



COURSE CONSULTING SERVICE

# Onsite Visit Report

## **Westbrook Village Golf Club** Peoria, Arizona

Visit Date: April 5, 2023

Present:

Dan Benefiel, Member  
Al Curtis, Member  
Bob Harris, Member  
Robin Krapfl, Member  
Jake Lucero, Member  
Don McNamara, Member  
Jill Riedel, Member  
Brandon Evans, Director of Golf  
David Escobedo, Golf Course Superintendent  
Jose Murillo, Superintendent, Lakes Course  
Brian Gietka, USGA Green Section  
Brian Whitlark, USGA Green Section

### **United States Golf Association**

Brian Whitlark, Agronomist | Green Section | West Region  
3677 E Turnberry Ct. | Gilbert, AZ | (480) 215-1958 | [bwhitlark@usga.org](mailto:bwhitlark@usga.org)

# Executive Summary

Thank you for your kind hospitality and the invitation to return to Westbrook Village Golf Club to conduct a Course Consulting Service visit on behalf of the USGA Green Section. It was great to see ongoing turf reduction on both golf courses, with significant progress made since last year. It was also great to see that Mr. Escobedo and Mr. Murillo and their teams continue to provide good aesthetics and playing conditions on both golf courses at a very good value for the Westbrook Village members. It was unfortunate to hear about the poor condition of the well on No. 6 Vistas. It is apparent that the next big project for Westbrook Village will be to drill a new well, which reportedly will cost approximately \$1.2M. The club leadership will focus on this project and, as such, other significant capital improvement projects will need to be put on hold. We had a great group of passionate members joining us during this course visit and raising excellent questions about golf course playability and conditioning. A brief summary of the topics discussed in this report is included below:

- **Putting greens.** Putting green turf is in good health on both golf courses. The Vistas greens are significantly firmer than the Lakes greens as measured by the USGA GS3 smart ball. We discussed utilizing a combination of spiking and small-diameter venting operations to improve the ability of water to penetrate the greens and to increase their receptiveness. We discussed utilizing these practices routinely, as often as three to four times per month.
- **Fairways.** Slicing has been routinely conducted in fairways to improve water penetration. It was great to hear positive comments from those that joined us about firmer and drier conditions. The bermudagrass transition is also a hot topic, and I will reemphasize in this report the importance of the proactive transition management program including the slicing, lower mowing heights, utilizing the Sapphire® chemical to slow ryegrass growth, and increasing water and nitrogen inputs beginning in late April. We will also discuss strategies to improve the worn down turf along lake edges. Finally, it will be recommended to push the overseed dates back closer to the second or third week of October.
- **Tees.** It is recommended to continue with tee leveling projects and convert to TifTuf bermudagrass.
- **Turf reduction.** It was great to see you have continued with turf reduction on both golf courses, with the ultimate goal of reducing enough turf such that you are irrigating 85 to 90 acres per golf course.
- **Bunkers.** The bunkers on both golf courses have ample sand, but the sand is compacted due to the hard water and fine material in the sand. Consequently, we discussed utilizing longer eyebolts on the mechanical bunker rake to routinely fluff the sand for improved playability.

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# Putting Greens

## Observations

### 1. Lakes Practice Greens

The practice putting green at the Lakes Course was in better condition than I have seen in previous years. However, turf health and density still lags behind the greens on the golf course.

- Mr. Escobedo noted surface algae was problematic on this green during the winter months, but it was good to see the applied plant protectants have been effective. On the day of the visit, there was very little surface algae observed.
- The weakest area of this green is directly related to the morning shade cast by the tree immediately south/southeast of this practice putting green. Additionally, the green is shaded in the late afternoon by two trees west of the green. Shade from the trees, reduced air circulation from the trees, and the nearby clubhouse all work in concert to create more moisture on this green which has led to the algae formation.
- A profile collected on this putting green revealed a healthy soil profile with no indication of excessive organic matter at the surface.
- We utilized a shear strength tester which is used to measure the surface strength of the top 3/4 to 1 inch of the greens. On this putting green, the shear strength value measured 14 to 15 Newton meters (Nm), which is slightly below average of what I typically see for bermudagrass greens.



There is no indication of excessive organic matter within the top 1 inch of the practice putting green.

### 2. Lakes Greens

We collected soil profiles and measured shear strength and firmness on No. 11 and No. 15 greens on the Lakes Course.

- Shear strength values consistently registered between 22 and 23 Nm, considerably stronger than on the practice putting green.
- Firmness readings averaged between 0.410 and 0.430 inches. These values indicate moderately soft conditions on the Lakes greens. Very firm values will register from 0.290 to 0.330 inches, and extremely soft greens typically are found with measured values in excess of 0.470 inches.
- Soil profile samples collected on these two greens revealed a healthy soil profile with roots found at twice the depth of those in the practice putting green. It was good to see that there are no limiting layers in the greens, which indicates a sound agronomic program deployed over many years. These greens have been managed well, and it shows with a healthy soil profile.



- We utilized the spiker on the back portion of a green on the Lakes Course to demonstrate to the group the value of spiking both for agronomics and to increase the receptiveness of the greens. It was good to hear positive comments from the group regarding the playability of the greens immediately after a spiking event. After seeing this demonstration, the group was perfectly comfortable with the idea of utilizing this practice on a more routine basis. It was interesting that firmness values changed from 0.420 to 0.450 (became softer) after the spiking event, a significant difference in the receptiveness of the green. The spiking definitely increased the receptiveness of the green.



The rootzone is in excellent condition on the Lakes greens. Roots were measured at a 6-inch depth (left). The spiker was demonstrated to help improve the receptiveness of the greens and improve water penetration (right).

### 3. Vistas Greens

We collected soil profiles and measured shear strength and firmness on No. 10 and No. 18 greens on the Vistas Course.

- Shear strength values ranged from 22 to 24 Nm on the Vistas greens. The biggest difference to the Lakes was found in the firmness.
- On the Vistas greens, the firmness was consistent at 0.350 inches, which is a firm green. It was not surprising to hear from the golfers that joined us that the Vistas greens play firmer and golfers have trouble stopping the ball.
- Soil profile samples on the Vistas greens clearly showed the rootzones are in excellent condition with no limiting layers. Roots were found to a depth of 5 to 6 inches, and the surface 1 inch is well diluted with sand. Similar to the comments on the Lakes greens, it is clear that the agronomy team have done a fine job keeping up with aeration and sand topdressing and diligent nitrogen use.



Roots extended to about 6 inches in the Vistas greens, which is excellent.

## Recommendations

Unless otherwise noted, the following recommendations will apply to both the Lakes and Vistas greens.

### 1. Thatch and Organic Matter Management

Based on two years of organic matter sampling on both the Lakes and Vistas greens and observations made during this course visit in early April 2023, I can confidently say that there are no changes necessary in the thatch and organic matter management program. It is recommended to continue with your aeration and sand topdressing program given that it has been successful to adequately dilute thatch and organic matter.

### 2. Managing Firmness

It is recommended to conduct spiking on greens two to four times per month throughout the year and as deemed necessary. Greens are typically firmer in the winter months, and therefore it may be necessary to spike three to four times per month from December through March.

- On the Vistas greens with significantly firmer surfaces, you may consider conducting small-diameter venting tines once or twice a month as you feel necessary. You may also consider experimenting with the “ninja” tines which have become quite popular for golf course superintendents around the country to remove a very small-diameter (1/4-inch) core from greens which will increase greens receptiveness and will improve water penetration and infiltration. This strategy would also be especially helpful on the Lakes practice green.

### 3. Primo® and Wetting Agents

It is recommended to spray Primo (trinexapac-ethyl) at 2 to 4 ounces per acre on putting greens beginning in late May or early June and continue on a weekly basis through early October. It is recommended to omit the Primo one week prior to aeration and resume approximately two weeks after aeration. It is also recommended to use a wetting agent on both golf courses all 12 months of the year. While there are many wetting agents on the market that will prove useful, you may consider utilizing the Revolution® product from Aquatrols which has shown good efficacy in research trials.

### 4. Tree Removal – Lakes Practice Green

It is recommended to remove two trees west of the Lakes practice green to improve air circulation and sunlight exposure. It is also recommended to remove several of the palm trees to reduce root competition and improve sunlight exposure.



It is recommended to remove the two trees west of the practice putting green on the Lakes course in addition to three palm trees.



# Fairways

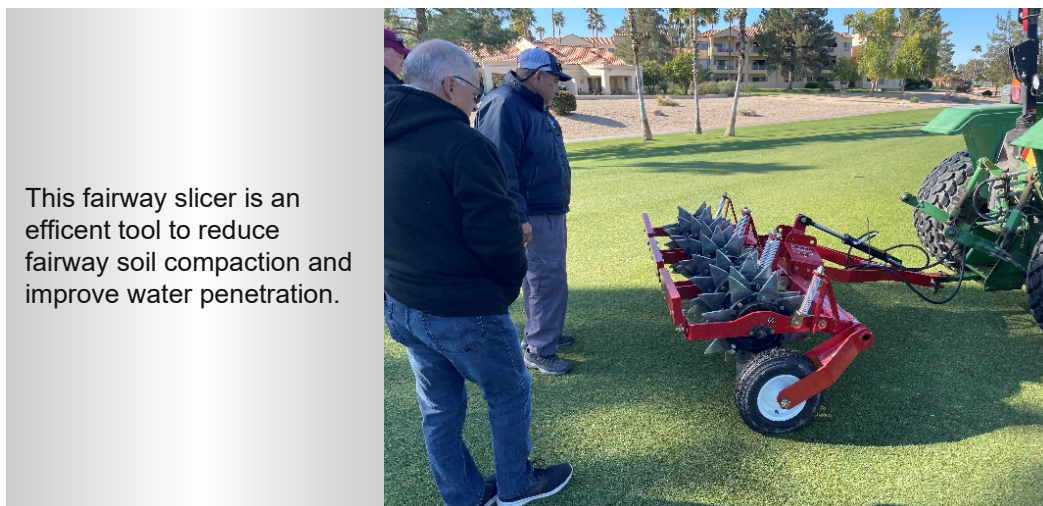
## Observations

### 1. Overseed Density

The overseed density on the Lakes Course was greater than on the Vistas Course. While there is less bermudagrass apparent at the Lakes surface, we could clearly see a higher bermudagrass population beginning to emerge from the overseed on the Vistas Course. The height of cut is the same on the vistas golf course at 0.500 inches. Where carts have not worn down the turf, there is ample turf cushion and density for good playability.

### 2. Slicing

We were able to observe the slicing machine in use on the Lakes fairways. This technique has proven to improve the playing conditions on the fairways. Those joining us on the visit noted the fairways have played drier during this winter than during a normal winter, and we could see bermudagrass emerging in the small slits created from the slicing machine. This machine is fast and does not break down like a deep-tine aeration machine, especially in these rocky soils.



### 3. Height of Cut

There was some discussion about the fairways being too tight; however, in early April, the fairways were cut at 0.500 inches, which is about 0.200 inches higher than what many golf courses are mowing their fairways. The golfing group that joined us on our course tour agreed that in early April, the fairway conditions were excellent on both golf courses and there is plenty of density and plenty of turf and cushion from which to hit golf shots.

### 4. Worn Turf Along Lake Edges

We did observe worn down turf along lake edges, but this is not due to close mowing. The worn down turf is due to golf cart traffic along Lakes No. 18 fairway. In other areas, the worn down turf is due to the waterfowl eating the grass along the lake edges. This is a very common problem throughout the Desert Southwest.



This turf is worn down along the lake edge on No. 18 Lakes, not from mowing, but rather from golf cart traffic.

## 5. *Poa annua*

There is a considerable *Poa annua* population in fairways on both golf courses.

## Recommendations

Unless otherwise noted, the following recommendations are applicable to both the Lakes and Vistas fairways.

### 1. Transition

A proactive transition management program is essential to facilitate a healthy bermudagrass recovery from overseeding. The following recommendations are essential to follow for successful transition.

- It was great to see you have made two Sapphire applications at 4 ounces per acre on both courses. It is recommended to continue with plans for one and perhaps two more applications spaced about three weeks apart at the same rate. You will find the Sapphire applications will be extremely helpful to reduce ryegrass growth as temperatures increase. In the absence of this chemical, ryegrass growth will explode.
- Given that there is bermudagrass emerging on both golf courses in fairways, it is recommended to continue with your current mowing height at 0.500 inches. As stated earlier, many courses in the Southern Arizona area have already reduced their fairway mowing heights down to 0.400 and even 0.350 inches, and many will plan to reduce down to 0.300 inches.
- We discussed increasing water inputs beginning in late April or early May to help expedite bermudagrass growth and recovery.
- It is recommended to make your first nitrogen fertilizer application in 10 to 14 days to foster bermudagrass growth.



## 2. Slicing

With help from the positive feedback from the group of golfers joining us on the visit, it is recommended to continue slicing fairways as frequently as possible. This practice can be conducted nearly year-round.

## 3. Improving Worn Turf Areas

Please consider the following strategies to improve areas where there is worn down turf.

- It is recommended to grow these areas up after overseeding and not mow for the entire winter to allow the ryegrass to grow up to a higher height.
- It is also recommended to increase nitrogen fertility in these worn down areas both on the ryegrass and as bermudagrass begins to emerge from overseeding.
- We also discussed conducting slicing and aeration practices specifically in these areas to reduce compaction.
- Probably the most effective strategy will be to rope off the area within about 20 to 25 feet from the lake on Lakes No. 18 to discourage golfers from driving their golf carts and wearing down the turf. Unfortunately, the unintended result from roping is that carts will likely drive immediately adjacent to the rope and will wear down the turf in that area.

## 4. Overseed Dates

It is recommended to consider pushing back the overseed dates into the mid-to-late October range. Doing so would allow the agronomy team to more effectively establish the overseeded ryegrass while reducing resource inputs such as fertilizer, water and the need to use plant protectants to combat disease. If one golf course were to be seeded in late October, it would be recommended to spray Revolver® about three days prior to seeding to kill early emerging *Poa annua*. This strategy has shown to be very effective at other golf facilities in Southern Arizona. The later the application, the greater the efficacy on the *Poa annua*.

# Tees

## Observations and Recommendations

### 1. Continued Tee Leveling and Turf Replacement

It was great to see you continue to identify tees that have developed a crown over time and, with in-house labor, you are leveling tees and sodding with TifTuf bermudagrass.

- Keeping in mind a limited labor force on both golf courses and the focus must always be placed on providing quality playing conditions, it is recommended to continue to identify one or two tees on each golf course per year to conduct a tee leveling project and replace the bermudagrass with TifTuf.
- It is recommended to level the narrow par-3 tee on Vistas No. 2. We also discussed expanding this tee; however, this project is too large to undertake at this time and will require an outside contractor.
- Here is an article expanding on the tee leveling topic: [Are Tilted Tees Costing You Strokes? \(usga.org\)](https://www.usga.org/2018/07/27/are-tilted-tees-costing-you-strokes/). Here is another article for your review: [Three Simple Methods for Leveling Tees \(usga.org\)](https://www.usga.org/2018/07/27/three-simple-methods-for-leveling-tees/)



Some tees have become crowned (left) and need to be releveled. The TifTuf bermudagrass with no overseed (green area adjacent to the darker green overseed) demonstrates the quality of this grass compared to common bermudagrass.

## Turf Reduction

### Observations

#### 1. Lakes Course

Approximately 4 acres of irrigated turf were removed and replaced with desert landscaping since last year. It was reported that you have about 91 acres now on the Lakes Course after several years of turf removal projects. It was great to hear from the golfers that joined us for the day that these projects have been well received by the membership and the membership seems to understand the importance of continued turf reduction to meet future water restrictions.

#### 2. Vistas Course

Approximately 8 acres of irrigated turf have been removed over the past several years, with several more acres of irrigated turf removed since our last visit.

#### 3. Simplified Turf Removal Program Yields Good Results at Minimal Cost

The cost to conduct the turf removal and replace with decomposed granite or larger rock at Westbrook Village has reportedly been about \$10,000 per acre.

- While this may seem expensive, it is about a third or a quarter of the amount spent by many other clubs in Southern Arizona, Southern Nevada and in the Coachella Valley in Southern California.
- Homeowners and members at Westbrook Village can be extremely proud that their golf course maintenance team have conducted these projects in house at minimal costs while continuing to produce quality playing conditions.

## Recommendations

### 1. Less Than 90 Irrigated Acres and TifTuf Bermudagrass

It is recommended to continue to remove turf in strategic areas, with the goal of ultimately irrigating 85 to 90 acres on each golf course. This will put these golf courses in a more sustainable position for an uncertain water future. To continue to build upon this point, we had a discussion around converting fairways and tees at the courses at Westbrook Village to TifTuf bermudagrass and ultimately move toward a nonoverseeded golf course.

- Moving away from overseeding has been shown to save about 30% water on the overseeded areas. While water costs are minimal at Westbrook Village, the cost to overseed both golf courses is approximately \$150,000 annually.
- Several golf courses in Southern Arizona are currently converting to TifTuf bermudagrass. For the members at Westbrook Village, it is my recommendation to wait and see. In other words, I recommend that you continue on your current path with turf reduction and wait to evaluate the playing conditions and golfer feedback from other golf courses in the state to make a more informed decision about this project that would require a significant capital investment and a temporary course closure during the summer.

### 2. Turf Removal – Vistas No. 5

We discussed removing turf underneath the pine trees adjacent to the cart path on the right side of Vistas No. 5. Turf quality and density are poor in this area due to shade and root competition from the trees. You will be able to provide a better appearance and continue to achieve your turf reduction goal through turf removal in this area and replacing with desert landscape.

## Bunkers

### Observations

#### 1. Firmness and Sand Depth

There have reportedly been golfer comments about excessively firm bunker conditions.

- The perception is there is an absence of sand in the bunkers. However, upon further inspection, all bunkers tested had at least 5 inches of sand depth and some had 6 to 7 inches. It was clear from our inspection that the bunkers do not lack sand. However, in some cases the bunkers are excessively firm.

Two separate profiles retrieved from two different greenside bunkers clearly show there is ample sand depth.





- The hard, compacted sand is a result of a combination of factors including the hard irrigation water, fines (silt and clay) and carbonates contained in the sand, and the fact that you have not replaced sand in bunkers in many years. The maintenance team continues to add sand every year in a strategic fashion, which is absolutely helpful; however, the sand has not been replaced entirely.
- We utilized the USGA GS3 smart ball to quantify bunker firmness. In most cases, bunker firmness was acceptable. In localized areas, however, firmness was excessive.

## 2. Exposed Fabric Liners

The bunkers were lined with a fabric liner many years ago, and it is not uncommon to see this liner fail over time. The liner is torn by maintenance practices, or it is quite common to see coyotes digging in the sand and ripping the liner apart. The maintenance team have been identifying areas where the liner is compromised, and simply cut it out and replace the sand.

## Recommendations

### 1. Softening the Sand

It is recommended to install eyebolts that are about 4 inches long on the mechanical bunker rake to fluff up and soften the bunker sand. Another option is a spring-tine rake (see photo on the left below). This may be required routinely in some, but probably not all, greenside bunkers. This practice is recommended only in the greenside bunkers.



Two options to consider for fluffing up the sand in bunkers.

### 2. Sand Replacement

At some point, it is recommended to include sand replacement in the long-range capital plan for Westbrook Village Golf Club. While there certainly are higher priority projects such as the well, and perhaps fairway turf conversion as well as tee leveling and expansion, I do feel that replacing the sand in the bunkers is a worthy project when funds are available.

## Closing Comments

It was my feeling that this was perhaps the most impactful USGA course visit to Westbrook Village Golf Club. We had a group of golfers that were clearly very passionate about the golf course and they raised a number of excellent questions. Mr. Escobedo and I were able to address those questions and educate the members. I will follow up in several weeks when I receive the test results from the organic matter testing. Best wishes for a successful bermudagrass transition. As always, please do not hesitate to call me should you have any further questions or concerns.

Respectfully submitted,



Brian Whitlark, Agronomist  
USGA Green Section

Distribution:

David Escobedo, Golf Course Superintendent

# Additional Considerations

## USGA Green Section Record

If you would like to receive the USGA's electronic publication, the *Green Section Record*, [click here](#). It is free, informative and sent directly to you via email every two weeks.

## About the USGA Course Consulting Service

As a not-for-profit agency that is free from commercial connections, the USGA Course Consulting Service is dedicated to providing impartial, expert guidance on decisions that can affect the playing quality, operational efficiency and sustainability of your course.

First started in 1953, the USGA Course Consulting Service permits individual facilities to reap the benefits of on-site visits by highly skilled USGA agronomists located in Green Section offices throughout the country.



For questions regarding this report or any other aspect of the USGA Course Consulting Service, please do not hesitate to contact our office.

