

IRRIGATION WATER HARVESTING AND STORAGE

We currently have 44MI in water licences. 22MI from surface water run-off and course drainage and 22MI from pumping from Walkers Drain.

But we only have 22MI of storage capacity.

Based on past experience, 22MI is sufficient for current needs but, with ongoing improvement of the playing surfaces, it may not be sufficient in the mid to long term.

We need to start considering what we need in terms of irrigation water volumes and where we will get that volume from.

A very rough estimation of potential increased volume requirement is as follows:

- We have 10 “new/larger” greens with 6 irrigation heads per green.
- We have 8 “old/smaller” greens with 4 irrigation heads per green.
- We need to rebuild the 8 “old/smaller” greens into “new/larger” greens with 6 irrigation heads per green.

—> Green irrigation heads and, presumably, green water requirements, increases from 60 to 76 or 27%.

- We have 18 tees with a multitude of sizes and irrigation configurations.
- Arguably, most of our tees need enlarging and/or increased irrigation.
- For convenience sake, lets assume that our 18 tees need enlarging and/or increased irrigation to the value of 27%

—> Tee irrigation heads (water requirements) also increases by 27%.

TOTAL IRRIGATION VOLUME INCREASE = 22MI x 27% = 6MI

If we want to consider drive zone, green approach or total fairway irrigation, then the water requirement will increase significantly further.

.So where do we get that extra volume, or more, from ?

Some options that come to mind are:

1. We look for any land owners that currently have licences to take water from Walkers Drain that are willing to sell those licences to us. NOTE: We have done this in the past.
2. In conjunction with a property developer in Garfield, we apply to Southern Rural Water for a ‘hard surface’ storm water harvesting. allocation. NOTE: I do not fully understand what this option involves.
3. We endeavour to direct any current or new drainage work into existing dams or into conveniently located sumps where the water can be pumped into existing or new holding dams. The pumps being powered by main, solar and/or wind.
4. We use mains water @ about \$3,300 / MI.
5. We hope that a new sewage treatment plant might be built between the current Pakenham and Longwarry plants and we can access water from that plant at a reasonable cost.

Assuming any of the above options prove to be available, where do we store the water ?

I believe there is sufficient space on the course to construct two new holding dams to increase our storage capacity.

One located between the 1st, 2nd and 18th holes and the other between the 12th and 13th holes. I estimate that these two dams could give us additional capacity of up to 7MI each. 14 MI in total.

Building the dam between the 12th & 13th, as shown on the next page, will be problematic as it involves filling in the existing water hole that was made when we sourced the clay for the 11th green. Problematic due to environmental issues (potential habitat for the Growling Grass Frog) and from member objection to filling the water hole. It is also reliant on the 14th hole being closed as outlined in the ideas for the 13th & 14th holes.

The last page of this document shows a compromise solution that allows the water hole and 14th hole to be kept intact and a new dam with reduced capacity to be built adjacent to it. I estimate that this compromise could hold 2.6MI. This combined with the estimated 1MI in the water hole totals 3.6ml. Thanks to Life Member Peter Scott for encouraging me to consider this option.

SEWAGE TREATMENT

I suspect our clubhouse septic systems are not in a good state and I would worry that they will be inadequate with potential future growth. I think it would be worthwhile to consider a sewage treatment facility as an option for mid to long term planning.

An adjacent sump would receive the output from the treatment facility, hard surface storm water from a sealed and kerbed carpark, the clubhouse roof and nearby drainage works. The location indicated is right next to our electricity supply and meter box so power supply is not an issue.

My gut feel is that this will be far less cost effective as the first 2 options mentioned above but it may be the next best option if we cant.

Another positive for this option is increased potential for a capital works grant supported by the environmental and community benefit outcomes that it might provide.

I estimate that the output from this solution would be at least 1.5MI per year. 1MI from the hard surface storm water and the remainder from the sewage treatment plant and nearby drainage.



New holding dam

Dam wall batter adjacent o the 12th has a 20% grade to allow safe mowing as fairway or rough

Sump

Possible dam enlargement resulting from the harvesting of clay for new green construction and/or earthworks on other holes.

New holding dam

Dam wall batter adjacent o the 1st & 2nd has a 20% grade to allow safe mowing as fairway or rough

Possible dam enlargement resulting from the harvesting of clay for new green construction and/or earthworks on other holes.

Sewage treatment plant & sump

Sump

Option 1

Option 2

