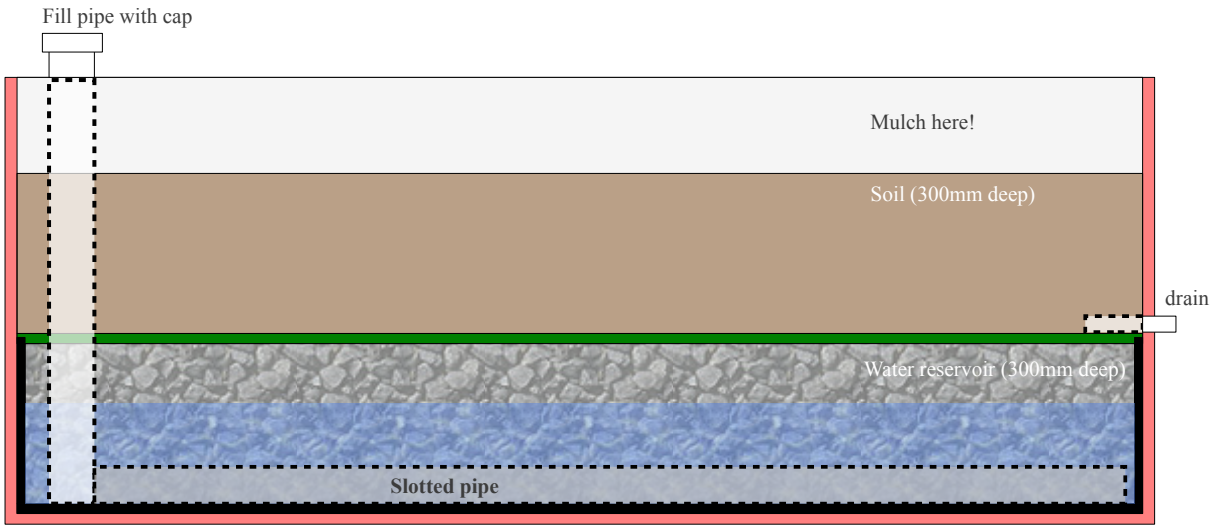
Wicking Beds

- Wicking Bed Basics
    - Water can travel upwards despite gravity thanks to capillary action (wicking).
    - Use this to our advantage with a "wicking bed", a garden bed that has soil and a reservoir of water *underneath* the soil.



Black "U" shape is the liner
Green layer is shade cloth or similar porous interface
Red is the wicking bed container.

- Problems in Perth
    - hydrophobic soils
    - little or no rainfall and high evaporation over summer
    - watering restrictions
    - poor soils (sand or gravel/clay in hills)
- Wicking Beds as a solution
    - large reservoir of water reduces need for frequent watering
    - soil remains moist all the time
    - evaporation reduced with thick mulching
    - improve soil life / quality with soil moisture, cooler conditions, and cycling of nutrients that would otherwise be leached away.
    - can be made cheaply from variety of materials
- Wicking Bed Design
    - flat base, and I mean flat! (use a level)
    - approx 600mm total depth, 300mm soil and 300mm for the water reservoir

- width and length of bed to suit available space and practical purposes.
- water proof liner for reservoir: builders plastic, pond liner, or clay
- fill pipe: access for filling, and running length of bed for good water distribution (speed of filling). Use slotted ag pipe or PVC pipe with holes etc...
- fill reservoir with material that allows for easy water distribution such as blue metal, gravel, crushed brick, or even coarse mulch. Mulch or other organic materials will break down over time, fine for a test bed but for longer life use something that will last.
- reservoir to soil interface: use shade cloth, geotextile, carpet, old sheets etc... To prevent soil migrating down into reservoir.
- Soil should be good quality organic soil that's a bit coarse as the water will encourage a bit of compaction. Keep off the beds!
- Drainage at the interface. Drain should be protected with a bit of shade cloth to prevent soil escaping.
- Can be built in-ground, above ground, or partial. Use tin, wood, rocks, straw bales, anything to form the sides as with any standard raised garden bed. If in-ground then consider the drain, if it's also underground that will work in sandy soils but not in heavy/clay soils!

- Other Points:
  - closed wicking beds most appropriate for annual veggies
  - not good for larger root veggies
  - allow reservoir to completely dry out every now and then
  - heavy rain not a problem thanks to drain – no worse than normal ground or raised bed (i.e. excess drains away). Probably better because nutrients aren't all leached, end up in reservoir.
- Variations:
  - incorporate worm farm
  - open wicking beds for larger areas, perennials, and deep rooted veges.
  - bathtubs (goose neck drain)
- Other Resources:
  - PermacultureWest: http://www.permaculturewest.org.au/

    Resources section has some links to wicking bed pages on the Internet. Note: shadecloth raised beds as shown on one of the links is *not* recommended for Perth due to hot winds and high evaporation.