

Agronomy Report on the Golf Course

STRI

Withington Golf Club

Report Date: 17 October 2011

Consultant: Emma Beggs



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Report Title	Agronomy Report on the Golf Course
Sports Facility Name	Withington Golf Club
Date of Visit	Monday 10 October 2011
Visit Objective	To assess course condition and offer recommendations to support further improvement in year round condition
Present	Mr Steve Kelsall – Chairman of Green Committee Mr John Cragg – Green Committee Member Mr Brian Fleetwood – Club Member Mr Gary Higgins – Head Greenkeeper Mrs Emma Beggs – Turfgrass Agronomist, STRI

Review

STRI were invited to carry out a course appraisal and offer advice in relation to the ongoing maintenance programme. A decision was made to alter the timing of the visit this year to allow an assessment to be carried out under different weather and ground conditions. All matters arising are confirmed below.

I am delighted to hear that the course has performed well this season although the recent period of wet weather has influenced course condition with wetter, softer surfaces being experienced across the course earlier in the year than normal.

Winter project work last year was influenced by the difficult weather conditions. The early arrival of ice and snow followed by a period of extended snow cover reduced the amount of work which could be completed. I am pleased to hear that the 2nd main teeing platform was enlarged. Flood reduction work as identified by the Environment Agency was also completed. There was extensive tree removal including an area to the left hand side of the 2nd fairway to facilitate the development of a practice area in the future. Further tree work was also carried out on the course including trees adjacent to the 18th fairway. The back of the 4th green was reshaped and returfed to provide a more mowable contour and a sump was introduced to assist drainage.

Investment has been made in expanding the range of machinery available with the purchase of two tractors, a fairway Sisis Maxi Slit Slitter as well as two additional greens machines to facilitate a greater amount of work on greens, (e.g. verticutting and rolling) as well as providing additional back up to the main unit. A new tractor mounted sprayer has also been purchased.

Unfortunately due to long term illness staffing levels have been reduced to four greenkeepers since the summer. This has restricted the amount of work completed on the course during the late summer and autumn period.

Greens

Conditions Found & General Comments

Spring weather patterns slowed course recovery with dry conditions hampered by high day time and cold night time temperatures. Grass growth is always slow to recover under these conditions and I understand that greens here did take longer to recover this spring.

Drainage work on the wettest two greens was completed last autumn using the drill and fill technique with both the 4th and 18th greens treated. I understand that this has been reasonably successful in improving surface drainage with the greens being firmer and drier following wet spells than was the case previously.

A decision was taken to continue to top dress greens with pure sand and I understand that in the region of 70 tonnes of sand has been applied to the greens this season.

Maintenance week during August went ahead successfully with Verti-draining completed and good recovery being achieved at that time.

I am delighted the greens have been consistent from surface to surface this season and in addition greens have reportedly been firm, well paced and true throughout the main playing season.



Photograph 1 – View of 1st green showing typical surface conditions found on the day.

The annual meadow-grass component of turf surfaces was noted to be particularly weak for this stage of the season. This was visible on the 1st green where annual meadow-grass dominates the surface. The weaker annual meadow-grass was masked more effectively where bentgrass composition was greater as noted on the excellent 10th, 14th and 18th greens. It is important to try and develop stronger healthier annual meadow-grass plants and I hope that the adjustments recommended for the fertiliser programme will assist in this during next season. In addition we need to continue to overseed the weaker greens with bentgrass to further increase bentgrass composition on greens where annual meadow-grass dominates.

In addition fusarium patch disease activity has been aggressive and widespread since mid September with warm wet days and persistent cloud favouring high levels of disease across this part of the country. Not surprisingly scarring was noted to be quite widespread as seen at the 1st, 2nd, 4th, 6th and 15th greens. Fortunately grass growth remains reasonably strong at present and the scars caused by recent disease outbreaks were already showing signs of good recovery.

An immediate application of iron was recommended during the site visit to help check disease activity, harden the turf off and improve the visual presentation of all putting surfaces. As recommended in previous report it is hoped that iron can be applied on a monthly basis year round.

Through the top 75-100 mm soil profile conditions were reasonable, however the two wet summers (2010 and 2011) have seen some accumulation of organic matter through the base of the turf. Whilst sand top dressing was noted to be well mixed through this organic material it was still holding more water than we would like. Having a greater organic matter content within upper soil profiles will favour greater water retention, increased softness following rain and the potential for greater levels of disease activity. It is therefore recommended that we actively reduce organic matter content over the next twelve months through the addition of extra hollow coring treatments and ensuring that sand top dressing inputs are further increased during the 2012 growing season.



It is at depths beneath the unreconstructed greens that heavy clay severely impedes rooting and water movement and ultimately controls surface performance – particularly drainage. Photograph 2 shows a soil profile taken from the 4th green which clearly indicates the dense, solid impenetrable clay found relatively close to the surface. Hence, as in previous reports, it is recommended that the club have plans to pipe drain the wettest greens in the future to ensure that water is connected to a positive outfall regardless of the infiltration rates of soils and materials beneath these original greens.

Photograph 2 soil profile taken from 4th green showing heavy clay soil impeding drainage.

Recommendations

Iron & Seaweed Inputs

We recommend that you make monthly applications of both sulphate of iron and seaweed products which contain no hidden nitrogen. It is recommended that these be applied from now on scheduling applications on a year round basis. Sulphate of iron and seaweed will both help to improve turf condition without promoting excessive growth.

Fertiliser Programme

We propose that you keep the fertiliser programme simple and cost effective. I have outlined appropriate fertiliser programmes in previous reports. It is recommended that you move away from the 16:4:8 (N:P:K) mini granular fertiliser product which has been used this year. This contains too much nitrogen and applications of this will result in significant growth resulting in slower greens, increased thatch accumulation, will favour annual meadow-grass turf and potentially increase the likelihood of disease activity. As you have seen recently when you try and apply one of these products at a lower rate you tend to get spotting as there is insufficient product coverage to maintain uniformity.

Aim to apply around 8 g of nitrogen per m² in total between the months of March and September. In March start off with a low nitrogen turf tonic of analysis 4:0:4 plus 4% Fe mini granular product widely available on the market.

Make two further fertiliser applications using a traditional 8:0:0 mini granular product scheduling applications for example in May and mid July. The exact timing of application will of course depend on growth, fixture list and weather conditions.

In early September repeat the application of the low nitrogen 4:0:4 plus 4% Fe product.

Application rates of 35 g/m² should be used each time to ensure even spread and uniformity of growth.

It is recommended that you use liquid fertiliser products if we enter an extended period of dry weather.

In my last report I recommended that soil tests be carried out to ensure that we could fine tune the fertiliser programme depending on soil testing results. We have not received any samples in the laboratories as of yet. It is recommended that you submit samples from beneath five or so greens for routine pH, P & K analysis. Please find enclosed a leaflet detailing collecting and sending in of samples for chemical analysis. Current testing costs £24.00. Samples should be marked for the attention of Mr Michael Baines, Laboratory Manager, STRI, St Ives Estate, Bingley, West Yorkshire, BD16 1AU.

Disease Management

Make an immediate application of a strobilurin fungicide as discussed on site during the visit. In my last report I recommended a mid September application of a strobilurin fungicide as we know that a preventative application at this time tends to significantly reduce the potential for aggressive fusarium patch disease activity during the autumn and early winter months. Certainly next year apply one of these products in mid September, hopefully ahead of any periods of high disease pressure. This really is a key fungicide application and if timed appropriately can work extremely well at reducing the potential for aggressive scarring through the autumn and winter months.

At this time of year with growth continuing a contact fungicide will immediately check an outbreak of disease activity but will only persist until the next mowing. Mowing will actually remove the treated part of the leaf removing the protection afforded by a contact fungicide. So when you are still mowing regularly and disease occurs in autumn we recommend that you employ a product which contains both a contact element to check the outbreak immediately but also a systemic active ingredient to be taken into the still growing plant and provide some level of protection longer term. Combined contact and systemic fungicides on the market currently include Instrata by Syngenta and Fusion by Rigby Taylor.

In early December look to make an application of the new contact+ fungicide Medallion TL by Syngenta which should afford some good protection through into the start of the New Year. Continue to keep a contact fungicide such as Chipco or Rayzor in stock for spraying during the winter months to check any outbreaks of disease effectively but at a time when growth has slowed.

Ensure that all spraying is carried out strictly in accordance with manufacturer's instructions and current regulations following completion of a COSHH Assessment.

Rolling

To further improve playing quality next season it is recommended that you increase the amount of rolling completed on greens. Please find enclosed an article by colleague Mr Alistair Beggs which provides some additional information on the benefits of rolling more frequently. Staffing levels will need to be increased to facilitate more greens treatments, however it is hoped that it will be possible to introduce rolling a minimum of once per week ideally on a Friday in preparation for weekend competitions. We would also recommend that you use rolling to replace mowing once per week during the main season. Identify the quietest day of the week and omit cutting but carry out rolling instead. This is extremely useful in reducing stress on the turf but without compromising the quality of surfaces. Indeed there are clubs that are now alternating rolling with mowing day to day and undoubtedly turf health has improved as a result.

Aeration 2011/12

- Continue with the excellent slitting work that has already started aiming to make one pass every three weeks or so until ground conditions become too soft.
- Next February/March resume slim solid tining on a monthly basis carrying this right through until October.
- Sarel rolling or star slitting should be carried out on a weekly basis from March through until the end of the summer to help keep surfaces open and receptive to rain or irrigation water.

- Micro hollow core with 8mm diameter tines all greens in May when strong growth has resumed and good recovery can be relied upon. This will help to physically remove some of the organic matter noted at the base of the sward.
- Verti-drain with 12 mm diameter tines to full depth and slight heave during August maintenance week.
- Hollow core with 10-12mm diameter tines in conjunction with Verti-draining planned for August maintenance week next year. Again this will help to physically remove organic matter noted at the base of the sward.

We did discuss the potential benefits of more aggressive thatch removal work. For the last four or five years spring weather conditions have been dry with unreliable growth hence I would not advise aggressive thatch removal techniques to be employed on these greens during the spring months. In my opinion during the spring we should be perfecting surfaces as quickly as possible after winter play and keeping techniques which cause more surface disturbance for later in the season when good growth can be relied upon and recovery can be swift. The aeration programme set out above if implemented in full should successfully tackle and improve upper profile conditions but without overly compromising playing quality at any time.

August Maintenance Week

It is critical that you continue to set aside a week in August when important work can be carried out and I trust that a maintenance week will be incorporated into the fixture list for next year.

Wetting Agent Programme

These greens have been subject to dry patch on many previous occasions and it is likely that the wet summers over the last couple of years have tended to mask the potential for further dry patch activity. Do budget for four or five applications of wetting agent next year. Start off in March before the start of any dry weather making blanket applications to all greens with a good quality wetting agent product. Always make sure that wetting agent is applied after slim solid tining to help ensure uniform infiltration of applied material. Continue to back up the use of the irrigation system with hand watering of particularly drought prone areas using a tablet form of wetting agent in a hose end diluter. A regular effective wetting agent programme should then help to minimise the potential for dry patch activity should we experience a more typical (drier) summer.

Top Dressing

The aim should be to make light frequent applications of sand particularly through the spring and early summer months to smooth out surfaces, dilute organic matter accumulation at the base of the sward and firm up greens. Aim to apply between 80-100 tonnes of top dressing during the growing season. Certainly ensure that top dressing is carried out following the micro hollow coring and Verti-draining planned for next year to help ensure good surface recovery after this work.

Pipe Drainage

In all likelihood there will come a time when it will be necessary to introduce pipe drainage into the worst draining greens. Greens drainage was covered in detail within the last report and I would

refer you back to that for detail showing our recommendations for installing pipe drainage into existing greens.

One of the key points to observe is that drainage work should start in early autumn so that soils can be worked when they are still relatively dry to minimise loss of soil structure and surface levels during completion of the work. Should you have any further questions relating to this please do not hesitate to come back to me.

Other Points of Discussion

Tees

Please find enclosed at the back of this report a leaflet covering tee reconstruction which provides valuable additional information on how to construct tees. As stated within this leaflet tees have to be of sufficient size to allow effective spread of wear and tear to maintain good quality surfaces. Bearing in mind typical current levels of play the recommendation is to develop 250 m² of men's tees at Par 4 and Par 5 holes and 350 m² on Par 3 holes. Ladies tees should consist of an additional 84 m².

During this visit we looked at a number of tees including those at the 2nd, 10th, 11th, 12th and 15th which clearly show that tee sizes here are significantly smaller than we ideally need. For example the 7th tee was in the region of 60 m², the 15th tee was in the region of 150 m² with a tiny tee located at the back of the 10th.

The club should be looking over time to develop appropriately sized level, firm and well draining tees to spread wear and tear more effectively. The tees should be prioritised in terms of those needing work and then a rolling programme of upgrading one or two tees per year should be embarked upon. I would recommend that you start off with the Par 3 teeing platforms as a priority where sufficient additional space exists to enlarge.

In the short term it is recommended you look to manage and maintain the existing tees more effectively. This way you will get the best use out of existing surfaces. One suggestion is that you use the main tees showing the months of March to October and then look to transfer winter play on to alternate areas. These winter tees can be located either behind or in front of the main tees but the key point is that the winter course should be designed to relocate foot traffic and landing zones to take winter damage away from the main routes/areas of play.

We propose that in late September or early October you look to renovate the main teeing platforms. This work should comprise hollow coring, Verti-draining, overseeding and top dressing followed by a period of rest. This would ensure that the main tees are in optimum condition for the main playing season.

During the summer months it is recommended that you manage play on tees more effectively. Where width permits try to split tees in half and then gradually move the tee markers from front to back and then down the other side taking wear on a circular pattern around the platform. This will mean that divot damaged areas can be filled and repair fully before play comes back to that area.



Photograph 3 – One of the smallest teeing areas which would benefit from redevelopment.

Tree Management

I understand that good tree work was carried out last winter and it is important to ensure that the trees on the site are managed appropriately. It is critical that the club have an assessment made of a number of the older poplars on site as well as the horse chestnut adjacent to the 12th tee to determine if any of these trees needs to be removed on the grounds of age or condition. This will help to ensure that all the trees on site are safe and in good condition. STRI are able to provide a tree assessment survey if required and further details of fees and this service are available from Mr Richard Stuttard, Ecologist at STRI. Richard can be contacted on telephone number 01274 565131 or alternatively via his email address richard.stuttard@stri.co.uk. I understand that a tree surgeon is due to visit the site imminently and I would recommend that the club ask the tree surgeon to look at the trees identified by Gary as a matter of urgency.

Practice Facility

The club are currently looking at the possibility of developing new practice facilities on the site including a longer game area to the left hand side of the 2nd fairway as well as a new short game practice facility adjacent to the 12th tee. Certainly the development of new areas would be beneficial for the members and an attractive extra facility for the club.

It is important to identify and set aside an appropriate budget to complete the short game practice area. It is critical that drainage properties of materials are considered when building a new green complex. As a very rough guide we would expect materials alone, assuming that construction was carried out by the in-house staff, to be in the region of £20,000-25,000 minimum. It is critical to make sure that materials perform and drain appropriately if the project is to be successful in the long term. Also make sure that there is an element within the budget for installing irrigation to any green complex which is built. This is likely to add in the region of an additional £3,000.

STRI have an in-house architect Mr Jonathan Tucker and if you would like to discuss this project further with him please contact him on 01274 565131 or via his email address jonathan.tucker@stri.co.uk.



Photograph 4 – potential new practice facility

Drain Lines on 12th Approach

Drainage was installed in front of the 12th green a number of years ago and as can often happen drainage materials have settled over time. This has resulted in slight dips in surface levels where mowers do not cut as tightly and grass growth is longer. Certainly these drain lines need to be relevelled. There are two options. One is to selectively top dress the top of the drain lines with sand to gradually increase the levels through these areas and bring them up flush with surrounding ground level. This is likely to take a couple of seasons work, top dressing during periods of strong growth.

Alternatively a quicker way of tackling this would be to strip the turf down the drain lines, make good surface levels with a 60/40 sand/soil rootzone such as the material used for divoting tees or similar before relaying the original turf. Any turf stripping should be carried out during the autumn/early winter months to provide sufficient time for the turf to re-establish before being subject to dry spring conditions.



Photograph 5 – Sunken drain lines on 12th approach in need of releveling.

STRI Programme

Following two years of development STRI have recently launched a new service to golf clubs known as the STRI Programme. This brings together a range of tools and methods to allow data on playing surface quality to be collected and used to benchmark current performance and develop maintenance programmes to further support improvements in playing quality as well as allow these future improvements to be accurately measured and assessed.

The cost for the club to upgrade to this new service would be an additional £300 on the existing subscription package. This would enable 3 greens to be tested with this equipment including the Trueness Meter, Clegg hardness meter, moisture meter, Stimpmeter as well as laboratory chemical and organic matter testing. The greens data would be collected on the day of the advisory visit.

As mentioned above testing would include laboratory analysis of organic matter content values through upper soil profiles. This would be extremely useful data to have here bearing in mind current discussion as to the need or not for more aggressive thatch reduction measures. This testing would benchmark organic matter content values and allow future progress or otherwise to be monitored successfully.

Should you wish to have an STRI visit programme visit carried out next year please let me know so that I can arrange for the appropriate paperwork to be sent out for you.

Conclusion

I am pleased that the club have been able to invest in expanding and upgrading the range of equipment available to allow greater efficiency out on the course.

It is hoped that it will be possible to ensure staffing levels are reinstated for the start of the 2012 season. A site of this size requires a minimum of five trained greenkeepers to facilitate all of the necessary work required to present the course in optimum condition and further improve playing standards.

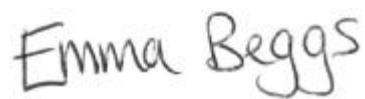
Look to alter the way in which tees are used through the year. In conjunction with increased maintenance tees could be presented in better year round condition with wear and tear managed more effectively. Employing well sited winter tees would also change landing zones and concentrated walkway areas, transferring winter damage away from the main summer areas of play.

In addition it is recommended that the club introduce a plan for tee redevelopment to ensure that over the next few years a set of appropriately sized, level, firm, well drained tees are introduced.

Some adjustments have been recommended to the greens maintenance programme to further improve year round performance including ensuring appropriate fertiliser inputs are made, tackling the organic matter which has accumulated through the base of the sward following two wet summers and helping to manage disease activity effectively over the next few months.

The club are looking to develop practice facilities on the site which certainly has significant benefits both for retaining existing members and attracting new golfers. Make sure that sufficient budgets are put in place to support these projects. We can provide architectural input if needed.

There are some trees on the site which should be assessed immediately by a specialist. The STRI Ecology Department would be able to carry out this assessment for you if required. In the short term ask the tree surgeon who is due to visit the site to look at the trees currently of most concern.

A handwritten signature in black ink that reads 'Emma Beggs'.

Emma Beggs, BSc (Hons), MBPR, RIPTA
Turfgrass Agronomist – North West, STRI Ltd
emma.beggs@stri.co.uk