ILIAS DESIGN GROUP PTY. LIMITED.
ACN 081 136 469 ABN 44 081 136 469
HYDRAULIC & FIRE PROTECTION CONSULTANTS
6-10 Tooronga Terrace
Beverly Hills 2209
Telephone: (02) 9554 4188
Facsimile: (02) 9554 4688
Email: info@iliasdesign.com.au

1st November, 2011

Meriton Group
Level 11, 528 Kent St
SYDNEY NSW 2000

Job No: 1111

Attn: Mr David Watt

Dear Sir,

RE: 14-18 Boondah Road Warriewood NSW - Stage 1 & Stage 2 – Fire Hydrant Design

The purpose of this document is to summarize the Fire Hydrant Systems that are to be installed throughout the development & the basic procedures involved by the attending firefighting brigade in the event of a fire.

Development Description

The NSW Department of Planning and Infrastructure - Determined development (**MP 09_0162)** has had multiple modifications submitted to the department for assessment.
The current overall site concept plan indicates multiple low rise residential buildings situated over common underground car parking. The site has multiple accessible entries & exits for Pedestrians & vehicles as determined by the Building Code of Australia.

Fire Hydrant System Design

The proposed Fire Hydrant System designs for each stage of the development shall meet the requirements of the Australian standards & the Building Code of Australia and shall incorporate components as detailed below.

Each set of united buildings as determined by linked common underground car parking are to be serviced with the following:

- Internal & external fire Hydrants in accordance with AS 2419.1
- Fire Hose Reels in accordance with & AS 2441.
- Fire brigade booster valve assembly located strategically to provide optimal pedestrian access for the attending fire brigade to all protected areas.
- All associated ancillaries – Signage etc. as per AS 2419.1

Typically the fire hydrant systems throughout the development shall be provided via privately owned extensions from the authorities' water main. Each system shall incorporate Booster Valve Assemblies for the any attending fire brigade to connect to for boosting the watermain performance as necessary.

Water supply & pressure as per AS 2419.1 is adequate to supply the development without the need for onsite pumps. Typically all hydrants within the development achieve attack hydrant performance requirements.

Fire Brigade Appliance (Fire Truck) access to Fire Hydrant Booster valves shall be in accordance with AS 2419.1 & the structural integrity & turning circle of private roads where the appliances require access shall be in accordance with The Guidelines for Emergency Access.

All buildings within the development have pedestrian access for Fire Brigade personnel. The fire Appliance typically will only require access to the Fire Booster valve as all buildings are equipped with internal fire hydrants.

Summary of NSW Fire & Rescue - Typical Firefighting Strategies / Procedure

The following summarizes our understanding of the NSW Fire & Rescue strategies used when controlling or extinguishing fires in buildings or properties by use of fire hydrant systems.

The actions taken upon arrival at the scene of a fire depend on many aspects such as the following:

A. Is there an immediate threat to life?
B. The size of the fire.
C. The firefighting equipment already at hand.
D. Additional equipment being dispatched and its estimated time of arrival.
E. The amount of water available for firefighting purposes.

Typical Firefighting Procedure for Stage 1 Development off Macpherson Street

1. Fire truck arrives at the site and proceeds to the principle vehicular access in the private /road driveway close or adjacent to fire brigade booster valve assemblies.
   Designated fire officer then proceeds to the FIP- fire indicator panel located in the sprinkler valve room or any of the mimic fire indicator panels located in the foyer of each building.
   The purpose of this first step is to determine the location of the fire alarm that has been activated (source of fire).

2. Once the source of the fire alarm is communicated & the assessment of A, B, C, D & E above has been undertaken – The first fire firefighters to arrive at a structure fire generally will need to quickly enter the fire area with a protective fire hose stream and search for missing building occupants.

   The fire officers commence connecting the fire hoses between the fire truck and the fire booster assembly valve and boosting the system with water at a high pressure to overcome pressure losses within firefighting equipment. The water being supplied to fire via the booster assembly is sourced from the towns water mains, not the fire truck.

   Note: the truck doesn't need to proceed any further/drive anywhere beyond this point (ie where it originally parked) on the driveway, officers fight the fire from connecting their hoses to both internally located hydrants (located in the building) as well as externally positioned attack hydrants that provide the buildings with full fire hydrant coverage.

   Both internal and external hydrants are accessed via foot by the fire brigade officers (ie) they don't need to drive the truck to these locations. The access is via paths, ramps and/or steps along the Ground floor podium & internal fire stairs etc.

3. The fire officers put on their BA- (breathing apparatus, and oxygen tanks and the like) and then proceed by foot to the affected part of the building and proceed to hook up their fire hoses, ready to commence fighting the fire. They radio between the officers on the truck and at the booster assembly as needs be to discuss issues as necessary.

4. Firefighters will constantly monitor areas around the source of the fire to inhibit the fire spreading to adjacent structures etc.

5. Upon extinguishing the fire, clean up & mop up procedures have been completed the brigade proceed to leave the site. The trucks move forward along the internal driveway and make a U turn at the end of the cul-de-sac and exit the site in a forward direction. The internal driveway / road has

been designed by the civil engineers (AT & L) and certified by Halcrow Traffic consultants against FRNSW Emergency Vehicle Access Policy.

It can be seen from the basic fire fighting procedures as stated above that for stage 1 of the development,in our professional opinion - there is no need or requirement required for the NSWFR truck to proceed along an internal road that was previously shown on the plans to link stages 1 and 2 as the above design and future construction will comply principally with the BCA- Building Code of Australia 2010 (Clause E1.3- Fire Hydrants) and AS 2419.1-2005 "Fire Hydrant Installations"

Typical Firefighting Procedure for Stage 2 Development off Boondah Road

Stage 2 of the development is divided into two parts as determined by the location of the buildings:

Part 1- Buildings located north of the private driveway /road

Part 2- Buildings to the south of the private driveway /road

1. **Part 1 of the stage 2** development shall follow the same procedure as for stage one with access for the Fire brigade off Boondah Road not Macpherson Street. Booster location will be in the private driveway / road.

2. **Part 2 of the stage 2** development shall follow the same procedure as for stage one however no private driveway / road is required at this part of the development - In this instance the fire truck shall only need to access the fire booster that will be accessible from Boondah road.
   At no point is the FRNSW required to drive into the site to attend the fire.

In Summary

The whole development will have multiple code compliant Fire Hydrant Systems that form an extension of the Authority Water mains.

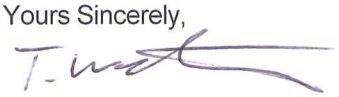
Internal private driveways / roads will be provided with Fire Brigade Appliance Access to the Fire Brigade Booster Valves.

Internal & external Fire Hydrants will provide attack performance coverage to the whole of the buildings.

In our professional opinion - there is no need or requirement required for the NSWFR truck to proceed along an internal road that was previously shown on the plans to link stages 1 and 2 as the above design and future construction will comply principally with the BCA- Building Code of Australia 2010 (Clause E1.3- Fire Hydrants) and AS 2419.1-2005 "Fire Hydrant Installations"

We trust this is satisfactory however should further info be required please contact this office.

Yours Sincerely,



Tim Waddington
Associate Director
Ilias Design Group Pty Ltd