Course Consulting Service

ON-SITE VISIT REPORT

CRANBERRY VALLEY GOLF COURSE
Harwick, Connecticut

Visit Date: August 11, 2016

Present: Mr. Shawn Fernandez, Golf Course Superintendent
Mr. Roman Greer, Director of Golf
Mr. Rob Donovan, Assistant Superintendent
Mr. Clem Smith, Chairmen
Ms. Martha Duffy, Vice Chair
Mr. Bob Wheeler, Committee Member
Mr. Peter Wall, Capital Outlay
Mr. Joe McParland, Capital Outlay
Mr. Jim Skorulski, USGA

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It was my pleasure to make a half day Course Consulting Service visit to Cranberry Valley Golf Course on August 11, 2016. The summer weather has become stressful for the turf and those who manage it. The extended drought has placed a good deal of the stress on the irrigation system, making it the primary water source. The dry conditions have been favorable for play and have reduced disease pressure. However, high soil temperatures and high levels of humidity have increased the likelihood of disease and a decline in turf quality. The golf course is holding up fairly well at this point. There was some turf stress in the fairway and primary rough areas, and I anticipate more disease activity if this weather pattern continues.

We used our time together to tour the golf course and review some of the good work that was completed since my last visit. I was impressed with the new tee complex on holes No. 10 and 14, and the tree removal work that has been completed. We discussed many topics during our tour of the golf course. Water conservation was one of those topics which is pertinent in a season where much of the region is under drought advisory. Other topics discussed included water management practices, soil cultivation and topdressing, tree removal work, the addition of forward tees, fairway overseeding programs, cart paths and a number of other subjects that will be addressed in this report.

GREENS

Soil Management

We examined the soil profiles in a number of greens. I was concerned with the saturated surface condition observed, especially with the heat and high levels of humidity that were occurring during the visit. Water was being retained near the surface of the greens. The saturated condition could reduce gas exchange in the root zone. This could result in a wet wilt condition. The high water content in the soils will also absorb more heat, which will raise soil temperatures to a point where they could become lethal to the turf roots. It was good to see that the surfaces were vented in an effort to improve gas exchange and help dry the upper root zone.

The condition of the soil profile helps to magnify the importance of managing organic matter in the upper root zone. Currently, this is being done through core cultivation and topdressing programs. The one part of the program that is lacking is in-season topdressing. The light topdressing program is used to dilute the organic matter the plant produces. This will help to reduce the layering condition and maintain drainage in the upper root zone. The other agronomic benefit of light topdressing is that the sand will protect the lower portion or crown area where growth occurs. Protecting this part of the plant from traffic and mowers will improve the performance of the greens. The light topdressing provides playing benefits as well. Light topdressing will smooth ball marks and other surface imperfections and create firmer conditions that will improve ball roll and help keep the greens more consistent through the day.

The light topdressing should be completed on a two to three week interval during the playing season. The slightly wider three week interval is probably a more practical schedule considering the heavy amount of play that occurs. I would only recommend that the topdressing be done at slightly higher volumes at the wider interval. Apply the sand at an approximate volume of 1.5 to 2 cubic feet per 1,000 square feet (or 150 pounds of dry sand per 1,000 square feet). I strongly recommend utilizing a sand that is screened to 1 millimeter. This will eliminate larger sized sand particles and make it easier to incorporate the sand into the turf canopy and less sand will be picked up by the mowers. It would be beneficial to move to a dry sand for topdressing during the summer months when play is heaviest. The dry sand will work into the turf canopy more quickly.

I realize topdressing around the early tee times and high play volume is probably not practical unless some time will be given to do so. A block of the tee times should be closed several mornings per month so that topdressing and similar practices can be scheduled by the staff and completed without interference from play. The small amount of revenue lost by closing the golf course for several hours will allow these tasks to be done and will provide improved playing conditions for the members and for outside play. The heavier volume topdressing applications can also be done in conjunction with vertical mowing or the venting practices that are done on the golf course. Both will help incorporate the sand down into the turf canopy and off the surface.

The remaining soil management practices are strong and no changes are recommended.

Water Management

The greens were wetter than what I usually see during my visits to the golf course. My concerns with the wet condition were the soft surfaces and potential for heat stress and disease. Drier surfaces will be firm and better able to tolerate the heavy traffic that occurs. The turf will also be healthier. I realize that irrigating the golf course is a challenge because of the higher play volumes. The majority of water that is applied to the playing surfaces has to be done in the early morning hours before play occurs. It is extremely difficult to hand water the greens or syringe playing surfaces amongst the play. However, do your best to monitor soil moisture content in the greens (with TDR Moisture Meters) and program the water applications as precisely as possible to meet the water requirements of individual greens. This is especially important during humid, hot weather.

Trees

The tree work that is being completed is slowly improving growing conditions for the greens. I am impressed with the stand thinning that has been done in the vicinity of the 2nd, 6th and 7th greens. I recommend that these tree stands be thinned even more so, removing any trees that are under 6 inches in diameter and cutting lower branches. I would try to thin the stands by as much as fifty to sixty percent to obtain the air

circulation desired. More extensive thinning work will also make it possible to cut brush and undergrowth with larger mowing equipment on an annual basis. Significantly thin the trees from the hillside on the right side of No. 11 green to improve air circulation there. Remove the trees by as much as fifty-sixty percent or greater. This should be considered a priority for tree work in the off-season. The air circulation over No. 14 green is also limited. Cut back the tree line and thin the wooded area behind the green to improve air circulation there. Extensive tree work should be done behind No. 16 green to gain more air circulation over the green complex there. These should be priority areas for the tree work this winter.

Remove the larger oak trees growing at the back left (south/southwest) side of No.16 green to increase sun exposure to the turf on the green site. The brush and smaller trees behind the green should be removed to increase air circulation to cool and dry the green.

More trees also need to be removed from the back and back right side of No. 17 green to increase sun exposure to that green location.

TEES

Forward Tees

We discussed the benefits of adding forward tees to the golf course at our visit last season. Reducing the yardage for women and senior players will make the golf course more enjoyable and should help with pace of play issues. Adding and expanding forward tees will also take some of the playing pressure off of the existing tees. All of the par-3 holes seem to be good candidates for the forward tees. I also support the program to add forward tees on the on No. 2, 5, 8, 16 and 18 holes. You might want to work with your golf course architect to review the best sites for the new tee locations.

The new tees would be built with an outside contractor to a size that can be easily maintained with triplex mowers. The new tees should be built with a sand-based root zone construction mix and could be established with short cut Kentucky bluegrass sod. I will be happy to discuss the details for building the new tees should you move forward with the plan.

FAIRWAYS

Ryegrass Conversion

A program has been underway to increase the population of perennial ryegrass in the fairways. The ryegrass is probably the most practical turf species considering the heavy play and cart traffic that occurs. Perennial ryegrass is susceptible to gray leaf spot and other diseases. This season's heat and humidity are ideal conditions for that disease, so be on the lookout and be ready to treat the fairways with the appropriate fungicides should the disease become active in the region. Having said this, I believe the ryegrass remains a practical option at this time.

It would be beneficial to be more aggressive in overseeding perennial ryegrass to increase its population more rapidly. We discussed seeding with higher rates of the perennial ryegrass seed and modifying the seeding procedure to gain a better seed catch and higher establishment rate. The following steps were recommended:

- Purchase a perennial ryegrass cultivar that has some resistance to gray leaf spot.
- Begin the overseeding program by first core aerating the fairways and processing the aeration cores. The thatch and plant debris removed.
- The perennial ryegrass could then be broadcast or drop seeded at 100 to 150 pounds per acre.
- Slice seed the fairway with perennial ryegrass in one or even two directions at seeding rates of 100 pounds per acre.
- The fairways would be rolled if possible.

The more aggressive overseeding approach will be more costly in regards to seed. It will also take more time and would require a good quality fairway drill seeder (i.e. slicer-seeder, Charterhouse, TriWave™ or similar). However, once the perennial ryegrass populations are high, the aggressiveness of the annual overseeding will be reduced, with only weaker areas targeted with the aggressive approach.

Drought Stress

Turf in isolated areas of the fairways was showing symptoms of drought stress. It is likely the annual bluegrass has been damaged most severely but the perennial ryegrass was also showing symptoms. It is good to hear that wetting agents are being applied to the fairways to help maintain uniform moisture in the soils. These wetting agents can help re-wet dry soils. The upcoming cultivation practices will also help to rewet the soil

profile. Water management in the fairways is difficult due to the heavy play volumes that occur. Monitor turf conditions in the early to mid-afternoon hours, looking for areas of wilt, and spot-water to help the turf to persist through the drier evenings. This is most important when relative humidity is low and winds are high.

Drainage

It was good to see the drainage work completed on Nos. 10 and 13 holes. This is a good capital investment that will improve the playing quality of both holes. Well done.

ADDITIONAL COMMENTS

Sand Bunkers

One of the primary management challenges with the bunkers is the bunker liners themselves. The liners are becoming exposed from contact with the mechanical bunker rake. This is unfortunate but common when mechanical rakes are used. The exposed liners are being burned down or removed. Going forward, the synthetic liners are not practical where mechanical rakes have to be used. Lining the bunkers with rock free soil and installing drainage properly will reduce concerns with sand contamination. Sod liners can also be installed to prevent rock migration when bunkers are renovated in the future. At this point, keep the bunker rakes on the floor of the bunkers and hand rake bunker banks. Check the depth of sand on the bunker faces keeping it at a four inch depth.

The grass face on the greenside bunker on the 3rd hole continues to struggle. The south exposed bank creates a harsh growing environment and very droughty conditions. Re-grass the bunker bank with turf-type tall fescue, which will produce a deeper root system and will be able to tolerate the drier conditions and higher temperatures.

Roughs

This has been a difficult season to maintain turf in rough areas. This is especially true where the roughs are composed of creeping bentgrass and annual bluegrass, which are not suitable species for higher cut rough areas. The non-irrigated high traffic rough areas were also struggling as would be expected in this drought. The primary roughs and roughs adjacent to putting greens are of the highest priority. Consider extending irrigation further from green areas, especially where there is high traffic (i.e. 17 green complex). The added irrigation in these areas will allow the turf to recover from traffic and permits the staff to overseed these areas should it be needed.

All of the roughs should continue to be core aerated using the AerWay machine with hollow tines. Operate that machine in multiple directions if possible to increase the coring frequency. This will alleviate compaction and reduce thatch. I also recommend an overseeding program for rough areas that are thin. I am reluctant to recommend perennial ryegrass for these areas due to the concerns of gray leaf spot. Therefore, overseed the thin areas with turf type tall fescue. Ideally, the turf type tall fescue would be broadcast and slice seeded following core aeration in the fall season. The overseeding work would only need to be targeted in areas that are thin, and only if those areas can be irrigated.

Cart Paths

I fully support the cart path projects that are being planned as part of the capital improvement program for the golf course. The location of the paths was determined with the golf course architect, and that plan is being used to formulate the new paths. The new paths will pull cart traffic away from important play areas and offer a wider access to entry and exit points of the paths, which will reduce turf damage in adjacent areas. A number of the path locations were pointed out during the visit and all seem to be good locations.

The cart path installed on No. 12 tee will have to be reworked. The new path is much too narrow to facilitate cart traffic and maintenance equipment. The turnaround area was also too small and will have to be enlarged. All new paths should be built to at least an eight foot width and preferably 10 feet when adjacent to tee boxes and greens.

Tree Management

The tree plantings have long been a discussion at our visits. Many recommendations have been made throughout the years to cut back trees to improve growing conditions for turf on greens and to reestablish play corridors and sightlines across the golf course. That work has been initiated with the budget that has been made available to do so. The priorities for the program continue to be green sites and trees that are impacting the use of tee boxes or are impacting sightlines of green and bunker complexes. The next phase of the entry work would be to start thinning some of the larger tree stands that separate the holes. This would open up greater vistas across the property, highlight

some of the natural contouring and perhaps most importantly, increase air circulation, which will benefit all of the turf areas. Thinning the tree stands and cutting back tree lines may also have a positive impact on pace of play.

At the same time, it would be beneficial to allow some of the more out of play rough areas, especially areas among the tree stands, to naturalize to fescue and other native plant materials that are already there. The native areas would help to frame the manicured golf holes and would also provide a wider range of habitat that would be beneficial to wildlife and the plant communities themselves. This would be considered beneficial to Audubon International. The larger scale tree work would be done to open up the stands and would probably best be completed by a land clearing company, a logger or a larger tree service that could complete the practice more quickly and efficiently.

The staff will also be able to continue removing trees that are away from putting greens and other important areas. The staff can focus their efforts on thinning smaller trees and brush, and perhaps chipping the brush and other debris from the larger scale work to be completed by an outside company. Consider purchasing a larger chipper or perhaps borrow a chipper from the town to complete this work in the winter season. A stump grinder would also be a practical purchase and would be used to eliminate the tree stumps and surface roots in more high play areas. Trees that are removed further from playing areas can be flush cut. There are a number of wooded areas that would benefit from being thinned. The wooded area that separates the 1st, 2nd and 3rd holes should be significantly thinned and the ridge naturalized to fescue. We have often discussed thinning the left and right sides of No. 14 and the areas around No. 13 and many other areas on the golf course. Again, the clearing of more out of play rough areas will be a long range program. At this point, focus on the priority work closer to greens, tees and the edges of fairways.

Other specific recommendations were made as we toured the golf course. They included removing crimson maple trees growing along the left side of No. 5 fairway. Remove a Norway maple growing on the left side of the 6th hole inside the cart path. Trees growing on the inside of the path along the right side of the 13th hole should all be removed so a new forward tee can be built there. Finally, the tree line along the right side of the 15th hole needs to be cut back to open the play corridor along the right side of the hole. The work will also expose the fairway bunkers and will increase sun exposure to the turf in the right rough.

WATER CONSERVATION

This season's severe drought has placed an even greater emphasis on water conservation on golf courses. Golf courses use irrigation water efficiently to maintain playing surfaces. The state-of-the-art systems provide relatively uniform water application and the systems can be programmed to basically replace the water that is lost from evaporation or plant use. However, golf courses can always do a better job of conserving water. This is especially true in the peripheral areas of the golf course or out

of play areas, which should not be irrigated under most circumstances and definitely not during periods of drought. Reducing water applications to these areas will require turning off sprinkler heads in these areas or adjusting the heads to irrigate only the primary rough areas. My recommendation at this time is to begin to evaluate irrigation more closely and especially irrigation coverage to non-play areas. Strongly consider eliminating some perimeter sprinkler heads that maintain the out of play rough area over several holes. This would be done as a trial for the sake of water conservation. A program like this would have to be well communicated with the golfers. A copy of the article Green is Not Great is included with this report for your reference. The objectives of the program should be stated along with the benefits that will occur from reducing the total amount of water applied to the facility. Reducing irrigation in the non-play areas should promote the native grasses and sedges that are already in place in those areas. An example where irrigation can be scaled back or can be eliminated might be the rough area separating Nos. 11 and 12 holes. Mr. Hernandez is most qualified to determine the areas where irrigation could be significantly reduced or eliminated altogether. Hopefully, he will receive support for that initiative.

Audubon Cooperative Sanctuary Program

It was good to hear that the facility is involved with Audubon International in hopes of obtaining certification. Becoming certified as a cooperative sanctuary facility would help to show that the golf course is being operated in a sustainable fashion with the environment in mind. Obtaining full certification is a significant achievement that will take some time to complete. There are a number of potential projects that have already been discussed in this report which would serve well for certification. The water conservation efforts, the development of naturalized rough areas, the use of solar panels and the wash water recycling system that will be added to the new cart barn/maintenance facility will move the facility forward towards obtaining certification. It is critical, however, that you begin to fill out the paperwork to move forward with that process so you can obtain credit for those projects when they are completed.

CONCLUSION

This concludes my summary of the topics discussed during my visit to Cranberry Valley Golf Course and I hope this report proves useful. It was good to hear that plans for the cart barn and equipment wash area are moving forward. This is excellent news that will improve the efficiency of the facility in many ways as well as make the operation more sustainable. Well done! Best wishes for the remaining season and please feel free to call at any time throughout the year if I can be of additional assistance.

The USGA appreciates your support of the Course Consulting Service. Please visit the Course Care section of usga.org to access regional updates that detail agronomist observations across the region. Also, please visit the Water Resource Center to learn about golf's use of water and how your facility can help conserve and protect our most important natural resource.

Sincerely,

James E. Skorulski, Agronomist
Green Section, Northeast Region

JES:sjd

cc: Mr. Shawn Fernandez, Golf Course Superintendent

Reprints:

USGA Digital Collection: Naturalized Rough Management
https://cloud.3dissue.com/73035/73358/87210/NaturalizedRoughManagement/index.html

USGA Digital Collection: Trees and Golf Courses
https://cloud.3dissue.com/73035/73358/87210/TreesAndGolfCourses/index.html

Enclosure:

Green is Not Great: Golf is played on grass, not on color.