

# Sustainable Golf Course Management Project



SCOTTISH GOLF UNION



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WORKING FOR GOLF



## Cochrane Castle Golf Club

**A golf course is only as good as the sum of its parts**



Cochrane Castle Golf Club was founded in 1895. The course, of 18 holes, is situated on the outskirts of Johnstone, Renfrewshire. The elevated part of the course is hillside in character while the lower part of the course (holes 13-18) is more parkland in nature. In the 70's and 80's extensive tree planting took place to give separation between the fairways and to add to the golfing interest. The course is bordered on its eastern boundary by a whinstone quarry. Historically the course was free-draining and the club enjoyed a reputation for its infrequent use of temporary greens and for being open for play when neighbouring courses

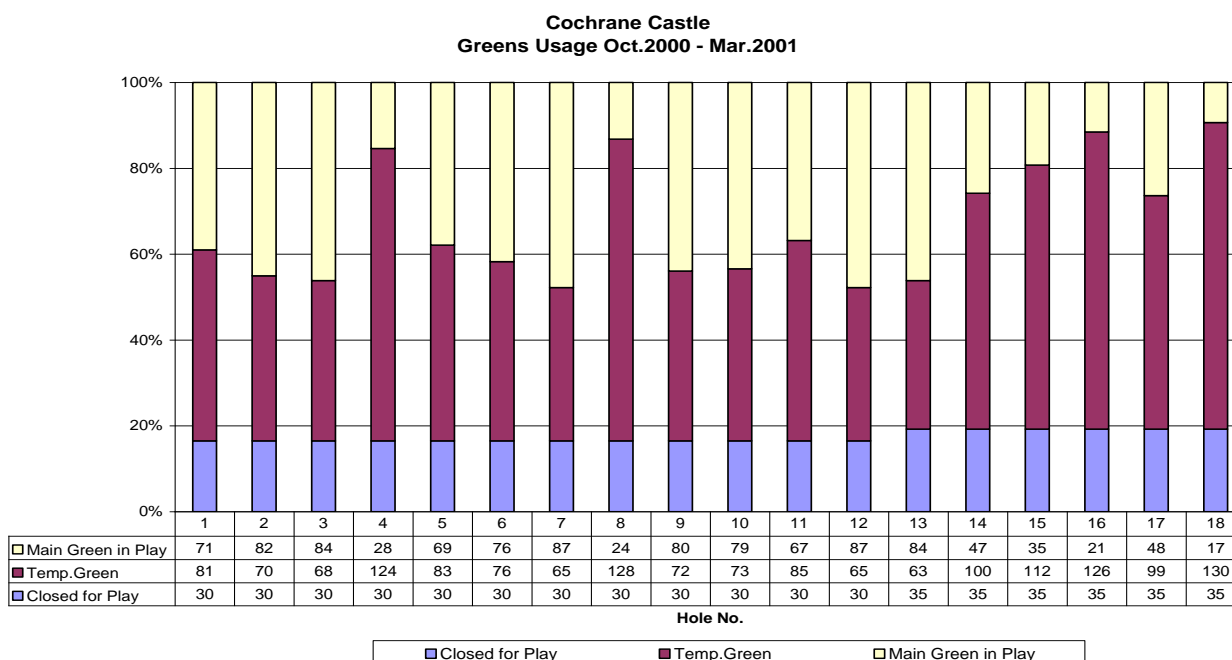
were closed. With the advent of what is popularly termed 'climatic change', with associated increased rainfall – of particular relevance in the West of Scotland - the situation changed for the worse with a dramatic increase in the use of temporary or 'winter' greens and course closure.

The members were clearly not satisfied with this reduction in playability as demonstrated by a club minute, *"The Green Convener was congratulated on his tact and diplomacy in dealing with the Members' ire following closure of the course over two successive weekends."*

In an attempt to reduce the incidence of such problems, increased levels of aeration were employed together with other established 'good practices' but it soon became obvious that more drastic measures were necessary to bring about the required improvement

### The Challenge

- The first step was to understand the problem and the problem areas. Records of course closure and incidence of use of temporary greens were studied and provided valuable information as can be seen on the following chart:



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- It was resolved that project work was required on:
  - the greens, particularly holes 4, 8, and 14 to 18.
  - drainage work to eliminate the flooding problems that were the main causes of course closure especially on holes 13 to 18 i.e. lower lying parts of the course.
- It was necessary to address the problems as a package on the basis that a course is 'only as good as the sum of its parts'. There must be no 'weak links'.

## The Solutions

### Greens

- In the first instance to avoid wholesale green re-construction (not financially viable) all greens were subjected to aggressive scarification using a Graden pedestrian machine to 'dig out' accumulated thatch followed by Drill 'n' Fill aeration. This hired machine was used to drill, extract, aerate and backfill - all in one action - a series of holes 250 mm deep by 25 mm wide at 100 mm centres. The backfill material was a 50:50 mix of sand and an inert soil amendment with moisture absorbent properties. Holes 1, 4 and 15 were re-treated at a later date. This treatment 'saved' all greens except 8, 13 and 18 from the need for total re-construction.
- Greens 8, 13 and 18 due to their continued poor performance were re-constructed to USGA Recommendations using a 70:30 sand:loam rootzone. The original turf was stripped and re-laid to provide putting surfaces that matched the playing characteristics of the existing greens.



### Fairways

There were three separate problems affecting fairway drainage and course playability:

- Water from the adjacent whinstone quarry is discharged through the golf course via a burn before entering an underground culvert. Any blockage of the culvert in periods of high rainfall results in extensive flooding of the bottom part of the course. Consultation with SEPA resulted in stricter enforcement of the quarry's discharge consent. Measures to prevent blockage included installation of grilles and inspection chambers at strategic positions along the burn to the point where it entered the culvert.
- Extensive tree planting in previous decades (sometimes with inappropriate species) resulted in widespread blockage of field drains with a mass of tree roots breaking into drains seeking water. Replacement pipe drainage was required in such positions and installation was labour intensive.
- High rainfall, over time, encouraged the build up of thick thatch on lower lying fairways which acted like a sponge and prevented the passage of water through the soil and into the existing field drains. This resulted in soft, spongy fairways with areas of stagnant standing water providing, at best, unpleasant golfing conditions and at worst, course closure. Extensive pipe drainage was installed at the six worst affected holes in a phased programme. This drainage system has subsequently been supplemented by the incorporation of gravel banding.

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## The Outcomes

### ***Golfing Benefits***

- Temporary or 'winter' greens are now only required in times of frost. This effectively extends the 'playing season' resulting in better value for club membership.
- In periods of extreme rainfall, flooding continues to occasion course closure. There is a big difference, however. In a matter of a few hours, rather than days as in the past, the water drains away to leave very acceptable playing conditions – and stagnant water is a thing of the past.
- In addition to greatly improved drainage, the greens are firm and consistent throughout the course and there has been a marked increase in the proportion of the finer bent grasses resulting in smoother putting surfaces. It has been possible to increase green speed without putting the turf under stress.
- Qualifying Competitions are played throughout the year, unlike many neighbouring clubs where competitions are restricted to the period March-October.

### ***Economic Benefits***

- Pursuing the policy of playing the 'full course' throughout the year has made it easier for the club to retain existing members and attract new members in difficult economic circumstances.
- Visitor income has been maintained.

### ***Environmental Benefits***

- The proportion of bent grass on the greens has increased at the expense of annual meadow-grass and the club is steadily climbing the sustainability ladder.
- Due to an improved rootzone structure and deeper rooting there is minimal need to apply water even in periods of sustained dry weather.
- There is a significantly reduced requirement to apply pesticides.

### ***Success Criteria***

- Prudent financial management that has allowed significant projects to be financed out of club reserve funds. This is partly attributable to a decision made by the club a number of years ago to increase ordinary membership from 400 to 425 with the additional fees being 'ring fenced' for use in development projects.
- A dedicated Course Manager with a sound practical understanding of the course and its problems/characteristics.
- Successive club committees committed to taking whatever steps necessary to pursue, as far as reasonably practical, a policy designed to allow 'traditional' golf to be played throughout the year.

### ***What Next?***

- Accepting the constraints imposed by the vagaries of the weather, to continue to promote year round 'traditional' golf.
- To attempt continued upward movement on the sustainability ladder in terms of green smoothness, firmness and species composition.
- To extend the frequency of aeration and top dressing to green surrounds.