

Dunfermline Golf Club  
Course Report October 2017

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# Dunfermline Golf Club

## Report of visit of 23<sup>rd</sup> October 2017

Those present were Jock McNeil, Kenny Duncan and Paul Miller; a discussion was held initially at the greenkeeping compound and then in the clubhouse about various aspects of the course including how wet it was given the wet September and early October. Kenny Duncan has rainfall figures for the last 6 years or so, with 2017 being projected to be among the wettest of these. This brought into discussion the drainage of the golf course, both formal piped drainage and informal 'natural' drainage, and the need to ensure that maintenance practices are focussed on keeping greens in particular as dry as can be managed. A tour was then made of the golf course looking at the 2<sup>nd</sup>, 4<sup>th</sup>, 7<sup>th</sup>, 9<sup>th</sup>, 11<sup>th</sup>, 14<sup>th</sup> and 17<sup>th</sup> greens and the putting green, these being greens that had been discussed in May as being representative examples, or as being a little weaker than others.

### Condition of Greens

In my visit of May 2017 we had identified a high organic matter content in the upper 25mm of the soil profile, coupled with a compacted layer at 40 – 150mm, and recommended continuing with a programme designed to reduce that organic matter and relieve the compaction.

## Greens – Soil Profiles

During this visit soil profiles were examined on all the greens that we looked at; profiles look very much as they did in May; photographs of the 2<sup>nd</sup>, 11<sup>th</sup> and 17<sup>th</sup> are shown in figure 1 a – c respectively.



Figure 1 a, b, and c (top to bottom) Profiles of the 2<sup>nd</sup>, 11<sup>th</sup> and 17<sup>th</sup> greens.

The surface layer (25mm or so high in organic matter) in all instances was saturated, given the organic matter and the recent wet weather; indeed there had been rain the night before my visit. Cooler temperatures and shorter day length at this time of year means that moisture is not lost from the surface via evapotranspiration at the same rate as it is in summer, so the need for water to pass unimpeded through the soil profile is further highlighted. This saturated organic matter means that the greens were soft, again this highlights the need to further reduce the organic matter content and work on the compaction in the profile, all these actions designed to allow water to move quickly through the profile to be replaced by air. In my May 2017 report I recommended working to reduce the organic matter and to work on the compaction, and this recommendation is being followed. The most recent action designed to address the organic matter has been a treatment with the Graden sand injector system in the week of 16<sup>th</sup> October. This treatment removes the water-holding organic matter and replaces it with free-draining dried sand to a maximum depth of 40mm. This is an

aggressive operation and the scars left are not insignificant, however if done sufficiently early in the year while soil temperatures are still high enough to facilitate recovery then these scars disappear quite quickly. (Soil temperatures need to be above 5°C for growth – currently they are at 8-10°C<sup>1</sup> and so the greens at Pitfirrane should make a full recovery prior to winter). With the Graden operating to 40mm maximum depth and a compaction layer below that it is important therefore to relieve that compaction and allow water to disperse through the profile once it has found its way into the channels of sand created by the Graden. Relieving the compaction facilitates this water movement and to that end the greenkeeping team have over the summer worked to pursue that objective with two rounds of treatment with the Air2G2 system. This is a compressed air injector that breaks compaction in the soil layers targeted, and it is my judgement that the compaction is less intense than it was in May, but that there is work still to be done. Kenny Duncan is planning a further round with the Vertidrain week commencing 30<sup>th</sup> October (weather and ground conditions permitting) in order to further work on this compaction.

I am pleased to see the issues of organic matter and compaction being addressed vigorously and I look forward to seeing improved conditions as this programme progresses. It must be emphasised that it will take 2 or 3 years of a consistent approach to bring significant and sustainable improvement, and then maintenance of the soil profile through an on-going programme consisting of the same elements but perhaps on a reduced frequency and intensity, depending upon conditions at that time.

## **Greens – Surfaces**

As mentioned previously the greens were showing the scars of the Graden work however they will recover before the winter; other than this they have a full cover of grass. In terms of the visual parameters of colour and density the greens are very much in an 'end of season' condition and the different grasses are showing themselves as areas of darker (bentgrass) or

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<sup>1</sup> See <https://www.greencast.co.uk/service/live-disease-map> and search for soil temperature.

lighter (*Poa annua*) shades of green. This is what we would expect at this time of the year as the nutrition applied via the summer fertiliser programme is diminishing from the soil. Kenny is planning to apply the autumn fertiliser within the next couple of weeks and this will give the greens a lift and will help prepare them for winter. When these colour differences occur within areas of turf it is revealing as it shows the areas that are stronger and those that are less so. For example, the right hand side of the 17<sup>th</sup> is dominated by *Poa annua*, and when we walked on this area we found it to be wetter and softer than the right side. In other words there is a correlation between the growing conditions and the species occupying that area, and our job is to improve the growing conditions in general, and in the wetter areas in particular, with the objective of increasing the percentages of bentgrass - this is what the organic matter reduction and aeration work is aiming to do.

On the more functional quality parameters of smoothness, trueness and firmness it wasn't really possible to make a meaningful judgement about that on this occasion. The Graden work had disrupted the surfaces and the wet weather had prevented access to mow the greens. A subjective judgement (as referred to above) is that the greens were soft, which will lead them to be less smooth than they could be, however a good autumn routine of mowing, application of autumn fertiliser and perhaps a light topdressing will keep them playable for as long as possible into the winter, and if some dry weather comes along that will help considerably.

### **Greens – Objectives for the Winter**

It is my view that the objectives for the next month to six weeks will be to prepare the greens for winter and to send them into the darkest and coldest months in as good condition as possible. To this end Kenny Duncan has a plan for autumn work including the following elements:

- Verti-drain all greens when dry enough to gain access, ideally week commencing 30<sup>th</sup> October 2017.
- Apply autumn / winter fertiliser ideally week commencing 6<sup>th</sup> November 2017.
- Raise height and reduce frequency of cut to enable the plant to make the most of the available light via photosynthesis in order to lay down some reserves for winter.
- Apply a light topdressing ideally of the same sand as used in the Graden, although it doesn't need to be kiln dried for topdressing.
- Aerate as frequently as possible through the winter with either a pencil tine or a slitter. This will ensure that water is encouraged to move through the surface and into the soil below, and will allow gaseous exchange from the soil to the atmosphere.

When I visited in May we identified some specific greens that are a little more vulnerable than others to loss of condition over the winter. These include the 2<sup>nd</sup>, which was damaged by disease through the centre of the green, the 4<sup>th</sup>, which is out of the ordinary at Pitfirrane in that it has two if not three distinct construction types within it, and the 11<sup>th</sup>, which seems to suffer more than other greens with water coming onto it and with it lying wet more frequently and for longer periods than other greens. Following this visit I think we can add to that the right hand side of the 17<sup>th</sup> green and perhaps also other areas that we didn't specifically visit on this occasion. My feeling is that we need to be prepared to make extra provision to protect these areas, and I'd recommend the following.

The autumn winter fertiliser recommended by Aitkens is a T-Plex 3:0:6, with an application of Rocastem 0:0:15 in March. Given that the Aitkens analysis (February 2016) showed levels of potassium (K) to be low my recommendation would be to include a further application of Rocastem 0:0:15 as part of the autumn fertiliser programme. Alternatively the TX 5:1:20 (also available from the Terralift range) would be suitable product to provide that extra potassium, used as single application to replace the the 3:0:6 and the Rocastem.

In addition to paying attention to autumn nutrition my recommendation is to monitor carefully for disease and be prepared to treat as required. The likelihood of disease can be

monitored through e.g. the Greencast website<sup>2</sup> which monitors environmental conditions and provides an indicator of current disease pressure. Whilst this is an indicator there are also of course local factors, which in my opinion would include what appears to be vulnerability of the greens mentioned at the start of this section i.e. the 2<sup>nd</sup>, 4<sup>th</sup>, 11<sup>th</sup> and 17<sup>th</sup>. High disease pressure as indicated by Greencast and the experience and instincts of the greenkeeping team might necessitate the application of a preventative fungicide to all greens, whilst frequent observation of greens condition and monitoring for early signs of fungal activity on the vulnerable greens may require a curative fungicide to be applied to those areas showing symptoms. In short, a pro-active and attentive approach is required to do all that is possible in preventing greens succumbing to fungal disease.

## Looking Ahead

Although the priority at this stage is to prepare for winter it is also worth looking ahead to next season and to plan the approach for 2018. A number of things were raised during my visit and are discussed below.

## Spring Fertilisers

The desire is for growth to pick up as early as possible in spring, and in common with many clubs in the east of Scotland Dunfermline Golf Club finds that growth can be slow to commence. As mentioned above plant growth is dependant upon soil temperature and dry soils warm up more readily than wet soils giving us a further reason to keep soils as dry as possible. In terms of fertilisers there are a number of products on the market that claim to initiate growth early, but it is my view that there is no 'magic bullet' that can overcome the laws of nature. In any case the use of a quick-release fertiliser at the first signs of growth will allow as early a response as possible, and so this is recommended. We discussed setting up

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<sup>2</sup> See <https://www.greencast.co.uk/service/live-disease-map> and search for Fusarium and Anthracnose

a small scale trial, perhaps using the putting and chipping greens, in which a couple of products can be used in an attempt to initiate early growth, set against a 'doing nothing' scenario. This would also allow members and visitors to see the variety of response that can be obtained from a 'product based' approach. We can give more attention to this and make a plan over the winter.

### **Soil Temperatures and Moisture Content**

I personally would be very keen to obtain more data about the golf course, which will be useful to help understand what is happening in the turf, and will also allow communication with members about the golf course. For example, I'd be keen that soil temperature and moisture content information are gathered on a weekly basis for three representative greens, as well as air temperature (maximum and minimum daily). The Pogo Turf Pro measures both soil temperature and soil moisture and it would take no longer than half an hour per week to gather that data. This is just a suggestion but this might be a task for which responsibility could be given to a member of the greenkeeping team other than Kenny, unless he specifically wanted more work to do! The air temperature data is very useful for constructing a picture of when spring growth is likely to commence, using a model of 'Growth Degree Days' created by Mark Hunt of Headland Amenity. If the Club would be prepared to collect that data I am more than happy to create an appropriate spread sheet and to set up a 'Dropbox' account such that we can share it; I shall also collate and present the data and support the Club in terms of communicating these initiatives through the Newsletter. It would make great sense to start this as soon as possible and get into routine so that from January 1<sup>st</sup> 2018 we are in the routine and comfortable with how this initiative would work.

### **Wetting Agents**

We discussed the use of wetting agents at Pitfirrane, which have been in use but which Kenny is not convinced are of value. There are two types of wetting agent, those designed to hold on to water in a dry rootzone or soil, and those designed to reduce surface tension

and allow even distribution and dispersal of water throughout a soil. It is my feeling that the second type have a part to play at Pitfirrane, inasmuch as one of our major objectives is to have water disperse evenly through the soil including downwards and through the profile. These compounds also allow water to penetrate evenly into drier areas that might otherwise become stressed. It is my hunch that the right hand side of the 7<sup>th</sup> green is such an area, and that a combination of our organic matter reduction and aeration programme, in combination with appropriate use of wetting agents, could bring benefits specifically to areas like this as well as to the turf generally. It might sound counter-intuitive to think that we would use wetting agents in a moisture-retentive soil, but I am specifically thinking about the penetrant types rather than those that retain water. I'd like to give further thought and have further discussion about this with a view to incorporating it into the programme for 2018 and beyond.

### **Bunker Sand**

Bunker sand came under discussion with Jock McNeil saying that he had been impressed with the bunker sand LV30 in use at Spey Valley and with Hugh King No. 7 (at The Burgess?). As the winter bunker work continues I am happy to speak with suppliers about the particle size distribution and properties of various bunker sands on behalf of the Club.

### **Drainage**

The wetness of the golf course was discussed with speculation about the overall water levels in the ground around Pitfirrane with reference to abandoned mine workings even some distance away. Other issues arise with consideration of drainage, including the way water enters and exits the 11<sup>th</sup> green, the potential for tree roots to have damaged and blocked existing pipes, for example to the right of the 17<sup>th</sup> green, and the potential for drainage issues to arise in the area of the 14<sup>th</sup> green if a new housing development takes place nearby. It is beyond my professional competence to support the Club with drainage issues in anything other than a superficial way, however I do believe the Club is faced with a decision about

whether to specifically engage a drainage consultant at some point within the coming months or couple of years.

## **Conclusion**

I am pleased to see a committed approach to the organic matter reduction and aeration programme, and look forward to the benefits that this will bring. Of immediate concern is preparation of the golf course for winter, although I believe that the Kenny Duncan and the team have a good plan and will work to implement it. A minor departure that I would suggest is to look specifically at a higher potassium input than afforded by the 3:0:6 autumn fertiliser. Disease pressure will rise as we enter winter and Kenny and the team need to be vigilant to this and act to try and minimise any damage that could occur. I'd recommend regular data gathering and making reference to e.g. Greencast as modern management tools which enable a greater understanding of the biology of what is happening, as well as facilitating enhanced communication with the membership.

Paul Miller

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