

THE RENAISSANCE CLUB

SPRING AGRONOMY REPORT



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RJW/BJI

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Date of Visit

22nd April 2009

Object of Visit

To review the spring condition of the course
and confirm ongoing maintenance operations

Present

Mr. Paul Seago (Head Superintendent)
Mr. Gary Eunson (Deputy Superintendent)
Mr. Richard Windows (Turfgrass Agronomist – STRI Ltd.)

I INTRODUCTION

The golf course is in truly fabulous early season condition. All the playing surfaces are botanically pure, beautifully polished and were offering fantastic playing qualities for the time of year. Collectively, the greens, surrounds and fairways are some of the best links playing surfaces ever seen. They are simply top class.

As this visit was the first for approximately 12 months, it was fantastic to see how well the course has matured over this period. Work to improve the authenticity of the rough (i.e. grassland management and tree removal) has worked excellently. This, combined with the tightly mown and rolling pathways between greens and tees, and the very high standards of conditioning and surface presentation results in a visual stunning spectacle.

During the grow in and early establishment of the course, it was clear to see the facility could be something special. There is no doubt the maturation of the course and the greenkeeping implemented over the past year or so has turned this potential into an absolute reality. Certainly in terms of conditioning, playing and aesthetic qualities, The Renaissance Club is one of the very best facilities in Scotland. Opening the doors to more visitor play will only help raise its profile further.

While we are generally delighted with the quality and presentation of the course there are some areas of weakness. The area of greatest concern was the presence of drought stress to the fairways and to a lesser extent the greens. Therefore, to combat this problem you will need to invest in regular applications of a high quality liquid wetting agent. What is more, plans will need to be formulated to ensure these areas are appropriately renovated at the end of the season to retain desirable turf and playing qualities for the future.

II GREENS

REVIEW

Last season the greens did suffer from some disease activity in the form of both dollar spot and latterly fusarium patch. Very minor superficial scars remain following this attack.

Through the winter, the main problem with the greens has been the ingress of moss to areas affected by shade, e.g. left of 7. The shade to these areas has resulted in the fescue turf to thin as well as increasing moisture retention at the turf base. The combination of thinning and moisture retention being ideal for moss ingress. Short-term treatment to remove the moss will be required but the longer-term solution must involve additional tree removal.



Moss ingress is a problem to the 7th green due to shade.

Judging by the botanical purity, strength of grass cover and playing qualities to the greens, the grow in and early establishment of the greens has been an overwhelming success. Excellent greenkeeping practices combined with sensible early playing schedules have been implemented to favour the development and maturation of the fine fescue. You are now reaping the rewards. The small populations of annual meadow-grass noted in the greens last year have largely been eliminated.

Going forward, all maintenance operations must centre on the retention of botanical purity at the same time as creating the desirable playing qualities for routine play.

PLAYING QUALITIES

Our new approach to the assessment of golf greens aims to measure the playing qualities and compare them to our ideal. The agronomic recommendations are fully focused on achieving improvement in playing qualities throughout the year. With this approach we can set clear targets and monitor progress towards them to see whether the recommendations are achieving the desired results.

We selected three greens for objective measurements during the visit. The 7th and 16th are consistent with the majority whereas the 17th is considered one of the weaker surfaces along with the 18th. During future visits, these greens will receive objective measurements to assess their playing qualities.

Smoothness/trueness

Our objective in maintaining the greens is to provide surfaces which are smooth and true for putting for as long as possible throughout the year. We are aiming to create surfaces that do not deflect the ball from its intended path (cause "snaking") or stand it up to kill its momentum (cause "bobbling"). At The Renaissance we want high quality and consistent ball roll throughout the year.

To provide a quick and easy assessment of the surface smoothness/trueness on a daily or weekly basis we have developed the following rating scale. This scale allows the smoothness to be accurately and critically reviewed on a regular basis to determine the standards that are being set and help direct the surface preparations to achieve the desired results. The greens at Renaissance were rated in the following way.

STRI Smoothness Scale		
Scale	Description of smoothness/trueness	Example greens
10	No chatter or snaking. Perfect roll.	
9		SUMMER IDEAL
8	Smooth, isolated chatter and insignificant snaking.	7, 16
7		17
6	Chatter, isolated bobble and occasional snaking.	
5		
4	Regular bobble, chatter and some snaking.	
3		
2	Bobbling and snaking.	
1		
Chatter = Distinct vertical vibrations discernable but ball does not leave ground. Snaking = Lateral deflection from intended path. Bobble = Distinct vertical movement where ball leaves the ground.		

Ratings of 8's at this time of year are simply fantastic and a clear indication on how good the greens are at present. What makes these ratings even better is the greens had not been mown or refined in anyway before the visit. Therefore, the smoothness ratings given reflect the raw playing qualities of the greens without any maintenance. The 17th was a little less smooth but even this surface was considered to be very good. Although we do need to make it better. Through the main season, the target is to eliminate chatter and all snaking with the ultimate objective of providing a near perfect roll. After mowing the 7th green and then making one pass with the Turf Iron, smoothness ratings were elevated to a rating 9, i.e. our summer ideal. This shows how little maintenance the greens require to provide optimum playing quality due to their botanical purity.

Green speed

The following table details the Stimpmeter readings that were obtained on the day.

STRI Green Speed	
Green N ^o	Stimpmeter Reading
7	8 ft 4 in
16	8 ft 0 in
17	7 ft 11 in

These green speeds were considered to be superb considering the greens had not been mown or refined during the visit. However, to assess the effect of mowing and rolling on green speed these treatments were implemented to the 7th green and green speeds were duly elevated to 9ft 2 in after the operations. This again shows what little maintenance is required to prepare the desirable smoothness and pace to the greens.

In terms of green speed targets, all we want is to provide realistic speeds during the season to bring the greens alive in terms of their excellent contouring without pressurising the turf. As we discussed, speeds of 9 – 9 ft 6 in routinely is the objective with increased pace for important competitions if the weather conditions allow. These should easily be achieved. We also want to provide consistency of pace between the greens with the ideal maximum variance between greens being around the 6-8 inch mark. Research has proven anything below 6-8 inches between greens is imperceptible even to the professional golfer.

Firmness

The firmness of the putting surfaces is crucially important with regards to its receptivity/ball holding, the smoothness and also the year round playability. Our aim is to create very firm surfaces that allows balls from well struck shots taken from the fairway to release, check and roll. Improperly struck shots, or those taken from the rough, should offer much less control and release balls without taking any spin. This interaction between ball and turf is at the very heart of links golf and is absolutely authentic to the design and strategy of the course.

To objectively assess the firmness of the greens, and thus the expected interaction between ball and turf, we used the Clegg Impact Hammer on the selected greens. The results from these tests are given below.

STRI Clegg Hammer Readings	
Green N^o	Clegg Reading
7	130 ± 4.9
16	147 ± 4.0
17	134 ± 3.5

These readings illustrate the beautiful firmness of the surfaces and are consistent with the top end of very firm greens. They are essentially the fiery surfaces required at Renaissance to bring the greens and the course alive. Very firm surfaces like these are very basis of real golf and are what Renaissance is all about. All we need to do is retain these desirable firmness levels by careful ongoing maintenance. We really don't want them to soften and become more receptive at any time in the future.

Interestingly, the plus/minus figure, which illustrates the variability in firmness across the greens, is greater on the 7th green at 4.9. This is probably due to the varying moisture levels beneath this green and the presence of moss (which will further contribute to softening) to the left side of the green because of the influence of the trees. Therefore, to improve the consistency of firmness across the green, the trees to the left should be removed.

Consistency

The ideal is to produce a set of greens that provide consistent playing qualities within each individual green, between each other and offer minimal fluctuation during wet and

dry weather and through each individual season. It is essentially very difficult to be critical regarding the consistency of the greens, as pace, smoothness and firmness is generally beautifully consistent between the greens. What is more, consistency between wet and dry weather patterns is considered to be excellent.

Being hyper critical however the smoothness rating of the 17th green was a little lower due to the weaker nature of this surface. What is more, the consistency of firmness across the 7th green is being compromised by the trees to the left resulting in variable soil moisture levels and the presence of moss at the turf base.

SUMMARY TO PLAYING QUALITIES

The early season playing qualities to the greens were fabulous despite the fact the greens were in their raw and unrefined state. There is no doubt the surfaces were performing to the ideal for the time of year. The challenge is retaining these desirable and high standards through the season and in the future. To ensure this is achieved there are a few agronomic issues that need attention to ensure the quality of the greens are retained if not improved.

AGRONOMIC ISSUES

In this section we discuss the agronomic issues that impact on achieving the ideal playing surface.

Organic Matter Content

Samples were taken to assess the organic matter content through the soil profile beneath the 16th green. This was taken free of charge. The results are tabulated below.

STRI Organic Matter Content	
Loss of Ignition (%)	
	Green 16
0 – 20 mm	4.0
20 - 40 mm	2.0
40 - 60 mm	1.8
60 - 80 mm	1.9

These results show organic matter to be perfectly controlled due to the intensive sand top dressing using the Hugh king sand. Tight control of organic matter is the reason for such excellent firmness and minimal vulnerability to softening in wet periods of weather. This is exactly what we want. It is therefore important to sustain appropriate control of organic matter by regular sand top dressing in the future. The target being to keep organic matter levels within the 4-5% range at 0-20 mm and 2-3% between 20-80 mm. Annual samples should be taken to monitor this situation.

Species Composition

The sward species composition of the greens is simply perfect. Without doubt they are some, if not the, purest set of putting surfaces seen. Fescue makes up approximately 90% of the sward with underlying populations of browntop bent and very occasional annual meadow-grass plants. This botanical purity is the reason for such high quality and consistent playing qualities.

In our last report, we did raise some concern regarding the annual meadow-grass content of some greens and the potential for this to increase under play or inappropriate

maintenance, mainly in the form of overly close mowing. We are however delighted to report this concern has not been realised due to sensible greenkeeping and careful regulation of play. Very minor residual populations of meadow-grass remained present to the right side of 13th due to the influence of shade on this area. More tree removal would therefore be desirable to restore botanical purity to these areas.

Winter moss invasion has been a problem to some greens due to the influence of shade from surrounding trees. This problem was at its worst on the left side of the 7th green. The shade results in both thinner turf and greater moisture retention at the turf base and is the reason for invasion. So, to reduce the influence of moss and to ensure it does not become a perennial trend in the future, additional tree removal to the left side of this green is required.

Sward density and texture

Turf texture was tightly textured, beautifully uniform and excellently refined even without being cut or prepared in anyway before the visit. The evenness of texture was slightly less good on the 17th green and accounted for the lower smoothness scores on this green compared to the other surfaces tested.

Disease activity

The greens did receive some dollar spot at the end of last season but pleasingly this only superficially damaged the turf meaning the sward quickly recovered once the weather changed.

Through the winter, an attack of fusarium patch disease affected the turf but once again this was superficial and the small amount of scarring present quickly recovered. To combat disease incidences in the future, more regular applications of iron sulphate should be made through the autumn to early spring period along with appropriate nutritional inputs.

Some superficial fairy ring has affected certain greens, e.g. 2, 10, 11 and 15. The affected areas have been plugged out and replaced with fresh soil/turf.

Dry patch

Due to the sandy nature of the soil and the contoured nature of the greens accurate water management is essential to provide uniform moisture levels across the profiles. To help in this regard, and ensure water inputs are minimised and surface firmness is optimised, we feel the application of a high quality liquid wetting agent is essential. While you currently use Osprey, we feel better results would be obtained with a product using different technology such as Revolution. This is very successful at other links courses we visit.

Shading

This continues to be an issue to several greens most notably the 7th and 13th. To these greens moss and annual meadow-grass is more prevalent in the sward. Therefore, further tree removal is required to alleviate these problems. The tree removal work to the rear and right of the 2nd green has delivered dramatic improvements to light penetration and airflow across this green. We just need more of the same on the remaining shady greens.



DISCUSSION

So, the playing quality and agronomic condition of the putting surfaces are superb. They are quite frankly some of the best and botanically purest greens ever seen. The playing quality measurements obtained during the visit (without any surface preparations) being proof. Excellent greenkeeping through the establishment and last year being responsible for such quality. The challenge and of course aim of future maintenance must be to retain these high standards as well as improving the areas of weakness described in this report. In summary, the major areas for attention to the greens are as follows...

- Improve the quality and thus consistency of the 8th, 17th and 18th in line with the other greens on the course.
- Sustain regular top dressing to optimise surface firmness, smoothness and manage organic matter accumulation.
- Use a high quality liquid wetting agent to optimise even moisture penetration and minimise applications of irrigation.
- Remove trees to the left of 7 and right of 13 to improve light and airflow and help remove moss and annual meadow-grass from the respective greens.
- Manage disease activity with iron sulphate, appropriate nutritional inputs and fungicide if necessary.

The following recommendations are made with these objectives in mind.

CONFIRMATION OF MAINTENANCE RECOMMENDATIONS

1) Top dressing

Two applications of sand top dressing were made before the visit. These smoothed the surfaces nicely. Regular light applications are all that are required to retain smoothness and manage organic matter accumulation at the turf base. More

frequent applications will be required on the 8th, 17th and 18th to optimise the smoothness of these weaker greens.

2) Weaker greens

More intensive refinement operations will be required on these surfaces to improve their playing qualities in line with the other greens. We don't need to be prescriptive here, just monitor playing qualities (i.e. ball roll) and implement the appropriate maintenance accordingly.

3) Wetting agent

You are currently using Osprey which is satisfactory but it was felt better results would be obtained with the use of a higher quality product with improved technology, e.g. Revolution from Aquatrols. This product holds less water around individual soil particles and therefore requires lower irrigation inputs to deliver the same moistening as well as helping to provide drier and firmer greens. It also has other physiological benefits but only if applied at the recommended rate of 19-20l/ha. These applications should have started by now and be made on a monthly basis through until September.

4) Tree removal

Formulate plans to remove/thin more trees to the left of 7 and take the tree line down the hill to the right of 13.

5) Overseeding

Ensure all the greens are overseeded with fescue during the late summer/early autumn. The weaker greens should receive an additional couple of operations to improve the botanical quality of these surfaces.

6) Disease control

Appropriate nutrition to provide a strong and healthy turf will help keep disease (especially dollar spot) at bay. In addition, ensure regular applications of iron sulphate are made through the autumn and winter months. If disease does attack and weather conditions are conducive to a virulent attack consider an application of fungicide.

III TEES, GREEN SURROUNDS & APPROACHES

These surfaces are generally beautiful in terms of turf texture, botanical quality and presentation. The combination of these desirable agronomic factors is resulting in excellently authentic surfaces. There is no doubt the quality of the tees would pass as greens at many courses we visit.

The main areas for attention are the presence of coarse perennial ryegrass patches (e.g. rear of 2, left of 3, rear of 11 and front of 17), which does somewhat detract from the purity and crispness of lie. To remove this contaminant, we eagerly await the pending approval of the selective graminicide from Syngenta. Once this is approved we can start treating these areas to restore purity.

The 2nd approach is really the only other area of weakness. The low area in front of the green holds water and supports weaker grass cover. This should therefore be raised as part of the winter programme.



The teeing platforms are superb and could easily be greens.

IV FAIRWAYS

The fairways are generally in excellent order and supporting beautifully tight and consistent lies for clean/crisp ball striking. Mowing at 12 mm and verticutting to remove stalky growth is being achieved to optimise routine playing qualities.



Dry patch and drought stress to the fairways is a concern.

While the fairways are generally excellent, we do have some significant concerns regarding their condition. The main issue being the presence of dry patch and drought stress to many areas. A wetting agent has been applied at low rate to combat this problem. But, due to the extent of the problem, we feel additional action is required to minimise the chances of grass cover loss if we have a dry summer. Therefore, intensify wetting agent applications to monthly operations over the next 3-4 months and ideally use a high quality product. The best and ideal would be the Revolution but this may be beyond the budget so alternatively use the Osprey or Despatch, which is specifically formulated

for fairways. In addition to these wetting agent applications, renovation programmes need to be formulated and budgeted for to restore grass cover during the autumn months.

In addition to this, the very sandy nature of the 14th fairway continues to result in drought stress and weak growth. To combat and improve this problem requires continued top dressing with an organic material such as fensoil or even an appropriate compost material. The Greenwaste product from Rigby Taylor is especially good in this regard and will be significantly cheaper and more environmentally friendly compared to the fensoil.

V ROUGH

The rough has matured beautifully over the past 12 months. Authentic links grasslands have been produced which are visually stunning. These still however require ongoing management to improve them further in terms of botanical quality and texture.



There have been significant amounts of woodland management this winter. The most dramatic work being the work around the 2nd hole. More of this work is required to

improve light and airflow to the greens as well as improving the authenticity of the site in general.

VII PATHWAYS

There is some work to do in order to improve the quality of the pathways across certain parts of the course. The most notable areas being the 2nd and 11th, both of which are rather scruffy. These will therefore be the focus of winter work involving replacement of sandy soil with better quality material, irrigation installation and reurfing with a high quality fescue/bent mix.

VIII BUNKERS

These remain the weak point not in terms of preparation of playing quality but rather from a visual perspective. They just don't provide much of a statement. The bunkers should provide a talking point in terms of their styling but don't need to be consistent across the course. This means you could have more naturalised bunkers to some holes (e.g. 11, 12, 13 etc) and more formal bunkers to other areas (especially the front nine). Therefore, consider this important issue over the summer with a view to starting concerted bunker remodelling and construction through the winter.



Signed

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