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PADESWOOD & BUCKLEY GOLF CLUB

Advisory Report on the Golf Course

Report Date: Tuesday 20th July 2021
Consultant: Emma Beggs

Padeswood & Buckley Golf Club

Date of Visit:	Tuesday 20th July 2021
Visit Objective:	To assess course condition and offer recommendations for future maintenance
Present:	Mr Stuart Mason – Head Greenkeeper Mrs Emma Beggs – STRI Group Ltd
Weather:	Hot, dry, no cloud and a temperature of 29°C

Headlines

- Weather conditions continue to have a huge impact on course performance since my last visit in June 2020. A very wet autumn and winter period with exceptional levels of rainfall meant that the course was flooded at times however impact on golf was limited as the third Covid lockdown closed golf courses from early January to late March.
- After the very wet start to the year April turned out to be the coldest, driest, frostiest and sunniest on record. This in turn impacted on greens by slowing the rate of spring recovery meaning that usual playing quality took slightly longer to develop. I am delighted to hear that greens picked up well after this and certainly on the day of the visit putting surfaces were excellent.
- The quality of the greens is a strength of the course with a significant element of bentgrass combining with the annual meadow-grass providing strong, consistent turf density. Putting surfaces were very good and the maintenance programme in place is working very well to optimise playing quality. There was however a slight build-up of organic material at the immediate base of the turf and this needs to be addressed before it becomes buried within the profile.
- Investment in machinery continues and a decision has been taken to invest in a new tractor for delivery this season and a new Toro rough mower to be delivered in time for next spring. It is important that the range of machinery is maintained particularly in respect of frontline mowing equipment to ensure modern, reliable and efficient units are being used on the course to maximise presentation and turf quality.
- The winter period allowed for important tree removal work to be completed as planned between the 3rd green and 4th tee, opening up the green to better light and air movement. With tightening pesticide legislation and milder, wetter winters it becomes even more critical to optimise the environment around all the green complexes to maximise plant health and reduce potential for damaging autumn/winter fusarium patch disease.

Key Actions

- During the August Maintenance Week complete verti-draining as well as scarifying using the Graden or Sisis unit to concentrate on OM removal through the top 10 mm. The aim is to follow this with sand top dressing and then blanket bentgrass overseeding.
- The original remaining soil based greens include the double 7th/15th, 11th, 16th and 17th greens and for these to drain sufficiently well to perform as required through wet winters they need to be drained.
- Cost effective options include traditional pipe drainage as recommended previously although the club are also considering alternative solutions. From discussion the 7th/15th and 17th are the priorities for drainage work.
- In order to secure sufficient water to run the irrigation system throughout an extended dry period there should be work done to enlarge the water holding capacity of the ponds – the club's source of irrigation water. The impact of climate change is already being felt with the UK's ten warmest years occurring since 2002. Summers will become hotter and drier, winters warmer and wetter.

Photo Observations and Comments

Figure 1: The 1st green was providing an excellent putting surface and moisture management has been good during the past week or so of hot, dry weather.

Figure 2: Soil profiles remain friable due to a combination of Toro Procore aeration and use of the Air2G2. There is however a build up of organic matter in the immediate 0-10 mm which needs to be physically removed and diluted.

Figure 3: Over winter the woodland area between the 3rd green and 4th tee complex was removed to open up the 3rd green to much needed sunlight. This green should continue to strengthen in response to better light and air movement.

Figure 4: A wildflower meadow has been planted in the area between the 3rd and 4th. It is important to continue the tree management programme concentrating on areas where trees shade greens and tees.

Figure 5: The 7th tee has also benefitted from being opened up to a greater amount of sunlight with the removal of trees from the right hand side. Light levels dictate the quality of turf surface that can be delivered through maintenance.

Figure 6: The 7th/15th double green provides a good surface under dry conditions but performs poorly under wet conditions. The upper profile has been improved through aeration and sanding but it is now time to look at installing drainage to give a positive outfall for water building up within the ground. Wetter weather patterns mean this work becomes more critical to keep greens in play year round.

Figure 7: The front bottom edge of the 7th/15th green acts as a dam to water trying to flow off the front and over winter turf cover has weakened and declined. Reshaping would be worthwhile to help surface water flow away from the putting surface. Ultimately drainage is required.

Figure 8: The front of the 9th green was significantly lowered and reshaped to allow water to flow off and away from the front of this green. This has already been successful in helping turf quality to improve. A new Durabunker was also installed, these are proving to be successful and more work is planned.

Figure 9: Tees are holding up well to increased levels of play over the past 12 months as shown here at the Par 3 10th.

Figure 10: Soil profile conditions beneath all greens including the 10th green shown here had the build up of organic matter in the immediate base of the turf. This should be addressed through the planned August Maintenance Week work to include verti-draining, Graden scarifying and sand dressing.

Figure 11: The pond provides the course with irrigation water during dry spells of weather and I understand that it now holds sufficient water to cover a 4-5 week dry period. As climate change impacts on our weather patterns, it would be advisable to explore options for increasing water holding capacity.

Figure 12: The 17th green is another putting surface struggling to perform during extended wet spells. Upper profile conditions are excellent but water holds at depth with no drainage to take water to a positive outfall. Explore drainage options here too to develop a green that remains firmer and drier for longer.

Recommendations

Greens

- Continue with the current approach to greens maintenance as this is working extremely well and providing excellent putting services at this time of year. No significant changes are proposed and it is hoped that the current approach will continue.
- August Maintenance Week is planned to comprise verti-draining, Graden scarifying to remove organic matter build up and sand top dressing. This should optimise performance over the next 12 months. One well timed verti-draining when soils are dry maximises surface drainage. The Graden scarifying will remove the organic matter build up in the top 10 mm and sand dressing will also dilute any remaining material.
- The aim should be to apply 100 tonnes of sand as a minimum to the greens this season to ensure that upper profiles remain sandy and free draining. I understand that 50 tonnes of sand have been applied to date with August maintenance week providing a good opportunity for incorporating a significant amount of sand.
- The use of the plant growth regulator Primo on a monthly basis helps to maintain sward density as seen on the day of the visit but does make it slightly more difficult to incorporate sand topdressing.
- Fertiliser inputs are important particularly in ensuring plant health to minimise the potential for anthracnose disease during the summer months and fusarium patch disease during autumn and mild winters. The fertiliser programme should be delivering close to 65-70 kg of nitrogen per hectare and it is hoped that the fertiliser programme for this year will deliver this.
- Revolution wetting agent continues to be used on a monthly basis and combined with effective aeration should minimise the potential for dry patch. This approach certainly appears to be working well as surfaces were extremely consistent with no evidence of any uneven dry down even during this hot spell of weather.

Greens Drainage

- it is recommended that the club proceed with the installation of pipe drainage or equivalent into the 7th/15th double green and the 17th green this autumn. Wet weather patterns over the past few years mean that we need to do all we can to keep main greens in play year round.
- Intensive maintenance has improved upper profiles however the remaining soil based greens do not perform as well as the sand rootzone reconstructed greens. Installation of drainage will enable significant improvements to be made and it is hoped that the club can consider going ahead with this work in late summer/early autumn before ground conditions start to wet up.
- Please find enclosed at the back of this report the STRI pipe drainage leaflet which provides one cost effective method for draining greens. I understand that Stewart is also considering passive capillary drainage (PC Drainage) as an alternative solution.

Irrigation Water

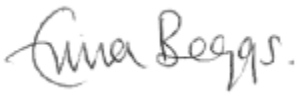
- The irrigation system employs water from the pond and at present the capacity would enable around four to five weeks both greens irrigation which in most years has been sufficient. However, the impact of climate change is being seen in UK weather patterns and along with wetter milder winters we can expect hotter drier summers.
- Therefore, as we look to the future the club need to ensure that there is sufficient irrigation water available to cope with an extended hot dry summer so that the condition of the putting surfaces is not compromised during the next drought. Consideration should therefore be given to enlarging the water

holding capacity of the ponds as I understand that these are silting up and hold less water than they have done previously. This work should be scheduled as a winter project to ensure sufficient water availability in the future as and when next required.

Fairways

- Fairways on inland golf courses benefit from verti-draining annually in early autumn once the ground starts to soften slightly. It is hoped that there will be funds available to bring in a contractor to verti-drain all fairways in late September/early October this year.
- This is an important deep aeration treatment helping to maximise surface drainage and keep fairways firm and dry for as long as possible each winter. Last year verti-draining could not be completed and was instead replaced with use of the Shockwave linear aerator and slit tining using the club's own Sisis fairway slitter.
- This autumn following the recommended verti-draining it is hoped that the club will back this up with additional slit tining on three or so occasions between autumn and the end of the year.

Signed



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Technical Note

PIPE DRAINAGE FOR GREENS

Plan the work well in advance and communicate plans to members to minimise disruption and complaints.

Start work as early as possible in the autumn when ground conditions are most suitable. If the ground is worked when conditions are wet it will have a significant impact on the quality of the finished work. There may also be significant damage caused to the haul routes during the works if the ground is too soft. Aim to complete the work prior to Christmas to allow plenty of time for the turf to re-establish along the drain lines before bringing the green back into use in the spring.

The drains may take in excess of 12 months before they start to pull to their full potential but an improvement should be noted straight away. However, further aeration treatments are likely to be required to maximise efficiency of the installed drainage, helping water migration to newly installed pipes. This should be part of a thatch reduction programme involving other elements such as extra top dressing and scarification/hollow tining.

The guidelines for pipe drainage introduction following excavation of drain trenches are as follows:

- Use 80mm diameter plastic pipe at 2-3 metre spacing depending on conditions.
- In cutting the drain trench, allow for 25mm either side of the pipe.
- There is always the risk of drain lines standing out in the summer which is one of the potential problems with pipe drainage introduction compared with redevelopment. Introduce a 60:40 rootzone at a uniform firmed depth of 300mm and a minimum of 250mm.
- To ensure bridging factors are met and to avoid rootzone migration into the gravel over time, it is important to test the suitability of proposed materials in the STRI Laboratory prior to proceeding.
- Whether a blinding layer is required depends on the choice of gravel size. An 8-10mm gauge aggregate could be blinded with 50mm firmed depth of a 1-4mm hard washed grit.
- The aggregate should be a washed, hard aggregate that is not limestone or sandstone.
- In order to dispense with the blinding layer the aggregate size can be reduced to a 3-6mm gravel. As a guide, the blinding layer or rootzone should be around one-sixth of the aggregate size. The depth of aggregate will depend on the drain depth, preferably 600mm but at least 450mm.
- Adequately firm each layer. Once the backfill has been completed, re-lay the stripped turf flush with surrounding ground, not proud in anticipation of settlement. If there is minor settlement then the unevenness can be selectively top dressed. Scalping of the turf should be avoided.
- Finally, give a light roll and top dress. Bringing the green back into play will depend on how quickly the turf knits in. Once the turf is fully integrated and a good surface has been restored, subsequent maintenance should involve tining and top dressing to maintain through flow of water past the initial base of the turf and organic layer into the growing medium and drain below.