

Our Reference: SY190118

19 Feb 2021

Ascot Project Management
Level 10
420 George Street
Sydney, 2000

Attention: Ms Joanna Karamihas,

Dear Joanna,

Suite 2, Level 1
33 Herbert Street
ST LEONARDS NSW 2065

PO Box 292
ST LEONARDS NSW 1590

T 02 9438 5098
F 02 9438 5398

ENGINEERS

MANAGERS

INFRASTRUCTURE
PLANNERS

DEVELOPMENT
CONSULTANTS

Re: GenesisCare Cancer Centre, Project Maui - Fire Services Design Approach

Fire systems in buildings are required to be able to run for a set amount of time at a certain flow rate. This is 60 minutes for a fire sprinkler system and 4 hours for a fire hydrant system. In the case of the subject building, the required flow rates are 12L/s for sprinklers and 20L/s for fire hydrants and we are required to consider these flows simultaneously for a total of 32L/s. In some instances the town main will be capable of supplying this amount of water, however, through on-site testing, the connection at the subject site was only capable of 13.5L/s. This is a shortfall of 18.5L/s which needs to be accounted for in on-site water storage.

The 13.5L/s in the town main will be used towards the total required 20L/s fire hydrant demand, this leaves 6.5L/s for 4 hours to be accounted for the hydrant system in the water storage tank as well as 12L/s for 1 hour for the fire sprinklers. The calculation is as highlighted below:

Fire hydrant demand - $6.5\text{L/s} \times 60 \times 60 \times 4 = 93,600\text{L}$

Fire sprinkler demand - $12\text{L/s} \times 60 \times 60 \times 1.2 = 51,480\text{L}$

Total = 145,440L capacity.

This number was rounded to 150,000L.

Several locations for the tank were explored, including underground adjacent the existing OSD tank, several varying layouts within the basement carpark and the roof top.

FRNSW require that underground fire water storage tanks have their lowest point at no more than 3m below the suction point at the booster assembly. This is the maximum vertical height that their trucks can suck water from which as such creates a very large tank footprint. Due to the minimum RL of the base of the tank, the required footprint of the tank cannot be accommodated with the constraints of the easements and OSD. It is also not possible to locate the tank in the basement without compromising the required on site parking.

This leaves the roof top as the only position that met all criteria. Additionally, the roof top location is the only option that provides the fire brigade with a flooded booster assembly connection which is always the preferred method.

Yours faithfully,
ACOR Consultants Pty Ltd

A handwritten signature in black ink that reads 'Reece Liddy' with a long horizontal flourish extending to the right.

Reece Liddy
Fire Engineer/Designer