



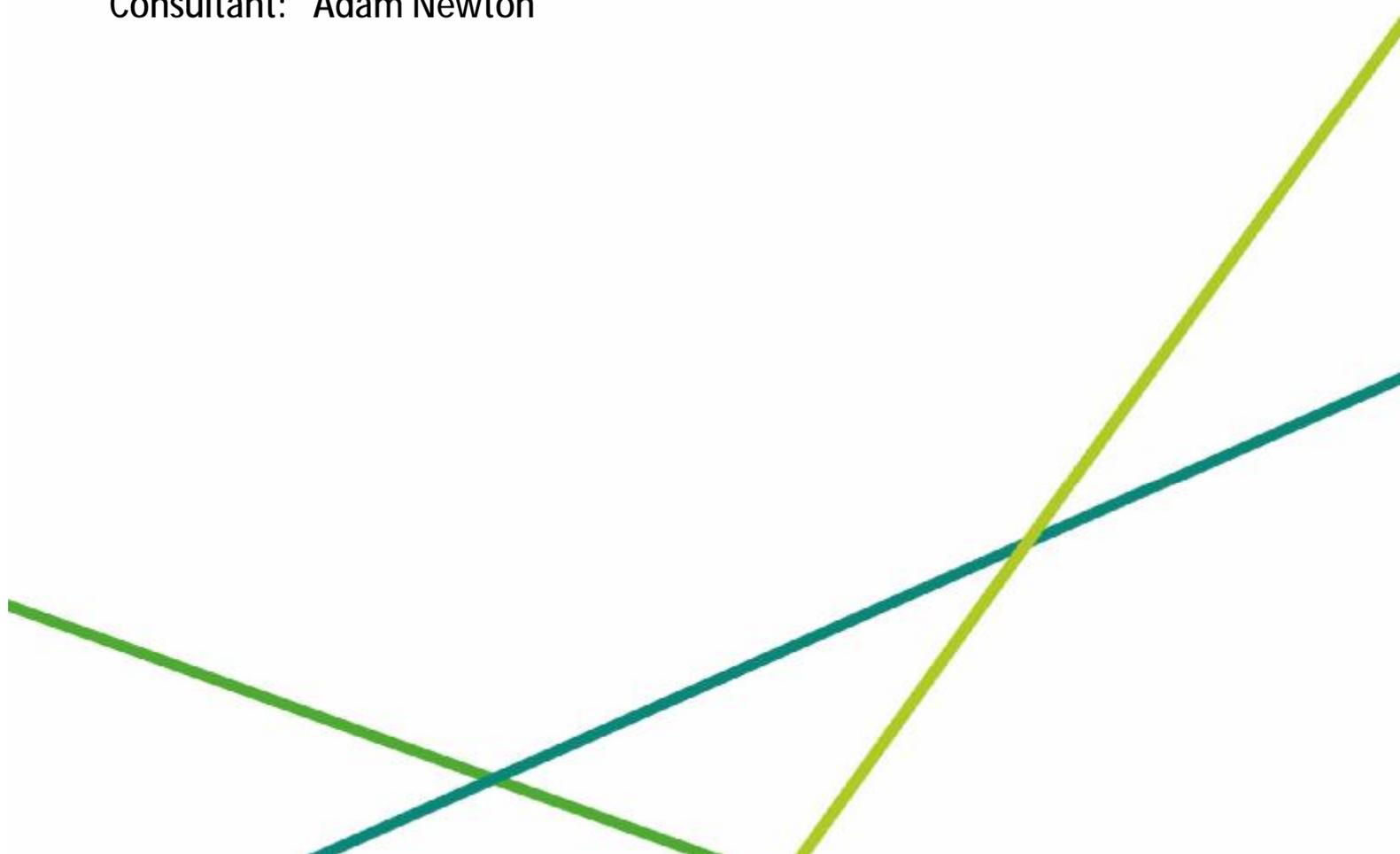
Making great sport happen



RETFORD GOLF CLUB

Advisory Report on the Golf Course

Report Date: 22nd March 2018
Consultant: Adam Newton



Retford Golf Club

Date of Visit: Wednesday 7th March 2018

Visit Objective: To review the spring condition of the golf course, review laboratory testing results and confirm maintenance requirements for the season ahead.

Present: Jim Robinson – Greens Chairman Carl Pigott – Head Greenkeeper
Gary Walters – STRI Ltd Adam Newton – STRI Ltd

Weather: Overcast with sunny intervals and temperatures of approximately 6 °C.

Headlines

- The course has wintered very well and coped remarkably with the challenging weather patterns.
- With the exception of the 1st, the greens were retaining a good level of firmness despite high soil moisture levels. This is symptomatic of the strides made with organic matter reduction and soil textural improvement over recent years.
- Greens were supporting a strong body of grass and disease scarring was relatively minimal.
- Laboratory testing confirmed a pleasing reduction in organic matter content, with values now being at their lowest since testing began.
- The 16th green is faring well but does need additional nitrogen input through the year to retain turf health and density. Thatch reduction on the approach remains a key objective.
- Tree clearance around the 8th and 14th greens has yielded excellent results, with both greens coming out of winter with a strong grass cover and no disease activity. The work has also enhanced aesthetics on both holes and provided a fairer approach shot to the 8th.
- The new 10th tee is a notable improvement visually but is suffering with concerning drainage issues due to the use of fine textured construction materials.
- An architectural review of course bunkering is needed to compliment the 5-year plan and provide guidance on topics such as bunker placement, style and sand size.

Key Actions

- Proceed with the 3:0:3 granular feed as soon as possible and supplement this with the 11:5:5 feed as temperatures improve.
- Hollow tining and sanding is to form the basis of spring renovations but with smaller 12mm tines selected to reduce disruption. Maintain sanding at a rate of 120 tonnes/ha this year.
- Graden sand injection is to be applied to the greens in early August but treatment is to be omitted on the 7th and 16th greens but a double pass applied to the moisture retentive 1st and 15th greens.
- Elevate nitrogen inputs to the 16th green through spring and autumn controlled release base feeds.
- Raise the 10th tee drainage issues with the Contractor as soon as possible to agree a remedy.
- Give consideration to an architectural review of course bunkering to inform future works.

Objective Measurements

Measurement	Average	Target Range
Organic Matter 0-20 mm (%)	5.3%	4-6%
Organic Matter 20-40 mm (%)	4.1%	<4%
Soil pH	5.7	5.0-6.0
Phosphate (P ₂ O ₅)	44 mg/l	>10 (mg/l)
Potassium (K ₂ O)	125 mg/l	>30 mg/l

Key: In Target Marginal Variance Out of Target

Photo Observations and Comments



Figure 1: The greens have come through the winter in good condition and are supporting a strong body of grass. They are the strongest I have seen them at this time of year. Despite recent rainfall, snow and thaw they are also retaining good firmness levels, with the exception of the poorer draining 1st.



Figure 3: Grass cover on the 16th green was quite thin and annual meadowgrass populations have invaded considerably over the last year. This is to be somewhat expected and this will start to perennialise and blend over the next couple of years.



Figure 5: The 14th green is also much stronger following tree removal. This was the worst affected by disease last winter but this year it is scar free and supporting good density.



Figure 2: Disease activity has been fairly minimal and fusarium scarring is only apparent on a few greens in localised areas e.g. 1st and 7th.



Figure 4: I was delighted to see the positive results of tree removal to the front-left and right of the 8th. The green complex has been enhanced visually and the approach shot is now fairer. The full green can now be utilised for pin placement. The green itself has also benefited and has come through the winter in a strong position and disease free.



Figure 6: Tree removal and returfing work has greatly benefited the right of the 9th green. Removal of the two oak trees to the front left and mid left of the green is the next step needed to enhance the green complex. This green has been brought in considerably on the left side over the years due to the negative influence of these trees. Their removal would allow for green extension and improve turf quality.

Photo Observations and Comments (continued)



Figure 7: The new 10th teeing area has been improved visually and tree planting along the left side of the hole has helped to frame the dogleg. Unfortunately the tee has experienced drainage issues since construction and this was very evident during the visit, with water being retained at the surface.



Figure 8: The soil profile consisted of a shallow depth of rootzone (100mm) overlaying a fine textured construction material with no pipe drainage. Upon inspection, the rootzone material contained high percentages of fines which have interpacked. A lack of soil pore space is resulting in very slow percolation of water through the profile (this is illustrated in the picture above – see how water is being held in the top).



Figure 9: The picture above shows how tightly interpacked the rootzone is. The depth of rootzone is also too shallow at 100mm, especially in the absence of an underlying drainage system or a free-draining construction material. This should more ideally be 300mm.



Figure 10: The investment in course maintenance machinery continues to impress, with the flail collector pictured above proving a notable asset for leaf collection this winter. The additions made to the maintenance fleet over recent years have undoubtedly helped to raise the standard of course conditioning and agronomy.



Figure 11: The bunkering is tired and a real weak point of the course. Sand areas are too large and need reducing to avoid unnecessary maintenance. The bunkers on the 10th fairway are a prime example.



Figure 12: In many cases bunkers are also out of position for the modern game and are penalising the less skilled golfer or shorter hitter e.g. 7th fairway (pictured).

Recommendations

Greens

- Apply the 3:0:3 granular turf hardener with immediate effect to strengthen the greens prior to spring renovations. Follow this up as planned with the 11:5:5 main spring feed once temperatures have improved around mid-April. The fertiliser programme for the summer ahead should continue in the same vein and be based on liquid tank mixes of Porthcawl, Premium N and wetting agent. Our aim should be to keep nitrogen totals at 80 – 90kg/ha this year.
- The new sand-based construction of the 16th green is more vulnerable to nutrient leaching than the other greens and nitrogen inputs need increasing to this green alone to ensure the turf retains good density and health. After the initial two granular feeds (mentioned above), look to apply a controlled release granular feed in early summer (early June) using a product such as Sierraform GT Anti-stress 15:0:27 at 25g/m². This will provide a phased release of nutrient for the following 6 – 8 weeks.
- Laboratory testing results were very positive (see appendix) and highlighted little change in soil pH and sufficient levels of phosphate and potassium. Other than the planned spring feeds, there is no need to apply any further potassium or phosphate for the year ahead. With this in mind, consideration should be given to switching the K-Step 6:0:27 feed scheduled for after the summer renovations with a lower K product such as C-Complex 4:3:4, TX10 or similar.
- Spring renovations are to focus on hollow tining and sanding but with smaller diameter 12mm diameter tines being selected to reduce surface disruption. Light sanding is to continue in the weeks afterwards to fill tine holes and perfect surface levels and ball roll ready for the start of the season.
- Avoid hollow tining the 16th green and instead solid tine (10mm tines) to around 80mm depth and sand topdress.
- Reduce mowing heights gradually over the coming weeks as growth picks up. Summer heights should be maintained no lower than 3.5 – 3.75mm again this year. Initiate refinement inputs once full growth establishes and the bulk of sanding is complete.
- Graden sand injection is scheduled for the summer renovation window to help drive organic matter levels down further in the top 20mm. If we can get organic matter content down to around 4% in the coming years, the greens will excel. Graden to a depth of 22 – 25mm using 2mm diameter blades, injecting kiln dried sand and seeding a top quality browntop bentgrass mix into the scarifying lines (at 6g/m²).
- Avoid Graden the new 16th green and also the 7th green. Organic matter levels are already low on the 7th due to its shaded surrounding environment and the 16th does not require this operation. Instead, the 16th green should receive a simple micro hollow tine and sand treatment (as per last year) and the 7th a solid tine and sand topdress.
- Look to carry out a double pass with the Graden on the 1st and 15th greens. Ensure that the second pass is applied at an acute angle to the first pass and at a slightly shallower depth of 16 – 18mm.
- With the Club now having their own spinning disk topdresser and better brush technology, more frequent light dressings can be applied to the greens through the year to dilute organic matter as it accumulates and optimise ball roll quality. In-season topdressing applications can be made at rates as low as 6 tonnes/ha and will have minimal impact on playing qualities and in fact enhance them! Our aim should be to exceed an annual total of 120 tonnes to the greens this year.
- Maintain routine micro aeration alongside the topdressing programme and ensure that you vary the depth of application with each treatment.
- Give consideration to air injecting the greens with the Air2G2 in late spring/early summer to target deep seated soil compaction. Greens such as the 1st, 11th, 15th and 17th would benefit from more frequent applications.

- As discussed in previous reports, the longer-term strategy for the 1st, 15th and 17th greens should be to install pipe drainage to improve drainage performance and bring them in line with the other greens. The soft and water retentive nature of the 1st green stood out considerably during this visit and is perhaps becoming ever more apparent as the other greens continue to improve agronomically.

Green Surrounds and Approaches

- Hollow tine and sand the 16th green approach with the larger 12mm diameter tines during spring renovations and aim to extend all greens aeration and sanding treatments to this approach through the year. That said, do not apply the additional 15:0:27 granular feed to this approach (when applied to the green), we need to avoid encouraging further organic matter accumulation.
- At the time of summer renovation, this approach should receive a hollow tine and sand treatment followed by a double pass with the Graden sand injection unit.
- Extend fairway feeding to the green surrounds in late spring to improve grass cover and vigour. Apply the 14:0:7 controlled release tees feed to the particularly weak surrounds; such as the 7th, 9th and 14th.
- Grass growth on the banking to the right side of the 12th green can be extremely productive at times through the season and this can cause issues with balls holding on the bank in very poor lies. This area does need reshaping in the future and the slope softening and grading back into the tree line (tree thinning is also essential). Before this progresses, advice should be sought on the most appropriate method of stabilising the banking. In the meantime, it was suggested that plant growth regulator (*Trinexapac ethyl*) is applied to this area on a 5 – 6 week basis through the growing season after flymoing. This should be applied via knapsack and at an initial rate of 1.5l/ha increasing up to 2l/ha during strong periods of growth. Include a small amount of nitrogen (3kg/ha) or iron with each application to avoid turf discolouration.

10th Tee

- Make contact with the Contractor as soon as possible to discuss the issues with the 10th tee. Our observations highlighted that the rootzone material contained high percentages of fines (very fine sand, silt and clay) and was of insufficient depth to achieve the desired drainage performance - especially in the absence of pipe drainage. The most appropriate remedy would be reconstruction using a more appropriate, specified material to greater depth. Please contact me if you would like to discuss this further.

Bunkers

- Course conditioning has improved considerably over recent years and the Club should be applauded for their investment in both essential maintenance machinery and on-course projects (E.g. 16th hole, tree thinning, turfing work). As the course improves, the poor condition and quality of the bunkering stands out more and this needs careful consideration and investment moving forward to help take the course to the next level. With this in mind, I would highly recommend that the Club look to enlist the services of a golf course architect to provide a professional architectural review of the bunkering. This can then be used as a masterplan to work to moving forward and inform future projects and expenditure.
- The recently renovated greenside bunker to the front right of the 7th is a notable improvement visually (see picture below). We did discuss raising the sand line slightly at the front of the bunker to provide a better view when playing approach shots into the green.



The renovated bunker on the 7th is a real improvement but would benefit from lifting the sand line at the front of the bunker

Tree Removal

- The dedication to tree management has been extremely impressive over the last few years and the course has benefitted greatly. The work around the 8th and 14th greens has been excellent this winter. The next priority would be removal of the two oak trees to the left of the 9th green (front-left and mid-left). These are hindering turf quality on the green and green surround and their removal would enable the green to be extended back to its original size.

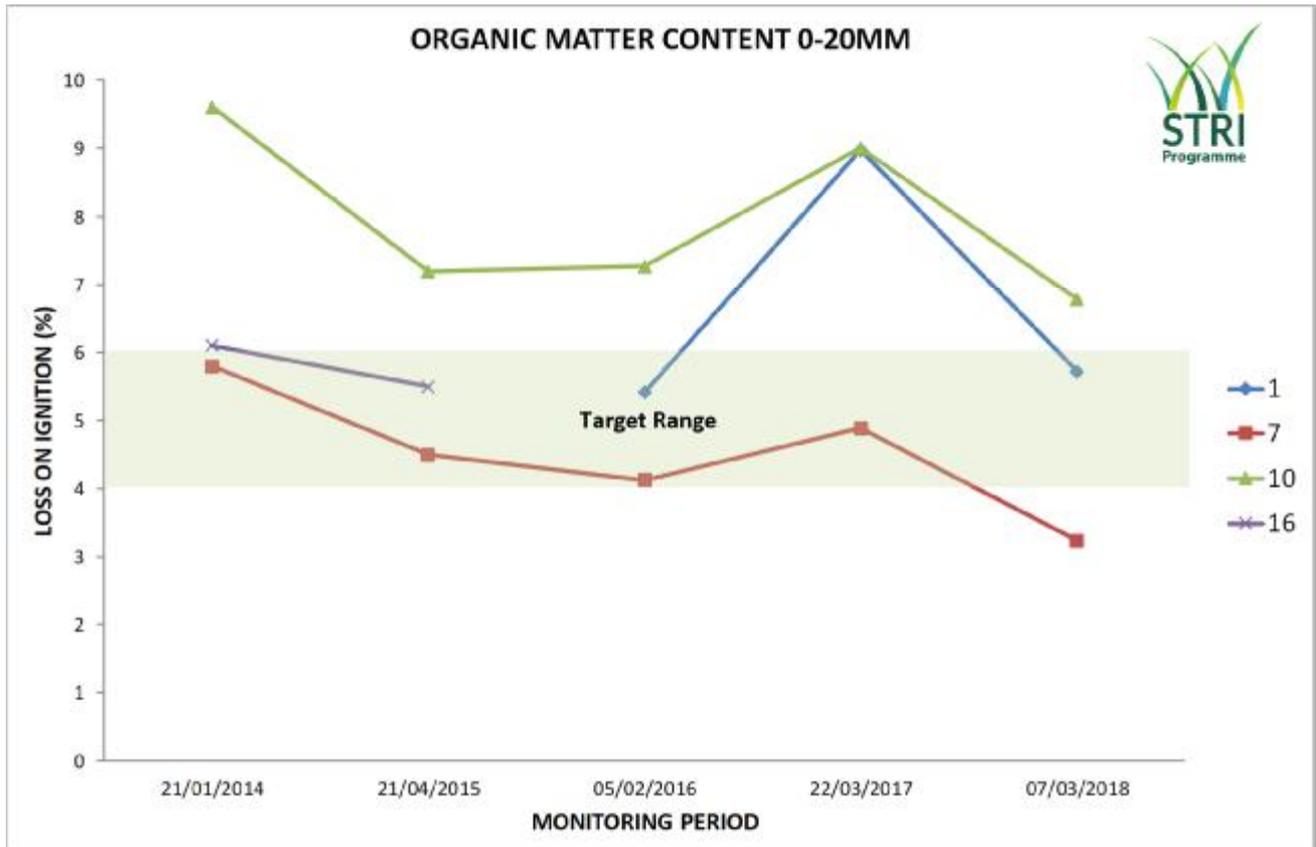
Signed

A handwritten signature in black ink that reads 'A R Newton'.

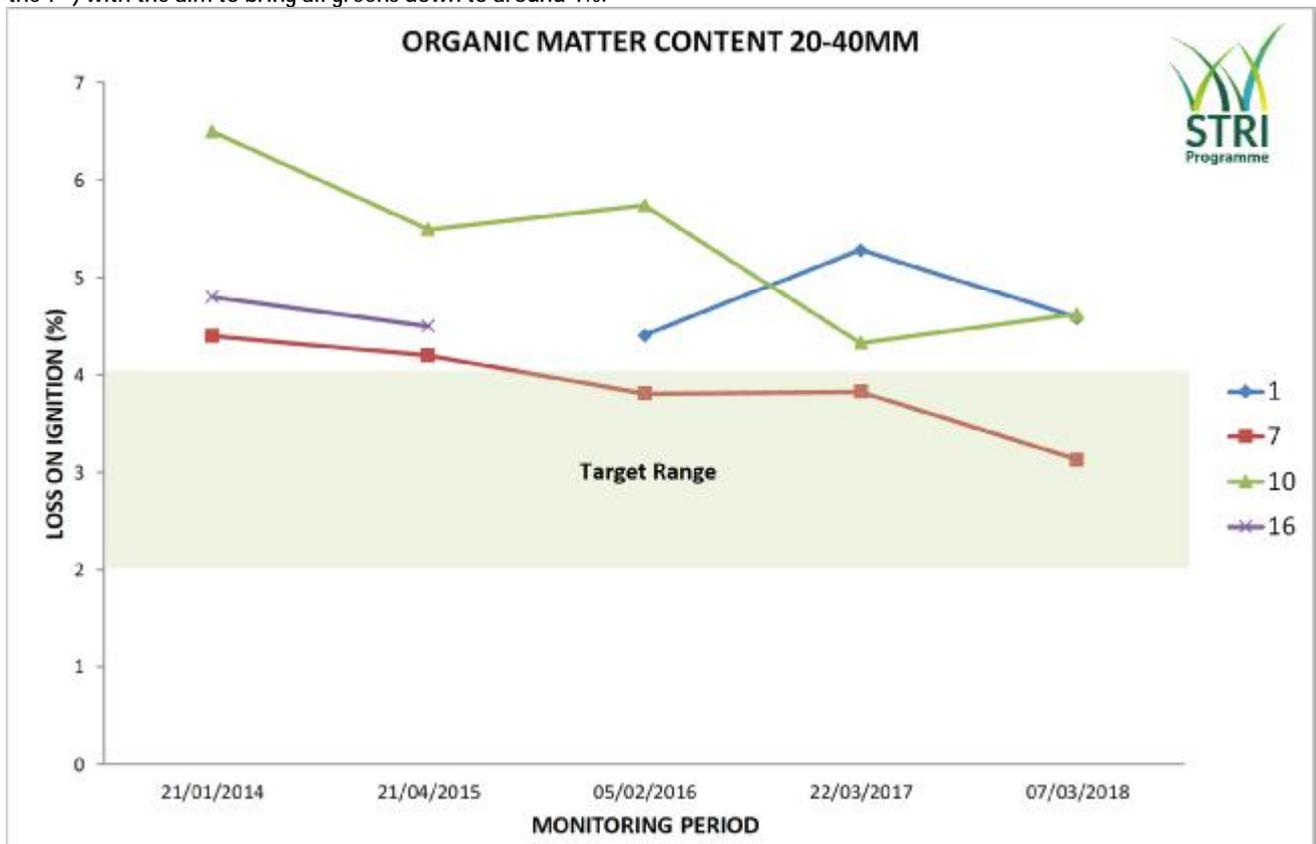
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Retford Golf Club

Soils Laboratory Data

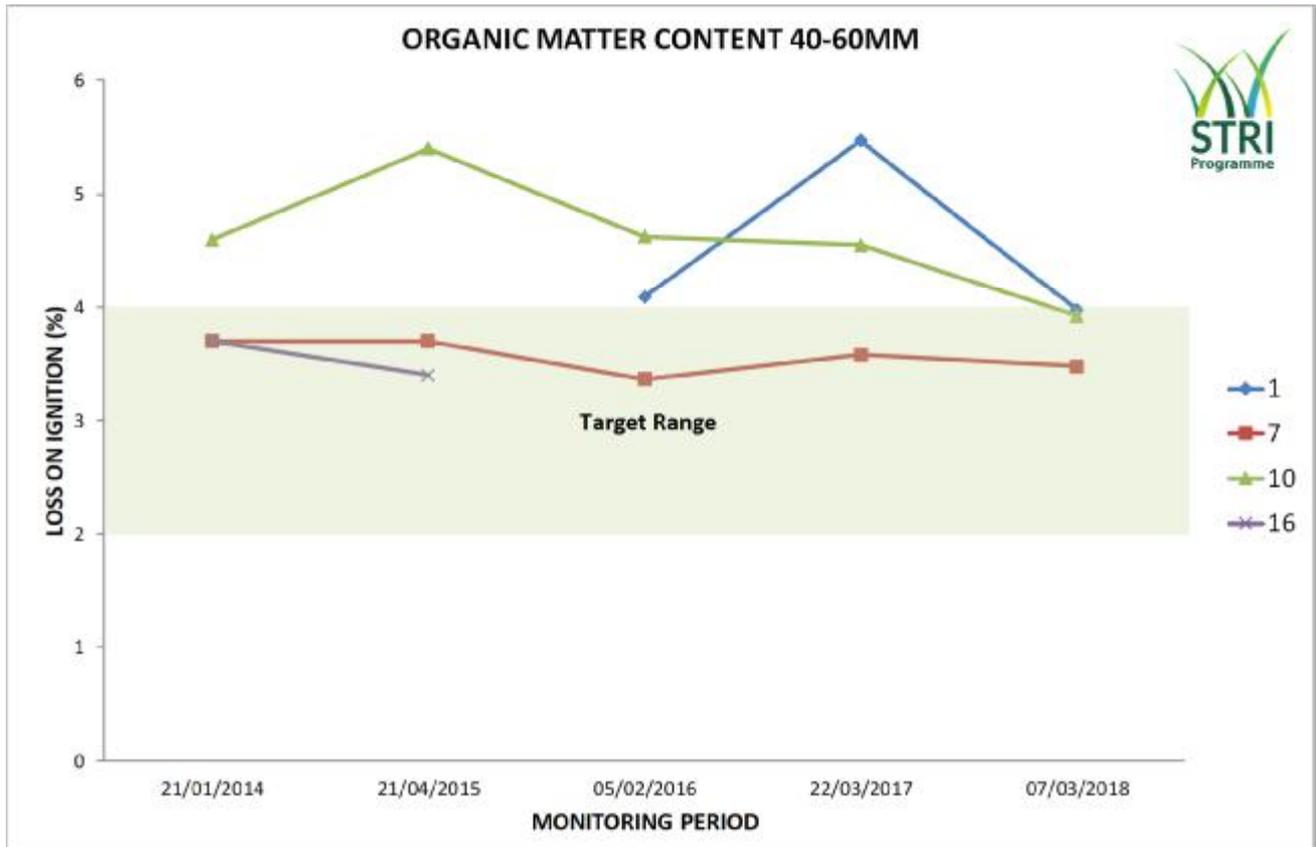


Soils Laboratory Graph 1: Organic matter content has seen a favourable reduction on all greens at 0 – 20mm depth. Average values have reduced from 7.6% to 5.2% over the last year but should be highlighted that the shaded 7th green offers very low values which brings the average down. That said the reduction over the last year has been impressive, particularly given that it has been a wet year. The 1st green is now just inside target range and the 10th is just outside. Further reduction should remain the focus (except on the 7th) with the aim to bring all greens down to around 4%.

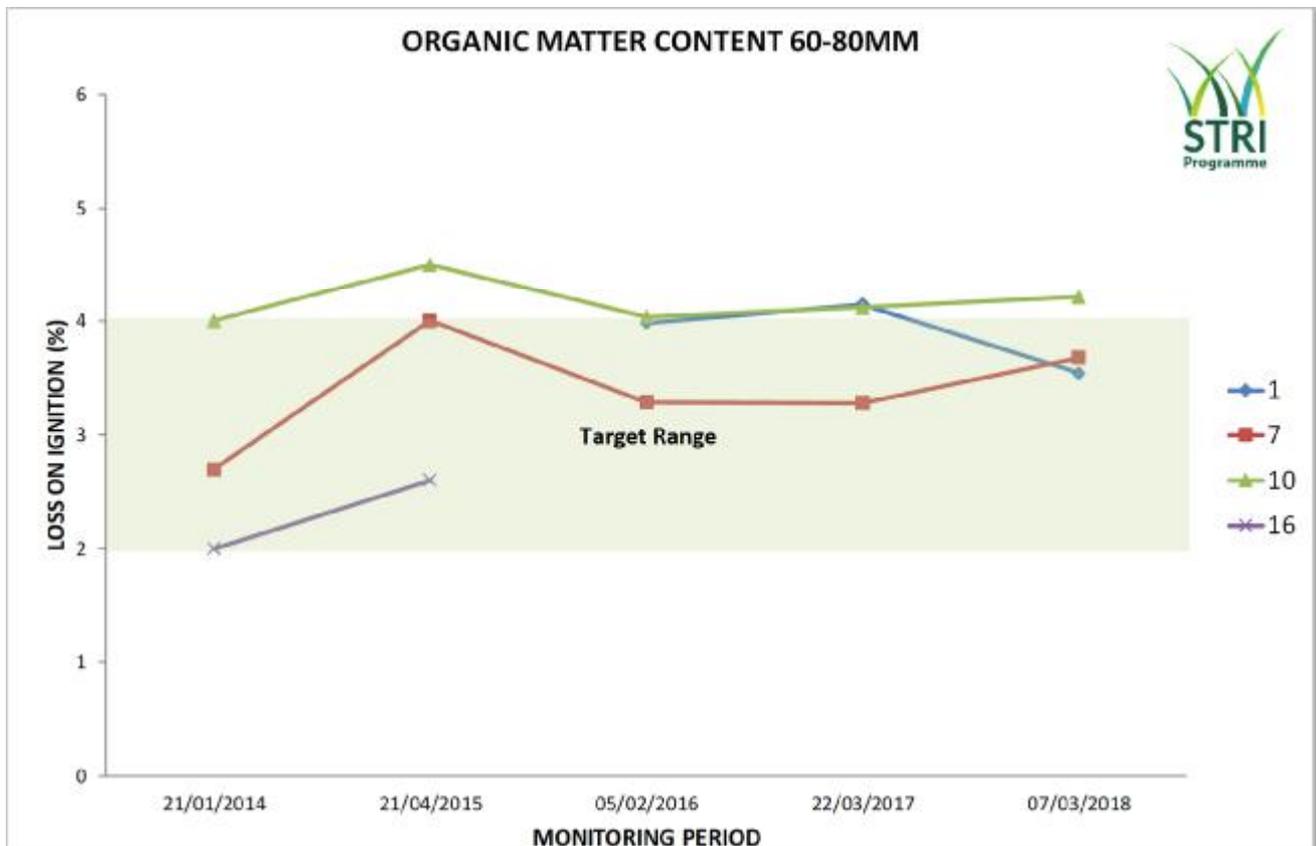


Soils Laboratory Graph 2: Values at 20 – 40mm have reduced on the 1st and 7th but increased slightly on the 10th. Further reduction is still needed at this depth.

Soils Laboratory Data (continued)



Soils Laboratory Graph 3: There has been a good reduction in values at 40 – 60mm depth and all greens are now just within target ranges.



Soils Laboratory Graph 4: Values are generally ideal at 60 – 80mm depth but some further dilution would be desirable at 60 – 80mm depth.

ORGANIC MATTER CONTENT

CLIENT: RETFORD GC
ADDRESS: BRECKS ROAD,
ORDSALL, RETFORD,
NOTTINGHAMSHIRE, DN22 7UA

DATE RECEIVED: 24/01/18
DATE REPORTED: 23/02/18
RESULTS TO: ARN

TEST RESULTS AUTHORISED BY:
Michael Baines, Laboratory Manager

CONDITION OF SAMPLE UPON ARRIVAL: MOIST

SAMPLE NO	DESCRIPTION	LOSS ON IGNITION (%) [*]
A16554/1	1 0-20 mm	5.72
	20-40 mm	4.58
	40-60 mm	3.98
	60-80 mm	3.54
A16554/2	7 0-20 mm	3.24
	20-40 mm	3.13
	40-60 mm	3.48
	60-80 mm	3.68
A16554/3	10 0-20 mm	6.78
	20-40 mm	4.62
	40-60 mm	3.92
	60-80 mm	4.21

* ASTM F1647-11 Standard Test Methods for Organic Matter Content of Athletic Field Rootzone Mixes (Method A)



THE RESULTS PERTAIN ONLY TO THE SAMPLE(S) SUBMITTED AND TESTED

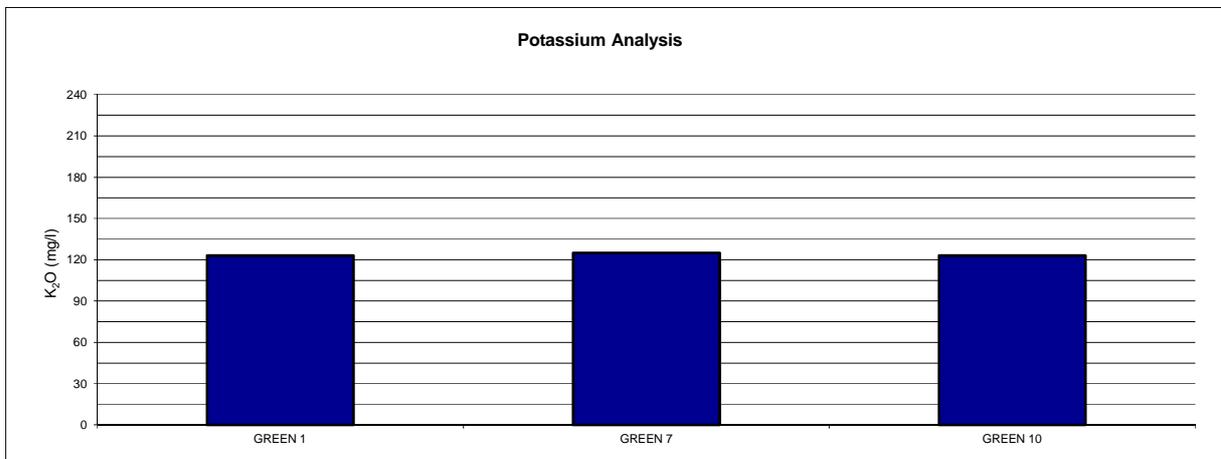
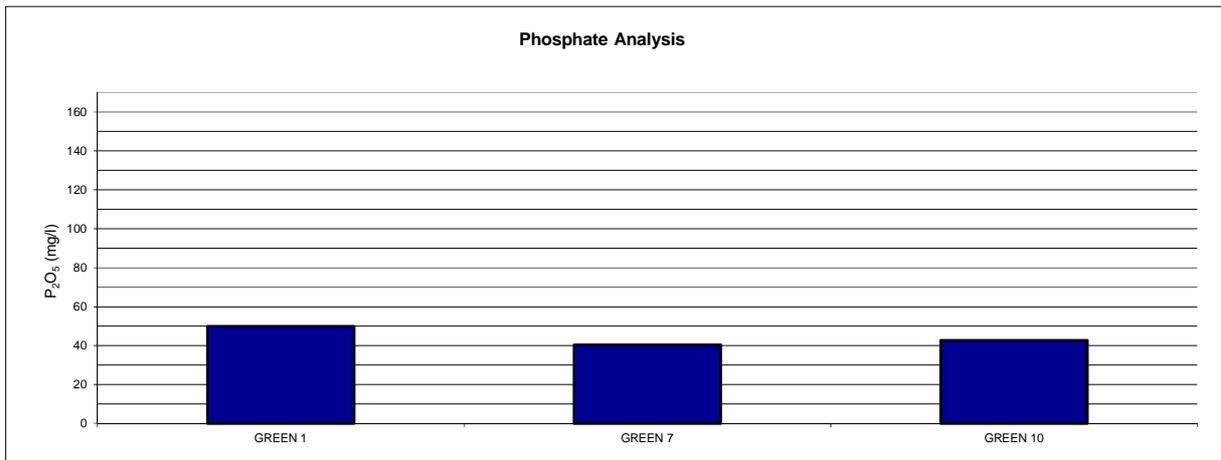
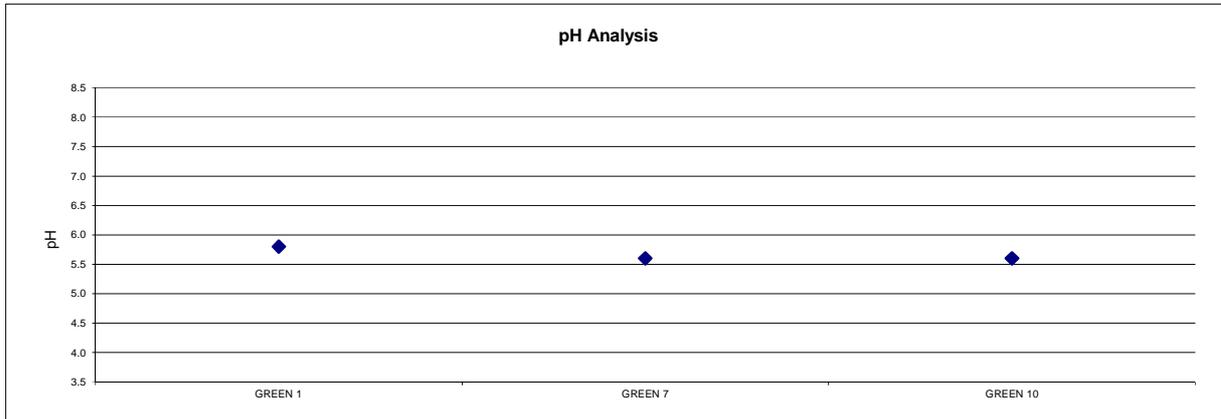
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SOIL CHEMICAL ANALYSIS

RETFORD GC

Date: 24/01/18



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