

43 Hutchinson St – objectives

We find it helpful to set some over-arching objectives for WSUD projects, to help sort out the multitude of options and come up with an optimal, cost-effective solution. At this site we're proposing two objectives:

1. Reduce water demands:

- By at least 40%, in line with the BASIX scheme
- Stretch Target 1 - by 60%
- Stretch Target 2 - by 80%

2. Improve stormwater quality:

- Remove 80% of total suspended solids and approximately 50% of phosphorus and nitrogen loads



Location of Green Wall treating stormwater



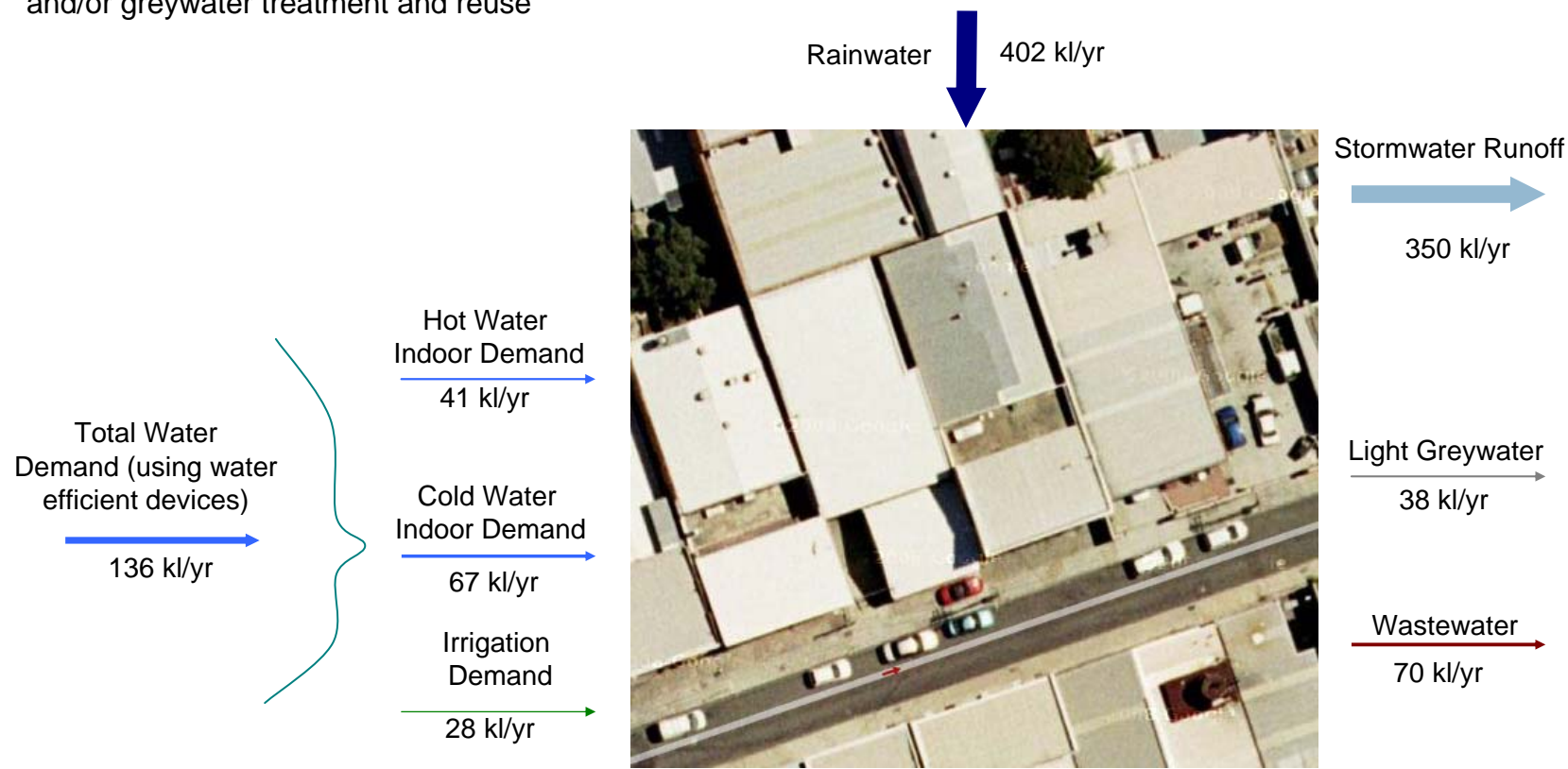
Location of elevated rainwater tank site



Elevated hot water tank and downpipe from neighbouring site

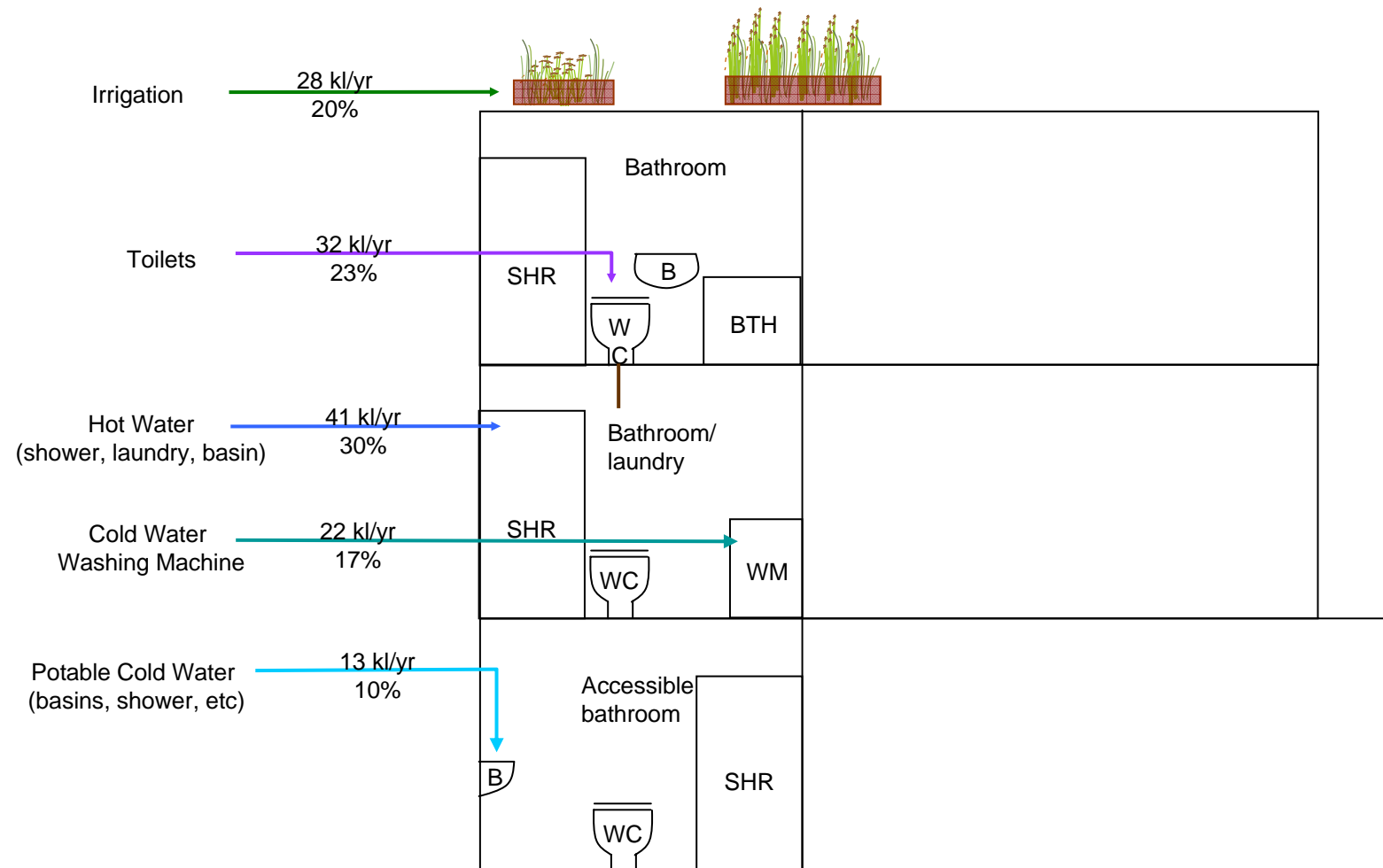
43 Hutchinson St - water balance

We've estimated a water balance for the site, to help understand water flows and guide rainwater harvesting and/or greywater treatment and reuse

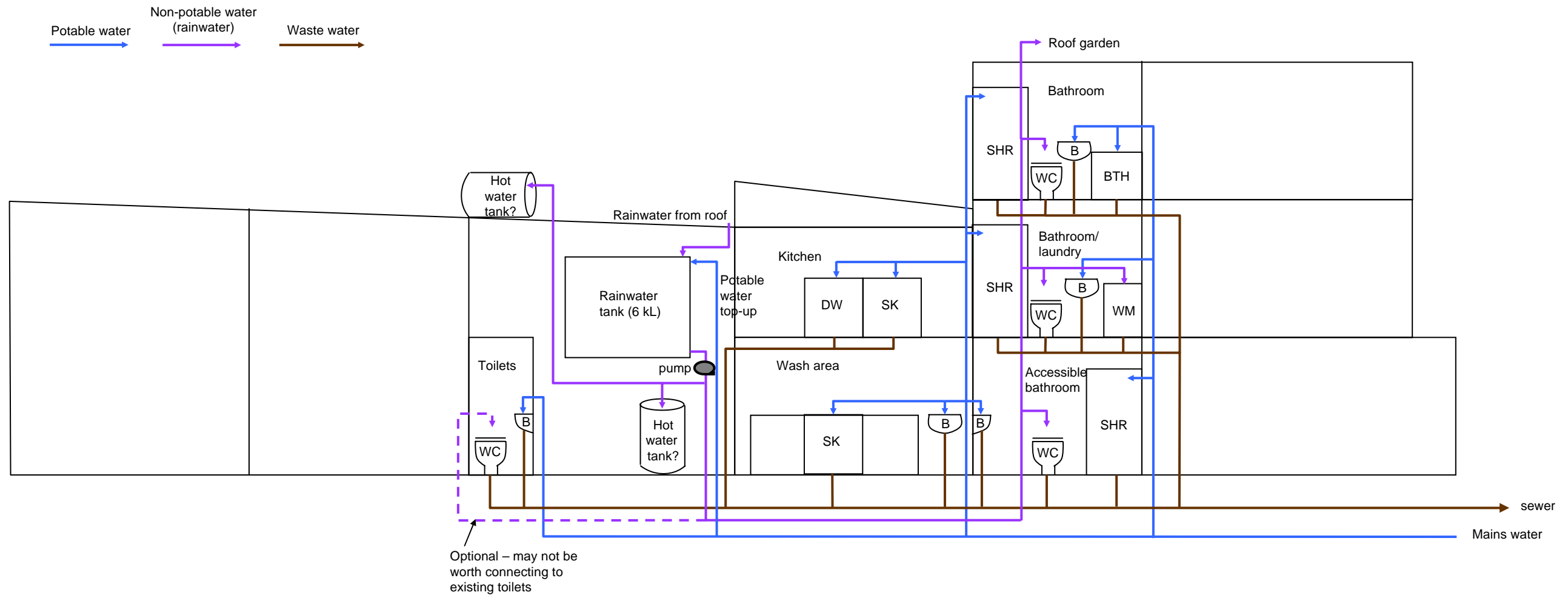


Key Notes on the Water Balance

- Water demands are low compared to the total rain falling on the site, suggesting rainfall is key resource
- It has been assumed that water efficient devices will be used throughout the building including toilets (3-star), taps (5-star), shower heads (3-star) and washing machine (4-star)
- The single largest estimated demand for water is hot water
- The next largest estimated demands for water are for toilet flushing and irrigation
- Light greywater is water drained from showers and basins
- It is not recommended to collect and treat laundry water with natural treatment systems or reuse for irrigation due to the high salt and high pH levels (washing powders)
- Light greywater is a small resource and can only be used to supplement rainwater reuse - not replace it
- Light greywater is best used for toilet flushing and irrigation, however the irrigation of vegetable and herb gardens with light greywater is not recommended for health reasons
- Thus at this site, light greywater is suitable only for toilet flushing



43 Hutchinson St – basic plumbing diagram (version 2)



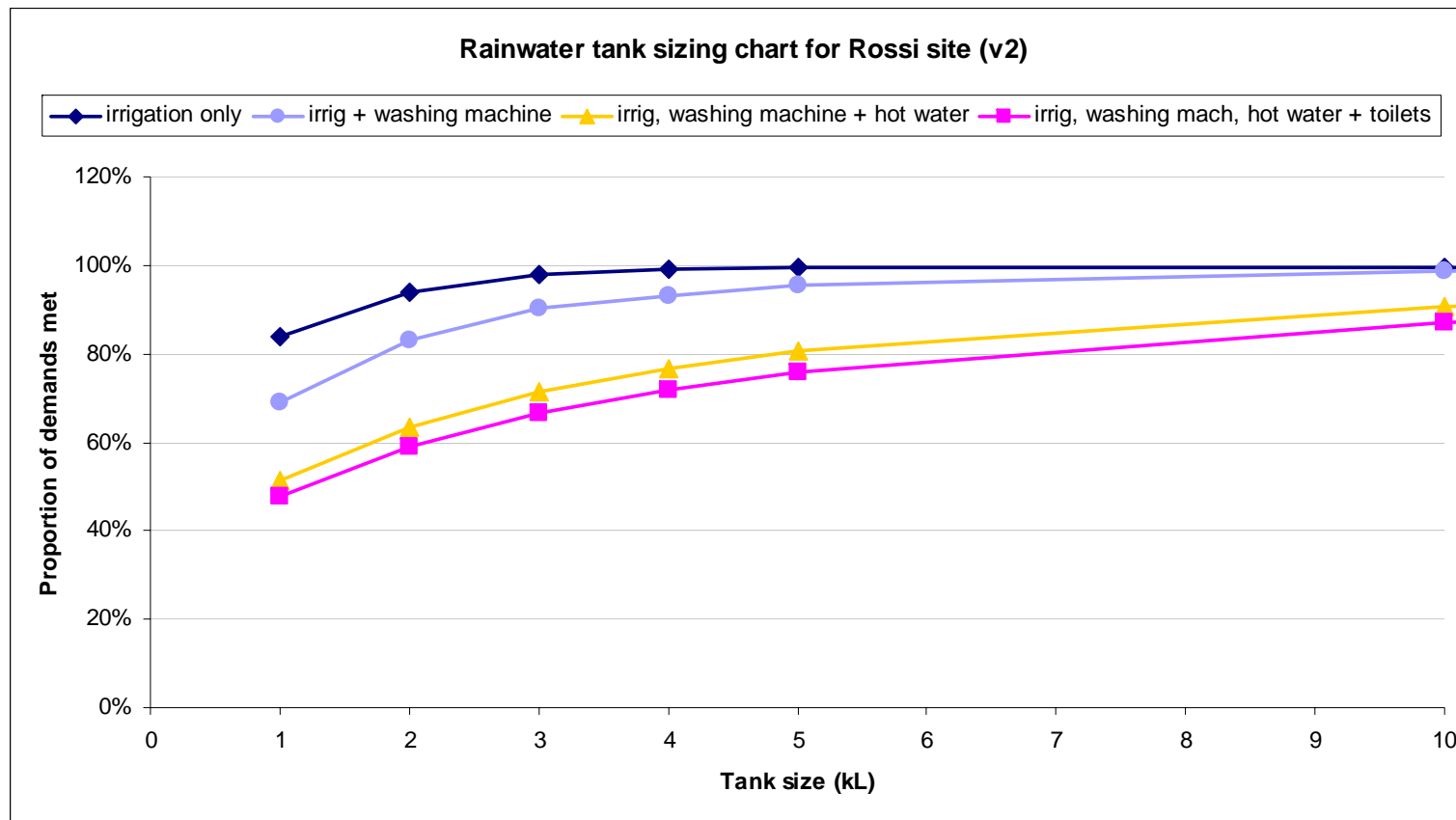
Water supply:

Potable water needs to be supplied to the kitchen, sinks, showers and hand basins. Potable water also needs to be supplied to top up the rainwater tank, in the event of low rainfall and ongoing water demands. If it is not possible to connect potable water directly to the rainwater tank, an alternative is to use a “rainbank” (or similar system). This system includes a pump, potable water switch and backflow prevention in one. The advantage of a rainbank is that its location rainbank is more flexible. The disadvantage is its cost – about \$1,500.

Rainwater can be used for irrigation (including food plants), hot water, laundry and toilet flushing. Rainwater can meet a substantial portion of these demands (see following page).

Greywater can only be used for toilet flushing. Furthermore, it may only be feasible to connect a non-potable supply to the three new toilets in the house. These represent only about half of the toilet flushing demands. This is only a small portion of the water demands, which can also be supplied quite effectively with rainwater. Therefore we recommend that it is not worthwhile to include a separate greywater system for the whole house. Instead small-scale systems could be considered for reusing hand basin water for toilet flushing (see page 5).

43 Hutchinson St – potential for rainwater to meet various demands



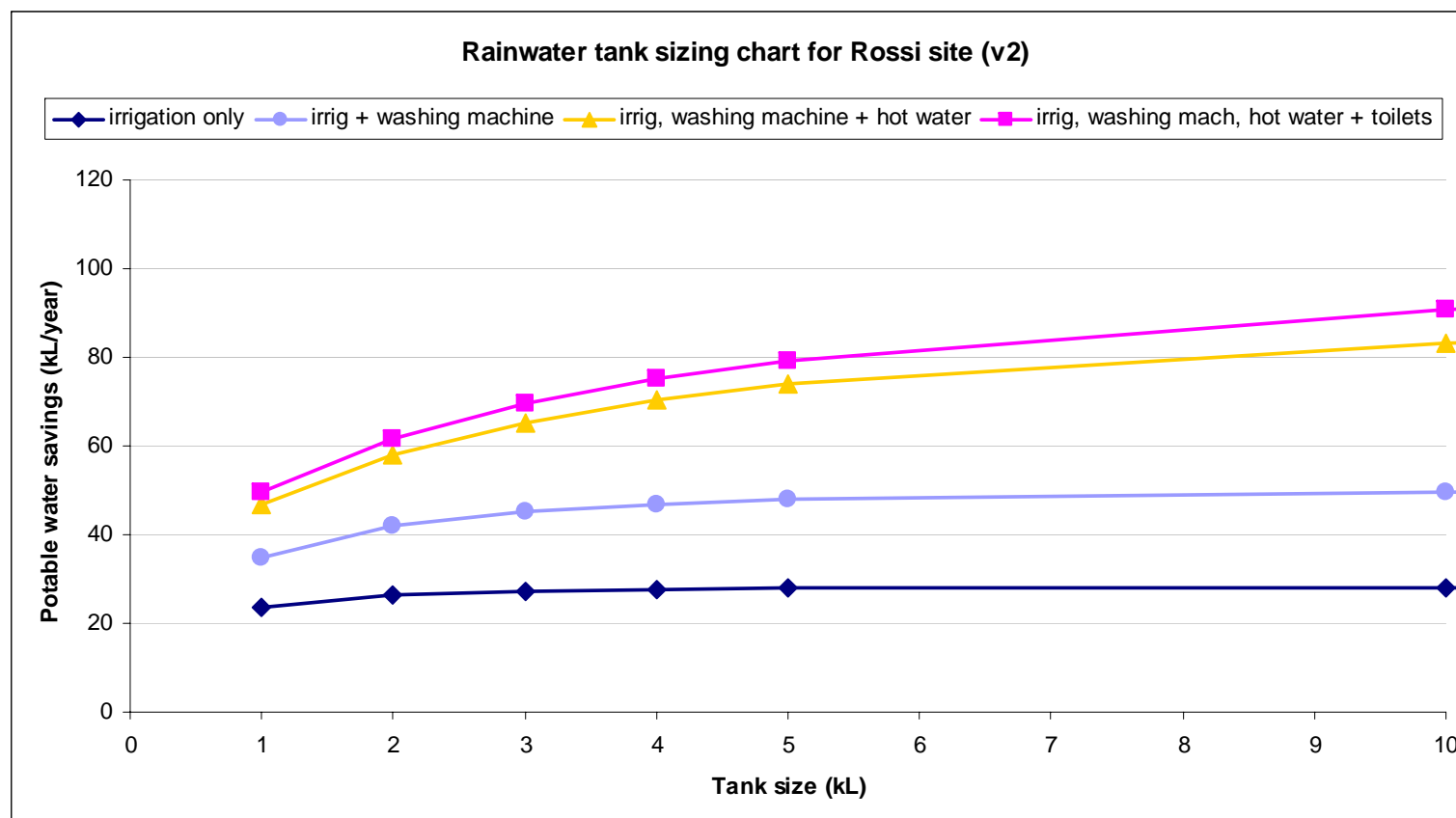
It is estimated that a rainwater tank of **5 kL** can meet:

100% of irrigation demands

95% of irrigation + washing machine demands

81% of irrigation, washing machine and hot water demands

76% of irrigation, washing machine, hot water and toilet flushing demands (for the three new toilets)



Based on the same 5 kL tank and the same scenarios as above, rainwater could replace the following potable water demands:

28 kL/year if only used for irrigation

48 kL/year if used for irrigation + washing machine

74 kL/year if used for irrigation, washing machine and hot water

79 kL/year if used for irrigation, washing machine, hot water and toilet flushing (for the three new toilets)

It is recommended that rainwater should be plumbed in to supply irrigation, washing machine, hot water and toilets if possible.

43 Hutchinson St – options for small-scale greywater reuse

CISTERNLINK AQUASAVER



<http://www.ozaquasaver.com/>

This is a device that fills the toilet cistern via a small sink located on top of the cistern. Instead of turning on a separate tap to wash your hands, you can use the water as it flows through the sink and into the cistern.

This saves water by avoiding the use of a separate hand basin.

We're also design another option for the new bathrooms... more details to follow soon