Making great sport happen

LISBURN GOLF CLUB

Advisory Report on the Golf Course incorporating the STRI Programme

Report Date: Tuesday 8th August 2017
Consultant: Ian McClements

Lisburn Golf Club

Date of Visit:	**Tuesday 8th August 2017**
Visit Objective:	**To evaluate the playing quality characteristics of the putting surfaces using the STRI Programme and to discuss course maintenance objectives.**
Present:	**Mr Ivor Walker – Captain** **Mr Ken Haslem – Greens Convenor** **Mr John McKeown – Secretary/Manager** **Mr Robert Nelson – Course Manager** **Mr Stephen Kelly – Deputy Course Manager** **Dr Ian McClements – STRI Ltd**
Weather:	**Dry and sunny after a spell of showery weather.**

Headlines

- It was reported that the putting surfaces had overwintered well and benefitted from the intense autumn programme. Despite the poor spring, it was reported that greens transitioned well for the start of the main competition season and the feedback in terms of playing quality has been generally positive over the summer months.
- At the time of the visit the greens supported a dense and even grass cover with good ball roll characteristics, there were however some discrepancies in lateral ball movement between the three greens tested particularly in the direction in which greens were assessed. Very good levels of pace were being achieved that would satisfy the majority of member's requirements.
- It was reported that 75 tonnes of sand had been applied to the putting surfaces since last November and it is envisaged that further dressings will enable the minimum 100 tonne target to be exceeded.
- The remodelling of the 4th teeing complex had been completed to a high standard. Maintenance inputs should focus on developing grass density and sward resilience to play.
- Remodelling works around the 4th green complex and tree removal around the 6th has helped to improve playability and to some degree environmental conditions at the 6th, although more can still be achieved.
- The body of grass to the 1st and 2nd fairways are a little more open than desired and maintenance strategies were discussed for improving grass coverage and density.
- A review of bunker sands is currently underway and the opportunity was taken to discuss some of the challenges associated with bunker maintenance when labour resourcing is at a premium.

Key Actions

- The momentum created by the sanding programme must be sustained to achieve the desired level of organic matter dilution and improvement in green performance. Target for topdressing remains at a minimum of 100 tonnes and a preferred optimum of 150 tonnes
- Foliar feeds with small inputs of nitrogen, iron and combined with a growth regulator Primo MAXX can help to maintain grass density and control bolting as is evident on a number of green surfaces.
- The contouring of the putting green increases mechanical pressures when close mowing whilst the sandy rootzone requires greater attention in the form of irrigation and nutrient inputs.
- The objective data collected from the putting surfaces indicated that there was greater lateral ball movement on the 4th.
- Greens remained more water retentive and softer than we would desire and this further highlights the importance of sand top dressing to improve green performance over a 12 month period.

- The new 4th tee would benefit from additional nutrient to support recovery from wear damage together with a series of general overseeding treatments to help build grass density.
- The recently installed drainage laterals on the 1st and 2nd fairways require topping up to improve surface levels.
- Grass density to fairways should be improved to offer more support to the ball for an improved golfing experience.

Objective Measurements

Measurement	Average	Target Range
Soil Moisture (%)	38.4 % (range 36.4 – 41.3%)	15-30%
Hardness (Gravities)	87 Gravities (range 84-93)	85-110 g
Smoothness (mm/m)	12.5 mm/m	<25 mm/m
Trueness (mm/m)	6.9 mm/m	<8 mm/m
Green Speed	10 ft 10 in	9-10 ft
Organic Matter 0-20 mm (%)	7.6 %	4-6%
Organic Matter 20-40 mm (%)	5.1 %	<4%
Soil pH	5.7	5.0-6.0
Phosphate (P_2O_5)	11 mg/l	>10 (mg/l)
Potassium (K_2O)	93 mg/l	>30 mg/l

Key: **In Target** **Marginal Variance** **Out of Target**

Hole	Green Speed	Smoothness	Trueness	Firmness Mean	Firmness SEM (+ or -)	VWC	VWC SEM (+ or -)
9	10 ft 8 in	11.69	4.34	84	1.7	41.3	1.6
6	11 ft 3 in	11.71	6.78	93	1.9	37.4	1.1
4	10 ft 8 in	14.20	9.43	84	1.2	36.4	3.1

Photo Observations and Comments

Figure 1: Weak collar at rear of 6th green

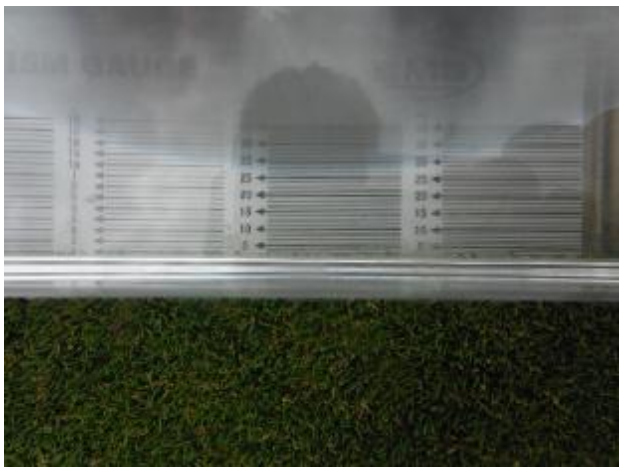

Figure 2: A 3mm height of cut measured with prism

Figure 3: Distinctive organic matter in green profile

Figure 4: Weak perimeter to putting green

Figure 5: Trees to rear of 17th green

Figure 6: Dipped drain line on 1st fairway

Photo Observations and Comments (continued)

Figure 7: Sand accumulation on fairway

Figure 8: New 4th tee

Figure 9: Profile of new 4th tee

Recommendations

Greens

- It is important that the increase in sand dressings is maintained through the remainder of the growing season and into the autumn. The objective of organic matter dilution to improve green performance and playability on a year round basis.
- Techniques for improving sand integration to reduce any potential adverse impact on machinery and playing quality include light verticutting/grooming to open up the sward cover in advance of top dressing, solid tine aeration treatments in conjunction with top dressing to work sand into the upper profile, rolling after sanding to push the sand into the canopy.
- The aim should be to apply a minimum of 120-150 tonnes of sand per annum to greens.
- Turfgrass colour, vigour and density should be maintained during the growing season with regular light applications of liquid fertiliser combined with applications of growth regulator. As a guide, Primo MAXX would be applied on a monthly basis at a rate of 0.4 litres per ha once grass growth rates have stabilised in the spring. Allow for the inclusion of 5 kg of nitrogen per ha in conjunction with the Primo to avoid discolouration and to aid with its uptake.
- The end of season renovation programme to greens should include the provision for deep scarification to remove the surface organic matter within the upper profile. Use a 1-2 mm diameter blade with the objective of working through the top 20 mm (if practical). Following debris collection, top dress the greens in an effort to work sand into the scarification lines before opening the profiles to depth with the verti-drain. Plan to deep aerate to a depth as completed last autumn, the objective of fracturing and opening the soil profiles that will greatly assist water penetration to depth.
- The ghost grass that is evident on the greens at the time of the visit is often favoured by humid conditions in the late summer and is transient. Primo applications can help to minimise this effect.
- The objective playing quality data collected at the time of the visit indicates that the greens remain softer and more water retentive in the top 60 mm then would be considered desirable for optimum year round playing characteristics and we again emphasise the importance of thatch management.
- The smoothness and trueness values were generally good and were most consistent on the 9th green with the greatest variability recorded on the 4th, particularly in relation to the trueness. The 4th green was most true when running up and down the green rather than from side to side. Greater deviation in trueness was recorded when moving from right to left or left to right perpendicular to the main axis of play. This could be attributed to wheel marking or ridging as most mechanical operations tend to be implemented along the main axis to play. Improving the firmness of the surfaces would also help to minimise the risk of wheel marking or rutting that might influence ball roll.

Putting Green

- The accumulations of organic matter and the surface layers are contributing to moisture retention as reflected in the 35% moisture recorded in the top 60 mm and 15% of moisture in the 60-120 mm depth. Ongoing top dressings are also important in respect of this profile in terms of diluting organic matter but also the need to solid tine spike and integrate sand into the surface to improve surface drainage rates and green health.
- The contouring of the green is such that the perimeter and surface undulations struggle with the 3 mm height of cut and would be preferable to switch to hand cutting and to elevate the mower slightly to offer more protection to the surface. The sandy texture of the profile is particularly prone to drying and regular hand watering is called for. The green would benefit from a regular bentgrass seeding programme, introducing bentgrass on three or four occasions over the growing season in an effort to increase the percentage of this species within this surface.

17th Green

- Tree removal at this particular green site is important to improve the health of the turfgrass stand. The health of the sward is challenged by the surrounding tree canopy and the fact that the green is angled in a north westerly direction. Open the understory to the rear and right to improve sunlight penetration and air movement to encourage stronger natural growth that would be to the benefit of the health of the sward.

Green Surrounds

- The recontouring work to the 4th and 6th has generally been completed to a high standard yet the slight depression at the rear of the 6th is water retentive and this section would benefit from some subtle re-contouring to ensure that water sheds and dissipates over the wider area away from the immediate collar. In the interim the surface would benefit from solid tine spiking and sanding to improve the capability of the hollow to infiltrate surface water.

Tees

- The imported turf on the 4th tee is somewhat thin and lacks maturity or resilience to intensive play. As a consequence it is important that the maintenance regime is stepped up a gear to help offset the constraints imposed by the turf. Start to increase nutrient inputs slightly but avoid overfeeding that would create soft sappy growth that is then more susceptible to wear damage. Grass density should be developed in two ways, increasing nutrient inputs slightly with an increased cutting regime that will help to encourage the tillering of the established grasses. There should also be a plan to oversow the tee on a number of occasions using a seed mixture containing 50-60% perennial ryegrass and the remainder made up of equal proportions of slender creeping red and Chewings fescue that will help to provide a base to the sward. The ryegrass is important for its resilience to traffic. Finally the tee box markers should be moved on a daily basis during periods of intensive play and the surface divoted immediately after each movement.

Fairways

- The fairways lack density and give the perception that the height of cut had been reduced.
- The aim of maintenance should be to develop a good body or base to the sward to support the ball. Encourage a little growth to help improve density, a process that can be encouraged with a couple of liquid feeds in accordance with requirements on a fairway to fairway basis. A very cost effective means of providing this nutrient is to dissolve urea and incorporate this with a liquid iron or seaweed product to provide some colour and micronutrients. 20 kg of urea per ha will provide an equivalent nitrogen input of 9.2 kg of nitrogen per ha.
- The drains lines that have settled on the 1st and 2nd fairways should be topped up with the sand/compost mixture used above the gravel backfill for consistency and to improve surface levels. When topping up, take the opportunity to incorporate some seeding to the mixture.

Resources

- At the time of the visit the opportunity was taken evaluate the ball roll characteristics of the surface of the 18th green following a demonstration of the Baroness triplex mower.
- Whilst it was appreciated that there are certain features of the Baroness mower that are of merit such as the reverse grooming attachment. The Baroness gave a slight improvement in surface smoothness over the Toro but the Toro gave a slightly better ball roll in terms of trueness as compared to the Baroness. On balance, the differences were relatively minor but do demonstrate the quality of cut being achieved by the current Toro machine was still very good given its age. The table below shows the values achieved.

	Toro	Baroness
Smoothness	13.64 mm/m	12.69 mm/m
Trueness	7.57 mm/m	8.13 mm/m

Bunkers

- Achieving a high degree of consistency and uniformity across all bunkers on the course can be extremely difficult to achieve in practice unless there is an intensive maintenance programme in place. Unfortunately, is often beyond the capability of most golf courses in these financially stringent times.
- Many factors influence bunker performance including the sand grading, how long the sand has been in the bunker and the frequency of raking, the effects of weathering and contamination from surrounding features and sand moisture content. That said, it is important that bunkers are maintained in such a way that they are shaped to gather a ball to the central base and that plugged lies are avoided. One technique that helps to minimise maintenance inputs yet confer better playing characteristics is to maintain the bunker face and surrounding slopes in a much firmer, smooth condition with the emphasis on consolidating these but only raking the bunker base.

Lakes

- Algae blooms in the water features and can be difficult to control chemically but if this strategy is adopted then dead matter should be removed as accumulation at the base of the pond will only contribute to further nutrient enrichment which serves to fuel the potential for further algae blooms.
- Maintaining a flow of water or circulation through an aerator or pump can help to reduce algae build up as can the use of ultra-sonic treatment devices.

Signed:

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Senior Consultant

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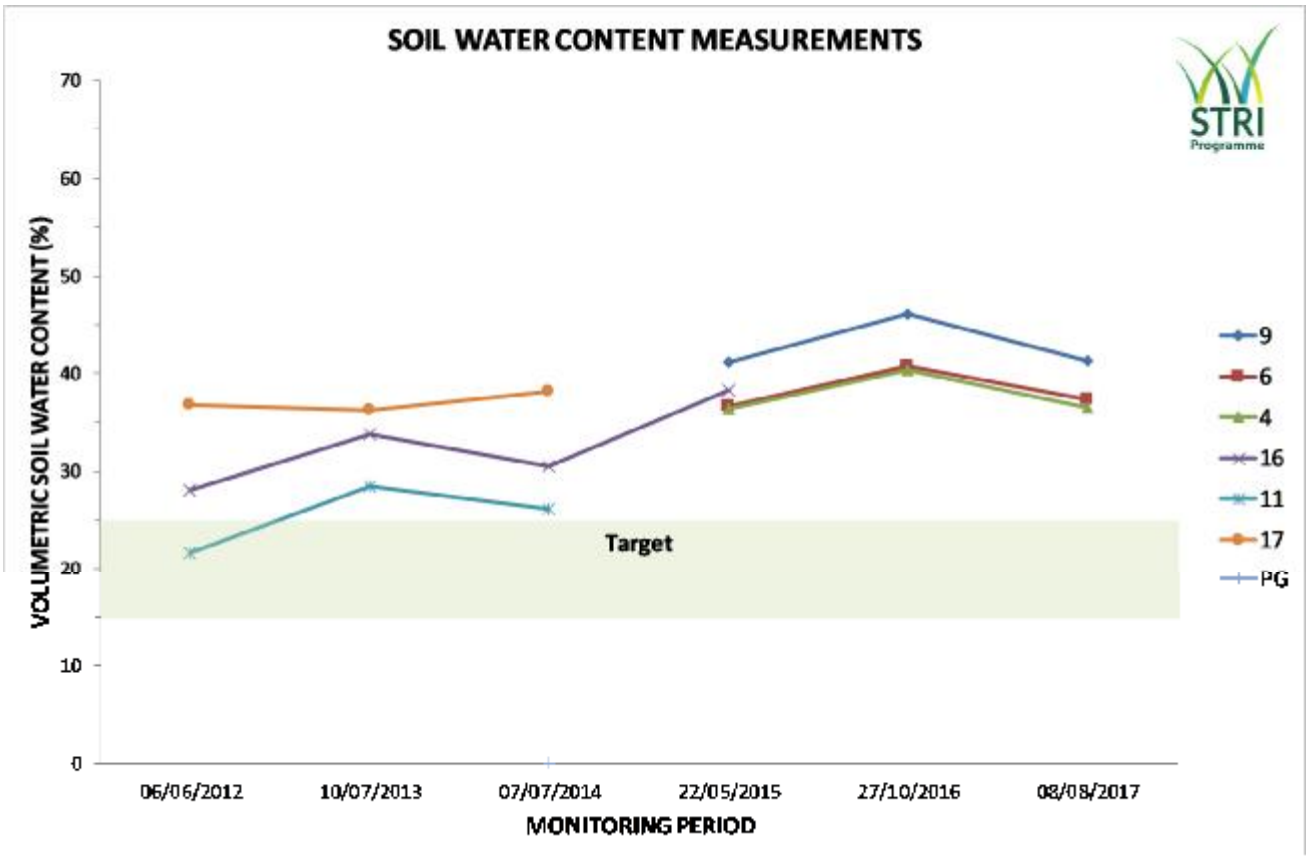
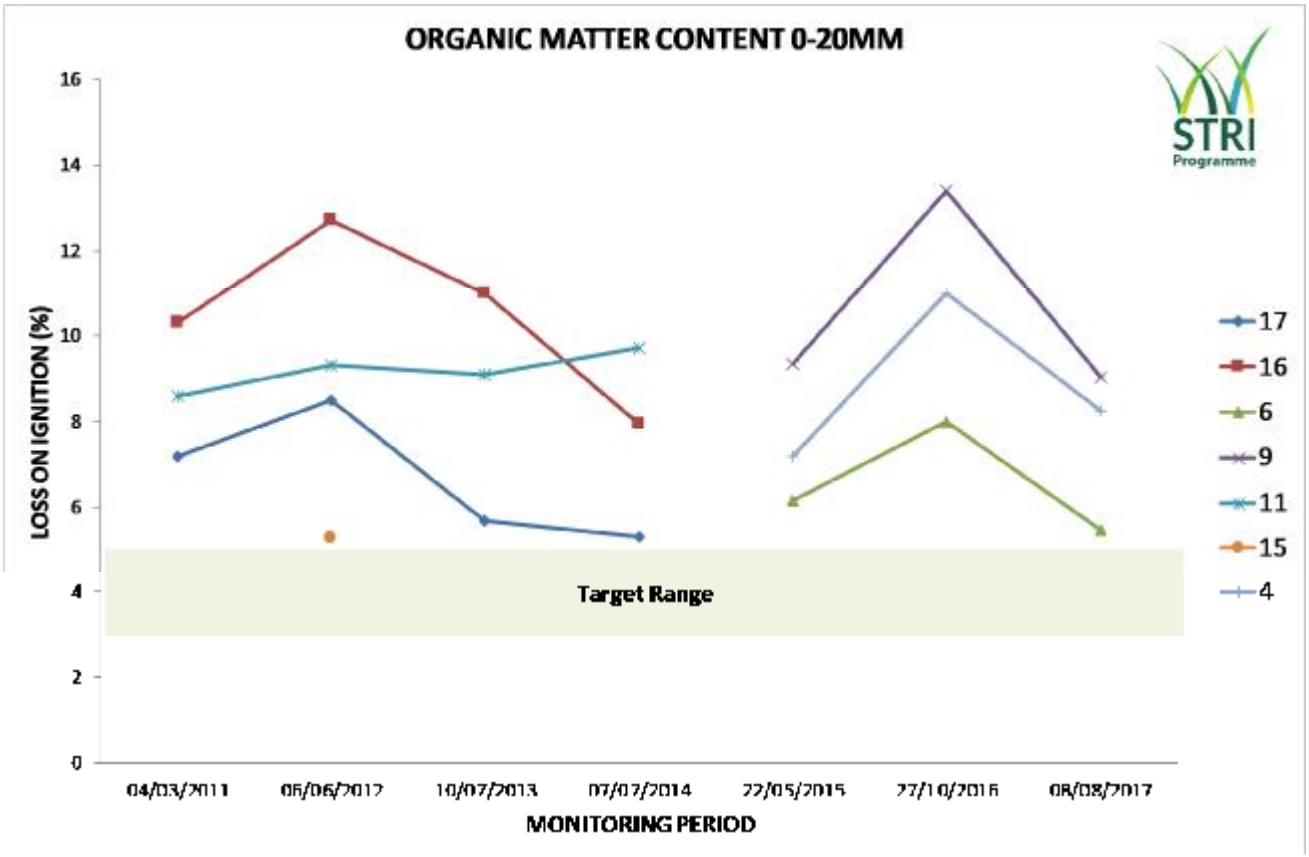
Objective Data

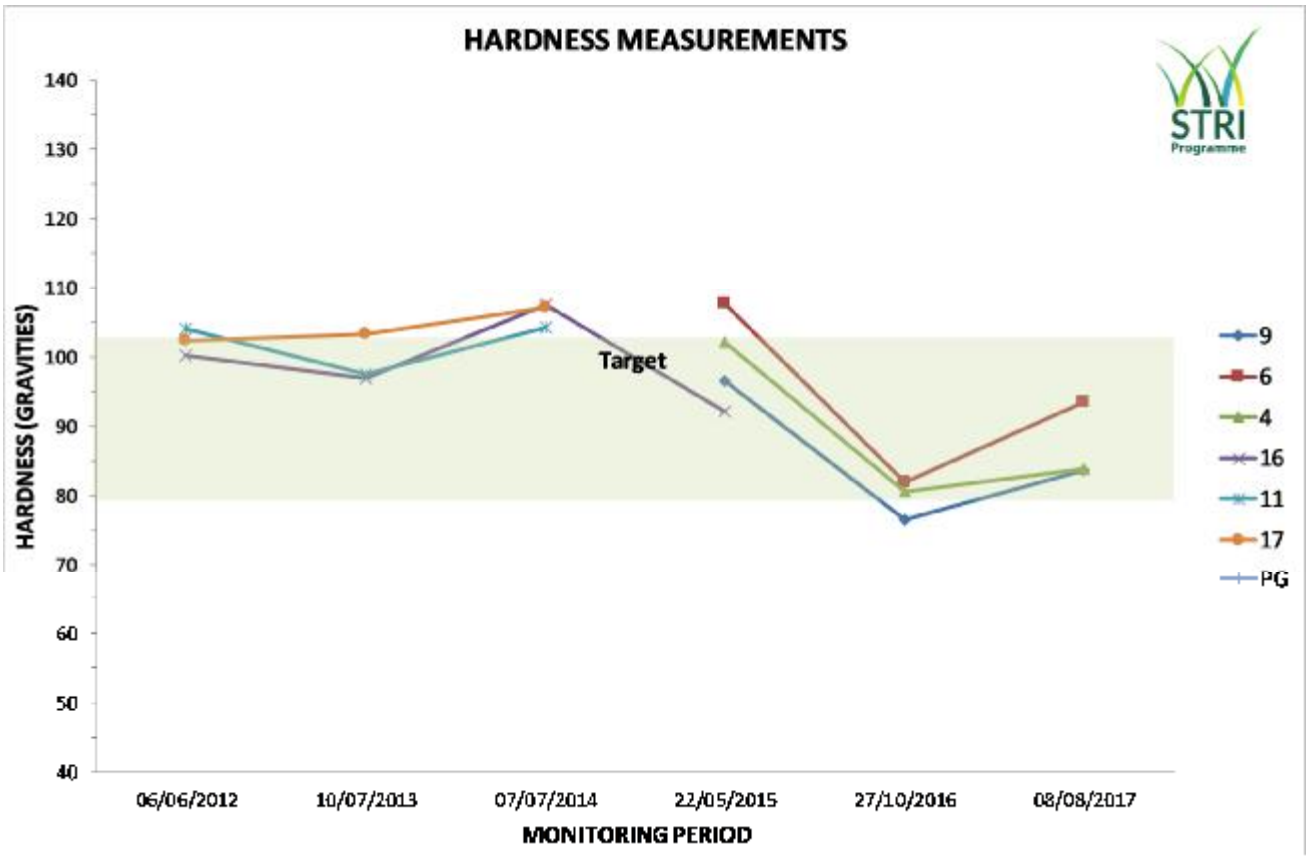


Graph 1 – Soil Moisture content

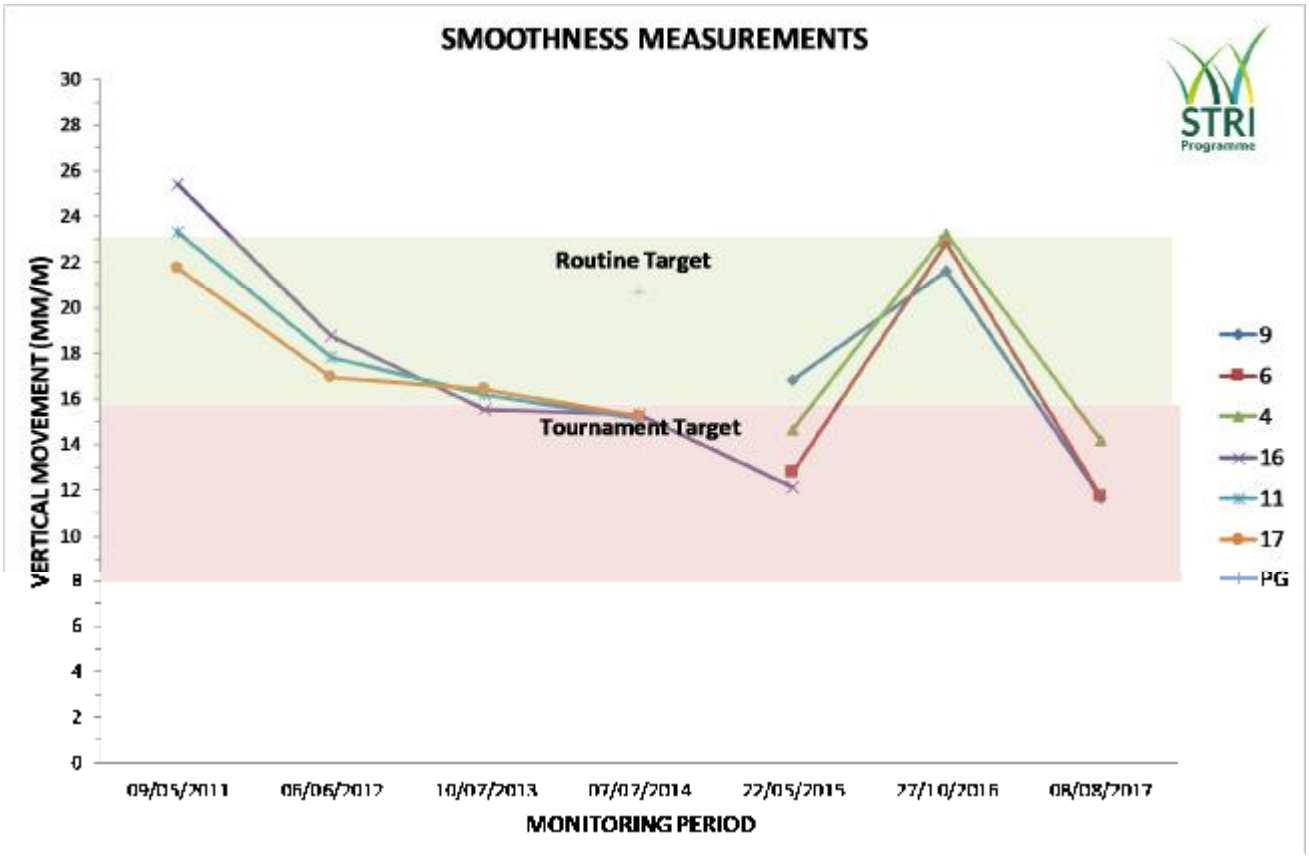


Graph 2: - Organic matter levels in the top 20 mm of the green profiles

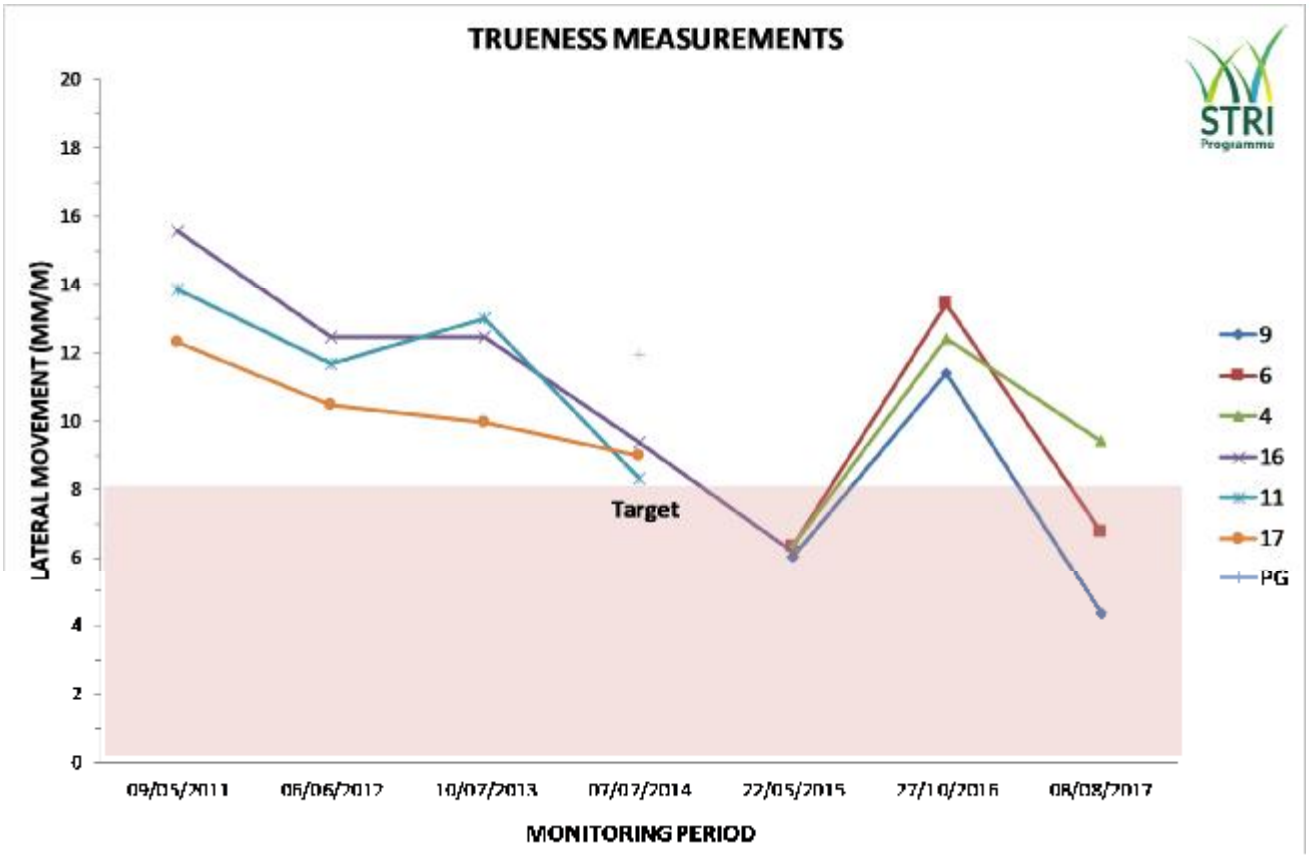
Objective Data (continued)



Graph 3: - Green firmness (gravities)



Graph 4: - Green smoothness



Graph 5: - Green trueness

STRI

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SOIL CHEMICAL ANALYSIS

CLIENT:

LISBURN GC

RESULTS TO: **IM**

DATE RECEIVED:
10/08/2017

Lab No.	Source	pH	P_2O_5 (mg/l)	K_2O (mg/l)
A16168/1	GREEN 4	5.6	8	84
A16168/2	GREEN 6	5.9	13	93
A16168/3	GREEN 9	5.7	11	101

Mr M A Baines, Soil Laboratory Manager

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

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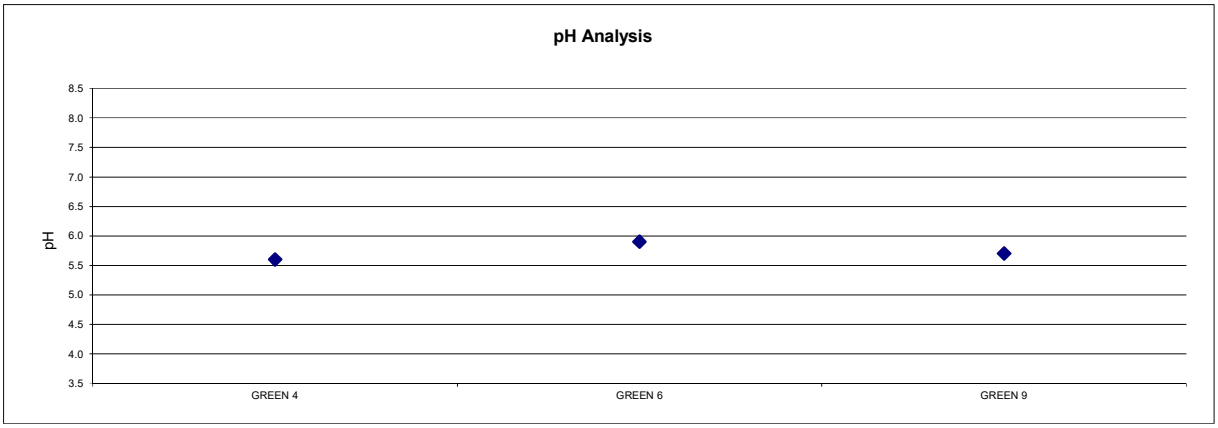
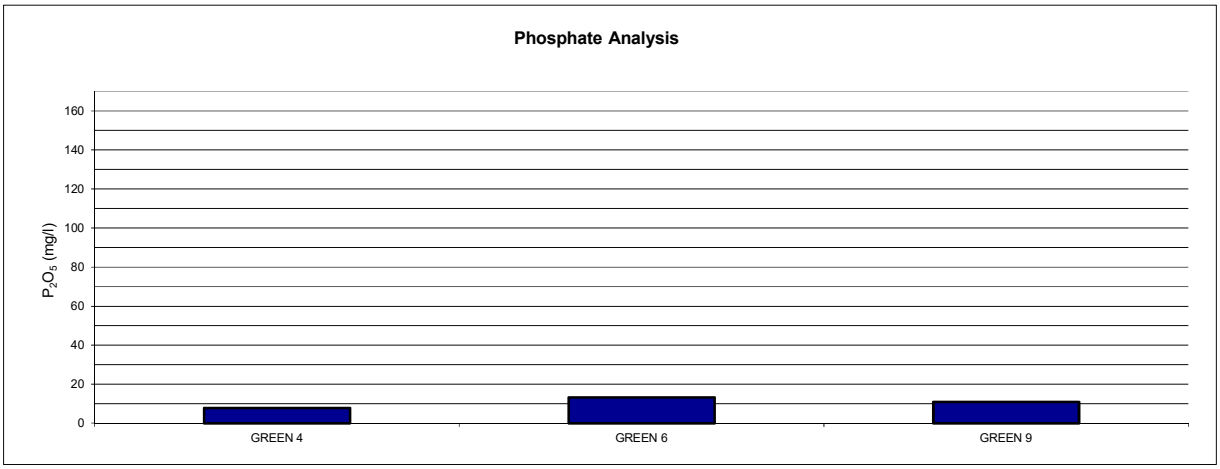
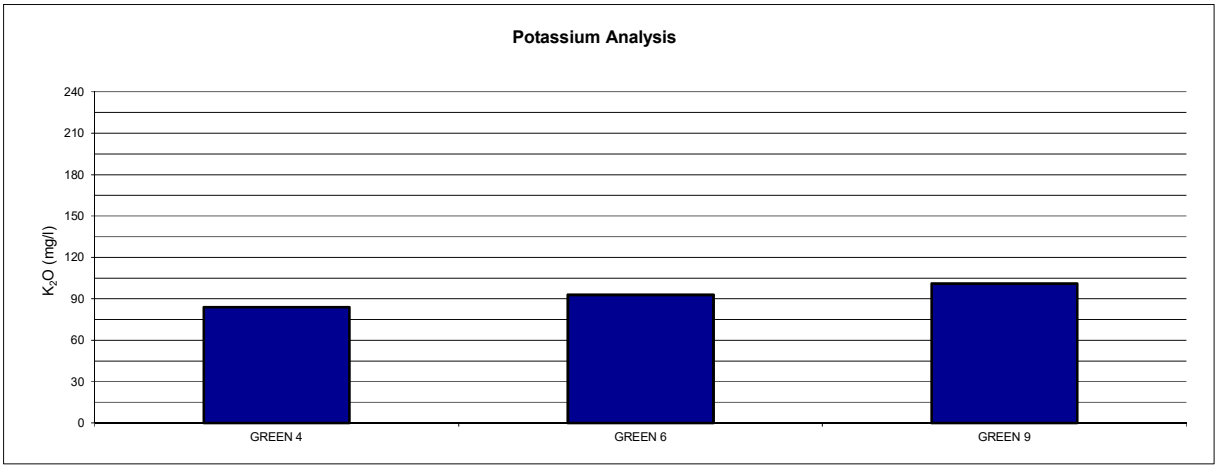
SOIL CHEMICAL ANALYSIS LISBURN GC Date: 10/08/17







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ORGANIC MATTER CONTENT

CLIENT: LISBURN GC

ADDRESS: 68 EGLANTINE ROAD,
LISBURN, CO ANTRIM,
NORTHERN IRELAND, BT27 5RQ

DATE RECEIVED: 10/08/17

DATE REPORTED: 15/08/17

RESULTS TO: IM

TEST RESULTS AUTHORISED BY:

Michael Baines, Laboratory Manager

CONDITION OF SAMPLE UPON ARRIVAL: MOIST

SAMPLE NO	DESCRIPTION		LOSS ON IGNITION (%)*
A16168/1	4	0-20 mm	8.26
		20-40 mm	4.49
		40-60 mm	2.67
		60-80 mm	2.52
A16168/2	6	0-20 mm	5.47
		20-40 mm	3.73
		40-60 mm	2.84
		60-80 mm	1.45
A16168/3	9	0-20 mm	9.02
		20-40 mm	7.15
		40-60 mm	4.43
		60-80 mm	3.11

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

ACCREDITED

Testing Certificate 2159 - 01

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