

HELSEBY GOLF CLUB

ADVISORY REPORT ON THE GOLF COURSE

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4th October 2007

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CONFIDENTIAL

HELSBY GOLF CLUB

ADVISORY REPORT ON THE GOLF COURSE

Date of Visit
9th August 2007

Present

Mr Norman Henry - Chairman of Greens Committee
Mr Len Norbury - Club Secretary
Mr Gordon Bennison- Head Greenkeeper
Mr David Fletcher - Greens Committee
Miss Megan Hood - Turfgrass Agronomist, STRI Ltd

Object of Visit

To review the course and make suggestions with regard to course improvement through this course report.

Review the current Course Policy Document and update where necessary.

1.0 INTRODUCTION

This report follows my recent advisory visit at Helsby Golf Club. The weather conditions in the weeks preceding my visit were extremely wet and it was an excellent time to observe any weaknesses in the course.

A meeting with Club representatives including the Club Secretary, Head Greenkeeper and representatives from the Greens Committee was followed by a course walk. All matters arising on the day are confirmed in the following report.



Figure 1: The closing hole at Helsby Golf Club.

2.0 OVERVIEW

STRI Limited was engaged as consultants on behalf of the Helsby Golf Club to conduct a site investigation and directional report for the golf course. The second objective of the visit was to review the course policy document.

In general the maintenance programme is sound and drastic changes are not required at this time, however I did recommend that Club look to invest in recent technological advances. It is important that the Club formulated policies relating to greens maintenance and the maintenance programme is put in writing.

The report revises the reconstruction programme to date and outlines the recommended direction of future works.

The report pertains to the performance of the course on the day of the assessment and does not endorse specifications or methods that were used to construct it.

Salient points included in the report are:

- The greens are generally in good condition.
- New technology should be used to help extend the playing season of the greens.
- The sward composition should be changed to favour the finer grasses.
- The entire 6th hole needs to be reviewed by a golf course architect. Both the 6th green and tee need to be reconstructed.
- The 5th hole also needs to be reviewed.
- The other greens that have not been reconstructed to date should be reviewed by the golf course architect and agronomist to allow the scope of future works to be finalised.
- Strategic fairway drainage needs to be installed to improve the wet areas on the course and allow access in wet weather (e.g. 17th fairway).
- Bunkers need to be reviewed by a golf course architect. Renovation works should continue as per the current policy in the interim. The bunker renovation should be a priority this autumn.
- The tees need to be renovated and maintenance inputs increased on high-wear tees and those affected by trees or hedges.
- Many of the tees need to be reconstructed as per the course policy document.
- The practice green needs to be reconstructed.
- Mole plough the practice fairway in autumn to enhance the performance of the drainage system. Assess the effectiveness of the existing system over winter with a view to re-draining the area where necessary in future. The 17th fairway should be included as a priority.
- Details of the maintenance programme should be documented in writing as per the course policy document.
- The Head Greenkeeper is due to retire in 2009 and succession planning needs to be put in place in order to ensure continuity of maintenance.

TASK LIST - SHORT TERM

- The greens need to be fertilised.
- Review the design of the 6th hole. Rebuild the tee and green accordingly.
- The whole course needs to be reviewed by a certified golf course architect.
- Mole-plough the practice range.
- The 12th and 13th tees need to be reconstructed. Review the drainage around the 16th green (approaches and at the rear) prior to undertaking the drainage works on the 17th hole to ensure that necessary works are completed together where possible.
- Review the performance of the new 9th green over the winter and install additional strategic pipe drainage next year if the need arises. The condition of the green will be reviewed in late winter to allow the spring maintenance programme to be produced.
- Treat the anthracnose disease on the 17th green with a suitable fungicide.
- Upgrade the sprayer (replace).
- Renovate all tees in autumn (scarify, aerate, topdress and fertilise to increase density).

TASK LIST - MEDIUM - LONG TERM

Greens

- Six greens (plus the practice green) have not been rebuilt. At this stage, only the 6th needs to be totally reconstructed. The others require the installation of pipe drainage. The 10th green (previously re-built) may also benefit from the installation of strategic pipe drains. I recommended that the condition of the 10th green be reviewed in late winter to assess the extent of works required (if any).
- Increase the fine grass content (browntop bentgrass and fine fescue) at the expense of the annual meadow-grass.
- Have an effective drainage system on all greens to maximise the quality of the greens year-round.

Greens Surrounds and Approaches

- The green surrounds and approaches have not historically been included in the reconstruction works, which means that they are often in inferior condition to the greens. All future drainage/ reconstruction work must include the surrounds and approaches. This will help avoid problems such as the drainage problems experienced on the approach to the 7th green.

Other benefits of including the surrounds and approaches in the green upgrade project include:

- Better use of available space
- Lower cost and less disruption to members as the work only has to be done once.
- The drainage and irrigations systems can designed to work in harmony (this reduces cost and the potential for failure).
- Improved consistency between the green and surrounds.

Tees

- All of the tees need to be reviewed in order to create a tee-upgrading plan. Most of the tees are well positioned but need to be upgraded (through reconstruction or the installation of pipe drainage). Many of the tees are insufficient in size to accommodate the high level of wear received.

Fairways

- The fairways need to be scarified on an annual basis to minimise thatch accumulation. This may require more than one pass on each area to keep the thatch under control (e.g. 5th and 9th fairway). The extent of works required should be reviewed annually.
- Pipe drainage is needed on many of the fairways such as the 17th fairway. Fairway drainage is one of the main limiting factors at the Club.
- Weaker sections of the fairway or weaker fairways in general should be incorporated into wetting agent and fertiliser programmes. Weak, high areas should be hollow-cored and granular fertiliser applied on a localised basis. Overseed as necessary.
- All fairways should be decompacted on a regular basis using the Verti-drain or vibratory mole plough. Concentrate operations on compacted areas and landing zones.
- A trolley policy needs to be implemented to ensure that approaches and greens surrounds are adequately protected.

Bunkers

- Conduct a bunker audit (in-house or using a golf course architect) to identify bunkers that are no longer relevant, bunkers that need to be moved further away from the greens (e.g. 4th green) or bunkers that require renovation.
- Ensure that all bunker works are in keeping with the James Braid style.

Environmental Management

- Remove the poplar on 'Piano Hill' on the 2nd hole. A replacement tree needs to be planted to enable the large poplar beside the green to be removed.
- The Woodland on the 5th hole needs to be managed much more proactively.
- The large willows near the 7th green are adversely affecting the turf quality and need to be removed.
- A plan to implement the recommendations of the Arborist's report needs to be put in place and resources allocated on an ongoing basis to meet the objectives of the plan. This needs to be a priority as little of the work has been completed to date and ten years have passed since the plan was submitted.

Resources

- The number of storage bays for sand/ aggregate etc needs to be increased to ensure that wastage and contamination are minimised.
- The Club need to invest in new machinery such as vibratory rollers and hand mowers.
- The Club need to investigate an alternative water supply to mains water.
- A succession plan needs to be put in place to ensure continuity of course management. This applies to both the paid staff and the Green Committee.

Practice Facilities

- The practice green needs to be re-built.
- The trees that are competing for light and nutrient with the turf on the practice green need to be removed.
- Drain the practice fairway if the review of the fairway deems it necessary.

3.0 GREENS

3.1 OBSERVATIONS & COMMENTS

The greens are generally in good health. One of the key points to note is that the basic maintenance programme is sound and no drastic changes are needed at this time.

Green speed and smoothness were raised as an issue and we discussed tools available to improve the greens. The greens were slightly soft at the time of my visit and this will be contributing to the problems with the greens. A key point to note is that reducing the mowing height of the greens is no longer the primary method used by greenkeepers to increase green speed. Greens reconstruction/ drainage, regular topdressing, moisture control, use of growth regulators and vibrating rollers present the best opportunity for you club to improve putting conditions on the course. Obviously, not all strategies can be implemented immediately, however a plan should be put in place to achieve superior putting surfaces over time.

Anthracnose (*Colletotrichum sp.*) was observed on the 17th green and needs to be controlled.

The soil profiles of the reconstructed greens were generally in good order (e.g. 7th green), with the exception of the 9th green and 10th, where black layer was present and root development limited. The soil profiles on the remaining greens that we inspected generally showed significant thatch accumulation and poor root development. The surface conditions on these greens were surprisingly good and with the exception of the 6th green (and possibly the 5th), I feel that the greens can be raised to an appropriate standard with maintenance and the installation of pipe drainage systems.



Figure 2: Soil profile beneath the 6th green.

3.1.1 *Reconstruction Programme*

Since 1996, twelve greens have been reconstructed by the in-house team. The basic methods adopted for the greens reconstructions to date follow the principles of a USGA type construction. The Club wisely planned the reconstruction programme to ensure that the worst greens were upgraded first.

Most of the reconstructed greens perform to expectations, however the new 9th green (constructed last winter) has struggled this season and the 10th green may require the installation of strategic additional drains.



Figure 3: The 6th green needs to be reconstructed.



Figure 4: Damage on the 6th green.

3.1.2 9th Green

The 9th green was reconstructed last winter and the green has really struggled to get through the summer. The turf is thinning in some areas and scalping was apparent due to subsidence (settling). The surface is uneven in places and this is contributing to Triplex mower damage, which is particularly severe on the perimeter of the green.

I recommended that the back 5 feet of the 9th green be rested over the autumn/winter period as it is struggling.

I suggested that the green be monitored over the winter and a decision be made next year with regard to additional works that may be required.

In the interim, the green does need to be renovated as early as possible this autumn to help it to recover from the wear and tear of its first season. The renovation should include scarification, topdressing, overseeding and fertilisation.

As with all new green constructions, I recommend that the 9th green be hand mown until the green is fully established.

Selectively topdress depressed areas lightly and regularly to help smooth the surfaces.



Figure 5: The 9th Green at Helsby Golf Club.

4.0 RECOMMENDATIONS

The main objective of the Club going forward is to provide members with a sustainable facility that accommodates year-round play on high quality surfaces. The objectives for the greens are outlined in the course policy document as being:

- Provide true, firm, and dry surfaces that provide the correct conditions for deep rooting fine grasses to grow, will resist compaction yet remain firm throughout the year, will retain adequate moisture in the root zone but will still allow rapid drainage during prolonged rains and enable all year round golf to be played.
- Increase the fine grass content (browntop bentgrass and fine fescue) of the greens at the expense of the annual meadow-grass.
- Build in the potential to produce very high standards of putting surface for short periods at intervals through the late spring and summer months.
- Promote a good level of consistency between putting greens on a daily basis (including the practice facilities).

The stated objectives will be achieved by promoting firm and dry surfaces. Soft, holding surfaces are to be wholly discouraged.

4.1 RECONSTRUCTION/ DRAINAGE

Discussions relating to the reconstruction programme produced the following outcomes:

- Engage a golf course architect and agronomist to review the greens not reconstructed to date to allow the scope of future works to be finalised (early 2008).
- Both the 6th green and tee need to be reconstructed.
- The 5th hole also needs to be reviewed.

The course inspection revealed that the installation of pipe drainage systems in the remaining greens (excluding the 6th green) may be a viable option in place of complete reconstruction. This would be a much less expensive and disruptive option. Many Clubs with comparable conditions to Helsby have installed such systems in recent years and have increased the quality of the greens markedly. Adding supplementary pipe drains into an existing green involves introducing plastic pipe within trenches backfilled with gravel aggregate, blinding sand and rootzone material as outlined in the diagram below. It is a quick, inexpensive and relatively non-disruptive option compared with reconstruction.

I felt that the 6th green does require complete reconstruction and I recommended that the green be raised and re-contoured at the same time. The practice green also needs to be reconstructed to modified USGA specifications. The surrounds, aprons and green-side bunkers need to be included in all reconstruction and drainage projects (e.g. front of the 7th).

I recommended that the greens yet to be reconstructed be reviewed by the golf course architect and agronomist to allow the scope of future works to be finalised.

4.1.1 *Introducing pipe drains into greens*

The key to success with regard to this type of project is good planning. Order materials early and ensure that time lines for the construction are calculated to ensure that greenkeeping resources are available and that the construction work can be completed by Christmas to allow the turf to establish before the worst of the winter weather.

The recommendations are as follows:

- Use 50 mm plastic diameter pipe at a maximum 2 m spacing centre.
- In cutting the drain trench allow for 25 mm either side of the pipe and lay turf on polythene down the banking.
- There is always a risk of drain lines standing out in the summer, which is one minor problem with pipe drainage introduction compared with redevelopment, yet we also have to maintain good drainage. On balance I suggest that either 70:30 or 60:40 rootzone be introduced at a uniform firmed depth of 300 mm (12 in.) and a minimum of 250 mm (10 in.). Acting as a barrier between rootzone and aggregate should be a uniform firmed depth of 50 mm (2 in.) of blinding layer, which is usually a 1 - 4 mm hard washed grit.
- Below the blinding layer would be the aggregate and the standard specification is 8-10 mm clean washed hard aggregate that is not limestone or sandstone. As a guide the binding layer should be around $\frac{1}{6}$ of the aggregate size. Adequately firm each layer. The depth of aggregate will depend on the drain depth (at least 450 mm - 1ft. 6 in.).
- Re-lay turf flush with surrounding ground, not proud in anticipation of settlement. Finally give a light roll and top dress. Bringing the green back into play will depend on how quickly the turf knits in. Subsequent maintenance would involve surface tining to maintain through flow of water past the initial base of the turf and organic layer into the growing medium and drain below.

I strongly recommend starting drainage work as early as possible whilst conditions are favourable, both for completing the work and to minimise damage to the haul route.

Notes.

- *New drainage should feed into one of the two main drainage arteries on the course.*
- *Ensure drainage plans are produced and used to record future installations.*
- *Lay main drains with detection wire to enable drains to be easily detected.*

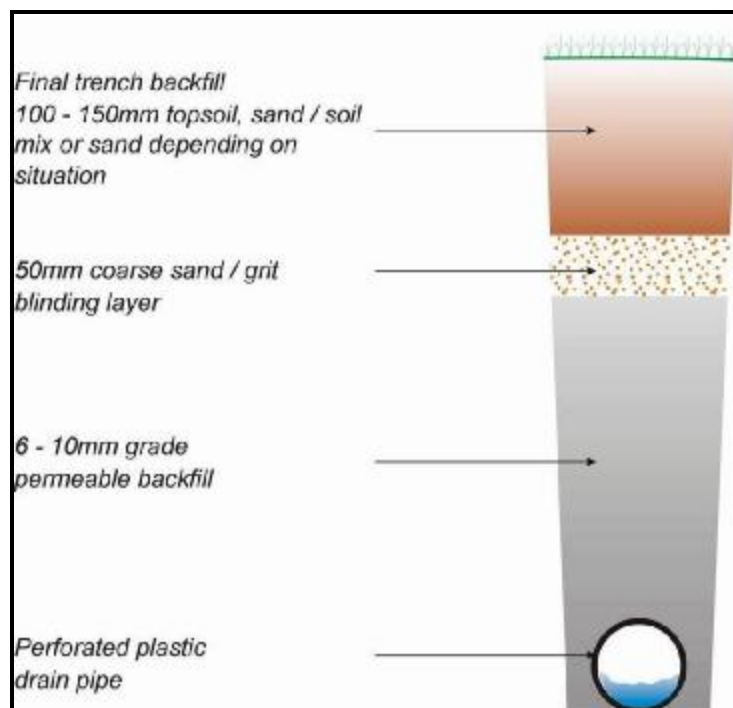


Figure 6: Cross-section of a pipe drain.

4.2 6th HOLE

The 6th hole needs to be reviewed with regard to design and construction. The green's position means that it is subject to significant surface run-off from surrounding areas. The green design could also be improved and I recommended that the Club take the opportunity to improve the green through re-construction rather than pipe drainage. The 6th tee is also poorly draining (the size of the tee is sufficient for existing needs) and I recommended that the tee be reconstructed (or pipe drained). As both the tee and green need significant work. I recommend that the Club's golf course architect be commissioned to review the entire hole.



Figure 7: The 6th tee.

4.3 17th HOLE

We discussed the plans for reconstructing the 17th green. The green is currently of good design and performs relatively well. In the long-term strategic pipe drainage would be beneficial, however the green does not need to be reconstructed at this time.

4.4 GENERAL MAINTENANCE ISSUES

4.4.1 *Sward Composition*

The sward composition of the greens is somewhat variable but those worst historically affected by poor drainage are those that contain the highest proportions of annual meadow-grass (*Poa annua*).

Annual meadow-grass is an unsustainable weed in this environment. For the most part it offers poor putting texture because of its variable growth habit and its tendency to produce seed heads during the spring and early summer. It is shallow rooted and particularly vulnerable to drought. It is susceptible to disease particularly fusarium patch and anthracnose and it is the primary producer of thatch. The build-up of thatch leads to soft and water-retentive playing conditions - the antithesis of year-round golf. In the long term we must look

to minimise (not eliminate) the impact of this grass and look to replace it with more durable and more predictable bents and fescues.

It is important not to be too despondent. Most of the greens at Helsby (particularly the better-draining greens) do show some colonisation by finer and more desirable grasses.

Many greens show weakness from annual meadow-grass on immediate perimeters and particularly on favoured walk-off routes. Perimeter damage is largely due to triple mowing and the turning of these units on green edges.

4.4.2 Mowing

The greens are currently mown to 5mm in summer and 7mm in winter. The greens are mown daily. Gordon mentioned that the Greenkeepers struggle to mow the wetter greens with the existing Triplex mower units.

Triplex ringing around the green perimeters detracts from overall levels of surface smoothness and uniformity as well as adversely affecting standards of presentation. Firmer greens would be less prone to settlement (rutting) with heavy maintenance equipment. In the short term, it is acceptable to omit the perimeter pass during slower-growing periods to reduce mower damage. In the medium term I recommend that the Club invest in hand-mowing machinery to enable the greens to be mown by hand.



Figure 8: Perimeter damage from Triplex mower on the 9th green.

4.4.3 Topdressing

The aim of the topdressing programme is to dilute thatch and to smooth the putting surface. The softness of the surface and the thatch in the profiles indicates that the volume of topdressing material applied is insufficient to keep up with thatch production.

The regular dustings of top dressing applied through the growing season do need to be sustained through the autumn period in accordance with grass growth rates. On the basis of organic matter debris accumulation at the sward base, the rate of sand applied should be increased to more closely reflect organic matter production. The desired balance between organic matter build up and dilution is currently not being achieved to the desired standard and does require slight adjustment, i.e. the volume of topdressing needs to be increased to 100-130 tonnes over the 19 greens.

I am mindful that the club would need to invest in a more efficient topdressing unit in order to apply more topdressing material. As this machine would help the club to achieve its objective of providing quality surfaces, it should be included in a machinery acquisition programme (see resources section).

4.4.4. Nutrition

The greens did appear to be on the lean side, which is not surprising considering the recent rainfall, which will have leached much of the fertility from the soil. I recommended that the greens be fertilised when conditions allow. This is unusual for this time of the year, however we cannot risk nutritionally stressing the greens at this time for fear of increasing the sward's susceptibility to leaf diseases (an anthracnose infection has already been detected and treated).

In a 'normal' year, the greenkeepers should be aiming to apply between 60-100 kg of actual N per annum on the greens. Ideally the fertiliser will be applied as a 'little and often' approach, avoiding flushes of growth which will slow the green speed and favour annual meadowgrass development. It is important that a balanced approach be taken with regard to the fertiliser programme. The basic fertiliser programme will be reviewed in late winter so that plans can be put in place for the coming year.

Unfortunately the dilapidated state of the sprayer means that the greenkeepers are limited to granular formulations of fertiliser. This needs to be addressed.

4.4.5 Anthracnose

Anthracnose disease was observed on the 17th green. It is essential that we pre-empt further problems with a single application of an approved fungicide. I recommend an application of carbendazim and chlorothalonil tank mixed together. Alternatively, a new product from Syngenta called Banner Maxx (propiconazole) has been released this year for Anthracnose and Dollar spot control (also effective against, but not labelled for Fusarium patch).

Banner Maxx is a systemic and has returned the best control results when applied at high volumes of water (550-600 litres per hectare), ensuring that the product reaches the plant crown for translocation (note the product only moves upwards in the plant). The label rate for greens is 3.2L/ha. At this stage the chemical is not registered for use for fusarium in the UK.

4.4.6 Wetting Agent Programme

Put a protective programme in place starting early, i.e. March/April and repeat treatments every 4-6 weeks throughout the spring and summer season. Extend the programme into the cover surrounds and approaches.

Adhere to the manufacturer's directions at all times and avoid applying wetting agents in direct sunlight to prevent scorch. Avoid mixing wetting agents or applying different wetting agents within close proximity of one another unless you have had approval from the manufacturers to do so.

4.4.7 Growth Regulator Use

Consider trialling Primo Maxx on the practice green in the coming month with a view to running a full programme on the greens next season (early spring to mid summer). Primo Maxx is a plant growth regulator (active ingredient trinexapac-ethyl) that has been widely used on overseas golf courses over the past few years to improve playing quality. The product has undergone trials at the STRI trials grounds, Bingley, West Yorkshire over recent years and these areas are open for inspection on request.

Primo Maxx typically produces a greener, more drought-tolerant and higher quality sward. It may be possible to reduce mowing frequency and the incidence of disease when using Primo, depending on the circumstances (Primo use can increase root depth and leaf hardness, which may reduce susceptibility to a number of diseases).

Primo is particularly useful where the greens are mixed sward (i.e. conditions encountered at Helsby) and where differential growth is an issue in spring.

Rates and programmes - Growth Regulator

Rates and programmes for different turf areas (greens, fairway, rough etc) are printed on the label, which must be followed. The exact programme used on greens varies from course to course. If you are interested, we recommend that you experiment starting with a low rate on a practice green (e.g. 400mls/ha at 3-4 weekly intervals).

When trialling Primo Maxx, use the product on half of the green so that the product's effectiveness can be assessed against a control area. Ensure that all other maintenance operations are continued on both the treated and untreated areas to allow a real comparison to be made. The greatest improvements in playing quality are expected with this product when the programme is started in late winter/ early spring. Do not apply during very slow growing periods (e.g. late October to early April).

Fertiliser Use with Growth Regulator

Primo Maxx can make greens look 'green' even when they are hungry. It is important that adequate fertiliser is applied during the season to maintain growth. If nitrogen levels drop too low, diseases such as dollar spot and anthracnose may be a problem (this is the case whether Primo is used or not but low nutritional status is harder to detect by eye when using Primo).

Please contact Simon Barnaby of Syngenta for further information or view www.primomaxx.com.

4.4.8 Aeration

It is important to recognise that the Club have been playing on wet greens for 6-7 weeks and this will have created some surface sealing. I suggest that the greens be pricked to a depth of 1 - 2cm on a regular basis using the star slitler to help relieve the problem. Slit the greens through the winter months as conditions allow.

Intensively pricking the surface in spring will promote health and recovery within the meadow-grasses temporarily so that the textural differences between themselves and the bents can be minimised in order to promote good surface smoothness. This approach will not reduce the rate of species change to bentgrasses but will help to avoid the inherent spring smoothness problems.

4.4.9 Verticutting/ Surface Disturbance

In recent years we have come to understand the role of surface disturbance in favouring annual meadowgrass (AMG) in greens. A key objective for the greens at Helsby is to maximise the fine grass content of the greens (minimising AMG). With this in mind, it is important to consider the effects of verticutting when managing your greens.

In general greenkeepers now try to maintain playing quality by topdressing, brushing and judicious use of irrigation and fertiliser (flushes of growth will increase the need for verticutting).

Whilst you will probably need to verticut the greens on an occasional basis, try to minimise the frequency and intensity of verticutting to minimise surface disturbance. Regular brushing before mowing will help improve the texture of the turf and the smoothness/pace of the surfaces and obviate the need to verticut on a regular basis.

4.4.10 Overseeding

We generally see more success at the start of a sward transition programme with browntop bentgrasses than with fine fescues. I have thus recommended that the greens be oversown with 100% browntop bentgrass over the next couple of years. This can appear to be a more expensive option as 100% browntop seed is more expensive per bag than the traditional 80:20 fescue browntop blend. In the long run however you would be paying for 80% seed that is unlikely to succeed. On the driest greens you should continue to use the 80:20 blend.

100% Browntop bentgrass seed can be seeded relatively shallow compared to the traditional mix (fescue is a larger seed and can be seeded deeper).

4.4.11 Pitch Mark Repair

Encourage members to repair pitchmarks promptly and effectively. Unrepaired pitchmarks give annual meadow-grass the opportunity to invade the sward and create an uneven sward. Consider lengthening badly affected holes during the winter by re-siting winter tees - this is often the most effective way of reducing pitch marks.

I enclose our poster on Pitch Mark Repair for your Notice Board to remind golfers how to repair ball mark damage. You may also find the USGA's new CD a useful tool to communicate the correct repair methods and the problems associated with poor pitch mark repair to members.

5.0 APPROACHES/ SURROUNDS/ WALK-OFFS

Green surrounds and approaches are important areas on any golf course and it is important that they provide a firm, even surface for golfers throughout the year. As the greens are improved these areas become even more important as it is more difficult to play 'target golf' on firm modern greens so the 'pitch and run' approach becomes more popular. James Braid courses lend themselves to the 'pitch and run' game and your course is no exception.

Some of the approaches currently disadvantage players playing the low game, as they are soft, uneven or have a poor cover of grass. This is mainly due to the absence of drainage in the areas, as they were not upgraded when the greens were reconstructed (e.g. 7th approach). The very wet summer conditions experienced this year combined with wear will have increased soil compaction and reduced grass cover on paths, surrounds and walk-off areas.

The species composition is also on the coarse side and this needs to be addressed over time in order to provide a fair surface. The benefits of including the surrounds and approaches in green reconstructions projects include:

- More efficient use of available space.
- Lower cost and less disruption to members as the work only has to be done once.
- The drainage and irrigations systems can be designed to work in harmony (this reduces cost and the potential for failure).
- Improved consistency between the green and their surrounds.

Routine maintenance - Green Surrounds and Approaches

- Allow for a greater degree of renovation this autumn (include Vertidrainage, fertilisation, overseeding, topdressing and protection where necessary).
- In spring brush, verticut and groom approaches as soon as plant and ground conditions permit. Follow with topdressing to help firm the surface and dilute the thatch.
- Overseed with the seed drill used for the teeing areas using the same fine turf seed product as used previously on the greens.
- Replicate the greens maintenance on the surrounds and approaches where possible next year (spiking, dressing, rolling, brushing, liquid feeds and the separate addition of the growth regulator (Primo Maxx)).
- Maintain the normal height of cut and use a groomer if possible to remove coarse grasses.
- Pipe drain approaches/ surrounds that are poorly-drained (e.g. 7th approach).
- Ensure that any future green construction work includes the surround and approach (e.g. 6th green works).
- Aim to maintain the browntop dominance within the approaches and surrounds, thereby reducing the risk of AMG being transported/walked into the greens.

Walk-on walk-off/ Path areas - recommendations

- Use a ratio of 25% rubber crumb, 70% 50:50 rootzone and 5% recycled organic waste to construct these key areas
- Work to a depth of 100-150mm on the lowest point, deeper as surface levels dictate
- Rotovate and ameliorate the materials as one before seeding
- Use tee overseeding mixture to re-plant these areas (use the Veri-seeder where possible)
- Base-feed with a controlled release product (Marathon, Sierrablen or similar) to promote recovery and maximise density.

6.0 TEES

The tees did appear to be on the lean side and it is important that adequate fertiliser is applied to the tees to maintain a strong, dense sward. As a bare minimum a controlled release product (Marathon, Sierrablen or similar) should be applied as part of the autumn renovation to promote recovery and maximise density.

Most of the tee complexes need reconstruction. Many contain several small platforms that have been added to over time. We need to merge them into single or two-tier platforms of a suitable profile to ensure good performance in adverse weather conditions. This will serve to maximise available area for use to spread the wear around and also speed up the time taken to maintain the tees, not to mention the visual presentation of the course.

The Club needs to put a 5 to 10 year plan together for tees reconstruction and budget accordingly. In the shorter-term you could look to improve the levels by planing off the surface of priority tees using the Field Top Maker prior to re-surfacing. It is important to ensure that drainage is installed in the tees as part of this process.

I was concerned at the number of tees adversely affected by trees. Not only do the trees compete for nutrients, light and water, but in some cases they interfere with the line of play. At best, this prevents players from using the full width of the tee; at worst it is a health and safety issue. As mentioned in the tree management section, the Arborist's recommendations need to be followed, with priority given to problem trees near tees or greens.

6.1 *Construction of New Tees*

I have enclosed an advisory leaflet on the construction of new tees for your reference.



Figure 9: Poplars next to the 14th tee need to be removed.

6.2 All Tees - Autumn/ Winter Recommendations

Divot filling should be undertaken at least once per week.

- Tee box markers should be moved on a daily basis to spread wear and tear.
- Increase the de-compaction operations and water/seed/ fertiliser inputs on tees affected by trees or hedges.
- Renovate the tees in September/ October. This should involve scarification followed by hollow-tining, topdressing, overseeding and a fertiliser application. Vertidrain in winter to relieve soil compaction.
- Prune/ remove trees that are affecting the line of play.
- Assess the condition of the tees in spring and apply a light fertiliser application (e.g. a balanced NK product) to stimulate spring growth.
- In the long term a topdressing programme will need to be implemented on the new tees as they are developed.

7.0 FAIRWAYS

The fairways are currently one of the major limiting factors at Helsby Golf Club. Poor drainage has been an ongoing issue on the fairways. Despite the poor drainage, the fairways were well maintained and in relatively good order.

The underlying objectives of the fairway management are to provide:

- Firm and dry surfaces for as long through the year as possible
- Freedom of swing, i.e. aim to eliminate any sharp contouring or outside impediment such as overhanging tree branches
- Consistently acceptable lies
- Good ball: turf interaction (consistent bounce and fair lie)
- Relatively even landing areas of consistent width.

Some areas of the fairways have been weak in the past (e.g. last summer) and I recommended that weaker sections of the fairway or weaker fairways in general should be incorporated into wetting agent and fertiliser programmes. Weak, high areas should be hollow-cored and granular fertiliser applied on a localised basis. Overseed as necessary. Greater attention still being paid to areas where foot traffic is concentrated or funnelled.

7.1 *Thatch reduction and Drainage*

Constraints to achieving year-round playability and consistency are the quantities of thatch at the sward base and the impervious clay soil below. Strategic fairway drainage needs to be installed to improve the wet areas on the course and allow access in wet weather (e.g. 17th fairway).

Whilst the installation of fairway drainage is planned, this cannot entirely be undertaken immediately so we also need to look to maintenance operations to maximise the drainage potential of the surfaces.

The fracturing and loosening of the underlying soil would help to improve drainage and is best tackled when the soils are moist enough for good tine penetration yet dry enough to achieve the desired degree of fissuring. Taking into consideration the nature of the soils, the timing of this operation is crucial to its success.

Ongoing scarification work is necessary to remove the excess accumulation of organic debris that are present at the sward base. It is therefore appropriate that scarification treatments are at least an annual operation, completing the work towards the end of the main playing season whilst growth rates allow recovery. Spring scarification does entail an element of risk, as dry conditions following the work will delay the recovery process.

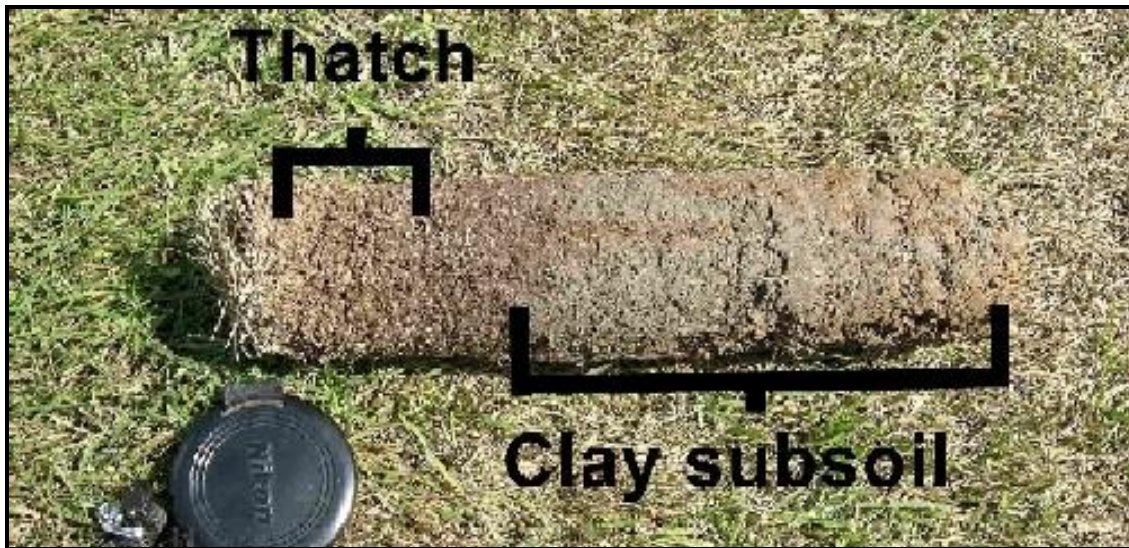


Figure 10: Thatch accumulation on the fairway.

7.2 Weed control

One of the main features detracting from good standards of presentation is the incidence of broad-leaved weed activity. To achieve the desired levels of control, a spring application (full rate) is warranted as growth rates strengthen and stabilise to be followed up with a second application 4-6 weeks later to tackle any re-growth. As always, ensure that the selective herbicide is applied strictly in accordance with the manufacturer's recommendations in appropriate weather conditions.

7.3 Divots

Due to the clay nature of the course, divoting can be a problem in spring, adversely affecting the quality of lie in landing zones. It would be preferable to restrict winter play, protecting the fairways to ensure that good quality surfaces can be prepared for play at the start of the main competition season in the spring. Dropping to the side into the semi-rough does help but will naturally require an intensive divoting programme to be implemented in the spring.

Whilst members should make every effort to repair their divots, it is important that the greens staff repair damaged divots on a regular basis.



Figure 11: Fairway in good condition.

7.4 Drainage System

Some of the fairways drain poorly and this restricts access to the course and adversely affects turf quality. In some circumstances the lack of fairway drainage also affects the greenkeeper's ability to maintain key areas of the course.

Strategic drainage has been installed on the course over the years and has generally worked well. The exception is practice fairway, where inappropriate backfilling has meant that the drains have effectively been buried. Mole ploughing will help speed the movement of water to the buried drains, however this is only likely to provide a minor improvement and a new drainage system will need to be installed.

The specification for the pipe drainage system on the practice fairway should be the same as that used on fairways proper. 110mm main drains with 80mm laterals should be sufficient. Slit drains should also be considered in very low areas or highly trafficked zones.

It is important that the drain profiles meet the current industry specifications. The works should include:

- i) Introduction of outlet drains to connect with existing positive outfalls.
- ii) Installation of a regular system of pipe drainage (80mm laterals) at 6 m centres with appropriate backfilling. The main drains should be at least 110mm pipes.
- iii) Installation of silt/inspection chambers at key junctions.
- iv) Reinstatement of drain lines.
- v) Localised introduction of slit drainage.

The specifications should include:

- Lay the main drains at a minimum invert depth of 600mm at its head with a steady fall of 1:200 along its length. Lay the lateral drains at a minimum depth of 450mm at their heads with a minimum fall of 1:200 along their length.
- Ensure that the main and lateral drain comprise perforated plastic pipe to BS4962: 1989.
- Use purpose-made connectors for all joints in the line of drains (slotting or by other approved means according to the type of pipe). Fit reducers where a reduction in pipe size is necessary and install end stops to seal open ends. All connections between lateral and mains should be formed with purpose-made junctions of appropriate sizes.
- Trench the drains as wide as necessary at ground level to allow easy laying of pipes, but in the case of lateral drains the trench bottom shall be at least 150mm wide. In the case of pipes of 100mm diameter or over the trenches shall be 50mm wider than the outside diameter of the pipe. The trench bottoms shall be shaped to bed, fit and secure the pipes centrally at the required invert depths.
- Excavate topsoil and subsoil to form drain trenches to required depth and shape bottoms to receive pipes. The spoil should be loaded as it is excavated and removed off site to contractor's tip.
- Lay drainage pipes as specified sizes to a true line on a firm subsoil foundation. Purpose-made junctions, end stops, etc shall be set into the drain lines as required.
- Backfill drain trenches up to 150mm from ground level using an approved 6-10mm gauge angular ground or broken stone. Adequately and evenly firm to prevent settlement leaving surface flat.
- Cover porous backfill with 150mm firmed depth of an approved coarse gritty sand with a grading curve within the central recommended range of the diagram in Appendix 2 up to ground level.
- On completion the finished level along the drain line shall marry in satisfactorily with the level of adjoining turf surfaces.
- Fill the drains carefully to avoid displacement or damage of pipes. Introduce the backfilling carefully by shovel or shoot.

NB: Adequately firm the backfill material to prevent settlement. Any aggregate or arising spilt onto the grass surface should be removed and any ruts or wheel marking shall be levelled and reinstated.

The Club should consider tendering of significant drainage work to enable the greenkeeping team to focus on maintaining the golf course. The Club should ensure that the Contractor appointed is competitive. STRI can provide up to date pricing information at the time of tendering, however as a basic guideline the following costs can be used to help formulate budgets:

- 90mm lateral drain: £9.25/ linear metre
- 150mm perforated twin wall main: £20.00/ linear metre
- Sand banding: £2.00/linear metre

The cost estimates are for the installation of the drains only and exclude set-up costs, outlets, inspection chambers etc, which may be required.

8.0 PRACTICE FACILITIES

The practice putting green is on the small side and does not reflect the quality of the greens on the course. The green is built on very poor quality materials and is difficult to manage. The vicinity of the large willows on the 18th hole means that the grass is competing for nutrients and water with the tree roots. Concentrated traffic on the green is also having a detrimental effect on turf quality.

The practice putting green is an important asset to the club and it is vital that it is consistent with the greens on the course. Practice greens are far more valuable to members when they represent what they will find out on the course. To achieve this, I recommend that all maintenance practices carried out on the course greens be replicated on the practice green.

The practice fairway is large but does not make the best use of space. Whilst drains have been installed, the Club are concerned that the drains are not effective and this restricts play and the quality of the area.



Figure 12: Practice Fairway.

8.1 *Recommendations - Practice Green*

- Lift the putting green by removing the turf and using the existing surface as a new base. The new putting green should be built to the same standard and specification as the greens on the golf course.
- Install an irrigation and drainage system to the same specification as the other greens and turf using high quality browntop/ fescue turf.
- The offending willows should be removed or a root barrier installed. The willows are nearing the end of their life so removal should not be too much of a problem.

8.2 *Recommendations - Practice Fairway*

- Mole plough the fairway in autumn to help link the surface with the underlying drains.
- Assess the effectiveness of the existing system over winter with a view to re-draining the area where necessary in future.

9.0 BUNKERS

It is a little disappointing that the bunkers have not always been upgraded when greens have been reconstructed in the past. In future the bunkers should be incorporated into the overall design of the new green to ensure that the green functions in both design and practical terms.

Many of the bunkers are looking tired and need to be renovated this winter as a matter of priority. Bunkers are an important component of your course and need to be kept at a high standard.

In addition to this winter's renovation programme, I recommended that the Club conduct a bunker audit (in-house or using a golf course architect) to identify bunkers that are no longer relevant, bunkers that need to be moved further away from the greens (e.g. 4th green) or bunkers that require renovation. The improvements in club and golf ball technology in recent years mean that golfers are hitting significantly further than they used to. This means that in some cases bunkers are short of where they should be or are no longer relevant.

The bunker audit should assess the bunkers in terms of:

- Strategic Value
- Aesthetic Value
- Playability
- Maintenance (i.e. sand depth and ease of maintenance)
- Function (i.e. drainage and potential for sand splash on greens).

Evaluate existing contours and drainage systems to ensure that any water that enters the bunker can be evacuated quickly.

Bunkers are costly to maintain and if they do not add value to the course they should be removed to allow greenkeeping staff to focus efforts on greens and tees.

Ensure that all bunker works are in keeping with the James Braid style.

In terms of the severity of faces, there has to be a balance to satisfy golfers of all abilities. We would prefer to see an element of risk and reward from most fairway bunkers which allows extrication towards the green rather than sideways or backwards. Greenside bunkers can be a little more severe but should still allow extrication towards the flag on most occasions. There will always be occurrences where this is not the case but it should be the exception rather than the rule.

The topic of bunker sands was discussed and a suggestion was made that the bunker sand be reviewed. The final selection of bunker sand should be made with care and only after consideration of the various options available and following on site trialling work. The playability of various bunker sands is often a contentious issue within golf clubs as sands perform differently to different members. The sand should be firm and stable underfoot and offer good quality lies with the ball just sitting inside its own depression. Fried-egg lies should be avoided and sufficient depth of sand should exist that will allow the face of the club to pass through the sand beneath the ball to facilitate a clean extraction. With the correct sand, the depth should be in the region of 100mm across the bunker floor.

Approximate costs to reconstruct bunkers with drainage, a revetted face foundation and rolled top would be in the region of £1,000 per bunker (including sand).

10.0 ENVIRONMENTAL MANAGEMENT

10.1 *Tree Management*

Tree management is an issue that most golf clubs in the UK are struggling to come to terms with and Helsby Golf Club is no exception. It is important that the trees on the course are properly managed to ensure that the trees on the course are healthy and that they do not adversely affect the turf health and strategy on the course.

Trees are a very emotional issue for many people including golfers, greenkeepers and the general public alike. Their strategic and aesthetic value cannot be denied in many situations including that of golf courses. It is important to note however that the wrong tree in the wrong location can have a severely detrimental effect on turf quality and the golf course.



Figure 13: Tree roots near a green.

The numerous poplars and conifers on the course should be gradually removed and replaced with more suitable species on a rolling programme. Poplars are renowned for their invasive root system and are a common cause of ‘summer stress syndrome’.

All trees, but poplars, willows and conifers in particular are problematic when their roots out-compete the grass for water and nutrients. Invasive root systems may also adversely affect surface levels (e.g. on tees). The poplar on ‘Piano Hill’ on the 2nd hole need to be removed. A replacement tree needs to be planted to enable the large poplar beside the green can be removed.

Whilst we generally avoid the removal of mature trees on the course, the Club need to gradually remove problem trees to improve the turf quality. If the trees are to be replaced it is important that the tree be carefully located and selected (ideally further away from the tee in this case). Long-lived, broadleaf native tree species are usually the favoured replacements as sustainable golf course trees that provide good colour and other desirable growth characteristics. In your case species to consider include beech, hawthorn, alder, mountain ash (Rohan) and silver birch.



Figure 14: Large Willows on the 18th Green.

The large willows near the 7th green are adversely affecting the turf quality and as pointed out in the Arborist's report they are nearing the end of their expected life span.

10.2 *Arborist's Report*

I was asked to review the Arborist's report and have found its findings to be sensible and recommendations sound. It is a pity that the recommendations have not been followed to date, however most of the recommendations are still relevant. I recommended that a plan be put in place to ensure that resources are allocated on an ongoing basis to meet the objectives of the plan and to ensure that the works are carried out in a timely manner.

A plan to implement the recommendations of the arborist's report needs to be put in place and resources allocated on an ongoing basis to meet the objectives of the plan.



Figure 15: Tree Problems on the 11th Tee.

10.3 Woodland Management

The woodland areas on the course need to be managed in a proactive manner. The woodland on the 5th hole in particular needs work in the near future as it has become very overgrown. I have enclosed an advisory leaflet on woodland management for your reference.

10.4 Rough Management

We discussed the possibility of adjusting the mowing patterns to allow the development of rough grassland on certain areas of the course. It is fatuous to attempt to mow all the rough on a golf course. Leaving distinct sections creates a more natural feel, improves definition between holes and has massive environmental benefits - skylarks thrive in tracts of unmanaged rough. Admittedly the Helsby site is not huge and it is not always easy to work ecology rough into the overall design of the course, however there is still some potential to increase the size of the area dedicated to ecology rough, if the rough is carefully managed.

Provided unmown areas do not impinge too much on the enjoyment of the game for golfers of all abilities an effective balance can be struck. Managing the rough in this manner will reduce the amount of grass that is being cut and the amount of time necessary to do it. Ultimately this allows greens staff more time to manage the main playing surfaces and this is showing very clearly.

In the longer term there may be the requirement to manage the grassland to prevent it from becoming rank and unkempt. Early spring scarification (before birds begin to nest) and cutting and clipping removal (early August onwards) are techniques that can be used first of all to manage, and secondly, to improve the biodiversity of grassland in the longer term. I enclose some information from our publication "*A Practical Guide To Ecological Management Of The Golf Course*".

11.0 RESOURCES

11.1 Technology

I mentioned several major technological advances made within the past 5 years that help Clubs to extend the playing season on greens. The main advances are:

- Improvements in golf green pipe drainage system designs (2m spacing, 50mm pipe system).
- Vibratory Rollers, which increase pace and smoothness of greens (Dunham Forest GC, Mere GC and Bramhall GC have invested in this technology).
- Bulk Topdressers (spinners), that allow topdressing to be conducted quickly and accurately, reducing interruption to play and enable topdressing to be applied early in the season, which helps bring the surfaces on more quickly (also reduces bobble).
- Growth regulators, which improve the pace and smoothness of early season surfaces. They can also reduce the mowing burden on the course.

I stressed that the Club risk being 'left behind' other clubs if investment in these technologies are not made.

Note.

- *The highest priority for machinery purchases is a new sprayer.*
- *In the long-term the Club need to have the ability to hand-mow the greens (or the perimeter of the greens at least).*

11.2 Facilities

The greenkeeper's facilities are generally adequate for their needs. The number of storage bays for sand/ aggregate etc needs to be increased to ensure that wastage and contamination are minimised.



Figure 16: Additional storage bays are needed.

11.3 Irrigation Water

The Club need to investigate an alternative water supply to mains water. It is likely that the ability of the Club to access mains supply water is going to be limited (by supply or finance).

11.4 Succession Planning

A succession plan needs to be put in place to ensure continuity of course management. This applies to both the paid staff and the Green Committee.

OTHER NOTES

12.0 SWARD IMPROVEMENT SEMINARS

The main objective this year is to concentrate on course presentation but in the long term our focus is to improve green quality and extend the year-round playing qualities. To achieve this our long-term agronomic aim is to transition the sward from predominantly vulnerable annual meadowgrass to a sward dominated by the fine grasses.

There are some excellent seminars and publications available to support Gordon and his successor through this process. I recommended that he attend a 'Disturbance Theory' seminar in the coming year (there is one at BTME Harrogate this winter). I have also enclosed a DVD containing numerous articles on this topic.

13.0 USGA CD

The USGA has released an excellent CD for communicating major issues such as pitch mark repair, etiquette and course management problems to members. The CD entitled “An Animated Journey from Tee to Green” uses 3-D animation technology as an aid to help players visualise and understand issues relating to the care of the golf course. These can be purchased directly from the USGA (www.usga.org). The CDs cost US\$14.95 + postage.

14.0 BEST PRACTICE GUIDELINES

The R&A is dedicated to the development of golf worldwide and is wholly committed to ensuring that golf is a game which respects and contributes to the environment. As a result, best practice guidelines for golf course management have been developed and an interactive programme of guidance is available on the website - www.bestcourseforgolf.org. We strongly recommend the Club visits and, if not already done, registers on the website as it offers detailed advice which Club and Course Managers can use to help them achieve better management practices.

I hope you find all the points contained within this report both clear and helpful, if however you do require any further clarification do not hesitate to contact me.

Signed:

Megan Z Hood *B.Appl.Sc. (Hons) RIPTA*
Turfgrass Agronomist - STRI Ltd

APPENDIX

GENERAL NOTES APPLICABLE TO HELSBY GOLF CLUB

We are now starting to see more turf products being removed from the market. Carbendazim and Fenarimol are both now in their use-up period.

Removal of Carbendazim from the market (fungicidal use)

The fungicidal use of carbendazim for turf lost its approval on 30 June 2007. We are permitted a use up period until 30 June 2008 (distributors will also be permitted to sell stocks until June 2008 - approval holders cannot sell past 30 June 2007). Hand held applicators may be used to apply these products during the use up period.

The worm control use of carbendazim is not affected. Worm control is no longer considered under 91/414. Until the biocides directive is completed, worm control is as on the tin. Therefore, the following products (if they still exist) can be used in hand held sprayers for worm control for the foreseeable future-:

- Agriguard Proturf
- Clayton Am-carb
- Caste off
- Cleancrop Curve
- Mascot Systemic
- Nuturf Carbendazim
- Ringer
- SMI carbendazim
- Turfclear
- Turf Systemic Fungicide

Disease - Removal of Fenarimol (Rimidin) from the market

Fenarimol is also now in its use up period. Dates are the same as those for carbendazim. It can no longer be sold by the approval holder. Sales are only permitted of existing stock by distributors and use up is until 30 June 2008.

End.

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HELSEBY GOLF CLUB

ADVISORY REPORT ON THE GOLF COURSE

Date of Visit
9th August 2007

Present

Mr Norman Henry - Chairman of Greens Committee
Mr Len Norbury - Club Secretary
Mr Gordon Bennison- Head Greenkeeper
Mr David Fletcher - Greens Committee
Miss Megan Hood - Turfgrass Agronomist, STRI Ltd

Object of Visit

To review the course and make suggestions with regard to course improvement through this course report.

Review the current Course Policy Document and update where necessary.

1.0 INTRODUCTION

This report follows my recent advisory visit at Helsby Golf Club. The weather conditions in the weeks preceding my visit were extremely wet and it was an excellent time to observe any weaknesses in the course.

A meeting with Club representatives including the Club Secretary, Head Greenkeeper and representatives from the Greens Committee was followed by a course walk. All matters arising on the day are confirmed in the following report.



Figure 1: The closing hole at Helsby Golf Club.

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