



To: **Para Power**

From: ***Turf Health Products Company***

Re: Irrigation Magnet Installation at Pagoda Ridge Golf Course
And Water Savings Initiative

Date: August 29, 2019



In early 2019 Pagoda Ridge Golf Club (Mr. Reed Grosart – Golf Course Superintendent and Mr. Larry Brown, Golf Course Owner) was approached to trial a proprietary magnet installation on their irrigation system; in hopes of realizing water savings and improved turfgrass health through the molecular “straightening” of their irrigation water.

The fourth hole from tee to green was chosen as the test site. It is a Par 4 measuring 460 yards total. The adjacent seventeenth hole was chosen as the control as it is a mirror image of the fourth hole. Pagoda Ridge Golf Course was responsible for the installation of the magnets, based on the design from Para Power. Installation was completed in mid May 2019.

There were sets of three magnet blocks installed at 700-foot intervals the length of the fairway, on both lines (double line system on the fairway). The tee and green areas were spaced appropriately so as to maximize the magnetization of the water for delivery to each surface.

The irrigation systems central control unit monitors gallons/minute applied for the Golf Course Superintendent, on a hole by hole basis; this is how the water volume was to be measured for the trial.



Magnet Installation

Findings:

On August 22, 2019 a meeting was held at Pagoda Ridge to discuss this Summer's findings after using the magnets for a full Summer Season. It should be noted that the Summer of 2019 in the Lower Mainland was very mild in comparison to severely previous Summers. High temperature were down 2-3 degrees and there was slightly more than average Summer rainfall. Regardless, the turfgrass still needed to be irrigated, and this is what transpired.

Pagoda Ridge Golf Course Fairways and Tees are all built on a sand cap; this is to promote drainage and allow players back onto the golf course more quickly, after a rain event. For this reason (sand based) it is very important to stay on top of irrigation schedules in the Summer, or turf will burn with the Summer heat.

The fairway schedule as a standard statement is to irrigate for 8 minutes every time the Golf Course Superintendent deems the necessity to water (this is done with moisture meter readings – and discussed at a later date). This is completed at night on a pre arrange schedule planned by the Golf Course Superintendent. During morning set up, the staff on the maintenance crew are tasked with manually irrigating hot spots, on tees and fairways. These are areas that have not received enough water from the previous nights' schedule.

The fourth hole required 4-5 minutes of night irrigation, and never required morning hot spot applications of water from the installation of the magnets until present.



#4 Hole – from Tee to Green

The Golf Course Superintendent also commented that the density on the fourth hole, particularly the fairway, was visually improved compared to all other fairways on the Golf Course. This was noticed not only by him, but his staff and some of the golfers who use this facility regularly. Soil testing (physical/chemical) will be completed by mid-September; and our thoughts are that there will be better use of turfgrass nutrition, and perhaps improved water infiltration and percolation from the “magnetized water applications” all season.

If these findings are valid, not only is there a benefit of improved turfgrass density; but overall health and water movement for plant strength can be noted as benefits of magnetizing your irrigation water.



Density on #4 Fairway

Finally, there were several comments made with regards to “areas that usually burn out, staying green this year”. Aesthetics in Golf Course management is one of the issues today. Not enough time or manpower to keep the edges “green”. There was an area in the rough to the right of #4 fairway, that has typically browned off by mid-July. Although skeptics will say that the intermittent rainfall had an effect on less areas browning off this Summer, this particular Superintendent’s points to the magnetize water helping keep these areas green; and greening up turfgrass in areas where irrigation is sub-par (back of #4 green, in particular).

Installation Cost for par 4 golf hole: $2 \text{ employees} \times 8 \text{ hours/day} \times 2 \text{ days} \times \$25.00/\text{hour} = \$800.00$



Summation:

- ***32% water use reduction from mid-May – End of August***
- ***No supplemental irrigation required after the main irrigation cycle was applied***
- ***Increased density, from a visual perspective by numerous parties***
- ***Improved turfgrass health on “lower priority areas” of the golf course***
- ***Potential for nutrient load reductions***
- ***Potential for improved water infiltration/percolation/drainage***

We have not yet begun to put real figures to what this water conservation installation can do. What is more interesting, and potential an additional sales tool is the improvement in plant health, density, color, and rooting. As with any “NEW” technology in the Golf Course Business, it will take a while for adoption. These preliminary findings have the principals at Pagoda Ridge and the Turf Health Products Company, extremely excited about the future of Golf Course Maintenance, from an irrigation perspective.

Respectfully Submitted,

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