figure 3 – Level 1 Floor Plan showing the proposed extension to Class Rooms 1 & 2

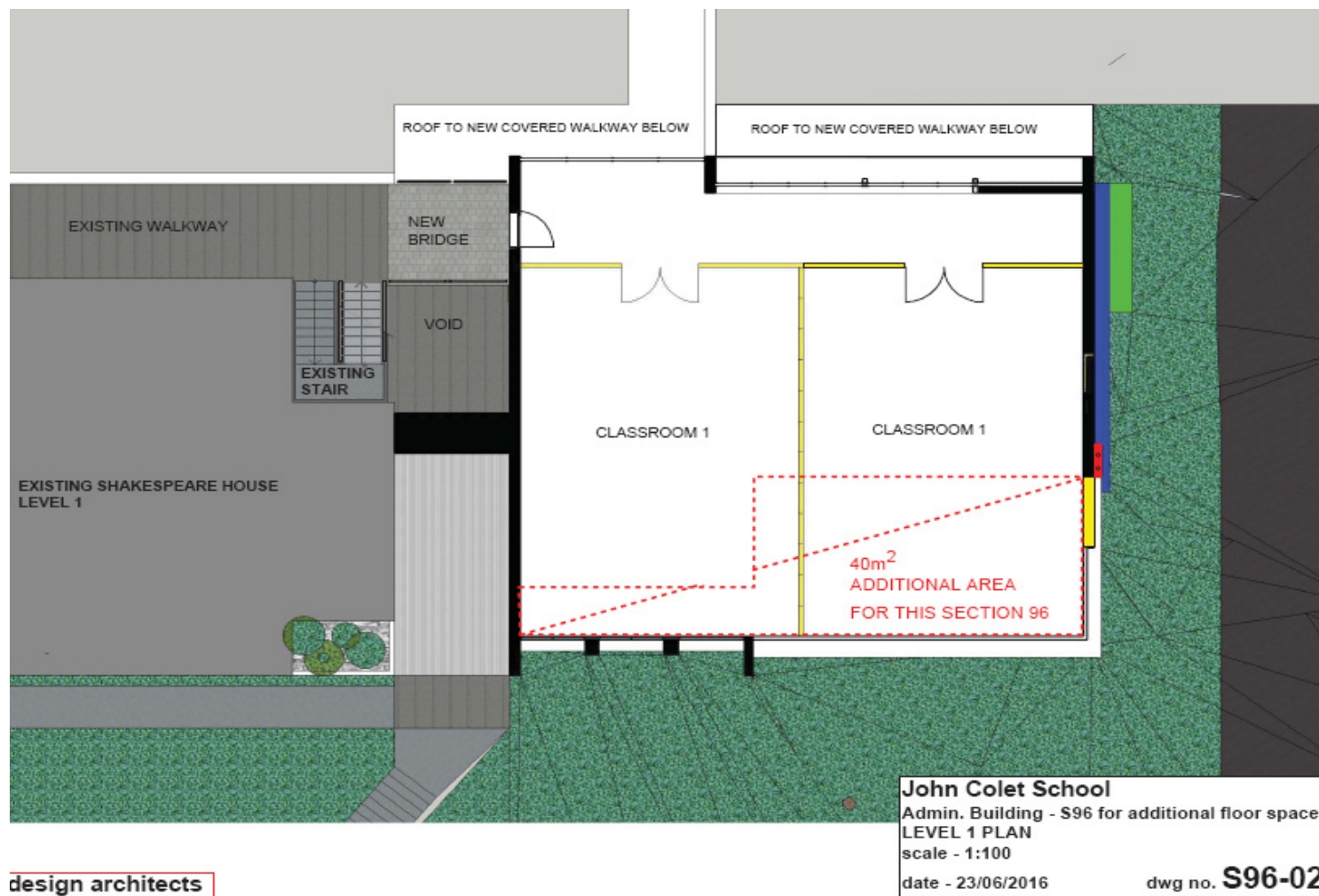


Figure 4 – South Elevation of the proposed extension



Figure 5 – East Elevation of the proposed extension.



SECTION 2

PROPERTY DESCRIPTION

2.1 Location.

The John Colet School occupies Lot 1 in DP 601101 and Lot 101 in DP 874509 and is located on the northern side of Wyatt Avenue, opposite Wyatt Reserve.

Figure 6 – Location of the John Colet School on Lot 1 in DP 601101 & Lot 101 in DP 874509, No. 6 - 8 Wyatt Avenue, Belrose.



2.2 Adjoining Land Use.

The School site is adjoined to the west by a Crown Road reserve which contains a fire trail and bridle track for horses to access the land to the rear of the site. Further to the west and northwest of the Crown Road reserve the land contains existing large lot residential development. Crown Land extends to the north and east of the School site.

The land use to the south of the School, beyond Wyatt Avenue, consists of the Wyatt Reserve which contains managed Sports Fields and amenities.

Figure 7 – Aerial Photograph of the John Colet School site and adjoining landuses.



2.3 Topography.

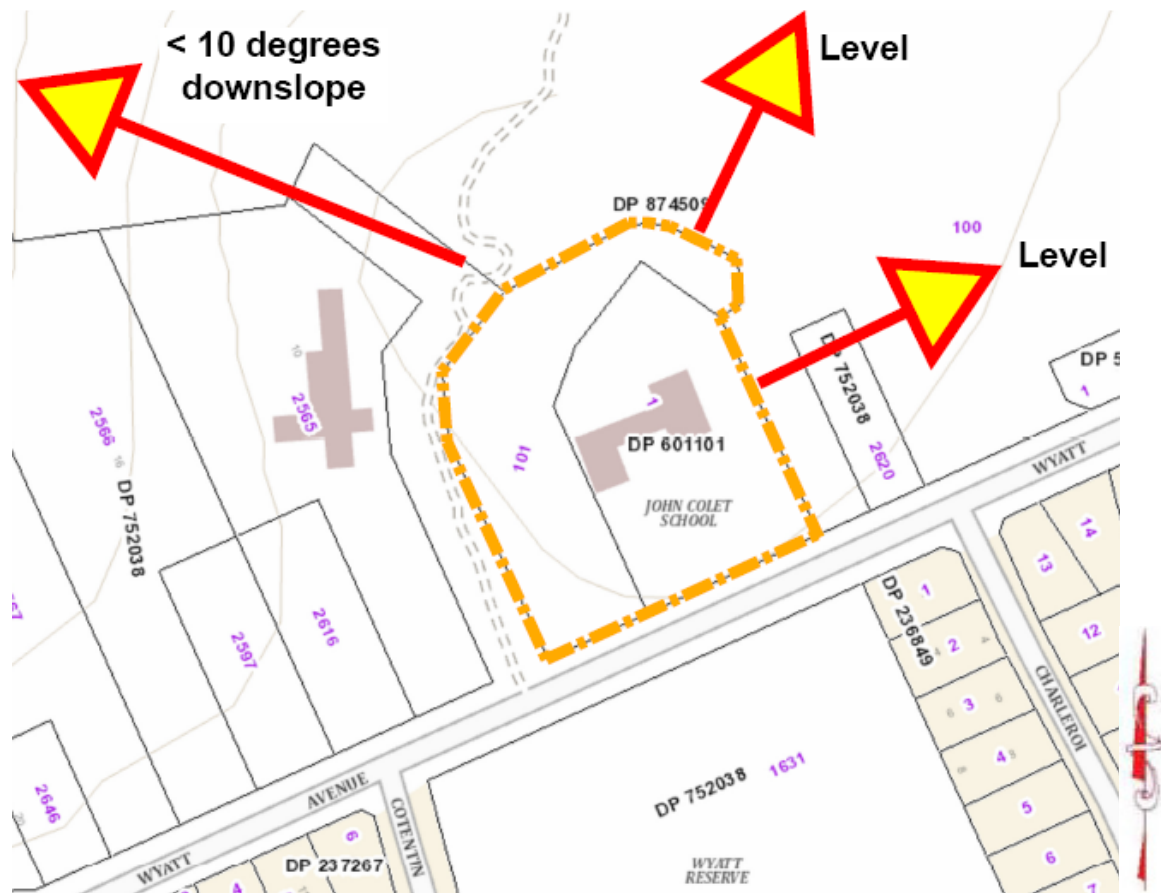
Appendix 2 of *Planning for Bushfire Protection 2006* states that slopes should be assessed, over a distance of at least 100m from a development site and that the gradient of the land should be determined which will most significantly influence the fire behaviour to the site.

The School is located on the southern face of a ridge that rises to the north before falling to the northwest and north across the adjoining Crown land.

The 'effective' slope which will create the most significant bushfire behaviour is seven [7] degrees downslope to the northwest.

Refer to Figure 8 – Topographic Map on Page 16.

Figure 8 – Topographic Map.



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.*

2.4.1 Vegetation within the School Site.

The vegetation within the School site consists of managed landscaped gardens. A small patch of Grevillea Caleyi occupies a fenced area within the northern portion of the site.

2.4.2 Vegetation within 140 metres of the School Site.

The predominant vegetation on the vacant Crown Land to the north, northwest and northeast/east of the School site consists of Duffys Forest, an Endangered Ecological Community.

2.5 Significant Environmental Features on the School Site.

The land within the 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; Steep Lands [>18 degrees] or riparian corridors.

2.6 Known Threatened Species, Population or Ecological Community within the School Site.

A small pocket of Grevillia Caleyi is located within the rear of the site. This species is listed as endangered and has been fenced to prevent entry by students.

2.7 Details and location of Aboriginal Relics or Aboriginal Place.

No Aboriginal relics or Aboriginal places are located within the School site.

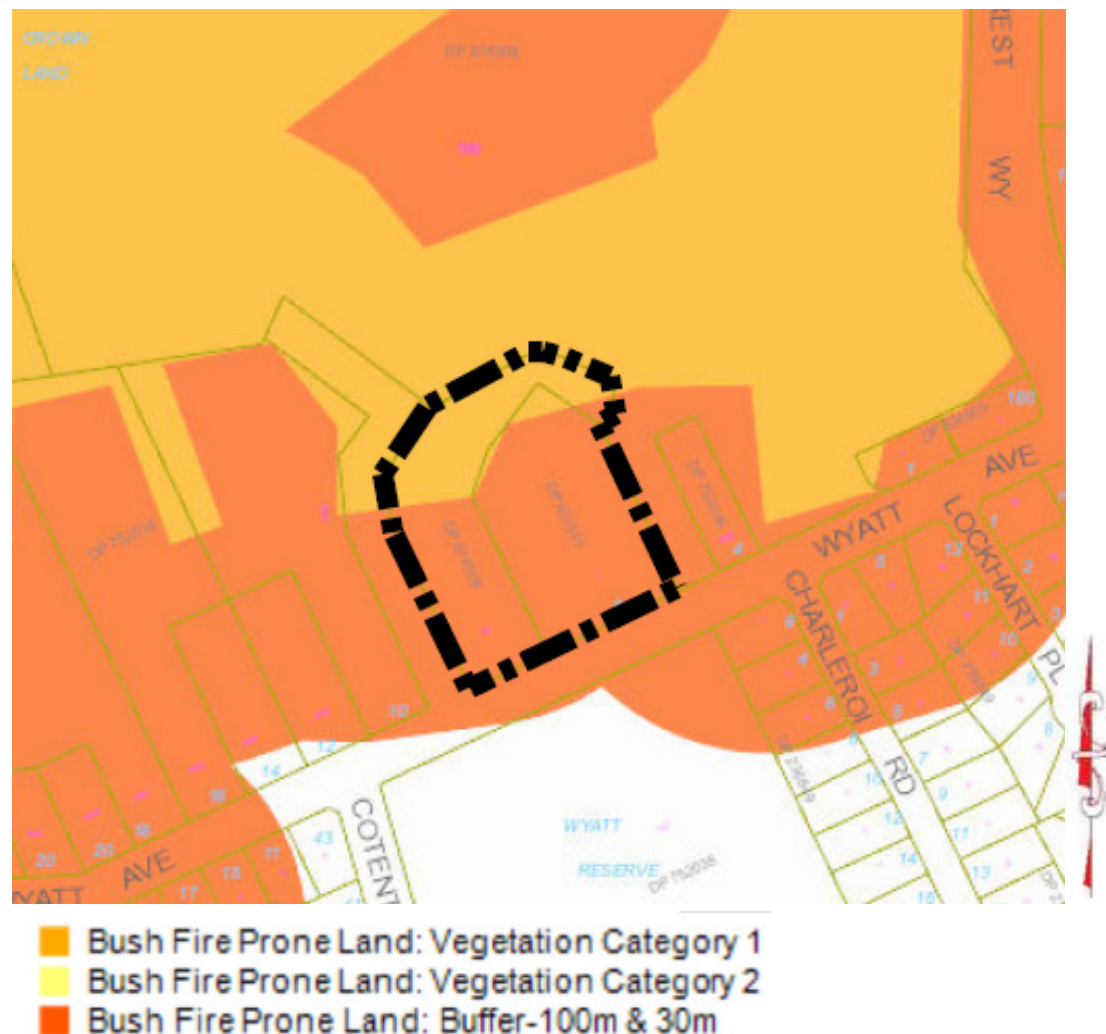
SECTION 3

PRECINCT LEVEL ASSESSMENT

3.1 Certified Bushfire Prone Land Map.

Figure 9 is a copy of an extract of the Certified Warringah Shire Council Bushfire Prone Land Map showing the extent of the Category 1 Bushfire Prone Vegetation on the School site and adjoining land.

Figure 9 – Plan of Bushfire Prone Land.

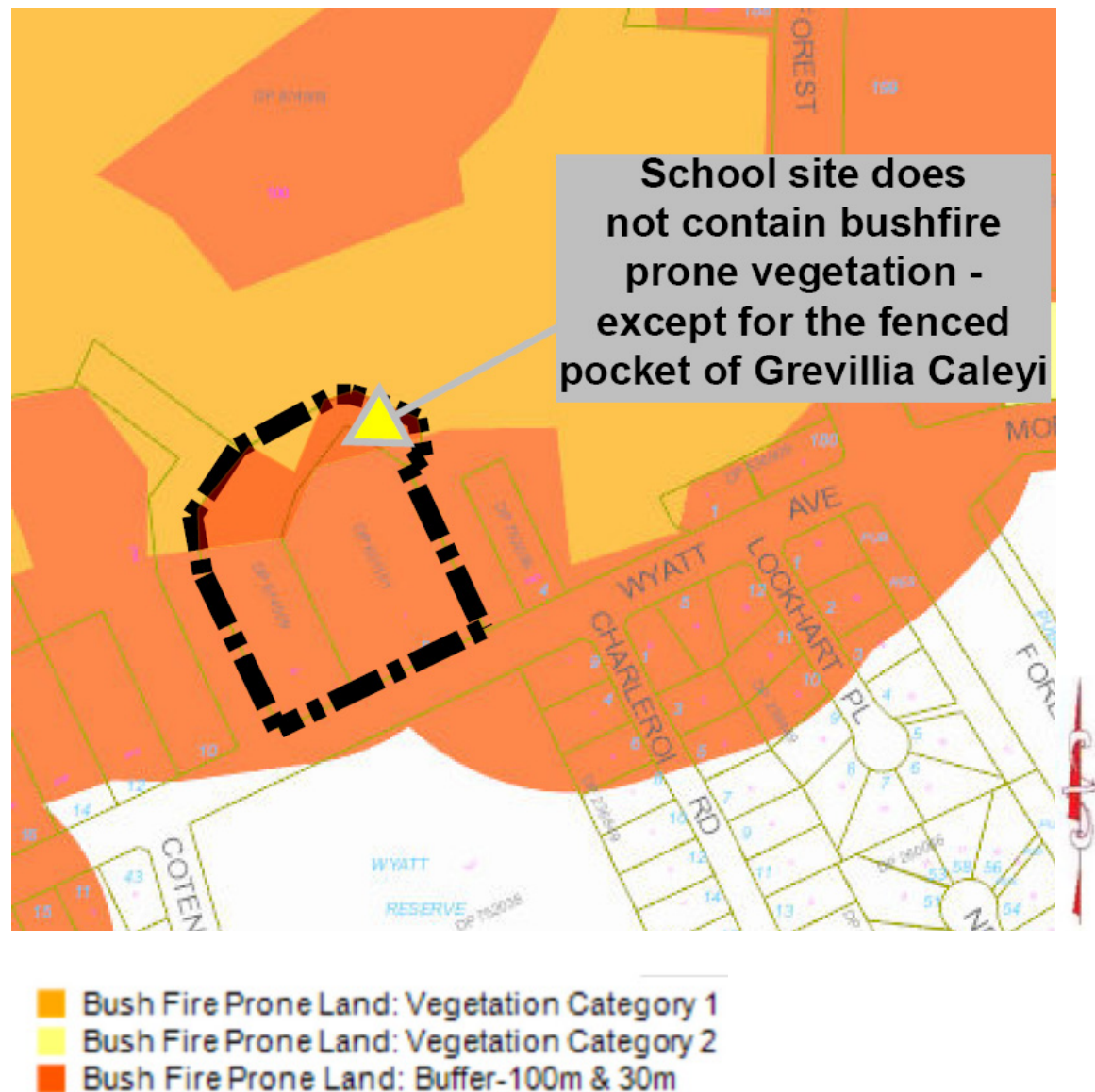


The inspection of the School site confirmed that the Bushfire Prone Land Map does not accurately record the extent of Category 1 Bushfire Prone Vegetation within the School site. The BFPLM shows Category 1 vegetation occupying the northern portion of the site whereas this area of the site, except for the fenced pocket of *Grevillia Caleyi*, is managed with a retained tree canopy and therefore is not bushfire prone vegetation.

The map accurately records the extent of Category 1 Bushfire Prone Vegetation on the Crown Land to the northwest, north, northeast and east of the School site.

Figure 10 identifies the area within the School site which contains managed vegetation and is not Category 1 Bushfire Prone Vegetation.

Figure 10 – Plan of adjusted Bushfire Prone Land.



SECTION 4

BUSHFIRE PROTECTION ASSESSMENT

4.1 Introduction.

Clause 44(h) of the *Rural Fires Regulation 2013* requires that for the purposes of Section 100B of the *Rural Fires Act 1997* a bushfire assessment is to be prepared for the proposed development that addresses the following matters:

- i. The extent to which the development is to provide for setbacks, including asset protection zones;
- ii. The siting and adequacy of water supplies for fire fighting;
- iii. The capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency;
- iv. Whether or not public roads in the vicinity that link with the fire trail network have two-way access;
- v. The adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response;
- vi. The adequacy of bush fire maintenance plans and fire emergency procedures for the development site;
- vii. The construction standards to be used for building elements in the development;
- viii. The adequacy of sprinkler systems and other fire protection measures to be incorporated into the development.

Section 4.2.5 of *Planning for Bushfire Protection 2006* states that the Rural Fire Service requires, where alterations and additions are planned for existing 'Special Fire Protection Purpose Development', an appropriate combination of bushfire protection measures and compliance with the intent and performance criteria of each measure within Section 4.3.5 of *Planning for Bushfire Protection 2006*.

The performance criteria include:

1. A defendable space is provided onsite;
2. Buildings are sited and designed to minimise the risk of bushfire attack;

3. It is demonstrated that the proposed building can withstand bushfire attack in the form of wind, smoke, embers, radiant heat and flame contact;
4. Safe operational access is provided for emergency services personnel while residents are seeking to relocate [satisfying the intent and performance criteria for access roads in Sections 4.1.3 & 4.2.7 of *Planning for Bushfire Protection 2006*;
5. Adequate water and electricity services are provided for firefighting operations. Gas & electricity services are located so as not to contribute to the risk of fire to a building; and
6. Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and potential wind driven embers to cause ignitions.

The following sections of this report examine these matters.

4.2 Asset Protection Zones.

The bushfire prone vegetation which creates the hazard to John Colet School consists of the Dry Sclerophyll Low Open Duffys Forest on the Crown Land to the northwest, north and northeast of the School site.

Table A2.6 of *Planning for Bushfire Protection 2006* establishes that the Asset Protection Zone requirement for forest vegetation on land with an effective slope of less than 10 degrees downslope to the northwest/north is 85 metres and 60 metres to the northeast and east, for forest vegetation on level land.

These clearances are available to the proposed extension to the Administration Building.

Furthermore, the location of the extension is to the south of the existing Administration/Class Rooms 1 & 2 and therefore fully shielded from the hazard to the northwest, north, northeast and east by the existing building.

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

The location of the proposed addition to the Administration Building extends the building to the south, further away from the bushfire hazard and shielded by the existing structure, therefore reducing the risk of bushfire attack.

4.4 Construction Standard of Buildings:

The intent and performance criteria within Section 4.3.5 of *Planning for Bushfire Protection 2006* requires that it is demonstrated that the proposed additions can withstand bushfire attack in the form of wind, smoke, embers, radiant heat and flame contact.

This report has established that the new additions to the Administration Building are shielded from high levels of radiant heat by the existing building.

It is recommended however that all new building work shall comply with Section 3 and Section 5 [BAL 12.5] of Australian Standard A.S 3959 – 2009 – ‘*Construction of Buildings in Bushfire Prone Areas*’.

4.5 Access:

Vehicular & pedestrian access to the John Colet School is provided directly off Wyatt Avenue with a driveway located adjacent to the eastern boundary. This driveway incorporates a loop perimeter road in the north-eastern corner of the site which provides one-way access for heavy vehicles.

Fire-fighting access to the rear of the School site is also provided via the fire trail within the Crown Road reserve located to the west of the School.

4.6 Water & Electricity Services:

Water and electricity services to the existing buildings are located underground.

Complying fire-fighting water supplies are provided to the buildings in accordance with the provisions of the Building Code of Australia and A.S. 2419.1 – 2005, from a main located in Wyatt Avenue. Two Hydrants are located in the road verge, in front of the School on Wyatt Avenue, at each end of the development site.

4.7 Landscape Management - in particular the management of the Asset Protection Zones.

The existing maintenance of the gardens, open lawn areas and maintained land within the curtilage to the existing buildings provides managed areas which comply with the prescriptions of an Inner Asset Protection Zone as defined by Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service’s ‘*Standards for Asset Protection Zones*’.

This maintenance shall continue, with the exception of the fenced area containing the Grevillea Caleyi.

4.8 Adequacy of bush fire maintenance plans and fire emergency procedures for the development site:

The bushfire hazard to the John Colet School is generated by the Duffys Forest vegetation which occupies the Crown Land to the northwest, north and northeast of the School.

Figure 11 provides an extract from the Warringah Bushfire Risk Management Plan and shows the John Colet School site as [28] with an Asset Protection Zone [orange line] across the rear of the site and the Crown Land is identified as a 'Strategic Fire Management Zone'.

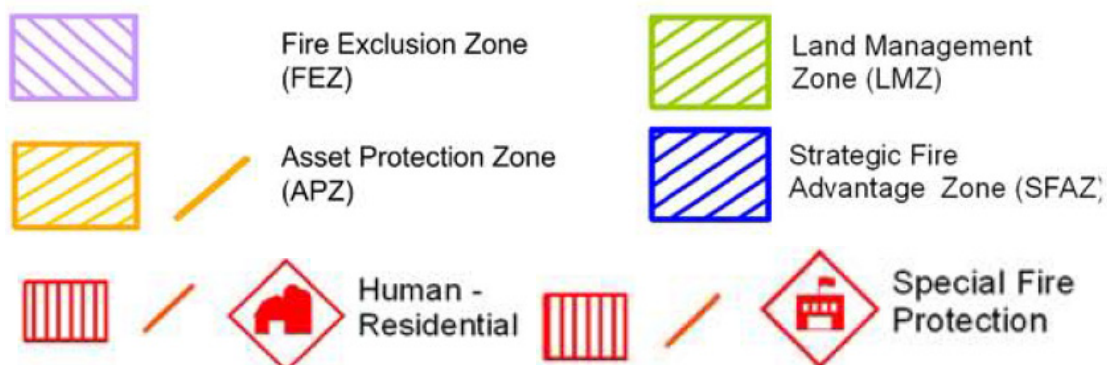
These measures are implemented by the local Fire Authorities with the aim to reduce the fuel hazard and therefore mitigate the potential bushfire risk to the School.

The School Management should continue to liaise with the Warringah District Office of the NSW Rural Fire Service to ensure that these protection measures are undertaken to the prescribed timing as recommended in the Bushfire Risk Management Plan.

Figure 11 – Extract from the Warringah Bushfire Risk Management Plan showing the proposed bushfire fuel management zones located within the adjoining Crown Land, to the northwest and north of the John Colet School site.



Bush Fire Management Zones



4.9 Emergency Planning.

One of the specific objectives identified by *Planning for Bushfire Protection* 2006 for 'Special Fire Protection Purpose Developments' is the provision of safe emergency evacuation procedures.

The School has an Emergency Management Plan which is reviewed regularly and is provided to the NSW Rural Fire Service [Warringah District Office & Fire & Rescue NSW].

SECTION 5

RECOMMENDATIONS

Recommendation 1:

Asset Protection Zones:

At the commencement of building works and in perpetuity the entire property, except for the fenced off area for the endangered species of *Grevillea Caleyi*, shall be maintained as an Inner Protection Area (IPA) as outlined within Section 4.1.3 and Appendix 5 of Planning for Bush Fire Protection 2006 and the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

[Refer to Section 4.7 for specific recommendations on the establishment of the Asset Protection Zone within Area D on the Master Plan.

Recommendation 2:

Construction Standards to the proposed extension to the Administration Building:

The minimum level of construction to the proposed extension to the Administration Building shall be in accordance with the Section 3 and Section 5 [BAL 12.5] specifications of A.S. 3959 '*Construction of Buildings in Bushfire Prone Areas*'.

SECTION 6

CONCLUSION

Approval is being sought, under Section 96 of the *Environmental Planning & Assessment Act 1979*, for modification to the Development Consent to permit construction of the proposed extension to the Ground Floor Administration and a corresponding extension to Class Rooms 1 & 2 to the Administration Building within the John Colet School on Lot 1 in DP 601101 and Lot 101 in DP 874509, Nos. 6 – 8 Wyatt Avenue, Belrose.

The additional area of the building extends the southern wall of the Administration and Class Rooms 1 & 2 approximately 3.0 metres to the south, towards Wyatt Avenue.

This report has reviewed the proposed development against the requirements of clause 44 of the NSW Rural Fires Regulation 2013 and the requirement for ‘*Special Fire Protection Purpose Development*’ as detailed in *Planning for Bushfire Protection 2006* guidelines and has determined that the proposed development is classified as ‘infill development’ pursuant to Section 4.2.5 of *Planning for Bushfire Protection 2006*.

Section 4.2.5 of *Planning for Bushfire Protection 2006* identifies that in circumstances where alterations and additions to existing ‘*Special Fire Protection Purpose Development*’ are planned the NSW Rural Fire Service require an appropriate combination of bushfire protection measures and compliance with the intent and performance criteria of each measure within Section 4.3.5 of *Planning for Bushfire Protection 2006*.

The report has examined the adequacy of the bushfire protection measures and concludes that the development proposal satisfies the intent and performance criteria of each measure within Section 4.3.5 of *Planning for Bushfire Protection 2006*.

Table 1 summarises the extent to which the proposed development addresses the performance criteria of Section 4.3.5 of *Planning for Bushfire Protection 2006*.

Table 1. Compliance with the performance criteria of Section 4.3.5 of *Planning for Bushfire Protection 2006*.

Bushfire Protection Measure	Compliance with the performance criteria of Section 4.3.5 of <i>Planning for Bushfire Protection 2006</i>.
Asset Protection Zone setbacks	YES – The width of the available Asset Protection Zone mitigates flame contact on the Administration Building.
The siting and design of the building	YES – The extension to the Administration Building is located to the south of the existing building and therefore not exposed to a hazard from the bushfire prone vegetation.
Construction standards to the building	YES – Construction standards recommended address the defined level of bushfire attack – BAL 12.5.
Water & Utilities	YES – Adequate on site fire-fighting water supplies are available plus services are located underground
Landscape management	YES – Existing maintenance of the site satisfies the standards for Asset Protection Zones. Area 'D' managed as an Asset Protection Zone.
Adequacy of emergency response access and egress	YES – Existing private access road provides suitable two-way access for fire-fighting appliances. Alternate access is available via the Fire Trail within the Crown Road Reserve to the west of the School site.
Adequacy of bushfire maintenance plans and fire emergency procedures	YES – No requirement for the preparation of a specific bushfire maintenance plan or fire emergency procedures. There should however be prepared a site specific Bushfire Evacuation Plan which addresses the protocols for a fire event that may impact the School site.



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

REFERENCES:

- N.S.W Rural Fire Service – Planning for Bushfire Protection 2006;
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- *Rural Fires Regulation 2013*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2015*;
- *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*”;
- Warringah Shire Bushfire Prone Land Map.