Fire & Rescue NSW

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Contact: Station Officer Mark Castelli

10 May 2016

Department of Planning &Environment
C/- Alexander Scott
GPO Box 39
Sydney NSW 2001
E: alexander.scott@planning.nsw.gov.au

Attention: Mr Alexander Scott

Dear Sir

Re:

Australian Habitat and Taronga Wildlife Retreat
Bradleys Head Road, Mosman (SSD 15_7419)

I refer to the above development proposal's Environmental Impact Statement (EIS) which is currently on public exhibition. Fire & Rescue NSW (FRNSW) has reviewed the following specific documents that are attached to the EIS exhibition:

i. The 'Built Form and Visual Impact Statement Report' (authored by Cox Richardson Architects, Rev. 3 and dated 4 March 2016).

ii. The 'Bushfire Assessment Report' (authored by Australian Bushfire Assessment Consultants, Report Issue: Final_1 dated February 2016).

iii. The 'Building Code of Australia (BCA) Report' (authored by McKenzie Group [REF: 067876 – 06BCA], Rev: Final, dated 11 March 2016), and

iv. The 'Fire Safety Strategy Report' (authored by Core Engineering Group, Report No. s141588_FSS_03, Rev. 03 dated 11 March 2016.

Comments/Observations

FRNSW notes that the development is located within a FRNSW Fire District pursuant to Section 5 of the Fire Brigades Act 1989 (the Act). Section 6 of the Act imposes a duty upon the Commissioner of FRNSW to take all practicable measures for preventing and extinguishing fires and saving life and property in case of fire.

To fulfil our statutory duties, FRNSW would undertake firefighting operations in the event that the proposed development was subjected to a fire incident (either an internal structure fire or an external fire threat – such as a bushfire). In terms of prioritising our statutory duties FRNSW would undertake actions that initially focussed on life safety (N.b. including members of the public and firefighters) and then property protection.

FRNSW notes that the BCA Report identifies that the proposed development will include accommodation buildings that are Class 3 under the BCA, i.e. transitory accommodation of unrelated persons. The proposed development will also incorporate BCA Classifications of 5 and 6. Due to the building's rise in storeys, Section 4.0 of the BCA Report identifies that the proposed building is required to be 'Type A' Construction (i.e. Clause C1.1 and Table 1.1 of the deemed to satisfy [DtS] provisions of the BCA).

The BCA Report also highlights that the proposed building is planned to be constructed of Type C Construction in lieu of Type A and that this departure from the relevant DtS provisions of the Code is to be addressed by a fire engineered solution that is intended to meet the relevant performance requirements. In particular, the accommodation buildings are proposed to be constructed of a combination of lightweight and CLT materials in lieu of concrete masonry construction (see Section 8.3.1 of the Fire Safety Strategy Report). This includes the accommodation buildings being clad in reconstituted hardwood timber (i.e. ecologically sustainable development [ESD]).

In addition to ESD (i.e. timber cladding), another design objective of the project includes achieving natural cross-ventilation by incorporating significant portions of openable windows to accommodation units (see Section 1.1.1 of the Bushfire Assessment Report). It is FRNSW experience that a building's unprotected openings are extremely susceptible to ember attack during a bushfire with high potential for the structure to then become involved.

The proposed development site is located within a designated bush fire prone area and has been assessed as an eco-tourism and therefore is classed as "Special Fire Protection Purpose" (SFPP) development. Consequently the development application (DA) is subject to approval from the Commissioner of the NSW Rural Fire Service (i.e. integrated development) and is to be assessed by the NSW Rural Fire Service in accordance the applicable legislation.

The Bushfire Assessment Report' identifies that all the accommodation buildings (i.e. buildings denoted as A, B, C, D and E) would potentially be subjected to bushfire attack levels (BAL) that range from 19 to 40 (N.b these are the higher BAL associated with Transects 2 and 3). Further, the required asset protection zones (APZ - of 100 metres and 85 metres) required by the document 'Planning for Bush Fire Protection 2006' (PBP) are unable to be contained within the eastern boundary of the Zoo site.

The proposed fire strategy, with respect to a bushfire, focuses on occupant evacuation (N.b occupants may include disabled occupants – see Section 5.5 of the 'Building Code of Australia Report' – Access for Persons with a Disability).

The Bushfire Assessment Report also refers to an on-site meeting attended by NSW Rural Fire Service (RFS) Officers on the 2 February 2015 that discussed the Eco-Tourism Guidelines published by the RFS. The Bushfire Assessment Report states that these Guidelines *"promote a strategy for compliance on the basis that the buildings closer to vegetation are treated as expendable, with the emphasis placed on the ability for procedures to be implemented to relocate guests away from the vegetation within the National park in the event of a bushfire"* (see Section 1.1.1.1 of the Bushfire Assessment Report).

In the building's proposed configuration, there is potential for a significant and an unanticipated bushfire to cause significant property loss. Without enhancement of the protection of external facades and the protection of openings that are susceptible to bushfire attack FRNSW ability to protect property at risk and fulfil our statutory duties would be severely constrained. This is because it is highly likely that radiant heat emissions from a significant bushfire would considerably exceed the accepted firefighter tenability threshold of 3.0 kW/m². This would necessitate first responder personnel being temporarily positioned in locations that afford protection from radiant heat; once the fire front passes first responders would then reposition to re-commence offensive fire operations.

Note: The radiant heat threshold of 3.0 kW/m² pertains to firefighter tenability limits and is published in 'The SFPE Handbook of Fire Protection Engineering' published by the National Fire Protection Association (NFPA). The SFPE Handbook is widely used throughout the fire engineering industry.

Within the context of enhancing the proposed development's design so that FRNSW capability to fulfil our statutory duties is maximised, thereby minimising the potential for life and property loss, the following recommendations are submitted for consideration:

Recommendations

1. That the external combustible timber facades of the accommodation buildings are adequately protected for a sufficient period of time (e.g. by wall wetting sprinklers) to afford first responders with an opportunity to save fire impacted property immediately after a bushfire front passes (i.e. implement a fallback offensive strategy).

2. That openings used to achieve natural cross ventilation in the accommodation buildings are reconfigured to close automatically during a bush fire incident and that they are suitably protected (e.g. by wall wetting sprinklers) to minimise the likelihood of fire spread into the sole occupant units.

3. That the fire hydrant system is designed to include appropriately located above ground external attack fire hydrants to ensure that hose lay coverage can be achieved (i.e. in accordance with the requirements of Australian Standard [AS] 2419.1 – 2005) to all external facades that may be exposed to radiant heat and ember attack during a bush fire.

4. That appropriate pedestrian pathways are installed from the site's roadways to the fire hydrants detailed in point 3 above and that all pathways to fire hydrants are interconnected to facilitate unhindered first responder access to all hydrants as necessary during a bushfire incident.

5. That the facility's emergency plan consider the specific needs of disabled occupants and that appropriate evacuation management measures are implemented to ensure that all occupants can be safely evacuated.

For further information, please contact Mark Castelli of the Fire Safety Assessment Unit, referencing FRNSW file number BFS16/661 (10237). Please ensure that all correspondence in relation to this matter is submitted electronically to bfs@fire.nsw.gov.au.

Yours faithfully

Michael Gibson

A/Superintendent Michael Gibson
A/Manager
Fire Safety Assessment Unit
Community Safety Directorate