



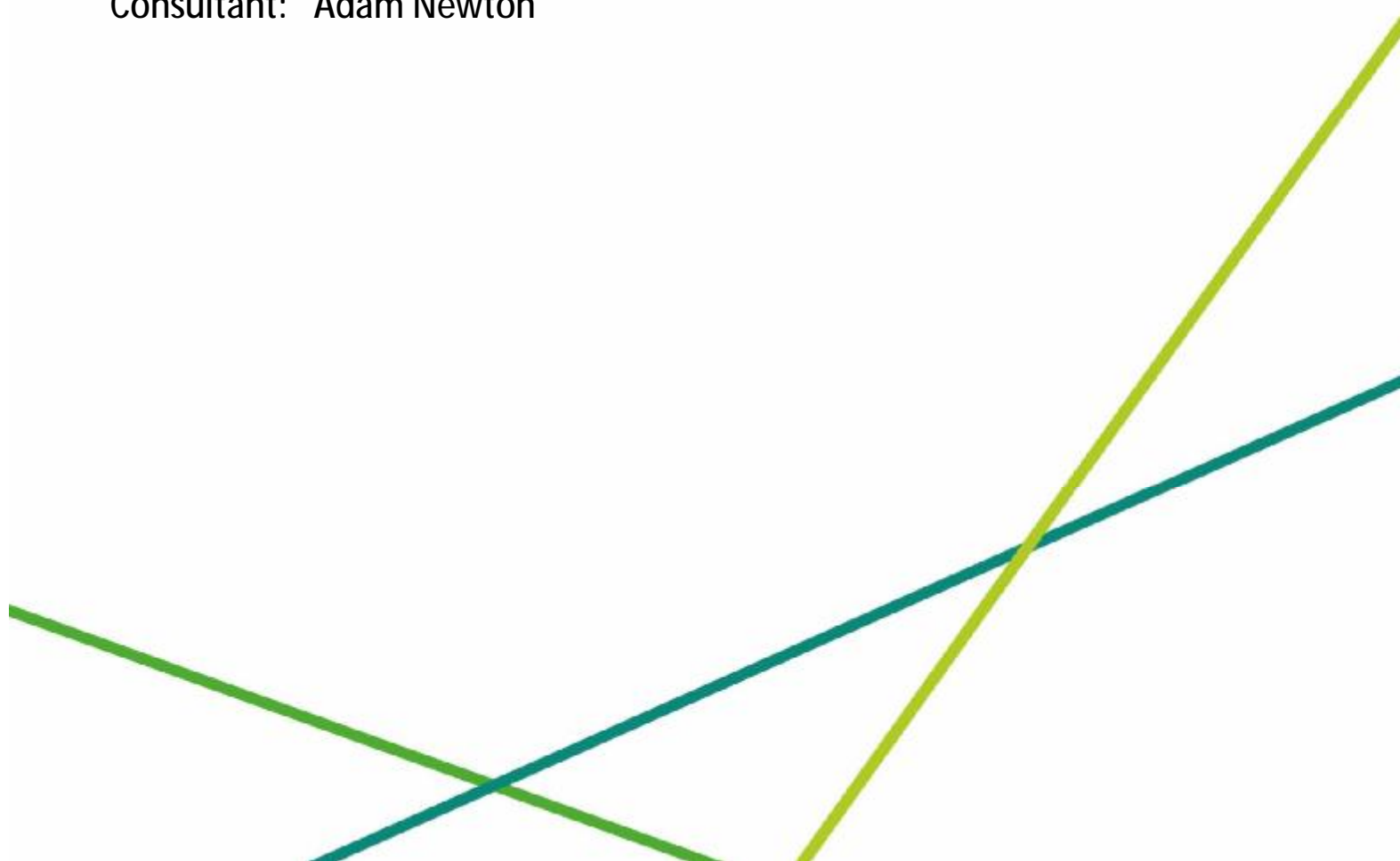
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TYNEMOUTH GOLF CLUB

Advisory Report on the Golf Course incorporating the STRI Programme

Report Date: 25th September 2017
Consultant: Adam Newton



Tynemouth Golf Club

Date of Visit: Monday 18th September 2017

Visit Objective: To provide an early autumn review of the golf course, collect greens performance data and confirm ongoing maintenance requirements.

Present: David Steven – Greens Chairman Paul Whittaker – Secretary (Part)
Ian Kerr – Head Greenkeeper Adam Newton – Agronomist, STRI Ltd

Weather: Overcast and cool, with temperatures of approximately 14°C.

Headlines

- The course has enjoyed a successful season, despite challenging conditions through late summer.
- The greens have largely performed well but have suffered a notable anthracnose disease outbreak over recent weeks which has scarred the surfaces and impacted ball roll quality.
- The poorer draining 5th and 13th greens were the worst affected by disease and require considerable work to firstly check the disease, then regain grass cover and performance for the winter ahead.
- Greens aeration inputs have been minimal through the season due to staffing issues. This has exacerbated disease problems and hindered soil structure.
- Organic matter levels have improved over the last year yet remain higher than desirable.
- Wider areas of the course have performed well this year but presentation has understandably reduced recently due to ongoing wet conditions.

Key Actions

- Apply an immediate application of Instrata fungicide to check active disease.
- Protect the surfaces from disease through autumn/winter by cultural and chemical control measures.
- Apply 2 further light dustings of sand over the next 2 – 3 weeks to smooth the surfaces.
- Strengthen the greens through an immediate application of Sustane 5:2:10.
- Solid tine the 5th and 12th greens with 12mm tines and the other greens with 6mm tines as soon as possible. It is imperative that aeration inputs are increased from now on.
- Give strong consideration to pipe draining the 5th and 13th greens in the near future.
- Make provision for Graden sand injection to the greens during next summer's renovations.
- Sustain annual sand inputs at a minimum of 120 tonnes/ha.
- Continue with tree management plans to improve airflow and sunlight levels around greens.

Objective Measurements

Measurement	Average	Target Range
Soil Moisture (%)	41.5% (range 38.6 – 44.6%)	15-30%
Hardness (Gravities)	88 Gravities (range 83 – 96g)	85-110 g
Smoothness (mm/m)	31 mm/m	<25 mm/m
Trueness (mm/m)	12 mm/m	<10 mm/m
Green Speed	7 ft 4 in	8.5-10.5 ft
Organic Matter 0-20 mm (%)	7.8%	4-6%
Organic Matter 20-40 mm (%)	6%	<4%
Soil pH	5.5	5.0-6.0
Phosphate (P ₂ O ₅)	13 mg/l	>10 (mg/l)
Potassium (K ₂ O)	66 mg/l	>30 mg/l
Key:		
	In Target	Marginal Variance Out of Target

Photo Observations and Comments



Figure 1: The greens are reported to have performed well through much of the season. The stronger surfaces (e.g. 9th) showed a good body of grass and were recovering well from renovation work, however weaker surfaces have suffered over recent weeks through a prolonged period of damp, humid weather.



Figure 3: The 5th and 13th greens were the worst affected by disease and it is no coincidence that these are the poorest draining greens on the course. The growing environment around the 5th is also very enclosed; causing the green to sit in shade with minimal air movement. A great deal of work is now needed to strengthen grass cover on both surfaces prior to the winter.



Figure 5: Hollow tining and sanding work has been effective and organic matter levels have reduced (see appendix). Values remain too high and further reduction is a priority.



Figure 2: Anthracnose disease has prevailed through these conditions and infected weakened annual meadowgrass populations. This has resulted in considerable scarring in some areas – especially higher traffic routes and poorer-draining areas. Aeration inputs have been minimal this year due to staffing issues and this has exacerbated the problem.



Figure 4: The soil profile beneath the 5th green illustrates its drainage issues. There is a considerable build-up of organic matter at the turfbase which is holding on to excess water and creating a stagnant growing environment (yellow arrow). Soils at depth are clay dominant and offer poor drainage performance (red arrow). The installation of pipe drainage will be the most effective way for water to bypass these poor soils. The 13th green profile is very similar.



Figure 6: Fusarium patch disease also had a presence on some greens but mostly on the 7th. Protecting the surfaces from fusarium through the autumn/winter is a key objective.

Photo Observations and Comments (continued)



Figure 7: There was some grub activity beneath the greens, most notably the presence of cutworms beneath the 2nd. Damage was relatively low, apart from some emergence holes, however activity will need closely monitoring.



Figure 8: I was pleased to see positive results from bentgrass overseeding on the 7th. Increasing bentgrass populations over time will see this surface become stronger and more resilient.



Figure 9: Wider areas of the course are reported to have been well presented throughout the majority of the year and the adoption of more intricate fairway shaping has been a success. Conditions through the late summer have been more challenging, with prolonged wet conditions leading to 'wet cuts' and more clipping deposits on the surfaces. This has been a problem experienced by many inland Clubs and is more a by-product of the conditions than anything else.



Figure 10: Routine bunker maintenance is extremely labour intensive and often greatly underestimated by golfers. The bunkers were mostly in decent condition but some of the more popular ones are inevitably tired and in need of renovation. Adopting a rolling programme of winter renovation was discussed moving forward.



Figure 11: The installation of fixed winter mats on the Par 3's will be a positive move and is fully supported.



Figure 12: The walkway leading from the 4th tee notoriously wears out on the slope and the introduction of a rubber matting/natural turf hybrid path was recommended to provide reinforcement and better wear tolerance.

Recommendations

Greens

- Apply the fungicide Instrata to all greens with immediate effect to help check active disease and provide protection to the surfaces for the next 3 – 4 weeks. Follow this up with a preventative fungicide application as this runs out in mid-October using a product such as Instrata Elite or Bayer Exteris. A further preventative application of Medallion TL should then be made in late November/early December. Given the high level of disease activity and the weak condition of the greens at present, I would recommend that this level of protection is necessary to avoid further damage and scarring to the surfaces through the autumn/winter period when disease pressures are at their highest. This approach will provide a good level of protection but full protection can never be guaranteed.
- Keep the surfaces as dry as possible through regular dew/moisture removal and apply iron sulphate treatments every 4 – 5 weeks through autumn and winter to help with desiccation of disease spores. Applying phosphite (e.g. Turfite) on a routine basis through autumn and winter can also prove to be beneficial by triggering defence mechanisms within the grass plant to defend against disease. This could be tank mixed with iron treatments but check the compatibility of both products firstly with your product representative.
- Solid tine all greens (except the 5th and 13th) with 6mm diameter tines as soon as possible. The 5th and 13th greens should receive a larger 12mm tine to greater depth and with some heave.
- Maintain good levels of aeration throughout the autumn and winter (when conditions allow) adopting the usual strategy of an 18mm verti-drain treatment in late October, followed by occasional 12mm treatments through the rest of the winter. Vary the depth with each treatment and maintain good levels of surface aeration through regular sarel rolling. If conditions do not favour the verti-drain but aeration is still needed, then consideration should be given to air injection using the Air2G2.
- Looking to next year, it is imperative that aeration inputs are increased. We can discuss this in greater detail during my spring visit.
- Strengthen the surfaces with the 5:2:10 granular feed as soon as possible. The organic component of this product requires decent temperatures to be effective and so time is of the essence.
- Plan for 1 – 2 light sand topdressings over the coming weeks to help smooth-out the surfaces. DynaSeed the 5th and 13th greens prior to application to assist sward recovery.
- Sand topdressing inputs have been good this year despite staffing issues. The aim should be to exceed a total of 120 tonnes/ha of sand to the greens next year.
- Given that organic matter levels remain excessive, (see appendix) I would recommend that Graden sand injection is scheduled for summer renovations next year. Again, we can discuss this further in spring but it would be sensible to look at potential dates and Contractor bookings through the winter.
- Spring renovations should again concentrate on solid tining (12mm diameter) and sanding to target organic matter reduction and soil textural improvement at greater depth in the profiles.
- Closely monitor the health of the 7th green throughout the autumn and winter and apply a turf hardener type product (e.g. 3:0:3) or lawn sand to strengthen if needed. This sand based green requires greater nutritional inputs than the other greens to retain a similar health and density. Looking to next year, provision should again be made for additional bentgrass overseeding inputs to this surface alone through the summer.
- Soil pH has increased into more favourable ranges over the last year and this may well have contributed to the reduction in organic matter reduction we have seen (see appendix). Values averaged at an ideal pH5.5.
- Phosphate levels were adequate on the 2nd but slightly low on the 7th and 8th greens. The upcoming 5:2:10 feed will help supplement phosphate levels suitably.

- Potassium levels were ideal on all greens and will not need supplementing beyond the 5:2:10 feed until spring.
- The installation of pipe drainage to the 5th and 13th greens would be strongly recommended to provide a longer-term solution to their drainage issues. The finer details and methodology were discussed within my previous report for reference but the design of the system should be discussed in greater detail with your Drainage Contractor prior to commencement of works on the 13th and 14th fairways.
- Monitor grub activity on the greens over the coming weeks. Unfortunately, there are no longer any chemical controls for either cutworms or leatherjacket grubs and so we can only rely on either biological or cultural methods. With cutworms, application of lemon scented washing up liquid diluted with water can be effective at bringing the grubs to the surface. Please contact me for dilution rates if you opt to try this.
- With leatherjackets, application of a parasitic nematode (e.g. Nemasys J) is the most effective method of control available, however application rates, conditions and methods must be strictly adhered to in order to achieve control. The current level of activity observed on the greens is not too concerning and doesn't warrant application, however this can readily change and therefore close monitoring is essential.

Green Surrounds and Approaches

- Verti-drain all approaches and green surrounds before soils become too soft or saturated.
- Topdress all green approaches following tining if budgets allow.

Tees

- The installation of fixed winter mats on the Par 3's will be a good addition and help with winter wear management. Consideration should also be given to purchasing 1 – 2 lighter-weight mats that can be put on other tees and moved around on a frequent basis to help spread wear. Occasional placement of these mats on summer tees during the winter can prove very beneficial and help spread divoting on the fairways, along with traffic routing.

Fairways

- Verti-drain all fairways and high traffic routes in autumn and again later in the winter if ground conditions and time permits.
- Apply iron sulphate to all fairways in autumn. This will improve aesthetics, strengthen the turf and provide acidity which will help discourage earthworm casting.
- Maintain good mowing frequencies whilst growth remains strong and implement blowing wherever possible to disperse grass clippings.
- As the fairway mower nears replacement, investigate the various options available on cutting units to help reduce clipping deposits.

Tree Removal

- Continue with plans to thin tree populations behind the 4th green this winter to improve airflow to the putting surface and expose pine trees.
- Work should also commence behind the 5th green as soon as possible to remove the sycamore to the back-right, along with at least 2 – 3 more sycamores directly behind the green. Extend this thinning work to the trees around the 6th tee which also hinder sunlight levels to the putting surface.

Pathway

- Look to install a rubber matting/natural turf combination to the area of worn pathway leading from the 4th tee. This is an extremely effective method of reinforcing paths whilst retaining a natural look. Installation can be simply done through stripping the turf in the affected area, levelling the base with rootzone, before re-turfing with a hard-wearing ryegrass turf. Surface levels should be approximately 2 inches below the surrounding ground. Then place the rubber matting on top of the turf and allow the grass to grow through the matting. Keep feeding levels up to retain vigorous growth.



Rubber matting/natural turf hybrid path in place at Royal Cinque Ports GC.

Signed

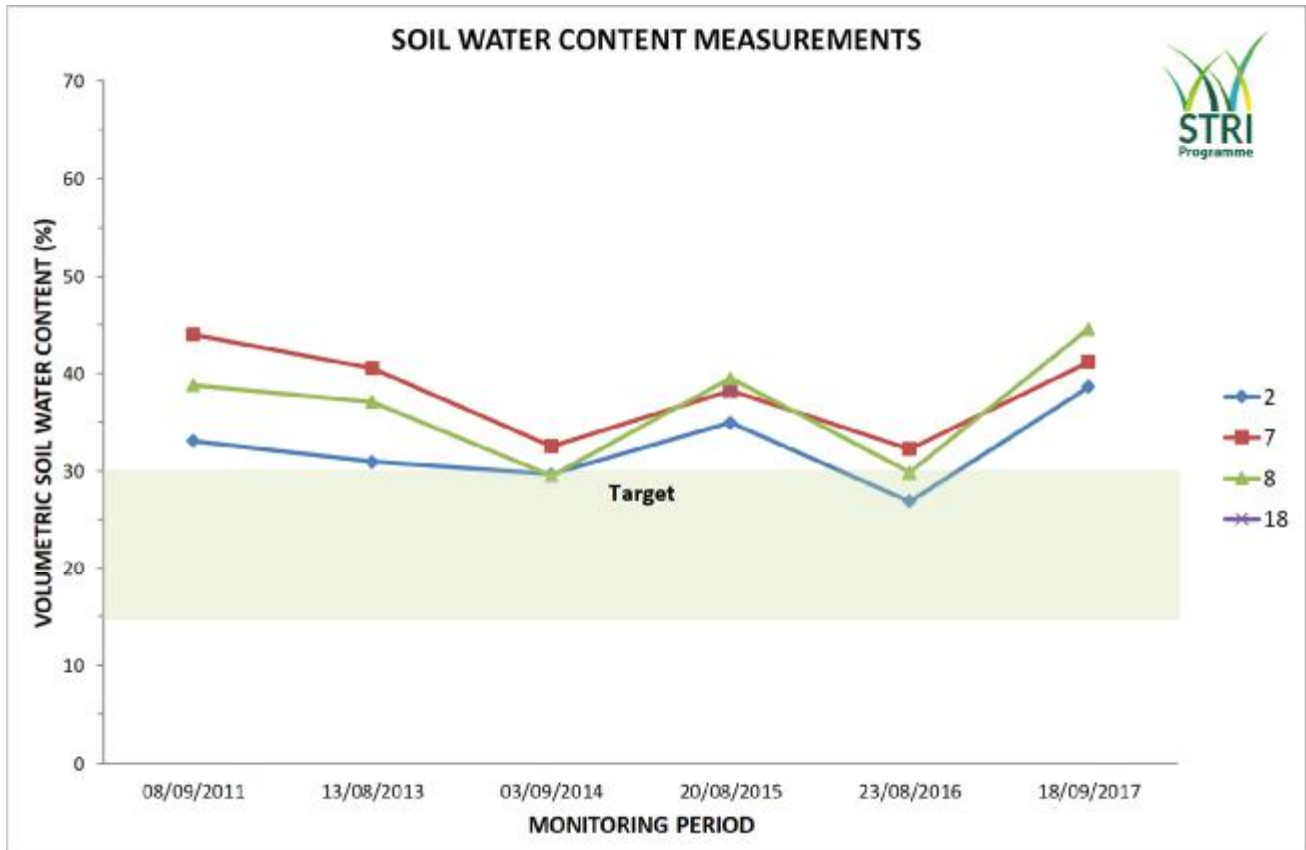
A handwritten signature in black ink that reads "A R Newton". The signature is fluid and cursive, with a large loop at the end.

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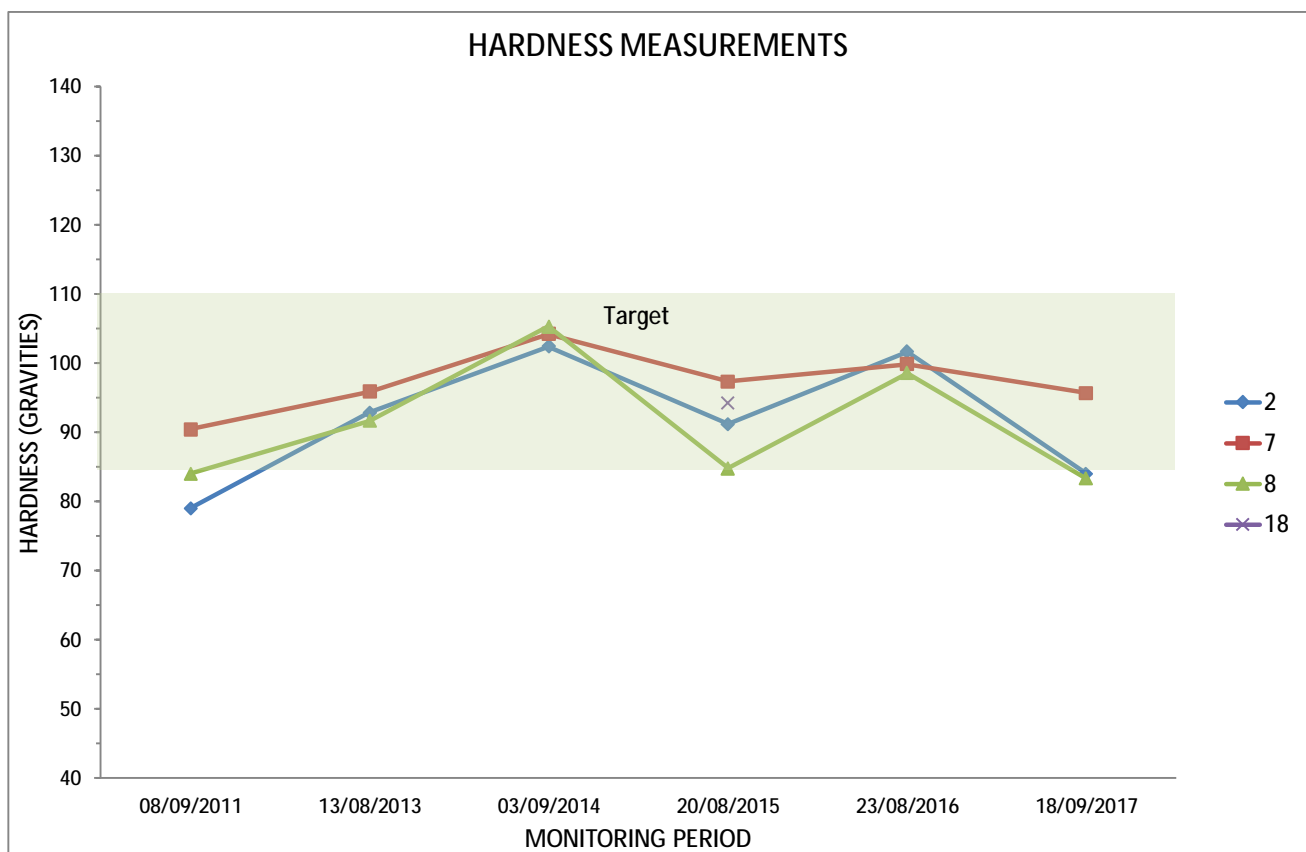
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Tynemouth Golf Club

Objective Data



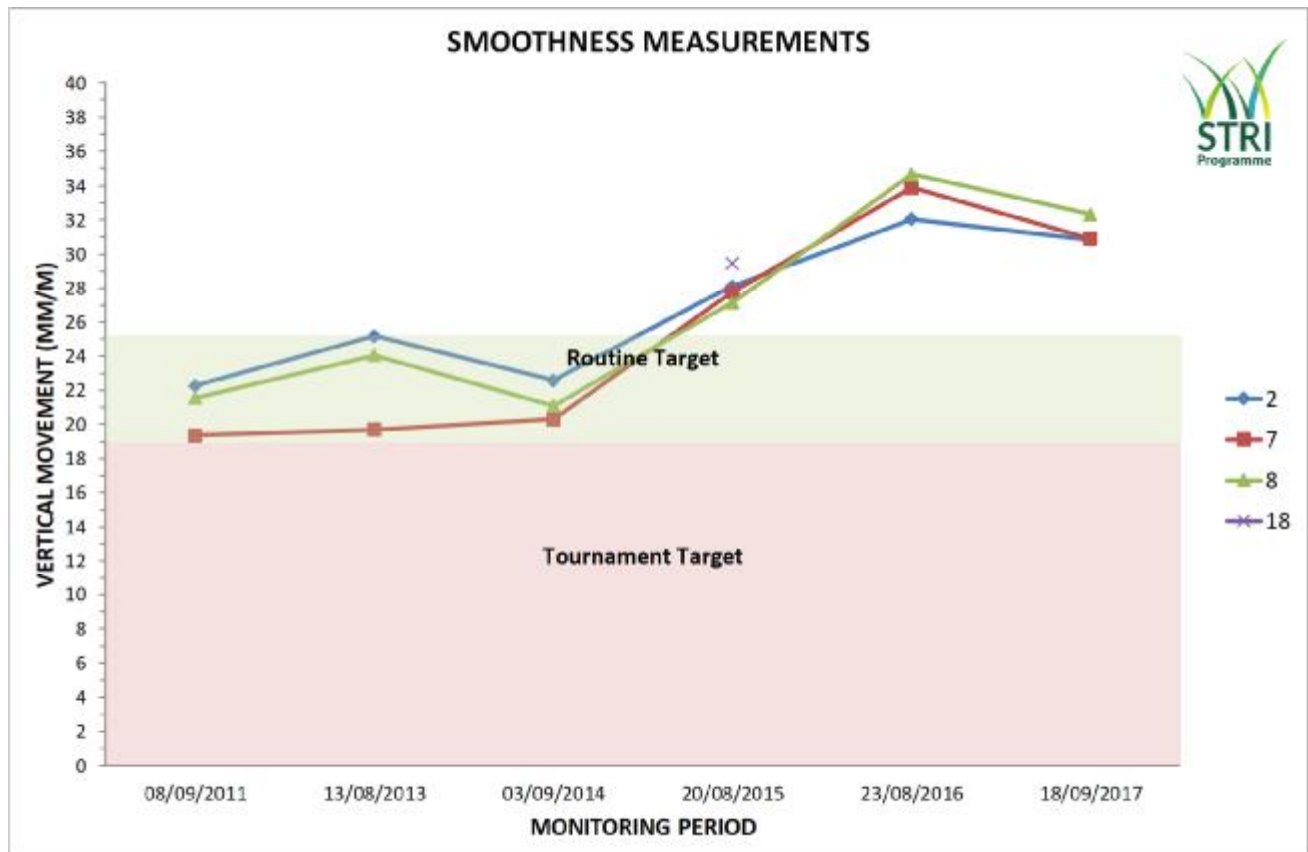
Objective Data Graph 1: Soil moisture levels were understandably high following the recent wet weather. All 3 greens offered similar values but the 2nd was the driest (as has been the case throughout historic testing).



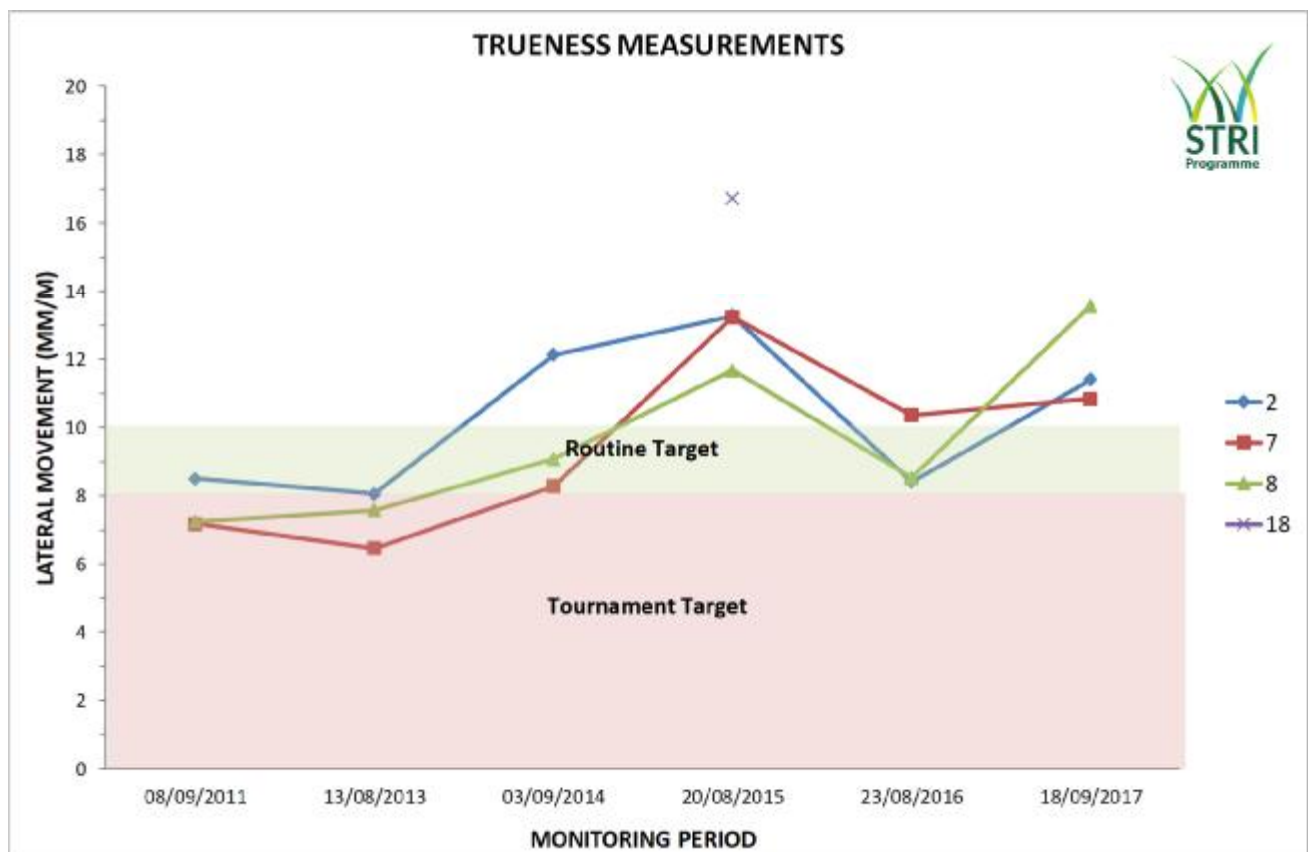
Objective Data Graph 2: Despite high levels of soil moisture, the sand based 7th green had retained firmness levels within target range, whereas both the 2nd and 8th greens had softened down below. The recent hollow tining work will have caused some softening but it is also clear that the presence of excess organic matter at the base of the turf is causing the surfaces to soften too much when wet. This presents one of our key areas for improvement moving forward.

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Objective Data (continued)

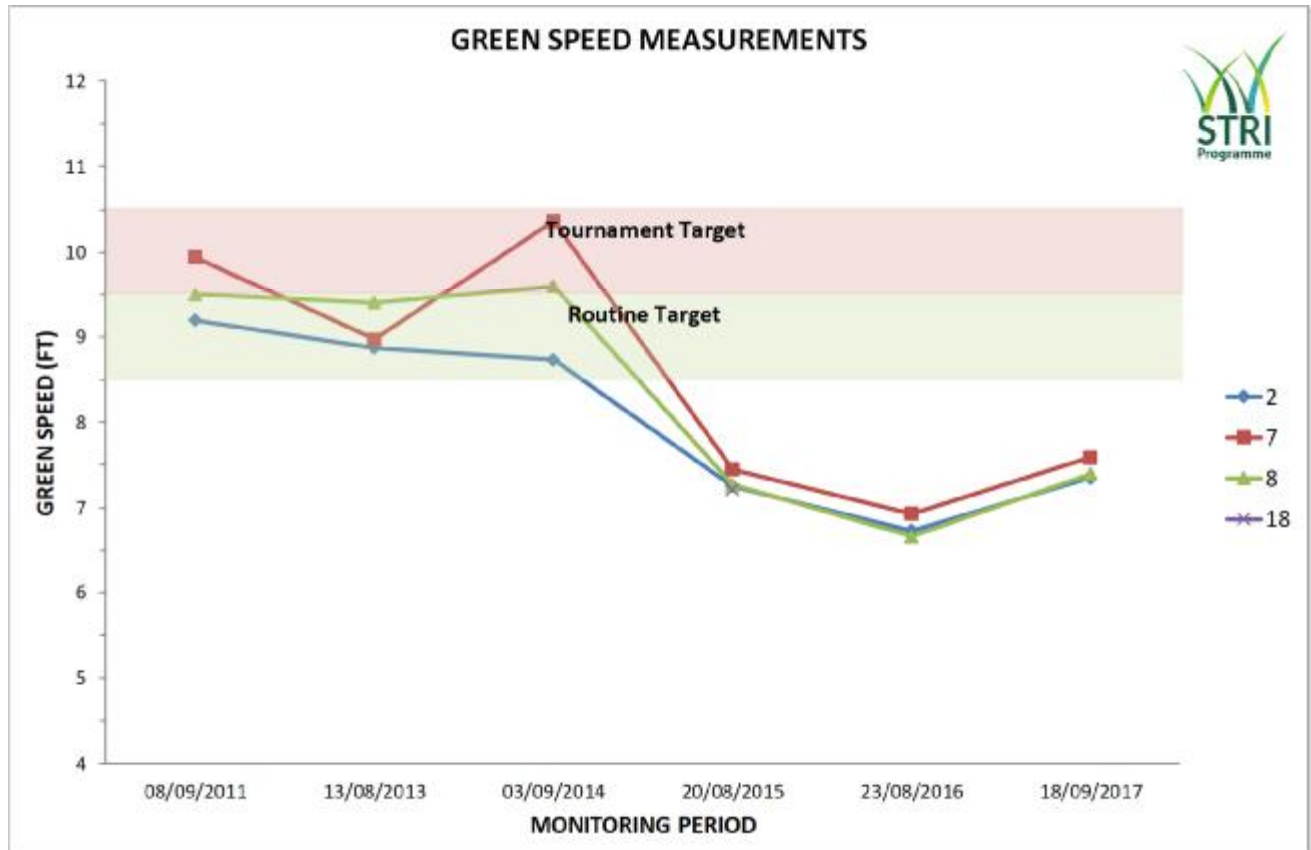


Objective Data Graph 3: Smoothness values were very consistent between the 3 greens but were notably outside of target ranges. The presence of disease scarring and aeration patterns is currently hindering ball roll smoothness levels.



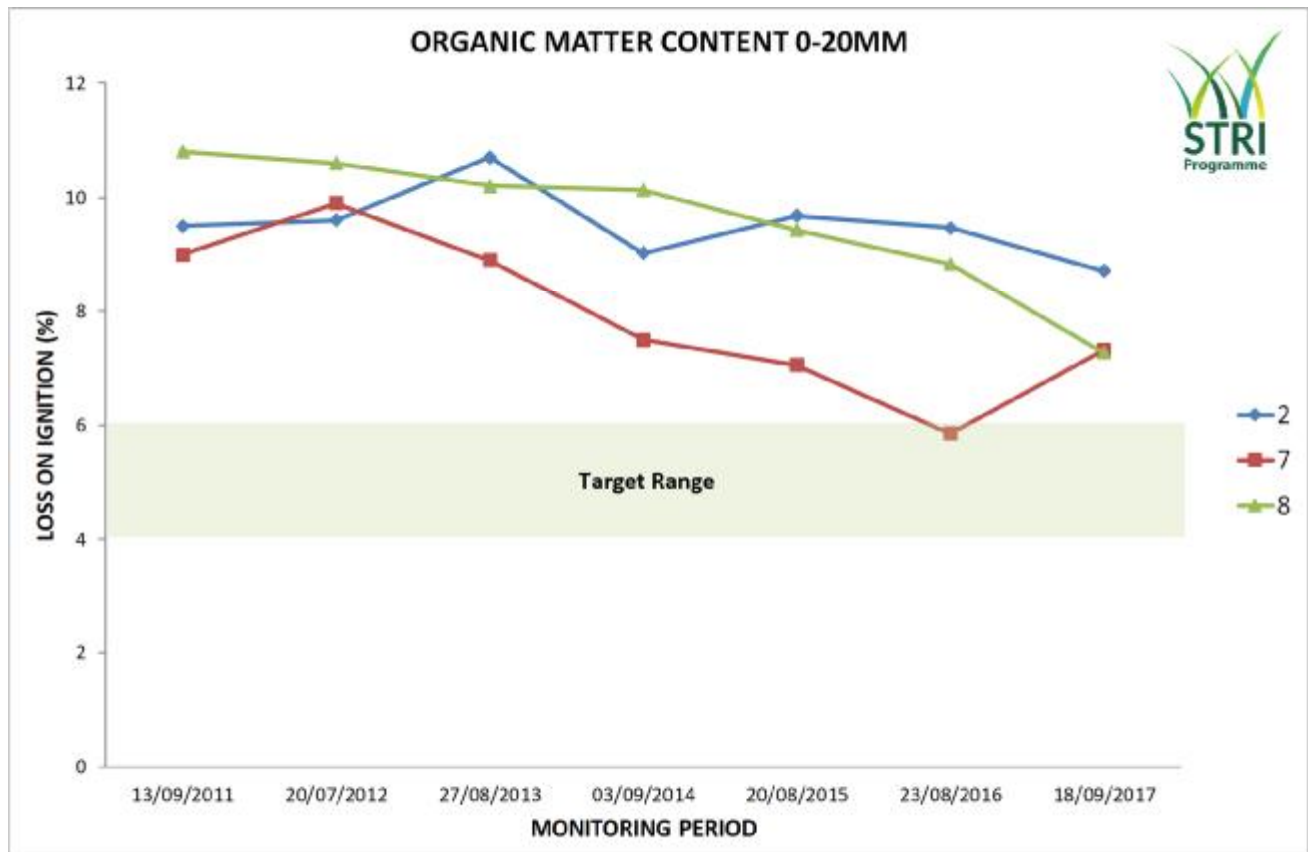
Objective Data Graph 4: Trueness values were also outside of target range and it was no surprise to see that the 8th green offered higher trueness values due to greater disease scarring across the surface. Regaining grass cover and surface levels through light feeding and sanding, will see both smoothness and trueness levels improve.

Objective Data (continued)

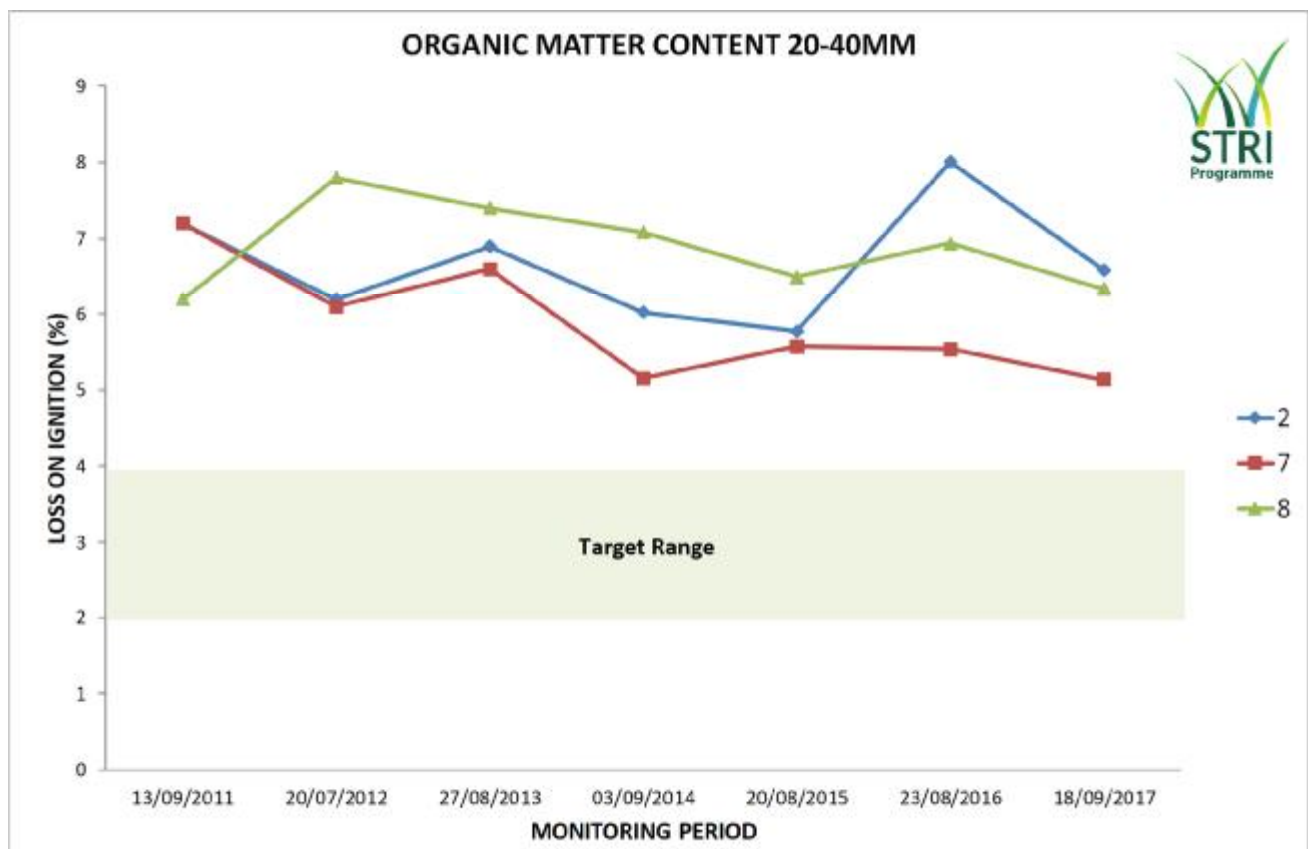


Objective Data Graph 5: Poor ball roll smoothness and trueness has had a knock-on effect on green speed, with all 3 surfaces lacking in pace. Improving ball roll quality will see green speeds improve.

Soils Laboratory Data

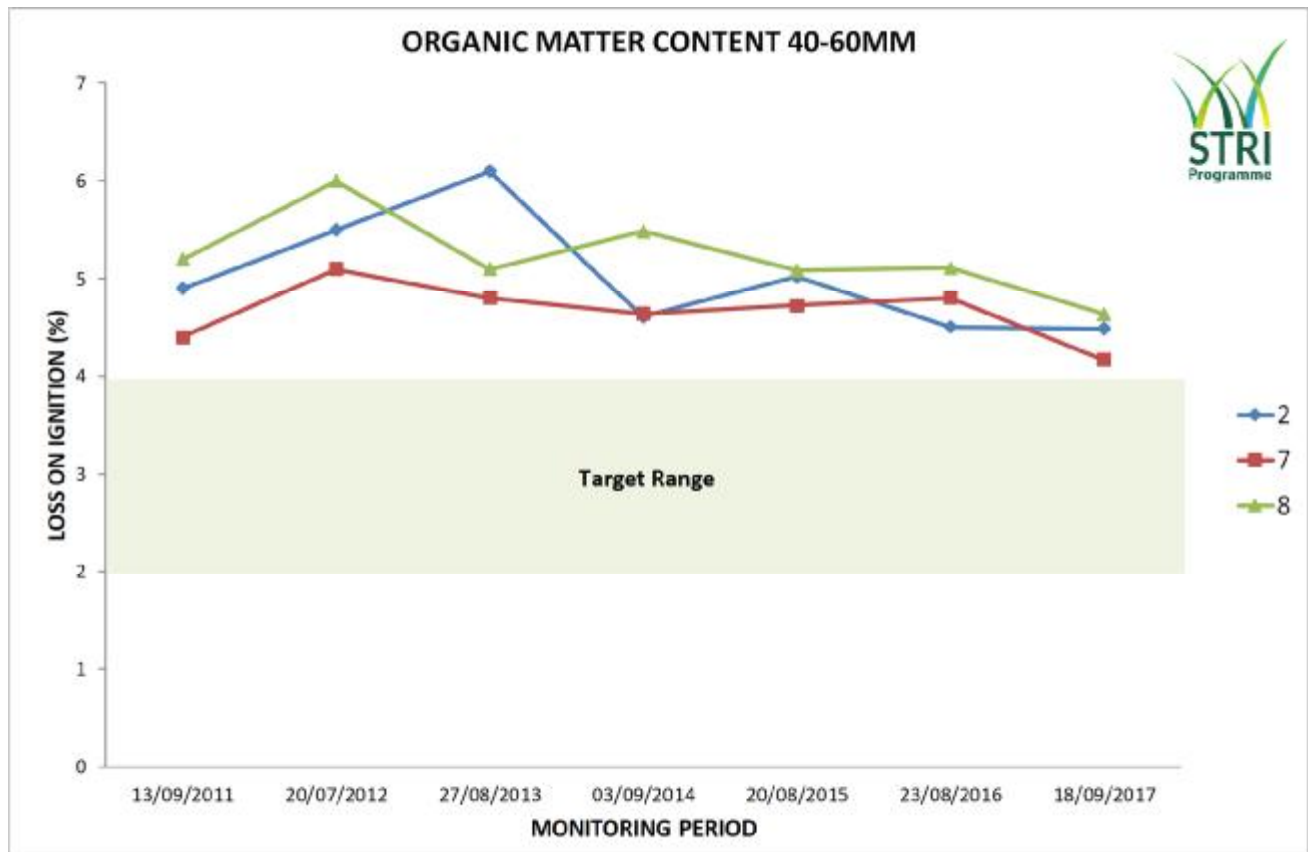


Soils Laboratory Graph 1: Organic matter content has seen a positive reduction on the 2nd and 8th greens but an increase on the 7th green due to slightly elevated levels of nitrogen to this surface. Values on all 3 greens remain higher than desirable and reduction is needed to optimise year-round surface performance.

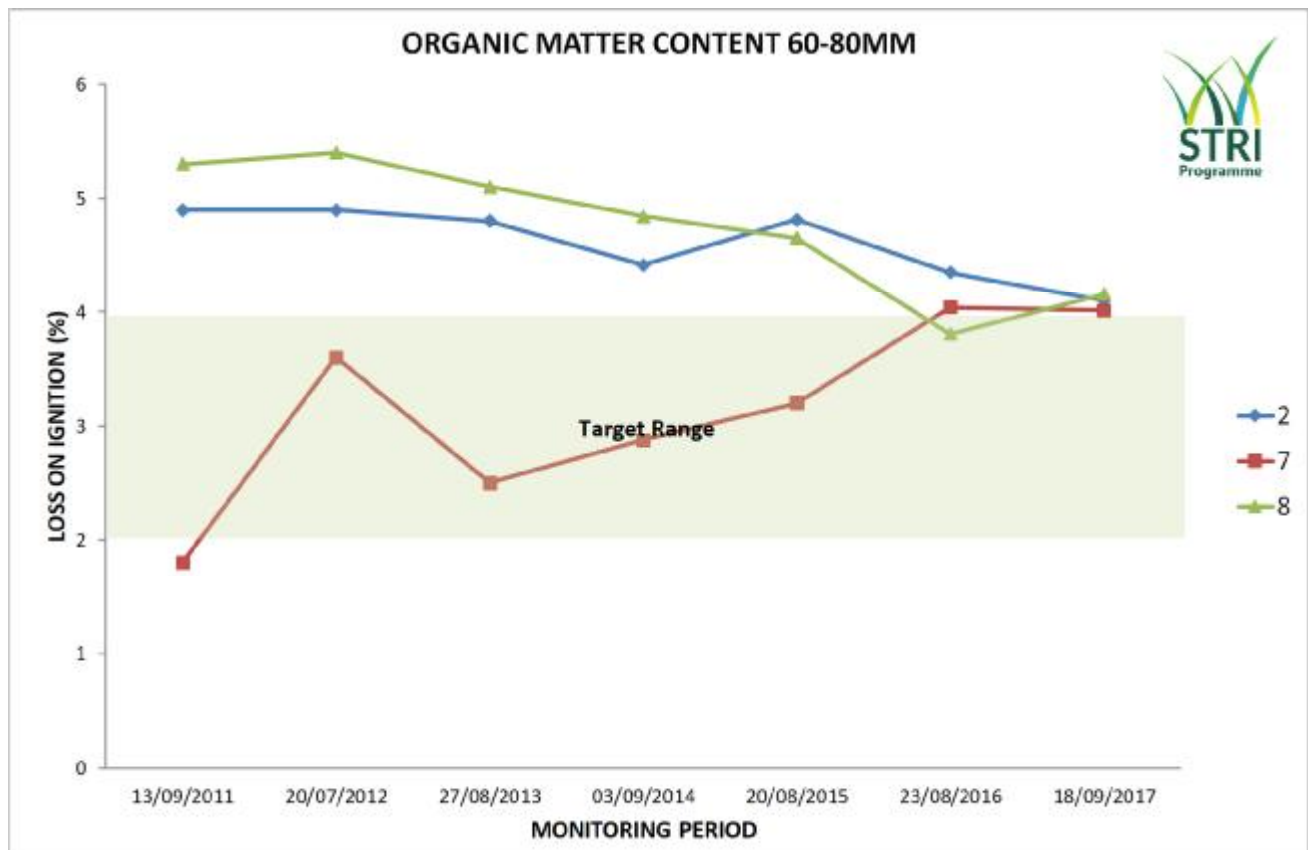


Soils Laboratory Graph 2: Values have reduced on all 3 greens at this depth but still remain higher than ideal.

Soils Laboratory Data (continued)



Soils Laboratory Graph 3: A slight reduction has occurred at 40 – 60mm depth and values are on the cusp of target ranges.



Soils Laboratory Graph 4: Values at 60 – 80mm depth have also improved slightly and are now just above target range and the most consistent they have been.



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ORGANIC MATTER CONTENT



CLIENT: TYNEMOUTH GC

DATE RECEIVED:

~~18/09/17~~

ADDRESS: SPITAL DENE,
TYNEMOUTH,
NORTH TYNESIDE, NE30 2ER

DATE REPORTED:

~~22/09/17~~

RESULTS TO:

ARN

TEST RESULTS AUTHORISED BY:

Michael Baines, Laboratory Manager

CONDITION OF SAMPLE UPON ARRIVAL: MOIST

SAMPLE NO	DESCRIPTION		LOSS ON IGNITION (%) [*]
A16281/1	2	0-20 mm	8.72
		20-40 mm	6.59
		40-60 mm	4.48
		60-80 mm	4.10
A16281/2	7	0-20 mm	7.31
		20-40 mm	5.14
		40-60 mm	4.17
		60-80 mm	4.01
A16281/3	8	0-20 mm	7.26
		20-40 mm	6.34
		40-60 mm	4.64
		60-80 mm	4.15

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



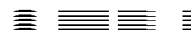
THE RESULTS PERTAIN ONLY TO THE SAMPLE(S) SUBMITTED AND TESTED

Testing Certificate 2159 - 01

STRI



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SOIL CHEMICAL ANALYSIS



CLIENT:

TYNEMOUTH GC

RESULTS TO: **ARN**

DATE RECEIVED:

18/09/2017

Lab No.	Source	pH	P ₂ O ₅ (mg/l)	K ₂ O (mg/l)
A16281/1	GREEN 2	5.8	23	60
A16281/2	GREEN 7	5.3	5	63
A16281/3	GREEN 8	5.5	9	76

Mr M A Baines, Soil Laboratory Manager

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



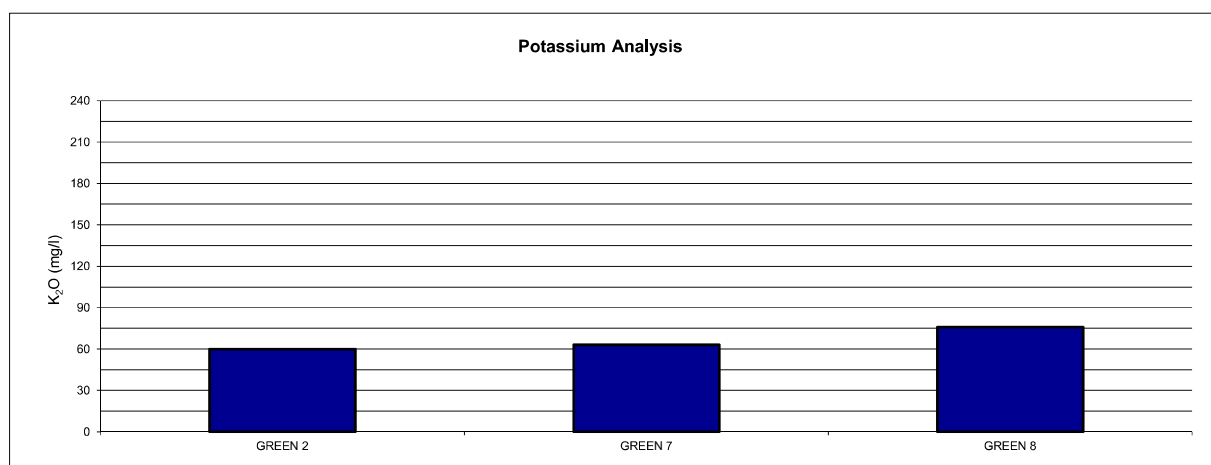
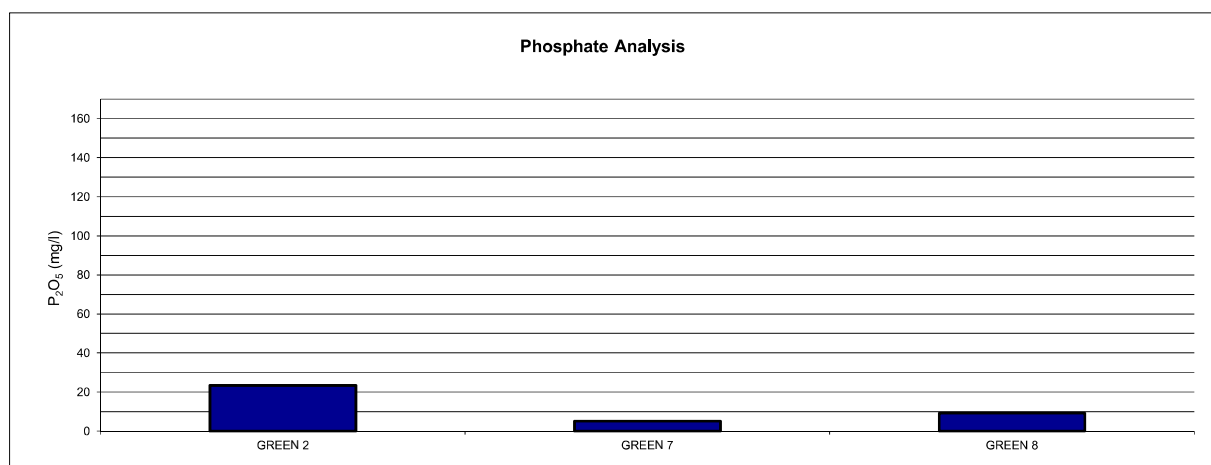
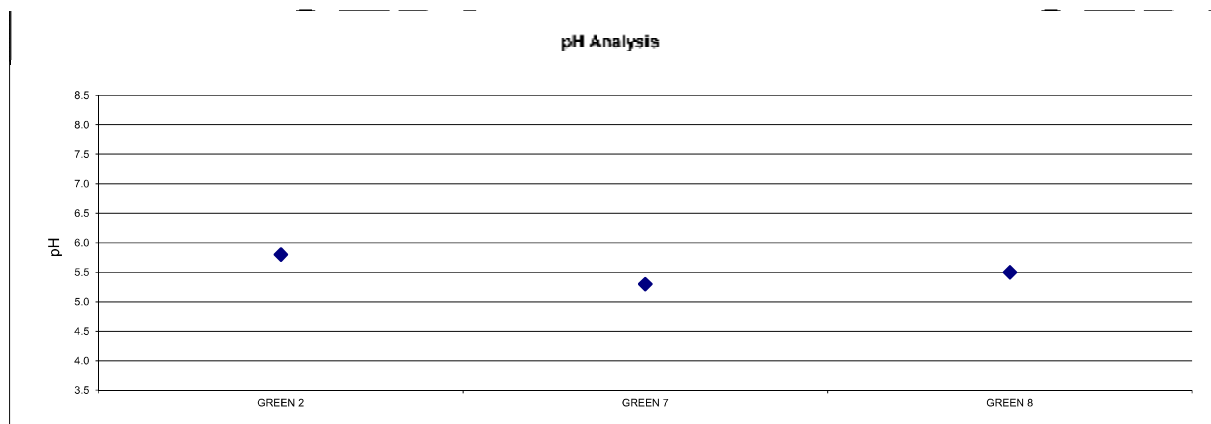
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SOIL CHEMICAL ANALYSIS

TYNEMOUTH GC

Date: 18/09/17



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

Technical Note

PIPE DRAINAGE FOR GREENS

Plan the work well in advance and communicate plans to members to minimise disruption and complaints.

Start work as early as possible in the autumn when ground conditions are most suitable. If the ground is worked when conditions are wet it will have a significant impact on the quality of the finished work. There may also be significant damage caused to the haul routes during the works if the ground is too soft. Aim to complete the work prior to Christmas to allow plenty of time for the turf to re-establish along the drain lines before bringing the green back into use in the spring.

The drains may take in excess of 12 months before they start to pull to their full potential but an improvement should be noted straight away. However, further aeration treatments are likely to be required to maximise efficiency of the installed drainage, helping water migration to newly installed pipes. This should be part of a thatch reduction programme involving other elements such as extra top dressing and scarification/hollow tining.

The guidelines for pipe drainage introduction following excavation of drain trenches are as follows:

- Use 80mm diameter plastic pipe at 2-3 metre spacing depending on conditions.
- In cutting the drain trench, allow for 25mm either side of the pipe.
- There is always the risk of drain lines standing out in the summer which is one of the potential problems with pipe drainage introduction compared with redevelopment. Introduce a 60:40 rootzone at a uniform firmed depth of 300mm and a minimum of 250mm.
- To ensure bridging factors are met and to avoid rootzone migration into the gravel over time, it is important to test the suitability of proposed materials in the STRI Laboratory prior to proceeding.
- Whether a blinding layer is required depends on the choice of gravel size. An 8-10mm gauge aggregate could be blinded with 50mm firmed depth of a 1-4mm hard washed grit.
- The aggregate should be a washed, hard aggregate that is not limestone or sandstone.
- In order to dispense with the blinding layer the aggregate size can be reduced to a 3-6mm gravel. As a guide, the blinding layer or rootzone should be around one-sixth of the aggregate size. The depth of aggregate will depend on the drain depth, preferably 600mm but at least 450mm.
- Adequately firm each layer. Once the backfill has been completed, re-lay the stripped turf flush with surrounding ground, not proud in anticipation of settlement. If there is minor settlement then the unevenness can be selectively top dressed. Scalping of the turf should be avoided.
- Finally, give a light roll and top dress. Bringing the green back into play will depend on how quickly the turf knits in. Once the turf is fully integrated and a good surface has been restored, subsequent maintenance should involve tining and top dressing to maintain through flow of water past the initial base of the turf and organic layer into the growing medium and drain below.