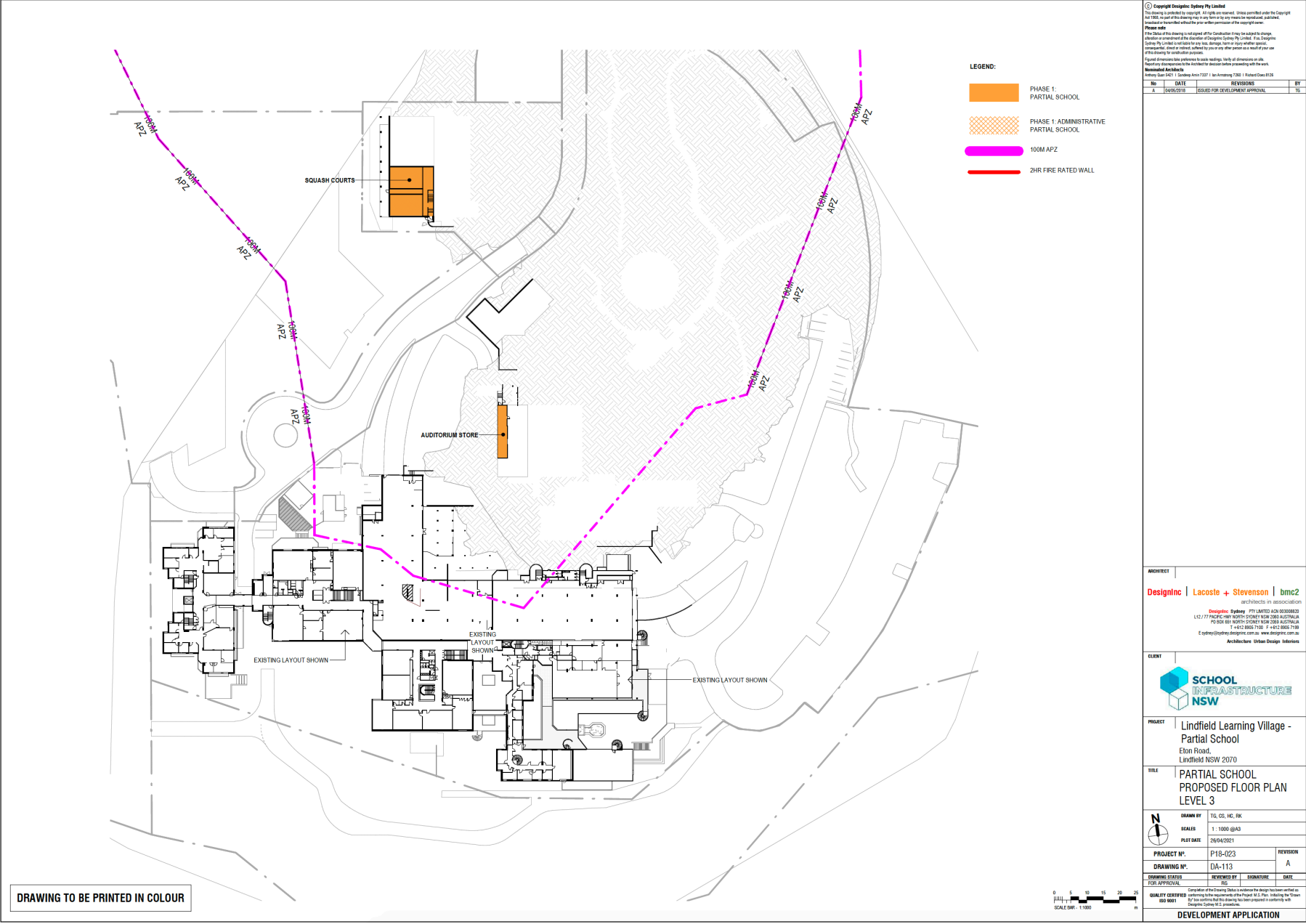
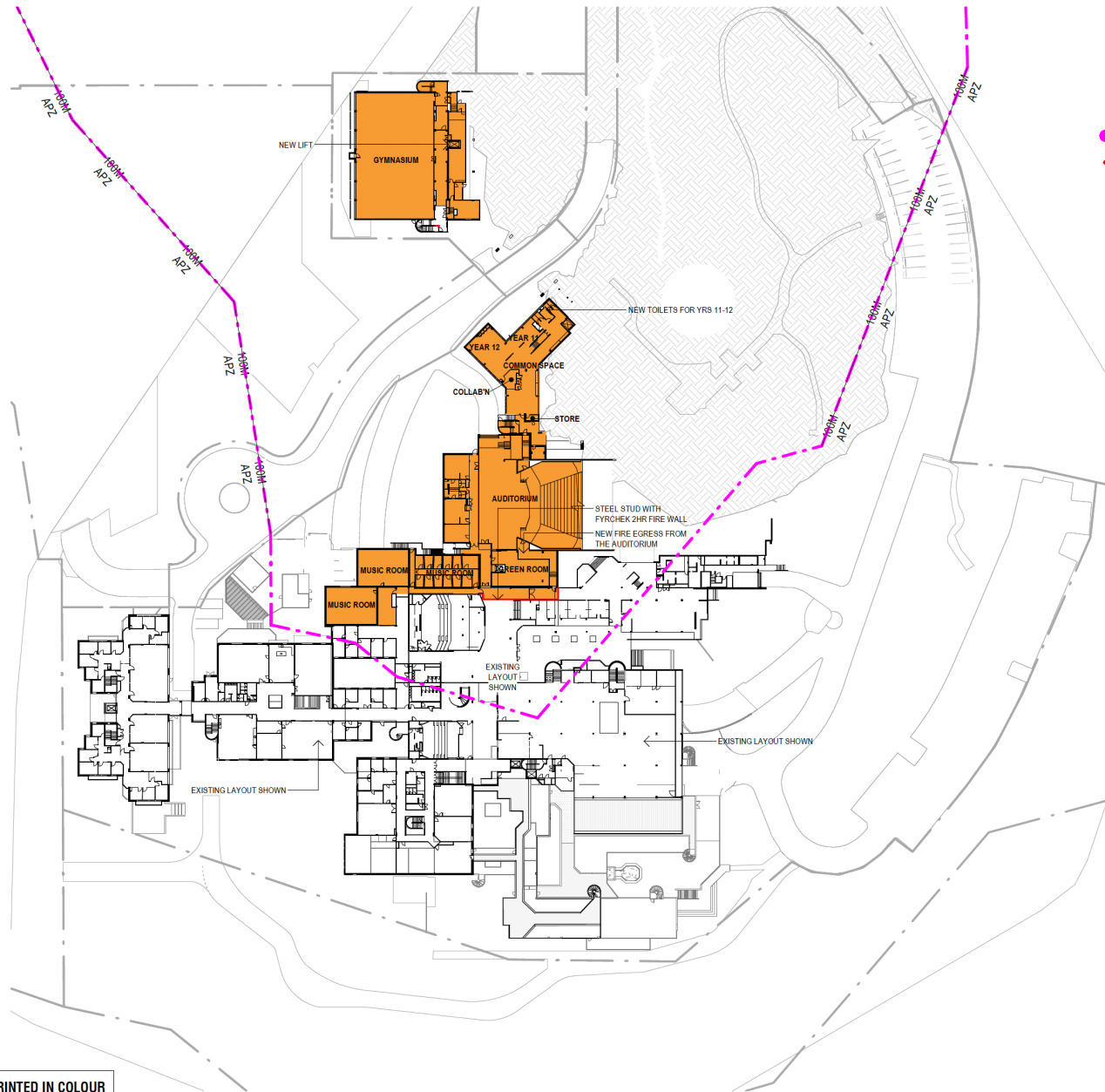


# Appendix 1 Phase 1 School Floor Plan





#### LEGEND:

- PHASE 1: PARTIAL SCHOOL
- PHASE 1: ADMINISTRATIVE PARTIAL SCHOOL
- 100M APZ
- 2HR FIRE RATED WALL

DRAWING TO BE PRINTED IN COLOUR

0 5 10 15 20  
SCALE BAR: 1:1000

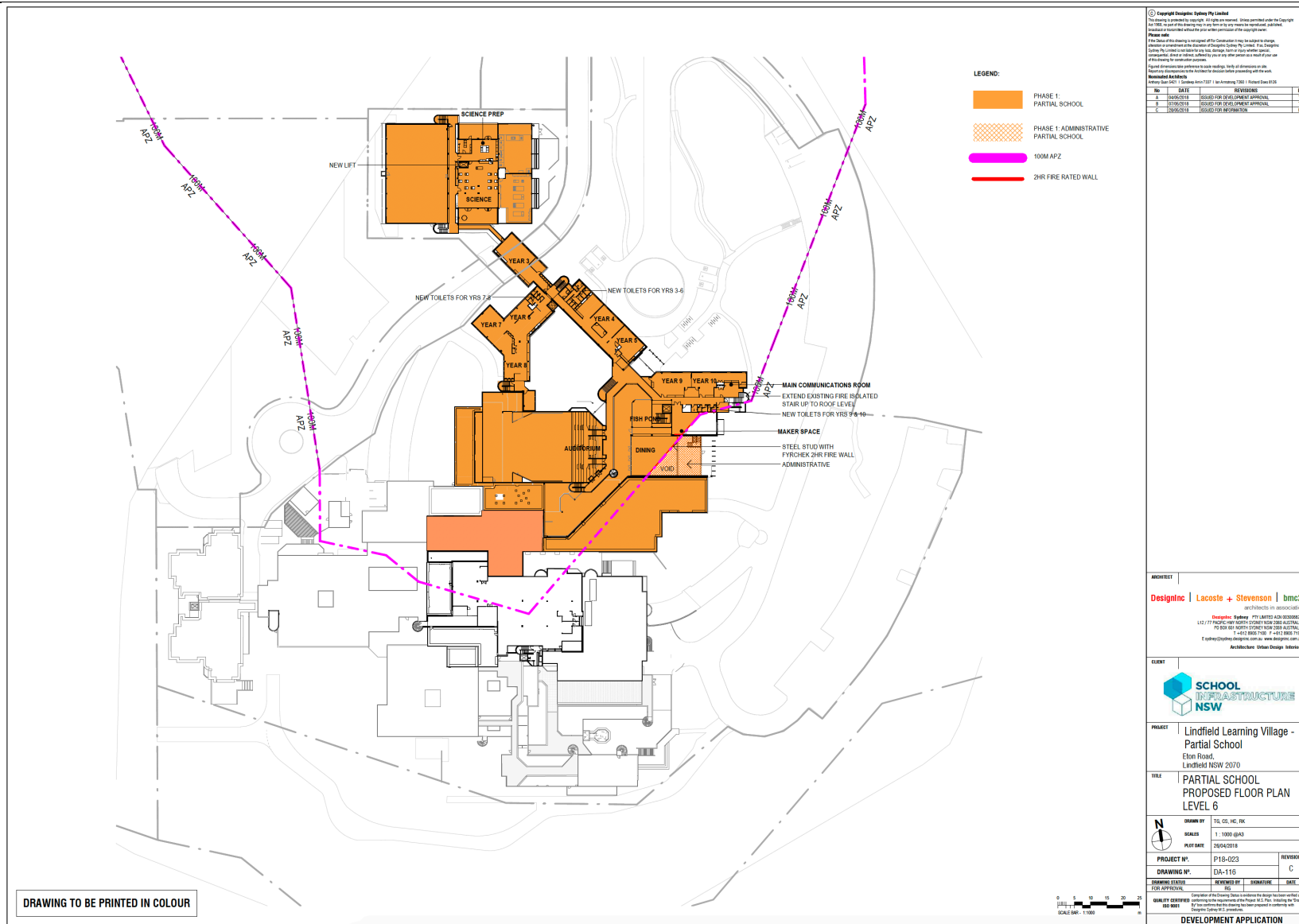
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No	DATE	REVISIONS	BY
A	04/06/2018	ISSUED FOR DEVELOPMENT APPROVAL	TS
B	20/04/2018	ISSUED FOR INFORMATION	PK

ARCHITECT	
<p><b>Designinc   Lacoste + Stevenson   bmc2</b></p> <p>architects in association</p> <p>Designinc: Sydney PTY LIMITED ACN 003080620 L12/177 PACIFIC HWY NORTH SYDNEY NSW 2060 AUSTRALIA P.O. BOX 661 NORTH SYDNEY NSW 2060 AUSTRALIA T +61 2 9550 7700 F +61 2 9550 7780 E sydney@designinc.com.au www.designinc.com.au</p> <p>Architects: Urban Design Solutions</p>	
CLIENT	
<p><b>SCHOOL INFRASTRUCTURE NSW</b></p>	
PROJECT	
<p>Lindfield Learning Village - Partial School Eton Road, Lindfield NSW 2070</p>	
TITLE	
<p>PARTIAL SCHOOL PROPOSED FLOOR PLAN LEVEL 4</p>	
DRAWN BY	TS, GS, HE, PK
SCALES	1:1000 @A3
PLAT DATE	20/04/2018
PROJECT N°	P18-023
DRAWING N°	DA-114
REVIEWED BY	TS
SIGNATURE	
DATE	
FOR APPROVAL	
<p>Completion of the Drawing: This is to certify that the design has been verified as complying with the requirements of the Planning M.C. Plan, including the "Urban Design" M.C. Plan.</p> <p>BY: You confirm that this drawing has been prepared in accordance with the Designinc Pty Ltd. standards.</p>	
QUALITY CERTIFIED	
DESIGNER	
DEVELOPMENT APPLICATION	



## Phase 1 School Lindfield Learning Village Eton Road, Lindfield



Phase 1 School Lindfield Learning Village Eton Road, Lindfield

[illegible]

## Appendix 2 Response to Submissions

Appendix 2 is a summary of issues raised by Ku-ring-gai Council of 9 August 2017.

A peer review of the Bushfire Assessment Report commissioned by Council (BAR) concluded that the development does not comply with the relevant specifications of Planning for Bush Fire Protection 2006 and cannot satisfy the requirements to receive a Bushfire Safety Authority (BSA) as it is currently presented.

**1.1 The development is not considered Infill SFPP** - the Bushfire Assessment Report relies on the development being assessed under the provisions for Special Fire Protection Purpose as Infill under section 4.2.5 of PBP although the original development (UTS Campus) is not Special Fire Protection Purpose as defined under the Rural Fires Act 1997 or Rural Fires Regulation 2013.

The UTS Campus never contained student or staff accommodation and would therefore not have been captured as Special Fire Protection Purpose development under the Rural Fires Act 1997 or Rural Fires Regulation 2013. However, schools and child care centres are listed as Special Fire Protection Purpose development under the Rural Fires Act 1997. PBP specifies that universities should be considered on their merits under sections 79BA and 79C of the EP&A Act, with consideration of the specific objectives listed in 4.2.3 of PBP and does not trigger the full application of SFPP development (4.2.7 of PBP). This subsequently can facilitate various concessions that could not be applied to a SFPP development. If the proposal was assessed under section 4.2.7 Standards for Bush Fire Protection Measures for Special Fire Protection Purpose of PBP the development could not satisfy the relevant specification and requirements.

**RESPONSE:** Refer to legal advice from Hunt and Hunt Lawyers dated 10 May 2018.

The UTS Ku-ring-gai Campus (UTS Campus) was a long-standing use and was in place prior to the current bushfire legislative framework and requirements. The current proposal encapsulates a formal 'change-of-use' through the planning system to include a school, and therefore, assessment and the proposal shall occur as a merits-based assessment.

The RFS have advised that the 'infill provisions' for SFPP and other development does not apply and the proposal is considered a change of use. The proposed school usage has been correctly identified as SFPP and should therefore, be subjected to the relevant requirements of PBP 2006 - particularly in relation to APZs / radiant heat exposure (10kW/m<sup>2</sup> to occupants and buildings), access arrangements, and evacuation management.

**1.2 Increase in occupant vulnerability is not adequately addressed.** Due to the change in use to more vulnerable occupants the application should be assessed against the full requirements of Special Fire Protection Purpose development under section 4.2.7 Standards for Bush Fire Protection Measures for Special Fire Protection Purpose of PBP. The Bushfire Assessment Report identifies an increase in risk and vulnerability as part of this development and rather than demonstrating compliance with SFPP development seeks to address this 'primarily by a comprehensive Bushfire Emergency Evacuation Plan'. The current use of the site supported 3000 university students. University students are expected to be competent to follow emergency management procedures with minimal assistance / guidance from staff or emergency service personnel. The proposed school will accommodate approximately 2,100 students from Kindergarten to Year 12 and a 94-space child care centre (12 staff) accommodating 0-5 year olds. Most of these occupants are minors and all but perhaps Year 11 and 12 students would require intensive assistance from staff and / or emergency service personnel in the event of a bushfire. It is considered that the proposed increase in risk and vulnerability requires more extensive consideration and that if this is to be primarily addressed by a comprehensive Bushfire Emergency Evacuation Plan then this Plan should also form part of the submission package. It is noted that the Bushfire Assessment Report makes reference to PBP addressing change of use in section 4.3.6. The opening paragraph in this section states 'Applications for developments that are not residential/rural residential subdivisions, SFPPs or residential infill should....' As this application relates to a SFPP development this section of PBP is not relevant.

**RESPONSE: Addressed** - refer to 1.1 above, relevant legal advice from Hunt and Hunt Lawyers dated 10 May



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2018 and supporting Bushfire Assessment Report and Bushfire Evacuation Plan prepared by Blackash.

The proposed development will provide a significant shift in the population profile - both in terms of the site UTS Campus buildings themselves, and more broadly for the Crimson Hill community. The Crimson Hill residential community currently has a population of approximately 700 people within dwellings and apartment buildings.

In relation to the bushfire evacuation and emergency planning, it should be noted that there is an existing plan in place for the broader Crimson Hill residential community - this has been in place for a number of years and is managed by the Crimson Hill Community Association (previously DHA) - however, this plan was not prepared with consideration of an additional 2,200 (school) students utilising the UTS Campus buildings, and associated internal infrastructure.

The implementation of appropriate evacuation management within this site is a key issue and a new Bushfire Evacuation and Emergency Management Plan has been prepared as part of the submission in order to adequately address the specific needs of the school-aged community during a bushfire event.

**1.3 Buildings are located within the Flame Zone and therefore the development does not comply with the aim and objectives of PBP** (it is noted that an incorrect flame temperature was used in the bushfire design modelling). Table A3.4.2 of PBP describes Flame Zone as:

*Significant radiant heat and significant higher likelihood of flame contact from the fire front will threaten building integrity and result in significant risk to residents.*

*The proposal does not satisfy the aim and objectives of PBP as it does not "provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition".*

**RESPONSE: Addressed** - refer to 1.1 above and supporting Bushfire Assessment Report prepared by Blackash. The proposed Phase 1 School has been correctly captured as SFPP development, and has been subjected to all the relevant provisions and requirements in accordance with PBP 2006. These provisions include a maximum radiant heat threshold of 10kW/m<sup>2</sup> to any part of the building (particular focus on all relevant entry/exit points) and a modelled flame temperature of 1200 degrees Kelvin - the primary output of which would be increased separation distances / APZs from the hazard. Deemed to satisfy APZs from PBP 2006 have been applied to the Phase 1 School that provide a separation from the hazard of 100 metres.

Some of the existing buildings may be located within the Flame Zone. However, these will not be used for the Phase 1 School or any other purpose at this stage of assessment.

The existing nature of many of (previous) UTS Campus buildings, means that a combination of significant APZ management and/or performance solutions for the buildings and surrounds will be required in order to satisfy the aim and objectives of PBP 2006 - refer to supporting Bushfire Assessment Report for further detail.

The implementation of a compliant APZ in combination with performance solutions incorporating fire 'compartmentalisation' via the construction of fire-rated walls through the existing LLV building structures will provide a satisfactory outcome and are located at or below 10Kw/m<sup>2</sup> of radiant heat.

**1.4 Asset Protection Zones are located on slopes greater than 18 degrees.** As identified in the Bushfire Assessment Report there are various areas within the Asset Protection Zones which are located on slopes greater than 18 degrees. Location of APZs on slopes greater than 18 degrees is not supported for new developments, due to environmental constraints and difficulties in managing vegetation (A2.3 of PBP). Due to the steep slopes within both the APZs and adjacent hazards the canopy within the APZs could carry a fire regardless of the understorey management, compromising its integrity. There is opportunity to satisfy the Performance Criteria to address the APZs being located on slopes >18 degrees however this has not been included within the Bushfire Assessment Report.

**RESPONSE: Addressed** - refer to supporting Bushfire Assessment Report (Section 8.5) prepared Blackash.

Small sections of slopes over 18 degrees have APZs within the site (southern boundary). However, these

sections are short and will be accessed by foot with contractors using hand tools. APZ establishment and maintenance can be undertaken in accordance with PBP 2006 and RFS Standards for Asset Protection Zones.

The implementation of APZs of on steep land with slopes greater than 18 degrees, is not permissible as a deemed-to-satisfy outcome, as per Section 4.2.7 of PBP 2006, due to the difficulties in providing ongoing management in these areas and the potential environmental impacts that can occur. However, the relevant Performance Criteria within PBP also allows for the following:

*“Applicants demonstrate that issues relating to slope are addressed : maintenance is practical, soil stability is not compromised and the potential for crown fires is negated.”*

The supporting Bushfire Assessment Report notes that the majority of the required APZs will no longer be situated on lands with slope greater than 18 degrees. Any residual steep areas requiring management will be subject to a Vegetation Management Plan to ensure management occurs to the appropriate standards with consideration of the ecological / environmental outcomes.

**1.5 The development relies on Asset Protection Zones outside the site’s boundaries which are currently not maintained to the standard of an Asset Protection Zone and would require significant tree removal to do so.** The proposal seeks to utilise Asset Protection Zones that were required as part of the ‘Edgelea Estate’ development. These areas are included in a Bushfire Management Plan but at the time of a recent site inspection (19 July 2017) significant vegetation removal / modification would be required to achieve the requirement of an Asset Protection Zone (Inner Protection Area). The applicant does not have control of this adjoining land and does not have the ability to undertake the necessary clearing works. It is also noted that this Bushfire Management Plan is now overdue for a complete evaluation, review and update as it has been more than 5 years since it was prepared.

**RESPONSE: Addressed** - refer to supporting Bushfire Assessment Report prepared by Blackash. The majority of required APZs have been modified to be within the boundaries of the DoE / LLV lands. The key exception is to the north east where there is reliance upon management within the adjoining Crimson Hill residential community (DHA). The designated APZs for Crimson Hill have been designated to be managed entirely as APZ use under the governance of a Bushfire Management Plan prepared for the development.

The APZs in these areas have been managed as IPAs in close proximity to the residential buildings, with the majority of the remaining APZ being an OPA to ensure environmental sensitivity is achieved through the bushfire mitigation of the site.

In order for the for the proposed SFPP development to achieved APZ compliance, some of the currently OPA-managed areas on adjoining land, may need to be managed more intensely, in order to achieve an IPA standard. The BMP for the Crimson Hill was prepared over 5 years ago and is correctly noted as being due for review / amendment.

Issue 1.3 raised by Council notes that some of the buildings are currently within BAL Flame Zone. This is not acceptable to the DoE from a risk management perspective and represents a vicarious liability through Council to enable State Significant infrastructure to be exposed to unreasonable risk. The Rural Fires Act, 1997 in its objectives has a clear hierarchy to protects; life, then property, then the environment.

The legislative provisions provide opportunity for management of land to establish and maintain APZs to protect life and property. It is accepted that tension exist between the need to provide for APZs and manage areas for other purposes. The SSD application seeks approval to establish and maintain APZs that will address Councils concerns for the provision of APZs.

**1.6 Significant vegetation removal / management is required to create the Asset Protection Zones onsite which has not been reflected in the EIS or accompanying Biodiversity Assessment Report;**





Image 02: External APZs which require works

**RESPONSE: Addressed** - refer to 1.5 above and supporting Bushfire Assessment Report prepared by Blackash regarding proposed vegetation management. All supporting planning approval documents should be amended to reflect required APZs.

**1.7 The bushfire design modelling included in the Bushfire Assessment Report has relied on a flame temperature of 1090K where SFPP development must use a flame temperature of 1200K in bushfire design modelling** (Addendum Appendix 3 PBP 2010). The increase of the flame temperature from 1090K to 1200K would result in higher radiant heat levels, and subsequently Bushfire Attack Levels, to the subject buildings than the reported in the Bushfire Assessment Report.

**RESPONSE: Addressed** - refer to 1.3 above and supporting Bushfire Assessment Report prepared by Blackash.

**1.8 Additional transects should be included within the bushfire design modelling as steeper gradients than the transects reported were recorded on the site.** It was identified onsite and also validated in reviewing topographic mapping of the subject area (0.5m contours) that there are additional transects which are located on steeper gradients that should be considered. The gradient is a fundamental input in the bushfire design modelling and an increase in downslope gradients results in larger flame length, higher radiant heat flux, faster rate of spread and higher fire intensity.

**RESPONSE: Addressed** - refer to supporting Bushfire Assessment Report prepared by Blackash (Section 8.5 and Figure 5).

As part of the detailed site assessment undertaken additional slope transects have been included in order to more accurately reflect the effective slope present within the hazard areas to the south of LLV.

In consideration of the steep slopes present, and the potentially significant fire behaviour, radiant heat loads and potential flame length generated within the landscape, the development proposal has been positioned in order to provided for a maximum setback / APZ distance of 100m - consistent with the maximum DTS requirements within PBP 2006 for SFPP development.

**1.9 Access to the site exceeds 100 metres from a public through road. The subject site is serviced by Eton**

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*Road to the north. Eton Road also forms part of the sole access to the surrounding 'Edgelea Estate' (which includes numerous residential apartment buildings and lower density residential dwellings) and Charles Bean Sports Field. Part of Eton Road could also be subject to direct impact from bushfires given the current state of the vegetation adjacent the roadway. As the subject buildings are located greater than 100 metres from a public through road, the development does not satisfy the Internal Road requirements detailed in section 4.2.7 of PBP. Traffic impact assessment considering use of Eton Road by surrounding dwellings, sports oval and the proposed school has not been sufficiently addressed. Specifically, Clause 44 of the Rural Fires Regulation 2013 requires the following items to be addressed:*

- the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency*
- whether or not public roads in the vicinity that link with the fire trail network have two-way access*
- the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response*

**RESPONSE: Addressed** - refer to supporting Bushfire Assessment Report prepared by Blackash.

Historically, the entire Crimson Hill community (including residential subdivision) has been heavily constrained due to the existing access arrangements that serviced the previous UTS Campus, the difficult surrounding landscape / topography and presence of the surrounding Lane Cove National Park areas. Therefore, the infrastructure upgrades - especially the public road network - within the Crimson Hill area was generally limited to upgrading the existing roads to ensure compliance with PBP 2006 wherever possible - including road widths, turning areas, parking provisions, connections with existing road networks and vegetation management around access roads.

The context of the overall Crimson Hill area means there is only 'one road in and out' via Eton Road in the north. Serious explorations were previously undertaken about providing an alternate public road connection directly to the south of the LLV buildings to connect with Millwood Avenue, however, these were considered unachievable.

Variation connections with the existing fire trail network within Lane Cove National Park were also explored, to the south towards Fullers Park Road, and to the east and west of the residential areas, however, these were also unable to be implemented.

An extensive traffic study was undertaken for the Crimson Hill residential community and the impacts upon the internal and surrounding road network, both under emergency and normal use conditions, with the findings being the road network was satisfactory.

All of the above did not have any consideration (or expectation) that a 2100 student school would be operating within the same public road network with the same access/egress arrangements. Given the high level of vulnerability and the limited access arrangements available within the overall Crimson Hill area, a focus on onsite refuge and emergency evacuation has been undertaken (with more work to be completed prior to occupation) considering key the access and emergency management strategies for the proposed LLV.

*1.10 The Bushfire Assessment Report primarily relies on a comprehensive Bushfire Emergency Evacuation Plan to justify the reduction in the minimum required Asset Protection Zones for SFPP development. Given the significance this Plan has, it should also form part of the submission package rather than being a recommendation.*

**RESPONSE: Addressed** - refer to supporting Bushfire Assessment Report and Bushfire Evacuation Plan prepared by Blackash. The Bushfire Evacuation Plan has been provided in draft form and will be worked through with key stakeholders prior to occupation to ensure engagement and understanding of the evacuation plan and its requirements are completed.

It is also important to note that a Bushfire Evacuation and Emergency Management Plan was provided for the broader Crimson Hill residential community, and is administered by DHA / Community Association. This plan did have consideration to the proposed LLV reuse of the UTS Campus buildings.

1.11 The car parking is located within the Asset Protection Zone and on the hazard side of the development which does not comply for schools within PBP (s4.2.4).

**RESPONSE: Addressed** - refer to supporting Bushfire Assessment Report prepared by Blackash. There are extensive existing car parking areas surrounding the proposed LLV. These are sealed, fuel free areas suitable to be considered as part of the required APZs.

Within the context of SFPP development, PBP has a preference (as per s. 4.2.4) for car parking areas to be located strategically away from the hazard and adjacent to key access areas in order to facilitate egress under emergency conditions.

The extensive, and strategic nature of the existing car park areas, means that a significant benefit is still provided by their presence - particularly in terms of being fuel free / contributing to APZs, fragmenting existing retained vegetation areas, providing buffering to the primary access / egress routes within the site, and providing extensive, hard-stand defensible / operational areas for fire-fighters to undertake fire fighting / property protection activities.

1.12 There are additional pedestrian entry / exit points from the buildings not identified in the Bushfire Assessment Report, which are in the Flame Zone. The Performance Criteria for Asset Protection Zones in Special Fire Protection Purpose developments is that radiant heat levels of greater than 10kW/m will not be experienced by occupants or emergency services workers entering or exiting a building. While the Bushfire Assessment Report has focused on the primary entry / exit point, all other entry / exit point must also be considered as attending fire services and occupants may use any entry point at their disposal. Numerous entry / exit points (some of which were not identified in the Bushfire Assessment Report) are within the Flame Zone and indeed not even the primary entry / exit point satisfies this requirement given the state of the vegetation within the adjacent 'Edgelea Estate'. Regardless, if the adjacent APZs were adequately managed numerous entry / exit points would still exceed this threshold.

**RESPONSE: Addressed** - refer to 1.3 above and supporting Bushfire Assessment Report prepared by Blackash (Section 12 and 14).

1.13 The proposed construction measures are not considered adequate. The Bushfire Assessment Report indicates that the buildings will exceed the minimum standard for BAL 29 under AS3959 – 2009. The existing campus was constructed in the early 1970s and subsequently predates any bushfire regulations. While it is acknowledged that the masonry walls and concrete roofs would exceed the provisions for BAL 29, the recommended grade A safety glass does not. However, there are buildings located in a higher Bushfire Attack Level than BAL 29 (including Flame Zone). The fact that the minimum required Asset Protection Zones have not been achieved puts a higher reliance on the subject buildings being able to withstand the passage of a bushfire and provide a suitable onsite refuge location for students. If it was accepted by the NSW Rural Fire Service that the minimum required APZs could be reduced to that available to this development, then the proposal should include full retrospective compliance to the relevant Bushfire Attack Level under Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2009 to all buildings.

**RESPONSE: Addressed** - refer to supporting Bushfire Assessment Report prepared by Blackash (Section 12 and 14).

1.14 New construction, including the shade structures, should also comply with the relevant Bushfire Attack Level. It should be noted that from BAL 12.5 and above (i.e. anything within 100m from a bushfire hazard) Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2009 requires roof coverings to be non-combustible and subsequently fabric shade structures cannot comply.

**RESPONSE: Addressed** - refer to supporting Bushfire Assessment Report prepared by Blackash (Section 12 and 14).

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*1.15 Soft fall play surfaces and synthetic turf are also not covered in AS3959 – 2009 and as these materials generally comprise plastics / rubbers and they can give off various toxic by-products during the combustion process which are not conducive to a safe environment for attending fire services and occupants. Careful consideration should be given to the suitability of these products, which should be approved by the NSW Rural Fire Service as an alternate solution.*

**RESPONSE: Agree** – this issue will be investigated prior to installation of soft fall.

*1.16 The development has not sought to improve perimeter access around the buildings which is the preferred design option under PBP. The application relies on easements for Asset Protection Zones on adjacent properties. It should be investigated whether these agreements could be potentially broadened to also accommodate improved access provisions around the perimeter of the site and buildings to the south and west. Poor access to the APZs on the adjacent properties is most likely a contributing factor to their current unacceptable state.*

**RESPONSE: Addressed** - refer to supporting Bushfire Assessment Report prepared by Blackash (Section 11).

## Appendix 3 References

Australian Building Codes Board *Building Code of Australia Volumes 1&2*

Australian Standard AS/NZS 1596 'The storage and handling of LP Gas'

Councils of Standards Australia AS3959 (2009) – *Australian Standard Construction of buildings in bushfire-prone areas*

Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT*. The Department of Environment and Climate Change

NSW Rural Fire Service (2015) *Guide for Bushfire Prone Land Mapping*

NSW Rural Fire Service (2011) Practice Note 1/11 Telecommunication Towers in Bushfire Prone Areas

NSW Rural Fire Service (RFS). 2006. *Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. Australian Government Publishing Service, Canberra

NSW Government (1979) *Environmental Planning and Assessment Act 1979*. NSW Government Printer