Soak Pits

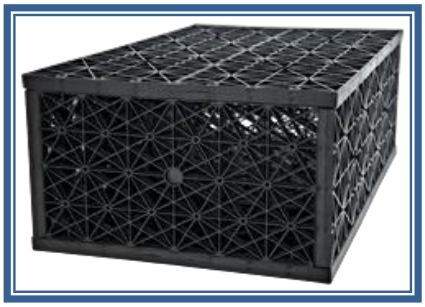
What is a Soak Pit?

Soak pits are a water sensitive urban design (WSUD) mechanism that relies on the stormwater principles of retention and infiltration. Featuring a large permeable porous walled chamber, the Soak Pits are located at the end of a stormwater drainage network, hence the lowest lying point, buried underground and out of sight. The soak pits collect the incoming storm water, and stores it while the water slowly percolates into the surrounding ground through an infiltration process. In layman's terms water is directed off the surface where it is a nuisance, and stored underground where it slowly seeps into the earth.

Soak Pits & the Mornington Peninsula

Soak pits are common on the Mornington Peninsula, particularly in the south-western end where the land is devoid of gullies and creeks/outfalls, ultimately limiting the drainage of stormwater from residential areas, hence the reliance on these man-made drainage systems. Luckily the geological make-up of the area is coarse granular sand, which provides a high level of infiltration for stormwater runoff, perfect for the implementation of soak pits.

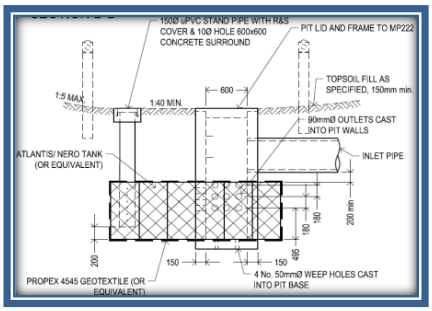
The undulating nature of streets in areas such as Rye, Blairgowrie, Sorrento and all the suburbs within the vicinity leads to pooling of stormwater in low lying properties or roadways whenever a rain event occurs. Through strategic placement of soak pits this issue can be resolved, or at least minimized, with the vast array of soak pits currently present substantiating this reality.



The Mornington Peninsula Shire uses modern soak pits which are constructed with recycled plastic modular components which are combined together and then wrapped in a highly permeable geotextile, this approach allows for greater effective volume of water to be stored as well as being more durable, longer lasting and less prone to siltation.

Advantages

- Moves water off the surface, storing it underground where it is not an issue.
- Water off the surface provides safer roadways, pathways and routes for the public move.
- Allows the stormwater to seep into the earth at a much faster rate than it would from the surface due to fine silts in Earths top soil.
- Environmentally advantageous over natural runoff drainage as silts are better filtered before the water passes into the surrounding environment.
- Relatively small, hence can be placed in council road reserves or drainage reserves.
- No power required and easily constructed.
- The process of drainage and infiltration requires no man made effort or interference with the process occurring autonomously.



Disadvantages

- As with all drainage systems, soak pits have a design capacity, most often this being for a 1 in 5 year event as per Australian Rainfall & Runoff guidelines, or Rainfall IFD data. If the intensity or duration exceeds this design the Soak pit will become fully charged, leading to water pooling on the surface.
- Particular attention must be given to placement, if placed anywhere other than lowest lying area they are virtually ineffective.
- In ground services such as water, power and gas often limit their size and use in road reserves.
- Prone to siltation if no silt management measures are taken for the influent.
- Maintenance and cleaning can be difficult due to the soak pits being buried, proper design and implementation crucial.