

CONSULTANT ADVICE

Project: SINSW - Greater Western Sydney Cluster

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Mulgoa Rainwater Tank Sizing

Penrith City Council's water conservation objectives require that 80% of potable water demand is to be met by non-potable sources.

NDY has carried out a review of the site demand and historical rainfall data for the closest weather station (Orchard Hills Treatment Works).

The below summarises the design criteria used for the analysis based on the current design:

Toilet Flushing: 4.5kL per day

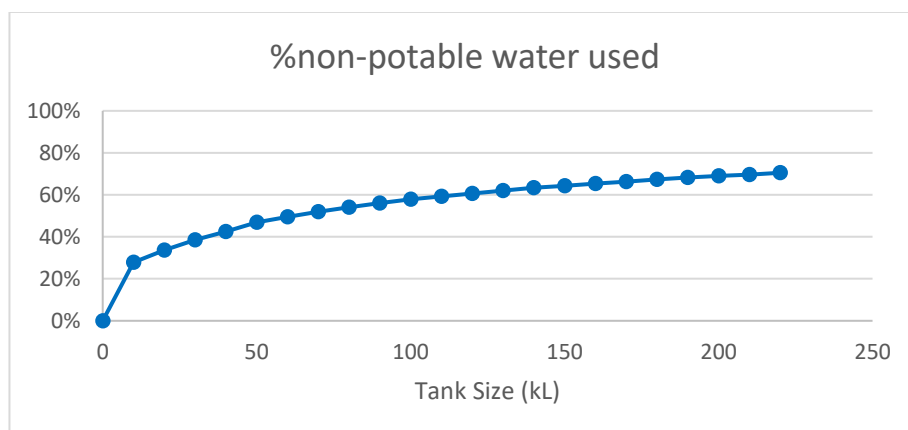
Irrigation: 3.7kL per day (based on landscape advice 850m² street frontage and gardens plus 183m² turf)

Roof catchment area: 4,350m²

CAPACITY ANALYSIS

Based on our analysis of rainfall and consumption data a graph of the percentage of rainwater used vs tank size was plotted.

It can be seen that the amount of rainwater used rises quickly and then plateaus as the tank size increases.



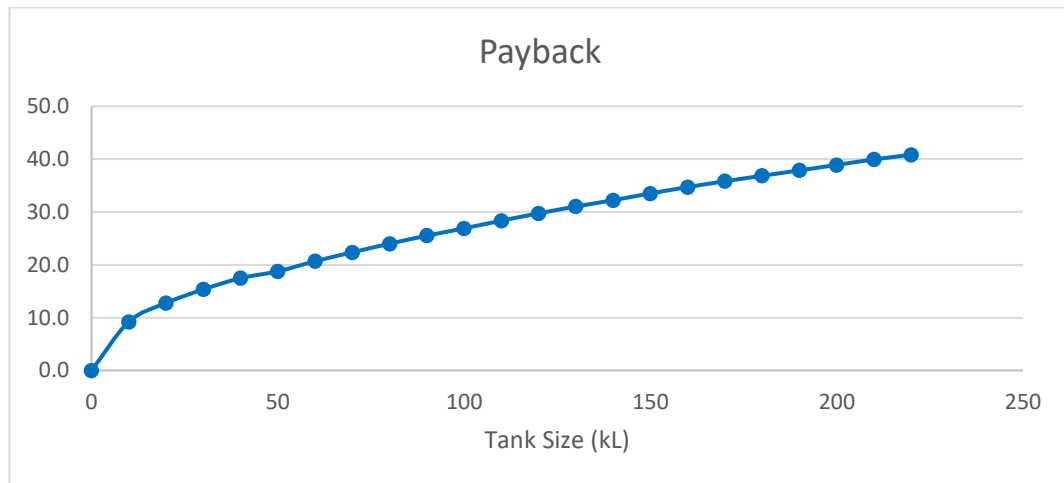


As an example, the amount of additional reuse water consumed from increasing the tank size from 100kL to 200kL is only an additional 11% (58% reuse at 100kL, 69% reuse at 200kL).

Projecting out the data, to provide 80% reuse the tank volume would need to be more than 400kL, which is an unreasonable amount of storage, and would only be utilised on rare occasions.

PAYBACK

A simple payback was also carried out based on water costs of \$2.50/kL and annual maintenance costs of \$1000.



Based on a reasonable tank life expectancy of 30 years, and utilising this value as the system paying for itself over its life, this would result in a tank size of 120kL.

SUMMARY

Based on the capacity analysis showing the benefit of rainwater reuse plateauing past 100kL and the 30 year simple payback calculation above equating to a tank size of 120kL, NDY recommend the installation of a 120kL tank for the Mulgoa school.

This tank size would satisfy, on average, 60.7% of the potable water demand.

Indicative location and size is provided on the following page.

Regards,

NORMAN DISNEY & YOUNG

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