United States Golf Association
Green Section - Southwest Region

USGA GREEN SECTION

TURF ADVISORY SERVICE VISIT REPORT

LAKE WILDWOOD GOLF CLUB

Penn Valley, California

August 7, 2008

Present:

Mr. Ken Wolford, Golf Course Superintendent
Mr. Dwayne Mayfield, Golf Committee Chairman
Mr. Jim Knight, Head Golf Professional
Mr. Edward Simpkins, General Manager
Mr. Brian Whitlark, USGA

INTRODUCTION

The following report summarizes the discussions and recommendations made during the Turf Advisory Service visit on August 7, 2008.

It was a pleasure to visit with course officials at Lake Wildwood Golf Club and discuss golf course maintenance issues on behalf of the USGA Green Section. The golf course was in good condition on the day of the visit providing quality playing conditions on tees, fairways, and greens. Mr. Wolford and his entire maintenance staff should be commended for their steady and consistent improvement of golf course conditions. It was great to hear that a master plan has been developed over the past year, which will lay the foundation for future projects and maintenance guidelines at Lake Wildwood Golf Club.

The focus of the visit was to evaluate both aboveground and belowground greens conditions, provide a report that summarizes these conditions, and an objective opinion pertaining to the possible greens reconstruction project. Specific topics covered in this report include:

GREENS

1. Current status
2. Soil profile challenges
3. Drainage
4. Irrigation
5. Microclimate
6. Heavy traffic
7. Possible reconstruction

Please contact our office if you should have any questions concerning this report, or if we may contribute in other ways to your turf management operations.

GREENS

1. Current status – From a golfer perspective, greens are typically evaluated on such items as appearance, smoothness, speed, consistency, and firmness levels. Determination of these indicators is purely subjective, however, on the day of the visit, the greens exhibited good turfgrass appearance, and the golf ball appeared to roll smoothly and consistently from green to green. Moreover, green speed appeared to be just right considering the slope of the greens and the time of year.

One point that may be viewed negatively by golfers is that the greens are primarily composed of *Poa annua*. It is estimated that most greens exhibited 70-90% *Poa annua* population, can present challenges both from a golfer and agronomic perspective. From a golfer perspective, the greens do not appear pure in color and the roll of the ball may be affected, although not evident on the day of the visit. From an agronomic perspective, *Poa annua* is traditionally a more "finicky" turfgrass than bentgrass and increases susceptibility to stress. Another aspect of the greens that may be viewed negatively had to do with soft conditions. The lack of firmness on the greens is directly related to the poor soil profile conditions, which will be discussed in the following section.

2. Soil profile challenges – It was noted that the greens provide acceptable conditions from an aboveground and from a golfer's perspective; however, the condition of the greens <u>below</u> ground, revealed an entirely different story. Soil profile samples collected from nearly every green on the golf course revealed turfgrass roots ranging from less than 0.5-in. to approximately 4.5-in. in depth. On average, rooting depth extended to approximately 2-in.

No. 5 profile shows nearly 3-in. of thatch and organic matter directly above soil that does not appear to fall within USGA specifications. Note the light-colored sand channels where aerification holes have been filled with quality topdressing sand.

No. 3 profile shows a rooting depth of approximately 0.5-in. This green lacks sufficient sunlight and air movement.

Healthy thatch and organic matter depths typically range from 0.75-in. to 1.25-in. Thatch and organic matter levels in the greens at Lake Wildwood extend to 3-in. to 4-in. in depth. Due to the shallow rooting depth, the greens cannot be watered on a deep and infrequent basis as recommended by most agronomists. In addition, a shallow rooting depth significantly increases turfgrass susceptibility to such challenges as excessive heat, humidity, disease and insect pressure, and cultural damage.

This soil profile sample taken from a golf course in Arizona is a good example of healthy bentgrass grown on a well-constructed USGA sand profile. The sample shows approximately 1-in. of thatch and organic matter development. A healthy profile is better able to withstand traffic, encourage root growth, and tolerate a deep, infrequent watering regime.

The following comments are offered for your consideration to augment current organic matter control programs:

Organic matter control – In all likelihood, it appears a greens reconstruction project is at least several years away, thus additional efforts will be necessary during the coming year to control the dense layer of organic matter at the surface of the greens. Current programs for core aeration and sand topdressing have not provided the necessary intensity of organic matter removal to achieve the desired results. You may wish to consider a program that involves modifying a quadra-tine adapter to accept ½-in. diameter hollow tines. The ½-in. diameter holes on a closer spacing removes more organic matter per square foot without increasing the time necessary for turf recovery.

Another effective procedure is to use a dethatching machine, such as the *Ryan Mat-a-way* or *Graden* dethatcher to remove additional organic matter and aid in the mixing of sand topdressing into the upper portion of the soil profile. Dethatching and light sand topdressing can be scheduled on a monthly basis during the active growing season for improved results.

The Graden vertical mower has been used successfully by a number of courses to remove excess organic matter in the surface of greens and help with the incorporation of sand topdressing.

Additional soil profile challenges – The soil texture of the greens below thatch and organic matter levels appears to consist of higher-than-ideal quantities of silt and clay. In addition, pebbles bigger than gravel size were found on most greens at a depth of 6.5-in. to 7.0-in. In order to provide an objective analysis with regard to the greens profiles, it was suggested to send four or five samples to an accredited physical soil testing laboratory. A list of accredited soil testing laboratories is enclosed with this report as a further reference. Prior to submitting samples, be sure to contact the laboratories for specifics regarding the proper methods to collect the soil samples, fees for their services, and shipping instructions.

3. Drainage – Through discussions with the golf course superintendent, it appears that little or no drain lines were installed during the original construction of the greens. Sincere compliments should be extended to the superintendent and his entire staff for installing drainage on Nos. 2 and 3 greens over the past several years. A reconstruction project would provide a prudent opportunity to install drain lines according to USGA specifications.

4. Irrigation – The superintendent and his staff have been working diligently to retrofit the current irrigation surrounding the greens complexes. Ideally, the greens would be irrigated independently of the greens surrounds with valve-in-head sprinklers. Other than the holes that have been retrofitted, most of the greens are irrigated with full-circle irrigation heads, thus creating a difficult situation by which to water these areas effectively. A greens reconstruction project should include an irrigation upgrade to provide irrigation to the greens and the greens surrounds independently.

5. Microclimate – Several greens on the golf course are situated in microclimates that are by no means ideal for growing quality turfgrass. The microclimate surrounding No. 3 green exhibits poor air movement and produces significant amounts of shade throughout the day. As such, this green has a very shallow root system and is typically the most challenging of all the greens on the golf course when attempting to provide quality turfgrass conditions. The microclimate in which greens Nos. 2 and 3 are situated should be addressed prior to a greens reconstruction project.

No. 3 green consists of a challenging microclimate in which to grow quality turfgrass. Poor air movement and extended shade periods do not provide an environment that is typically considered ideal growing conditions.

6. Heavy traffic – In the southwest region, it is rare to see private courses receiving an excess of 30,000 golf rounds on an annual basis. Lake Wildwood reportedly received 52,000 rounds of golf last year and rounds in excess of 60,000 have been noted in previous years. Therefore, taking into account the amount of traffic, the relatively small size of the greens, and the problems stemming from 40-year-old greens that were poorly constructed, it is impressive to see the current level of turfgrass quality.

Sincere compliments are extended to the superintendent and his staff for their diligent efforts. It is important to point out, however, if weather conditions turn for the worse, or if any significant disease or insect pressure arises, the greens will likely struggle. The poor soil profile and shallow root system leave little room for error.

7. Possible reconstruction – Agronomic performance of the greens appears to be acceptable from the perspective of most golfers, however, the greens are outdated with regard to current construction practices, have excessive thatch and organic matter accumulation in the surface 3-in. to 4-in., and are primarily composed of *Poa annua*. Within the next five years, it is suggested to reconstruct the greens according to USGA construction specifications. When built properly, greens built to USGA specifications will provide several advantages over the existing greens:

- The installation of drain lines will provide an outlet to exit water from the greens profile and will significantly decrease current challenges where water accumulates and creates anaerobic conditions in the rootzone.

- The installation of a gravel layer at the bottom of the soil profile provides an excellent media to move water when the above soil profile is saturated, yet provides a perched water table reducing water loss.

- A profile consisting of sand that meets USGA specifications will provide a rootzone with high drainage capabilities and good resistance to compaction.

- A new sand profile will initially eliminate the excessive thatch and organic matter problem on existing greens. Adequate core aeration and topdressing on new greens will maintain acceptable organic matter levels.

- Newly built USGA greens will allow the superintendent and his staff to water greens in a deep and infrequent manner while significantly improving playing conditions and promoting a deep root system.

- Firmness level on greens will increase, thus improving playability and resistance to ball marks.

- The smoothness of the greens will also improve with a firm soil profile and a clean stand of bentgrass.

- Reseeding the greens with an improved bentgrass variety will dramatically enhance the cosmetic value of the greens as well as playability.

- Finally, the greens will have a more uniform and consistent playing surface.

Several other options with regard to greens construction were discussed on the day of the visit. One idea was to reconstruct only the problem greens, therefore, affecting only two or three greens on the golf course. Although much less expensive, this option is not recommended, as it will introduce a great degree of inconsistency among the greens. In addition, it will not address the problematic soil conditions on the greens left untouched. The other idea was to simply remove the existing turfgrass along with the thatch and organic matter layers, fill the void with sand, and re-grass the greens. Initial analysis of the soil profiles suggests that this idea may not be best course of action; however, a final determination should not be made until the results from the physical soil tests have been analyzed.

CONCLUSION

Thank you for the opportunity to visit Lake Wildwood Golf Club and offer assistance with your ongoing golf course maintenance programs. The greens were in remarkable condition on the day of the visit considering the age of the greens, the amount of traffic they receive, the inconsistencies with regard to construction, and the time of year.

I trust the suggestions and recommendations contained in this report will assist your efforts when the time comes to make a decision with regard to a greens reconstruction project. Best wishes for continued progress over the coming months, and I look forward to being of further assistance on behalf of the USGA Green Section.

Respectfully submitted,

Brian Whitlark, Agronomist
USGA Green Section

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o+r: Mr. Ken Wolford, Golf Course Superintendent

Reprints/enclosures:

- List of accredited physical soils testing laboratories
- Rebuild or Resurface? (GSR Jan 2006)
- USGA Recommendations for Putting Green Construction