

## Resolving a Backyard Seeping Water Problem, using the Capiphon System

Three years ago, we built a new home in Bannockburn, Victoria. The soil around Bannockburn is heavy clay and classified as highly reactive. There is little to no slope on the land immediately surrounding our house, so establishing a lawn and backyard area with a fall away from the house was not possible. However, as recommended by the CSIRO (as per document BTF 18), we have conformed with all recommendations including establishing a 1-metre path (with fall) around the house perimeter and establishing gardens away from the house. Despite this, water has still managed to find its way through the soil subsurface under a 6-metre alfresco concrete slab, to our back sliding door exit/entry, where dampness is evident on the surface of ground level bricks. In addition, internal flooring has lifted resulting in a misalignment of the sliding doors.

An engineering company who viewed the site, suggested I put a submersible pump 1.5 metres down through the middle of our alfresco timber decking (which is built on top of a concrete slab), to pump out water that may be travelling through a sealed-system trench. To me, this seemed radical and very intrusive, and it was still 'hit and miss' whether this would resolve our problem - or in fact if this was the cause of our problem. I consulted numerous plumbing/drainage experts and spent 6-8 hours on the internet conducting research. An alternative to that proposed by the engineer, was to reduce (or even stop) the water getting from surface level down through the various levels beforehand, so that it never gets to this sealed-system trench depth. Despite whether this trench was/is the culprit of the problem, it was always going to be a good idea to disperse/remove as much surface and sub-surface water from the surrounding areas as possible. My own research found that whilst agg pipes strategically placed around our backyard were an option, these were always going to eventually clog up with mud and debris, and overtime (2-8years), become less and less effective – this was regardless of whether the pipes were covered in a sleeve or enclosed in an alternative method of geotextile fabric wrapping. At this point, I stumbled across Capiphon in my web searches.

The next number of hours were spent looking at Capiphon systems and researching the effectiveness of using this product. Finally, I came up with a design that involved setting out lines of Capiphon belt (to collect surface and sub-surface water) and run these into a collection pipe that would eventually discharge into a submersed pit with pump. Fortunately, I decided to contact Capiphon to ask a question about delivery of their product, because this put me in contact with Geoffrey Fenn, one of their directors. Geoffrey asked numerous questions about my plan and after seeing my design, which included an aerial photograph, he advised that my main collection pipe should be set away from the house, rather than next to the path where I had planned to set it. He wanted me to take the water (via the Capiphon belts), away from the house, rather than towards it. Not only was this a great idea, it also enabled me to use a submersible pit I already had in place, therefore, taking away the need from putting in a new one with a new pump.

The next number of photographs will show the steps I took to put my Capiphon system into place.

**PICTURE #1:** Orange arrows indicate the water flow route towards our house



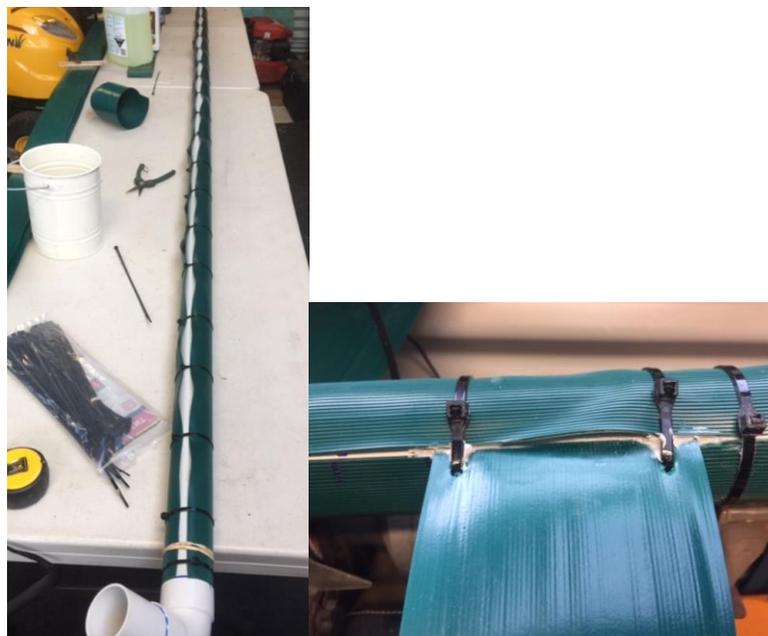
**PICTURES# 2&3:** Images showing the problem areas from ground level



**PICTURES# 4&5:** Images showing trenching in soft-fall/playground section of backyard and fire-pit area



**PICTURES# 5&6:** Images showing fabrication of collection pipe with Capiphon and insertion of Capiphon belt into the collection pipe.



**PICTURE# 7:** Image showing trenching in grassed area. Note that turf has been lifted to the side and placed on sheets of plastic, until replacement.



**PICTURE# 8:** Image showing placement of Capiphon belt and Capiphon collection pipe in soft-fall/playground area



**PICTURE# 9:** Image showing point of dispersal into submersed pit



**PICTURE# 10:** Image showing water draining from Capiphon system into submersed pit. After 30 minutes of rain, water began to drain into pit. Three hours following rain, water was still being syphoned through the Capiphon system and being dispersed into the drainage pit.



#### **CONCLUSION:**

It works! I was very pleased to see evidence of the system working. It is obviously too early to determine whether this will completely eradicate our problem, but I am hopeful and relatively positive that it will make a difference. I am 'sold' on the Capiphon system being superior to that of traditional aggi pipe and imagine that in time, it will become the preferred system of drainage.

The job was a little labour intensive, given I did all by myself without the use of machinery. However, any system would have involved the digging of trenches, so there is no escaping the need for manual labour. I recommend that fabrication of pipe and insertion of belts into collection pipe, be done in a workshop prior to placement into the ground. In my situation, I firstly dug trenches and then transferred measurements on to pipes and belts, ensuring easy assembly and simple transferral into trenches.

Prior to the job, I had photocopied and studied all Capiphon instruction sheets. Having an understanding of these and following up in conversation with Geoffrey Fenn, ensured I knew exactly (pretty much!) what I was doing.