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USGA GREEN SECTION
TURF ADVISORY SERVICE REPORT

BIRCHWOOD at SPRING LAKE GOLF CLUB
MIDDLE ISLAND, NEW YORK

June 3, 2011

Present: Mr. James Vogel, President of Parkland Management Group
         Mr. Vincent Sharkey, Superintendent
         Mr. Bill Burns, Green Chairman
         Mr. Frank Piraneo, President
         Mr. Ken Ulreich, Treasurer
         Mr. Adam C. Moeller, USGA
INTRODUCTION

It was my pleasure to make a half day Turf Advisory Service visit to Birchwood at Spring Lake Golf Club on Thursday, June 2, 2011. The following report is offered as a summary of the major points discussed during the visit.

In general, the golf course had good turf health and playability at the time of my visit. The purpose of this visit was to benchmark agronomic issues and discuss management practices to address these concerns. Major topics of discussion included the putting green management program, tees/fairways, rough, and trees. A brief discussion on the importance of golf playability vs. overall aesthetics is also included.

GOLF COURSE PLAYABILITY vs. AESTHETICS

The overwhelming majority of golfers want to play on a well conditioned golf course. Unfortunately, the perception of a “good golf course” often centers on lush, green conditions and perfect lies throughout the golf course for many U.S. golfers. Educating players of the importance on how the golf course plays vs. how it looks has been a key part of the USGA’s mission for the past few decades, especially recently in an effort to control maintenance costs in a difficult economy. The new golf course management regime has indicated that their primary emphasis is going to be on playability with less focus on overall aesthetics. This is an excellent golf course management philosophy that should provide good golf conditions and healthy turf. Perhaps the biggest change golfers will notice with this new management philosophy is firmer surfaces and sporadic off-color turf.

The fairways and tees played firm and fast at the time of my visit. The recent dry weather has been ideal for producing these types of surfaces through judicious water use. The turf in the fairways and tees is a combination of creeping bentgrass, Poa annua (annual bluegrass), and perennial ryegrass. Creeping bentgrass populations are high which is ideal because it is the superior species from an agronomic and playability standpoint. Poa annua and perennial ryegrass are very prone to summer and winter issues. Poa annua in particular is the first species to die in the summer when hot and dry weather occurs. The new irrigation regime should continue to focus on water use requirements for the dominate species, creeping bentgrass. Some Poa annua will go dormant (off color) and succumb to the summer heat and drier conditions but these areas will be taken over by creeping bentgrass through lateral growth and late summer overseeding over the next few years. The use of certain plant growth regulators could also be used to hasten creeping bentgrass spreading. However, the bottom line with this irrigation regime and management philosophy is that improved golf conditions will develop but at the expense of overall aesthetics, mainly, lush green turf throughout the golf course. Wet, soggy green turf may look nice but it frequently results in very poor playability and will predispose the turf to numerous maladies. Lush, green turf throughout the entire golf course during dry weather also is a misuse of valuable water and resources that could be used more efficiently.
PUTTING GREENS

In general, the putting greens were healthy and dense at the time of my visit. The surfaces were smooth but very soft despite the dry weather patterns. An excessive layer of organic matter (thatch/mat) was observed in all the rootzones examined. This layer developed over many years, explains the soft conditions, and is a major agronomic concern. Organic matter is a natural by-product of growing turf. However, mismanaged turf can contribute to excessive thatch buildup. Excess use of fertilizer and irrigation are two controllable factors leading to rapid organic matter accumulation. Infrequent or inadequate cultivation are other possible reasons for the excessive organic matter.

Excessive organic matter restricts rooting, drainage, soil oxygen, and pesticide efficacy while predisposing the turf to ball marks, scalping, mechanical damage, undesirable moisture retention, localized dry spot, and increased disease/insect pressure. As we discussed during the visit, the undesirable moisture holding properties of excessive
organic matter are a serious concern during hot and wet weather. Turf roots will be prone to rapid decline because the layer of organic matter will heat up and limit soil oxygen. This phenomenon is known as wet wilt, which was commonly observed last summer on golf greens with excessive organic matter exposed to hot and wet conditions. Conversely, this excessive organic matter layer can also dry out quickly, becoming water repellent, causing turf loss during dry weather. This phenomenon was beginning to develop on some of the greens at the time of the visit. Bottom line, the excessive organic matter is a major concern that needs to be corrected through core aeration, vertical mowing, and topdressing.

Core Aeration

Core aeration should be performed at least twice annually (late April and late August) to combat the excessive layer of organic matter present. A 1/2 -5/8 inch diameter hollow tine set on a 1.25-1.5 inch spacing is recommended. This setup will impact ≈ 10-15% of the surface area with each core aeration, which will reduce the layer of organic matter in the upper rootzone profile overtime. Thoroughly backfill these core aeration channels with 100% straight sand topdressing to modify the upper rootzone profile and improve surface smoothness and firmness immediately following aeration. Adding additional core aerations in the spring and fall should be considered to correct the serious problems that exist in the most timely fashion. Core aeration is usually very unpopular.
but the excessive layer of organic matter needs to be addressed and this is the most reliable cultural practice in this scenario.

Aggressive Verticutting

Aggressive verticutting should also be used for organic matter control. A Graden (or similar device) used aggressively over the next 2-3 seasons would be very beneficial. However, aggressive verticutting will not be able to penetrate beyond the depth of the organic matter layer. Therefore, aggressive verticutting should only be used as a supplement to the aforementioned core aeration program.

Topdressing

Light, frequent sand topdressing uniformly dilutes organic matter as it accumulates during the growing season. Regular sand topdressing also improves surface smoothness, firmness, and consistency. An ideal topdressing program involves applications every 7-14 days at 0.75-1 cu. ft. per 1,000 sq. ft. throughout the growing season. Note: 1 cu. ft. ≈ 100 lbs. dry sand. If equipment, labor, and/or resources prevent this program from being adopted, topdress as often as possible throughout the growing season.

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The excessive organic matter in the rootzone profile above is very similar to the levels at Birchwood at Spring Lake. The golf green above received a heavy rainfall and hot weather immediately afterwards. This scenario could develop anywhere organic matter is excessive which is why it is crucial to reduce the layer present in the rootzones.

Venting Aeration

Venting aeration (e.g. 1/4" solid tines) is recommended every 21-28 days. This minimally disruptive aeration will improve soil aeration, water penetration, and soil
drying. As discussed during the visit, the excessive layer of organic matter predisposes the turf to excessive moisture retention and localized dry spot development. Venting aeration will help combat both of these issues if they develop.

**Deep Tine Aeration**

Deep tine aeration (e.g. Verti-Drain) is strongly recommended to alleviate the compacted subsoils beneath the excessive layer of organic matter. The subsoils in the greens appear to be relatively permeable but they have compacted tightly over many years. Deep tine aeration will alleviate the compaction in these soils. This practice will also improve rooting and drainage significantly. Deep tine aeration is often performed in late fall, spring, or in conjunction with core aeration.

**Localized Dry Spot and Wetting Agents**

Wetting agents are necessary to prevent/combat localized dry spot development on the greens. The high amount of organic matter will be very prone to becoming water repellent if hot and dry conditions persist. Wetting agents should be regularly applied to prevent/minimize water repellent issues. The amount of wetting agents currently on the market is overwhelming. Application strategies for each one may be different but numerous golf course superintendents have had success with sustaining adequate rootzone wetability through light and frequent applications of wetting agents as opposed to heavier and infrequent programs. For instance, applying Primer Select at 3 oz. of product per 1000 sq. ft. every two weeks may sustain more uniform conditions as opposed to the 6 oz. of product per 1,000 sq. ft. program every month. Some will argue that wetting agents increase surface wetness and moisture retention. However, it is more likely that wetting agents reduce the water repellency of the organic matter and this is what is contributing to the extra moisture retention; not the wetting agent. Wetting agents should always be watered immediately following application to prevent tip burn. As discussed during the visit, wetting agents will not solve the underlying problem (excessive organic matter) but will be another tool necessary to manage these greens.

**Irrigation Practices**

The putting green irrigation practices should continue to focus towards maintaining the turf on the dry end of the continuum. To accomplish this, overhead irrigation should be used in the early morning (i.e. 2-4 am) to provide adequate moisture to low lying, wet areas. Later in the morning, supplemental hand watering high spots that dry out more quickly should be performed as often as resources and labor permit. Afternoon hand-watering or syringing is also necessary during the growing season.

**FAIRWAYS AND TEES**
The turf on the fairways and tees was healthy and firm at the time of my visit. Some of the *Poa annua* in these areas was off color and under drought stress. Creeping bentgrass, conversely, was very healthy and growing laterally, overtaking *Poa annua* in many locations. This is a sign of good water management, keeping the soils on the dry end of the continuum. As discussed during the visit, the turf throughout the golf course is going to go through a transition as it acclimates to a new irrigation regime. These are key areas where the focus needs to be on playability, not aesthetics.

The soils that underlie the fairways and tees are very compacted which is a concern. These soils limit root development, drainage, and soil aeration. Many areas on the golf course have poor drainage and cannot be corrected unless large scale drainage is installed. The cost of a major drainage project may not be available. However, cultural practices including core aeration and deep tine aeration should be used to improve the soils as much as possible so they drain better and allow for adequate root development.

### Core Aeration

Core aeration in late August is recommended for all the fairways and tees. This process will provide all the benefits of organic matter removal in addition to providing a nice seedbed to overseed creeping bentgrass. Unfortunately, the fairways and tees are extremely compacted and traditional core aeration may not be possible until the soils have been loosened up with deep tine aeration.

### Deep Tine Aeration

Deep tine aeration is strongly recommended to alleviate the heavily compacted subsoils throughout the fairways and tees. If possible, deep tine aeration should be performed twice annually to improve rooting, drainage and alleviate compaction.

### No. 9 Forward Tee

The forward tee on the 9th hole should be rebuilt as soon as resources permit. This tee was built in such a way that the sprayer cannot safely apply plant protectants because of the fall-offs on all sides. This tee also is highly compacted because it was built with a poor quality soil.

### ROUGH

The rough has a combination of several different species, primarily perennial ryegrass, Kentucky bluegrass, *Poa annua*, and creeping bentgrass. Of these species, creeping bentgrass and *Poa annua* are prone to a multitude of summer related problems, particularly poor drought tolerance. The irrigation system does not allow for independent watering of the fairways and the rough. As a result, the fairways would become overwatered if the rough received the amount of water required to keep it thick and dense throughout the golf course. Therefore, continue to manage water as needed.
on the fairways with less concern on lush green fairways and rough. Core aeration and/or deep tine aeration of the roughs once annually followed by overseeding is recommended to introduce more perennial ryegrass, Kentucky bluegrass, and turf-type tall fescue in the rough.

**TREES**

Adequate sunlight and air movement are necessary for turf to grow and withstand traffic. There is no superintendent, construction method, maintenance practice, or product that can overcome these critical physiological requirements. Golfers need to eliminate the emotional reaction tree removals create and realize that shade and limited air movement drastically compromise turf health and course conditions. The principles below should be used as a guide for the tree management program:

- Do not allow trees to cause morning shade or block prevailing air movement across green, tees, and/or fairways. Specific goals for sunlight duration on putting greens should be 3-4 hours during the morning and at minimum 8-9 hours for the entire day.
- Quantifying the amount of air movement necessary around putting greens is difficult but comparing air speed across each green with a wind meter and smoke bomb is recommended to identify where large oscillating fans and/or tree/brush removals are necessary.
- Trees should not be allowed to overhang greens, tees, and/or fairways.
- Two or more trees should not grow into each other unless they form a desirable grouping.
- Do not allow temporary features (trees) to compromise/camouflage permanent features such as bunkers, mounding, or the overall terrain.

Specific sites reviewed during our tour included the following:

The fairway and rough on the 2\textsuperscript{nd} hole is very heavily shaded in the morning and afternoon which is a major concern. This shade has increased the amount of *Poa annua* in these areas. The lack of air movement from the dense planting of trees also increases disease pressure and keeps the soil wet longer. The turf in this area is also very prone to decline during dry conditions because of the extensive tree root competition that is taking place. All of these same issues are also impacting a portion of the 3\textsuperscript{rd} fairway. The grove of trees on the right side of the 2\textsuperscript{nd} hole and the grove of trees in between the 2\textsuperscript{nd} and 3\textsuperscript{rd} holes should be thinned significantly as soon as possible. The tree lines should be pushed back at least 30 feet from the fairways. These areas can still have the same tree lined appearance with 2-3 appropriately spaced trees functioning equally as 50-60 trees planted extremely close to one another. Quality and proper placement are the keys to successful tree plantings on golf courses, not quantity. Within each of these groves very little rough was present at the time of my visit. The lack of sunlight and air movement and tree root competition are the main
reasons why turf was sparse at best in the rough in these areas. Selective pruning will not result in any noticeable improvements in turf conditions in these areas.

The 2nd green has poor morning and afternoon sun and limited airflow, all of which are a significant concern. Turf health appeared to be adequate on the surface although the root depths on this green were noticeably shallower than all of the other greens we examined. Limited sunlight and air movement are the sole reasons for the shallow root development in this area. Removing 2-3 trees east of the green and 4-5 trees west of the green is recommended. Pruning the remaining trees up so the canopy is at least 15-20 feet from the ground is also recommended to increase air movement.

Turf density was good on the 3rd tee despite the very limited amount of sun this area receives. Removing 4-5 trees to the east and 2-3 trees to the west is recommended. If this tee remains excessively shaded, turf health and density will continue to be prone to significant thinning as the season progresses. Without significantly more sun, this turf will not be able to sustain the concentrated traffic it receives.

CONCLUSION

This concludes my summary of the topics discussed during my visit to Birchwood at Spring Lake Golf Club and I hope this report proves useful. Best of luck for a successful season and please feel free to call at any time throughout the year if I can be of additional assistance.

The Green Section appreciates your support of TAS and we encourage visiting the website http://www.usga.org/Content.aspx?id=26223 to access regional updates that detail our observations across the region and provide a snapshot of the types of problems and conditions we are seeing in our travels.

Sincerely,

Adam C. Moeller, Agronomist
Green Section, Northeast Region

ACM:mbl

cc: Mr. James Vogel, President of Parkland Management Group