



# EAGLE CONSULTING GROUP

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21 May 2012

Allan Pollock  
Sydney Olympic Park Authority - Venues  
Sports Centre  
Olympic Bvd  
Sydney Olympic Park NSW 2140

Dear Allan,

### RE: "STATE SPORTS CENTRES" TANK REMOVAL FEASIBILITY

We are writing this letter to fulfil your request to assess the requirements relating to the currently installed fire sprinkler system at the Sydney Olympic Park State Sports Centre, and to discuss the feasibility of the removal of the installed fire tank.

This report is based on site inspection carried out on the 8th May 2012 by Eagle, Fire Engineering Design Report prepared by Holmes Fire & Safety 2nd June 2000 (FER) and Sydney Water Statement of Available Pressure and Flow WMS No.201650 obtained by Eagle.

#### Background

The State Sports Centre is currently served by three sprinkler installations of various hazard classifications; one extra light hazard system and two ordinary hazard 3 (OH3) systems. The sole water supply to the three systems is via a 135,000L pump suction tank with mains infill, located outside the sprinkler valve/pump room at the east of the building.

SOPA wish to remove the tank so that the area can be used to construct an external staircase.

#### FINDINGS

AS2118.1-1999, the referenced standard applicable for sprinkler system installations stipulates specific requirements for water supplies to different sprinkler installation types. For this type of building a "Grade 3" supply is sufficient to provide water to the installed system. A Grade 3 supply has the following water supply options:

1. A direct supply from a single town main,
2. A single automatic pump supply drawing from a single town main (booster pump), from a pump suction tank, or from a natural source. The automatic pump may be driven by an electric motor or by a compression-ignition engine, or
3. A pressure tank (Light Hazard and Ordinary Hazard 1 classes only).

The Sports Centre is currently being fed in the option 2 configuration. Review of the sprinkler code indicated that supply from a single town main is also an available option. Option 3 is not available as the highest risk classification is the OH3.

A review of the Holmes Report did not uncover any specific requirements in relation to the tank supply to the sprinkler system.

We are not aware of any other statutory or owner requirements for the sprinkler to be fed from a tank.

The two pumps that serve the sprinkler systems are designed to deliver the required design pressure to the OH3 system, as it is the higher requirement. The duty point of the two pumps is 1350l/m at 380kPa.

The Statement of Available Pressure and Flow provided by Sydney Water (attached) notes the maximum permissible flow as being 38l/s (2,280l/m) at 27 metre head (265kPa) from the 150mm water main at Olympic Bvd. This is adequate to supply the installed sprinkler system. Please note: an application for the new connection must be made to Sydney Water. It is at their discretion whether they approve the new connection or not.

#### **CONCLUSION**

It was found that the tank is not required by the sprinkler code AS2118.1-1999 if a new independent 150mm town's main connection is made to the existing 150mm main at Olympic Bvd.

Assuming there are no other owner, insurance or other requirements for a tank water supply, we see no reason why the system cannot be connected to a Town's main supply.

Eagle would be pleased to assist in specifying the works and managing the project should it come to fruition.

Kind Regards,  
**EAGLE CONSULTING GROUP Pty Limited**



**DANIEL TURHANLAR**  
Fire Safety Engineer

Authorised



## Statement of Available Pressure and Flow

21 MAY 2012

**Eagle Consultants**  
**L3 / 56-62 Chandos St**  
**St Leonards, 2065**

**WMS No: 201650**  
**Contact No: 88493531**  
**Fax No: 88493063**

**Attention: Daniel**

**Date: 11/05/2012**

**Pressure & Flow Application Number: 8129381**  
**Your Pressure Inquiry Dated: Tue May 1 2012**  
**Property Address: Lot 102 Australia Ave Sydney Olympic Park 2127**

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

### ASSUMED CONNECTION DETAILS

Street Name: Olympic Blvd	Side of Street: East
Distance & Direction from Nearest Cross Street	40 metres North from Shirley Strickland Ave
Approximate Ground Level (AHD):	7 metres
Nominal Size of Water Main (DN):	150 mm

### EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	68 metre head
Minimum Pressure	33 metre head

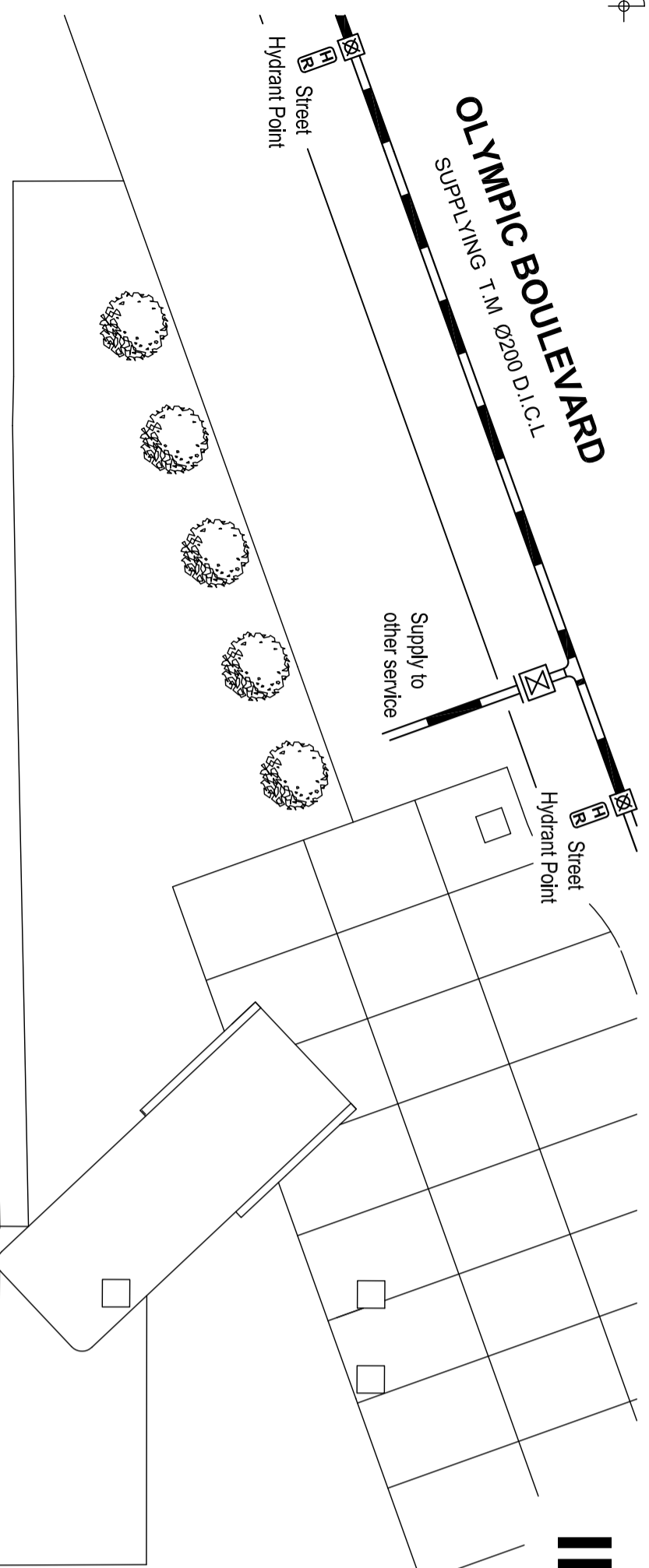
WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	33
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5	40
	10	40
	20	38
	25	38
	30	37
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5	33
	10	32
	20	31
	25	30
	30	29
Maximum Permissible Flow	38	27

(Please refer to reverse side for Notes)



**FOR - Robert Wickham**  
**Principal Planner**  
**Urban Growth – Asset Services**

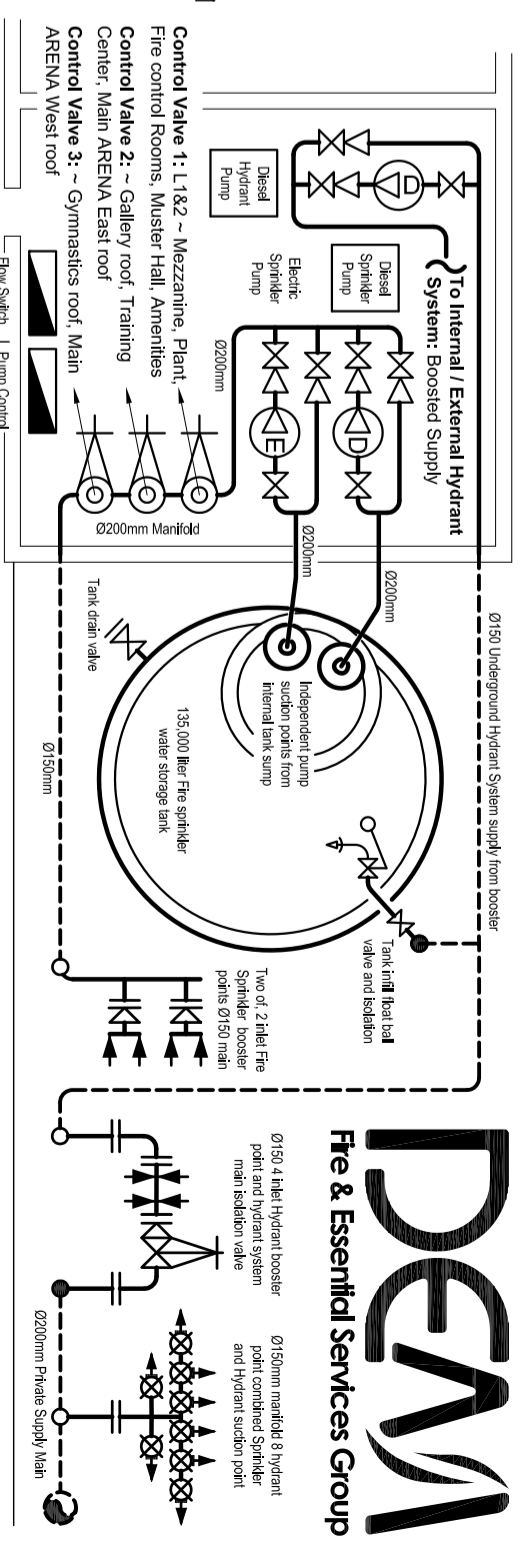
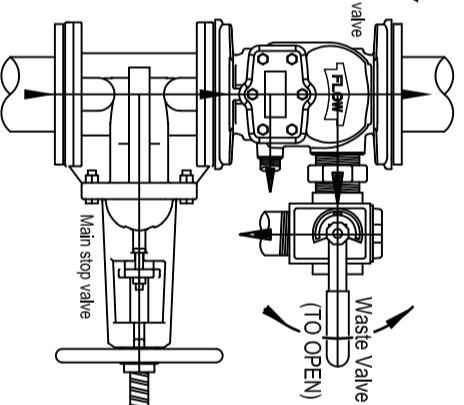
OLYMPIC BOULEVARD  
SUPPLYING T.M. Ø200 D.I.C.T



# IN CASE OF FIRE CALL '000' Emergency Instructions

## Fire Services Schematic 24h Emergency service (02 9638 3338)

- ### SPRINKLER EMERGENCY INSTRUCTIONS
1. Ensure fire is OUT
  2. Close main stop valve (stopping down supply)
  3. Open waste valve (draining sprinkler system installation)
  4. Ph (02) 9638 3338
  5. **REMAIN** at sprinkler control valves set and if fire reoccurs
    - A. Close waste valve (stopping installation drain down)
    - B. Open main stop valve (reinstating water supply)

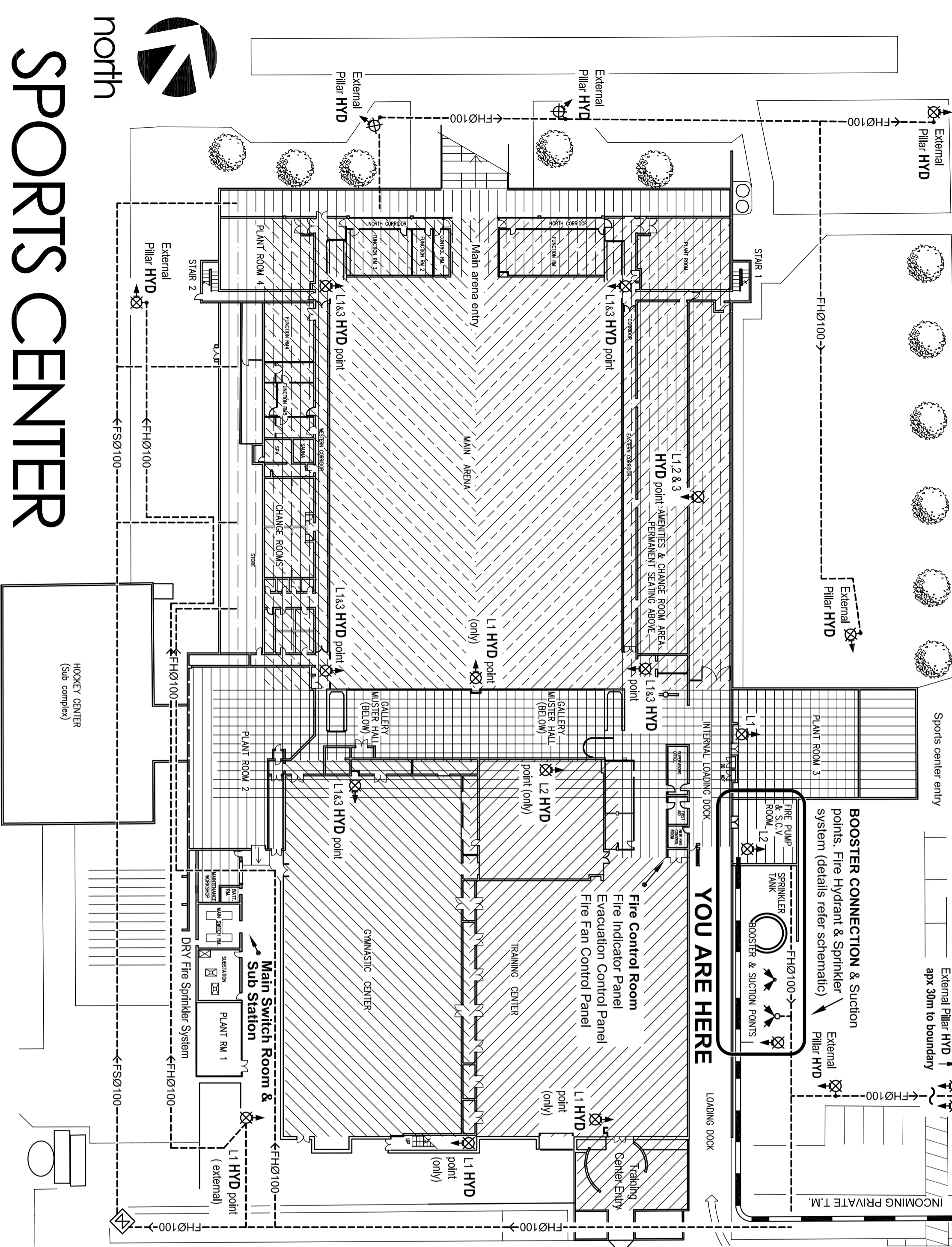


### VALVE, PUMP ROOM, TANK AND BOOSTER SCHEMATIC

#### FIRE PROTECTION SYSTEM HYDRAULIC REQUIREMENTS:

**Hydrant system:** designed and installed to **AS2419.1** Highest hydrant above Fire Brigade Booster Point (L1 loading dock) = **17.0m+** System Demand @ Fire Brigade most remote hydrant point **20l/s@250kPa** Maximum boosted pressure not to exceed **800kPa** inclusive static head. Exact internal hydrant point locations vary slightly L1 to L3 risers. Below ground & internal pipework reticulation system

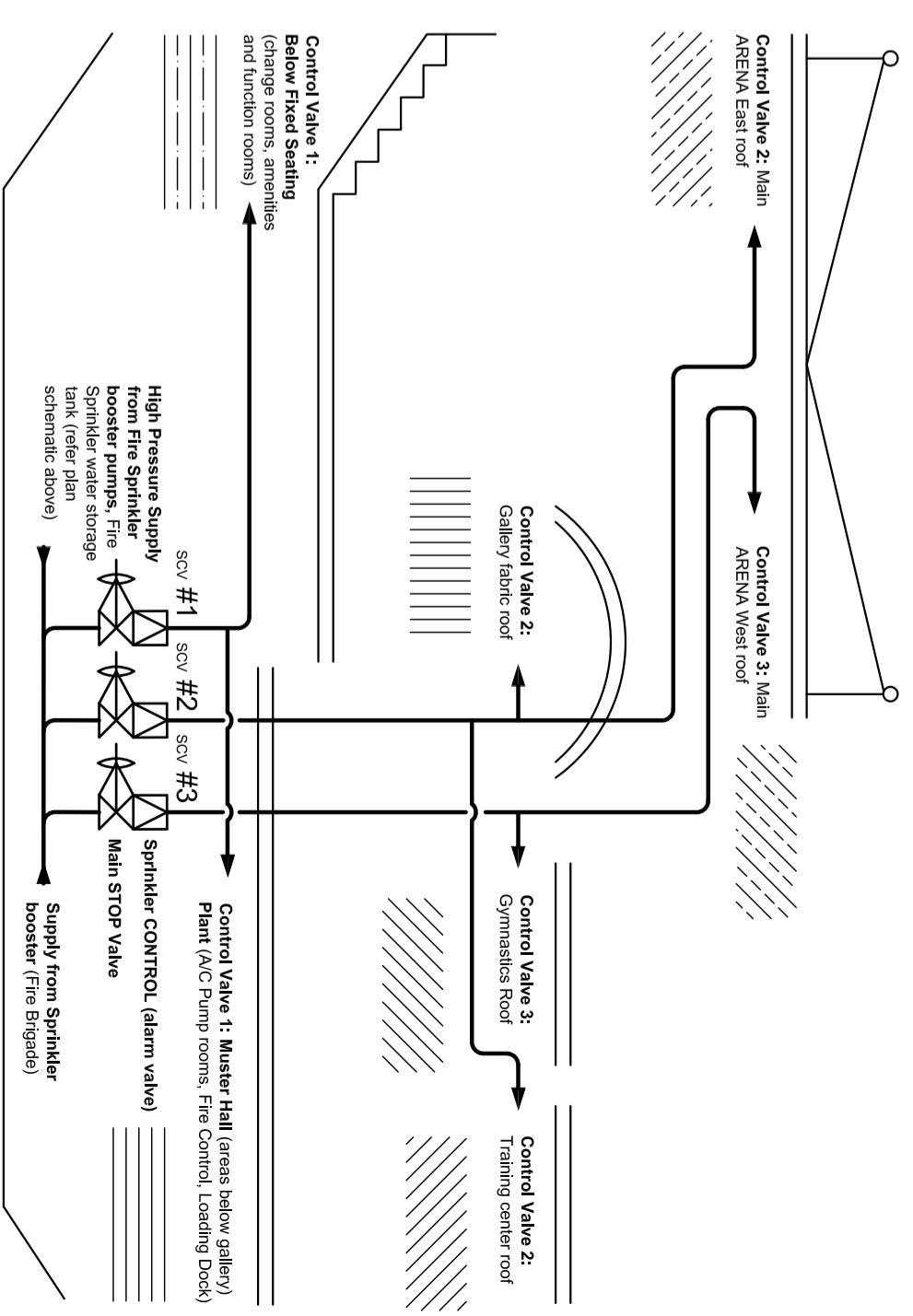
**Fire Sprinkler Systems:** Minimum / pressure flow required at most remote area of operation at control valve  
**Ordinary Hazard Three:** **225 l/min @ 410 kPa**  
**Extra Light Hazard:** **400 l/min @ 360 kPa**  
**1,100 l/min @ 300 kPa**  
**1,350 l/min @ 270 kPa**



**YOU ARE HERE**

**BOOSTER CONNECTION & Suction points:** Fire Hydrant & Sprinkler system (details refer schematic)

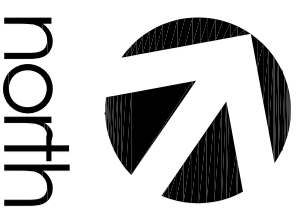
### RISING SPRINKLER SCHEMATIC



#### Legend:

- Visible pipe work (type and Ø noted)
- Concealed pipe work (type and Ø noted)
- Rise on fire service / hydrant pipe work
- Drop on fire service / hydrant pipe work
- Visible Stop valve - normally closed
- Visible Stop valve - normally open
- Underground stop valve - normally open
- Non-return valve (direction of flow >)
- NSW Fire brigade booster inlet
- External or internal hydrant (HYD) point
- Fire service pump set - type diesel or electric unit as noted
- Underground (street) fire hydrant point
- HP - Hydrants located in the footpath
- HR - Hydrant located in the road
- Towns main water supply main

# SPORTS CENTER



north

HOCKEY CENTER  
(Sub complex)

Sydney Olympic Park

