



COURSE CONSULTING SERVICE

# Onsite Visit Report

## **Recreation Centers at Sun City** Sun City, Arizona

Visit Date: May 6, 2019

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The USGA Green Section develops and disseminates sustainable management practices that produce better playing conditions for better golf.

# Executive Summary

Thank you for your kind hospitality and the invitation to return to the Recreation Centers at Sun City Golf Courses to conduct a Course Consulting Service visit on behalf of the USGA Green Section. The leadership at the Recreation Centers have done an excellent job of upgrading the golf courses over the past seven to eight years. Arguably the most important improvement projects have been irrigation upgrades and turf reduction. It was reported that the golf courses that have upgraded irrigation have seen 10- to 15-percent annual water savings when compared to their antiquated systems. This translates into an annual water savings of 40 to 50 acre-feet or more per golf course, which is equivalent to the annual water use for 60 to 80 homes or more. This is a great example of water stewardship and best management practices. These practices put the golf course in a more sustainable environmental and economical position for the future. During this course tour, we were able to discuss a number of topics in addition to water savings, and a brief summary of the primary topics is included below:

- **Weed control.** Warm-season and cool-season weeds are a real challenge at these golf facilities in all areas of the golf courses. Purple nutsedge is especially problematic. This report will provide chemical options for weed control in landscape areas and in both overseeded and non-overseeded turfgrass.
- **Bermudagrass transition.** The next six to eight weeks are critical to employ practices to encourage the understory bermudagrass to recover from overseeding. Strategies such as increasing water inputs on fairways will be discussed in this report to expedite bermudagrass recovery.
- **Putting greens.** The primary topics on putting greens were to improve the maturity of the young Willowcreek greens, employ strategies to reduce the organic matter in the top 1/2 inch of the Riverview greens and to reduce weeds on the Lakes East and West greens.
- **Bunkers.** The primary topics on the bunkers included the need to recapture the defined edge of bunkers, issues with the Klingstone™ liner flaking off and bunker sand replacement.
- **Forward tees.** It was great to see the yellow forward tees on the Willowbrook Golf Course and to hear of plans to install forward tees on the Lakes West Golf Course this summer. You will find recommendations on the appropriate yardage for the Lakes West Golf Course included in this report.

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# Irrigation and Turf Reduction

## Observations

The continued commitment to upgrade the irrigation systems at the golf courses at the Recreation Centers at Sun City and recent turf reduction projects are great examples of best management practices to reduce resource inputs, primarily water. A general guideline is that courses will see savings between 7 to 10 percent in their annual irrigation inputs when upgrading to a new irrigation system. However, it is excellent to report that the courses at Sun City have seen 10 to 15 percent water savings. That equates to a savings of 40 to 60 acre-feet of water annually, which is equivalent to the amount of water needed to support 60 to 80 homes for an entire year. Not only have these projects resulted in water savings, but there is also a significant energy savings and potentially a longer pump station lifespan. The residents at the Recreation Centers at Sun City can be proud that the facilities are doing the right thing to reduce water inputs and put the golf courses in a more economically and environmentally sound position for the future.

## Recommendations

Building on the heels of the Willowcreek irrigation and turf reduction project, it is recommended to continue this positive momentum and move forward with plans to reduce a significant amount of turf on the South Golf Course.

# Weed Control

## Observations

### 1. Putting Greens

We observed wild carrot/wild celery on the Lakes East and West greens and small, localized patches of *Poa annua*. Furthermore, green kyllinga was observed in the Lakes East and West greens in September of last year, and unfortunately, it should be expected that this weed will return this summer. There were also reports of crabgrass and goosegrass on the Lakes East and West and Willowbrook courses last summer.

### 2. Fairways

The primary weeds of concern on fairways are *Poa annua* (during the winter) and crabgrass and goosegrass in the summer months along with purple nutsedge, although most of the purple nutsedge is isolated to the roughs.

### 3. Roughs

Other than the green surrounds, the roughs are not overseeded and with the lack of competition from ryegrass, there is high pressure from cool-season weeds and spring weeds such as wild celery. Purple nutsedge is prevalent in the non-overseeded and overseeded roughs around greens.

### 4. Desert Areas

Weed control in the landscape rock/desert areas will also be critical, and the primary weeds will be bermudagrass and purple nutsedge, but broadleaf weeds will also need control measures.

## Recommendations

### 1. Putting Greens

- Use postemergence herbicide products to control the wild celery in putting greens immediately. This weed can be spot sprayed as it is only present in localized, small areas. Click on this link for more postemergence weed control options in bermudagrass putting greens: [Postemergence Herbicides for Putting Greens](#).
- For crabgrass and goosegrass, utilize the Anderson's crabgrass and goosegrass prevention product that is labeled for greens and plan on two applications, the first in late January or early February, and follow with the second application in mid to late April. If breakthrough occurs with the goosegrass, you are encouraged to use [Revolver®](#) as a postemergence product and apply while the weeds are still young.
- For *Poa annua*, utilize Revolver immediately prior to overseeding. This application works well when applied from mid to late October. If applied in late September or early October, the control can be expected at only 25 to 30 percent. The majority of the *Poa annua* germination occurs in October, and therefore the later the Revolver application is made, the better you will find the efficacy.

### 2. Fairways

- Similar to the greens, Revolver can be applied to fairways for postemergence control of early emerging *Poa annua*. Again, this application is best made between mid to late October.
- You also may consider using prodiamine six to eight weeks in advance of overseeding. This application generally can be expected to provide good control; however, there is always a risk of injury to the overseeded ryegrass. The prodiamine or dithiopyr can be use in the early spring for crabgrass and goosegrass control in fairways. You will need two applications, with the first in late January/early February and the second, late April.
- If you find that goosegrass persists and is a continuing problem, then you will likely need to switch to a granular Ronstar® application, which can be made in late April or early May and will provide excellent goosegrass control.
- There are also postemergence options, and Revolver has good activity on goosegrass. Furthermore, a new product to golf in Arizona is [Plateau®](#) herbicide, which can be used to control crabgrass and goosegrass. The Plateau can also be used at lower rates (3 to 4 ounces per acre) to slow the growth of the bermudagrass in July, August and September when it is difficult to keep up with mowing.

### 3. Roughs

- For purple nutsedge in roughs, we discussed using products such as Monument®, Certainty®, and a new product called [Celero®](#). Mr. Kai Umeda's research at the University of Arizona has revealed the best efficacy with regard to controlling purple nutsedge is through multiple applications in August, September and October when the plant is shifting its carbohydrate reserves to the underground nutlets.



- With a high population of ryegrass and *Poa annua* in the non-overseeded roughs, it is recommended to use Plateau at a rate range between 2 to 4 ounces per acre. It is recommended to begin with spraying one spray boom width across a non-overseeded rough area to become comfortable with the results .
- Mr. Skeen noted that he is using a combination of prodiamine and Specticle® preemergence herbicides in the non-overseeded roughs, and it is suggested to continue with this practice, although the Specticle should be used no more than four to five years sequentially.
- It is highly recommended to spray additional herbicides in the winter, such as glyphosate at 14 ounces per acre in late December and early January to clean up weeds that have escaped the preemergence herbicides. Furthermore, another product called SureGuard® can be used in late November adjacent to the overseeded ryegrass for postemergence and some preemergence control of winter weeds.

#### 4. Desert/rock Areas

Preemergence herbicides will be essential for the desert/rock areas. Several good options include [Surflan](#)® and [Pendulum](#)®. Additionally, you may consider [Arsenal](#)® or [NativeKlean](#)™.

## Green Surrounds

### Observations

#### 1. Overseed Area

The area overseeded in green surrounds was increased in the fall of 2018 to improve cosmetics and playability. The overseeding also helps with weed control, especially in high traffic areas.

### Recommendations

#### 1. Overseed Area Increase

It is recommended to increase the overseeded area around green surrounds. However, it is recommended to leave a narrow band of non-overseeded turf immediately surrounding bunkers. Please keep in mind that the increased overseed has the potential to negatively impact the bermudagrass recovery and the height of cut should be maintained at 1 to 1.5 inch during the winter months, but lowered to 1 inch by the end of January and further reduced to 0.75 inch by the end of March.



In the fall of 2019, it is suggested to increase the overseeded area in green surrounds. Overseeding the entire green surround will improve aesthetics, playability and reduce weeds.

# Transition

## Observations

### 1. Bermudagrass Population

It is good to report that the samples collected on all the golf courses we were able to visit revealed a healthy emerging bermudagrass population in fairways and greens. At this time, there are healthy rhizomes producing new leaves. However, this does not ensure a successful transition, and the next six to eight weeks will be critical to encourage the understory bermudagrass and discourage the competition from the ryegrass.

### 2. Height of Cut

The height of cut in the overseeded green surrounds is high for this time of year, and ryegrass cut above 1 inch creates excessive shade for the emerging bermudagrass.

### 3. Collars

We discussed a history of poor bermudagrass recovery in putting green collars. Some of the damage to the collars may be attributed to overregulation from the trinexapac-ethyl applied to putting greens. Dr. Bill Kreuzer from University of Nebraska has demonstrated that routine growth regulator sprays for putting greens have a significant detrimental impact to the higher-cut putting green collars due to overregulation.

## Recommendations

### 1. Height of Cut

Although it may be unpopular to lower the height of cut in overseeded areas, it is recommended to immediately lower the height of cut in the overseeded green surrounds, with the goal to be at 5/8 inch over the next three to four weeks. Ideally, the height of cut in the fairways would be reduced to 0.400 inch.

### 2. Localized Wet Fairways

Maintaining adequate soil moisture is imperative to encourage the understory bermudagrass to recover from overseeding. Golfers may see some wet fairway conditions over the next six to eight weeks, but this is necessary to avoid delaying bermudagrass recovery.

### 3. Nitrogen

It is recommended to begin to increase nitrogen inputs and plan to apply 2 to 3 pounds of nitrogen per 1,000 square feet over the next six to eight weeks in overseeded fairways and green surrounds.

### 4. Organic Layer

It is recommended to utilize a combination of vertical mowing, spiking and solid tine aeration to break through the black organic mat that forms at the surface when the ryegrass senesces.

- The senescing ryegrass forms allelopathic chemicals that discourage bermudagrass recovery, and utilizing mechanical means to break through the organic layer will work to help the bermudagrass.
- It was great to see that each course has its own set of vertical mowing reels for fairways and they are already being utilized. These vertical mowing reels can be set approximately 0.100 inch below 'zero' to cut through the organic mat.

## Putting Greens

### Observations

#### 1. Willowcreek Golf Course

The Willowcreek greens are not even one year old, and the young age shows in the immaturity of the greens and lack of thatch development. The density of the Tifdwarf on these greens was thin on the day of the course tour and surface algae was present in the voids. The greens displayed weak turf strength and heave when changing holes.



(L) As expected, the soil profile in the new Willowcreek greens is absent of any layers; however, there is too little thatch development and the greens are still immature. Notice also the black specks on the surface, which is algae growing between plants.

(R) A sample harvested from the Willowbrook greens shows a healthy soil profile with ample thatch pad to withstand traffic and has healthy organic matter development at the surface.

#### 2. Willowbrook Golf Course

The older Willowbrook greens displayed healthy bermudagrass emerging from overseeding. The turfgrass density on these greens was somewhat thin, and as a result, there were surface weeds such as wild celery and *Poa annua*.

#### 3. Lakes West Golf Course

The Lakes West greens were similar in density to the Willowbrook greens, with some thin turf and the presence of surface weeds.



#### 4. Riverview Golf Course

Turf density on the Riverview greens was significantly better than on the other golf courses and displayed a healthy mixture of Tifdwarf bermudagrass and the overseeded ryegrass and *Poa trivialis*. However, we did observe the results of a grow-in layer in the Riverview greens, with some excess organic matter in the top 1 1/2 inches.



We observed the remnants of a grow-in layer in the top 1.5 inches of the Riverview greens which contain higher than ideal organic matter levels. Additional sand topdressing will help to dilute this layer.

#### 5. Soil Profiles

In general, the soil profiles collected from all of the golf courses we were able to visit demonstrate healthy, well-drained greens. It appears that the aeration and sand topdressing programs, in general, are on track to dilute surface organic matter.

### Recommendations

#### 1. Willowcreek Greens

- It is recommended to use venting with small diameter pencil tines on the Willowcreek greens and conduct every 10 to 14 days throughout the summer months.
- It is recommended to apply a steady rotation of fungicides, including mancozeb, and chlorothalonil, to help reduce the surface algae growth. Here is a reference on algae control for your review: [Algae Management for Golf Course Putting Greens](#).
- It is recommended to increase nitrogen inputs immediately and plan to apply 2 to 3 pounds of nitrogen per 1,000 square feet over the next six to eight weeks. It is recommended to use a combination of readily available nitrogen such as ammonium sulfate, and the remainder may be applied with slow-release nitrogen such as methylene urea.

- It is recommended to immediately begin sand topdressing a rate of approximately 75 pounds of sand per 1,000 square feet and continue every two weeks throughout the summer. In the peak of summer, it is recommended to increase the sand topdressing rate to 125 to 150 pounds per 1,000 square feet. We also discussed using a less course sand, and it is recommended to consult with your sand supplier to discuss sand topdressing that contains no particles greater than 1 mm, and the majority of the particles between 0.25 to 0.75 mm.
- The goal with the Willowcreek greens will be to develop a thatch mat approximately 5/8 inch thick, and it is recommended to continue with elevated nitrogen levels throughout the summer months to help encourage stronger bermudagrass growth and development.
- Finally, it is recommended to use only small diameter venting tines on the Willowcreek greens this summer.

## **2. Greens Aeration**

- For the remaining greens, it is recommended to utilize a combination of deep, solid tine aeration combined with two passes over the greens with core aeration. These three passes can be conducted over a several-day period in the middle of summer combined into one event.
- Given the excess organic matter in the surface of the Riverview greens, it is recommended to use 5/8-inch outside diameter tines on a tight spacing of 1 1/2 by 2 inches to pull large cores from these greens. Use the coarse USGA construction sand to fill the holes. You will likely need several sand applications to ensure the holes are completely filled. It is also recommended to increase the frequency of sand topdressing to biweekly during the summer growing season.

## **3. Venting**

- Venting practices can be utilized on all the golf courses throughout the entire year with small diameter pencil tines.
- The goal with this operation is to encourage water to penetrate the greens rather than run off.
- These practices also help to soften the greens, which increases golfers' ability to stop their golf balls on the greens.
- Ideally, the venting operations would be conducted at least every month, and more frequently if needed.

## **4. Surface Management**

We discussed grooming and vertical mowing at the Riverview golf course, and it is recommended to conduct these practices on all the golf courses throughout the summer months.

- For groomers, set the groomers tightly, with only one spacer separating the blades, similar to the set up at the Riverview course. Run the grooming blades in the counter-rotational direction to the reel and begin in the spring with the blades set at mowing height.



These grooming blades are set up ideally, with tight spacing. The idea is to impact as much surface area as possible with frequent grooming at light intensity.

- As bermudagrass growth increases, you can slowly lower the grooming blades down further into the canopy. As a guideline, when run in the counter-rotational direction, the grooming blades can be run approximately 0.070 to 0.090 inch above the bottom of the rollers.
- The grooming blades can be run frequently, as often as five to six days per week when the bermudagrass is actively growing.
- Conversely, the vertical mowing blades should be set with the Vertiguage™ below the bottom of the rollers. Early in the spring, the vertical mowing blades can be set even with the bottom of the rollers. As bermudagrass growth increases, set the blades to as deep as 0.070 to 0.090 inch below the bottom of the rollers. The intent with the vertical mowing is to conduct this practice frequently, but not aggressively.

## Bunkers

### Observations

#### 1. Bunker Edges

We observed that some of the bunkers on the golf courses have lost their defined edge and will need aggressive mechanical practices to recapture the edge and intended shape of the bunker.

#### 2. Klingstone Liner

We noted the Klingstone bunker liner is beginning to flake off in some bunkers and will eventually need replacement with an alternative bunker liner.

#### 3. Wet Conditions

As expected, we did hear some comments about wet bunkers where the Better Billy Bunker™ liner is used. This is expected and is often seen at golf courses using a durable liner such as the Better Billy Bunker liner. These liners create a perched water table at the interface of the sand and the liner that creates wet conditions on the bunker floors, especially when irrigation is used on a frequent basis.

## Recommendations

### 1. Sand Replacement

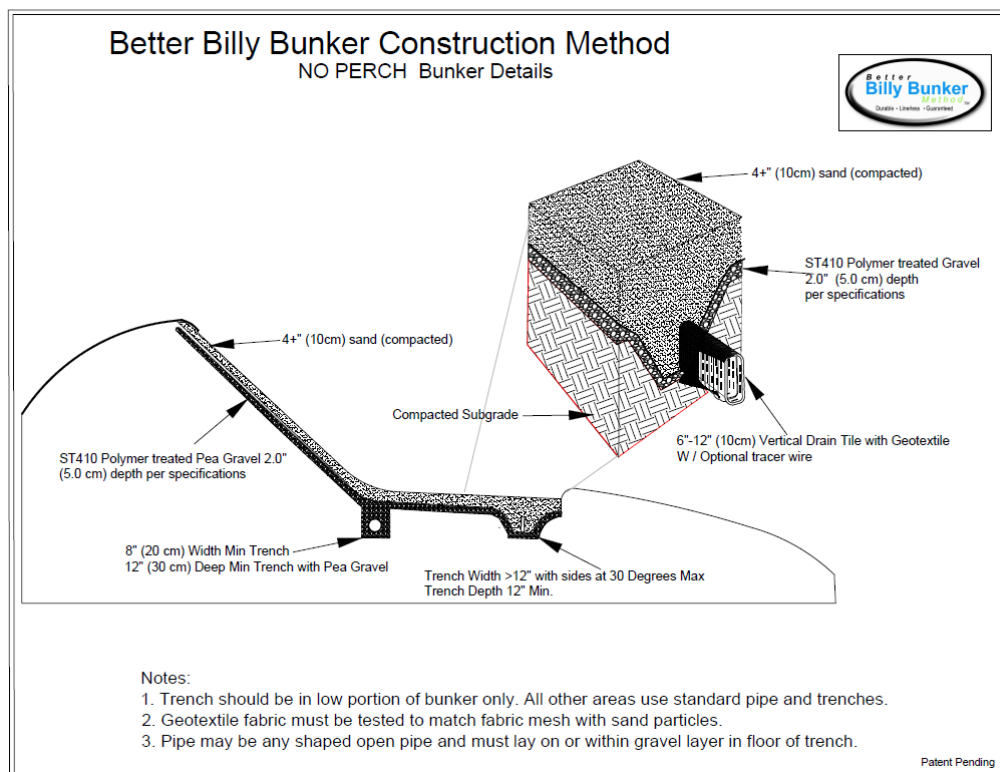
It is recommended to continue with plans to replace bunker sand every seven to ten years, or as needed. In general, where the Better Billy Bunker liner is used, it is recommended to plan on a sand depth of 7 to 8 inches on the bunker floors and 2 inches on the bunker faces. This deeper sand depth will provide drier conditions at the surface, and golfers will appreciate the softer conditions.

### 2. Bunker Shapes

It is recommended to attend to the bunkers that have lost their shape and recapture the original edge. As a guideline, it is recommended to edge and trim bunkers on a biweekly schedule throughout the summer months. You may also consider utilizing chemicals to reduce growth of the bermudagrass, which will help save labor for this task.

### 3. Bunker Liner

For future projects where you will use the durable liner, it is recommended to consider modifying the Better Billy Bunker concept for better drainage, which will allow you to use only 4 inches of sand in the bunker floors rather than 7 or 8. A schematic of the new better Billy Bunker design is included below.





# Tees

## Observations

### 1. Forward Tees

It was great to see the installation of the forward tees on the Willowcreek Golf Course and learn of plans to install forward tees on the Lakes West Golf Course this summer.

- Ideally, the yardage for these forward tees would be in the range of 4,000 to 4,400 yards, with the goal for the forward tee player to be able to reach all greens in regulation and have an opportunity to hit a variety of shots into greens.
- The forward tees on the Willowcreek Golf Course are a bit too long to allow players that swing at 60 to 65 miles an hour to reach all greens in regulation. However, it was noted during the course tour that these players also have alternative golf courses to play where they can reach greens and hit a variety of approach clubs into greens.



It was great to see the addition of the yellow forward tees on the Willowcreek Golf Course. These tees are intended for any player with slower swing speed that wishes to have a fun golf experience.

### 2. Tee Crowning

We observed crowned tees on the golf courses which will need to be addressed on an annual basis.

## Recommendations

### 1. Leveling Equipment

It is recommended to purchase laser leveling equipment which can be shared among the golf courses and used to level a few strategic tees on multiple golf courses each year. This would be a worthwhile investment and a great way to keep up with tee leveling.

### 2. Forward Tees

The USGA and PGA of America continue to gather data on the slower swing speed golfers and the distance at which they hit tee shots, fairway woods, mid irons and wedges. Given that information, you may consider locating forward tees based on the idea that these tees should allow the slower swing speed golfer at 60 to 65 miles an hour an opportunity to reach greens

in regulation, and furthermore, the opportunity to hit an approach shot other than a fairway would or hybrid into the greens. Please review the following information on potential distance for forward tees:

- **Current forward tees.** The following chart shows the distance from your current forward tees (red) on every hole as well as the white tees (used by most of your male players). The box on the right shows the average swing speed for a range of handicap levels for males and females.

Course Name:

Lakes West

Female Tee:

Red

Swing Speed:

Average

Male Tee:

White

Swing Speed:

Average

Female - Scorecard Distances from Red

Hole	Par	Yardage
1	4	343
2	3	106
3	4	336
4	4	291
5	4	352
6	5	436
7	3	126
8	4	327
9	5	457
10	4	335
11	3	163
12	5	497
13	4	354
14	4	302
15	3	121
16	5	464
17	4	323
18	4	287
OUT	36	2774
IN	36	2846
TOT	72	5620

Male - Scorecard Distances from White

Hole	Par	Yardage
1	4	364
2	3	132
3	4	373
4	4	306
5	4	369
6	5	460
7	3	147
8	4	343
9	5	476
10	4	367
11	3	176
12	5	508
13	4	363
14	4	319
15	3	131
16	5	479
17	4	329
18	4	302
OUT	36	2970
IN	36	2974
TOT	72	5944

Female Handicap to Swing Speed Reference

Pro	= >85
0-5	= 81-85
6-10	= 76-80
11-15	= 71-75
16-20	= 66-70
21-25	= 61-65
26+	= <60
Aver.	= 60

Male Handicap to Swing Speed Reference

Pro	= >110
0-5	= 101-110
6-10	= 91-100
11-15	= 81-90
16-20	= 71-80
21-25	= 61-70
26+	= <60
Aver.	= 81-90

- **Maximum distances.** The maximum distances for male and female golfers and approximate club distance are outlined below. Note: The maximum recommended hole length for female golfers is provided by PGA of America recommendations in their publication [Setting Up Golf Courses for Success](#).

Figure 1: Maximum recommended hole distances for average female and average male golfers

	Par 3	Par 4	Par 5
Female (25 hdcp)	140	260	380
Male (13 hdcp)	210	400	590

Figure 2: Approximate club distances for average female and average male golfers

Club	Female Golfers (25 hdcp)	Male Golfers (13 hdcp)
Driver	140	210
Fairway Wood	120	190
Long Iron/Hybrid	105	170
Mid-Iron	100	140
Short Iron	80	120
Wedge	60	100

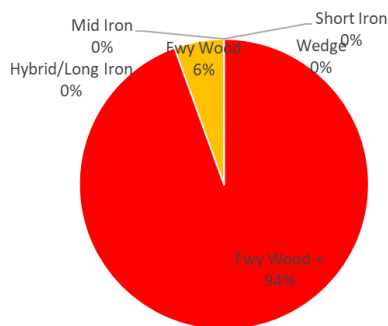
- **Approach shot distances.** The following charts compare the estimated approach shot distances and approach club for the average male (13 handicap) and the average female (25 handicap) golfers. These charts also indicate whether or not the female and male golfers will be expected to reach the putting green in regulation.

- ◆ A red X indicates the golfer is not expected to reach the green in regulation.
- ◆ Notice that male players playing from the white tees can reach all greens in regulation while the players with slower swing speeds can only reach three greens in regulation when playing from the red tees.

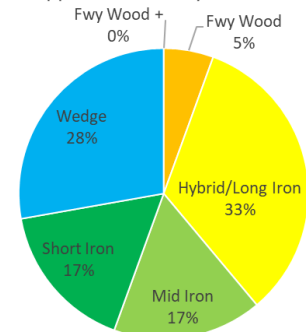
Female Golfers - Red Tee							Male Golfers - White Tee						
Handicap - 25 Swing Speed - 60 MPH							Handicap - 14 Swing Speed - 81-90 MPH						
Hole	Par	Yards	Yards Over	Est. Approach	Shot Distance	Est. Approach Shot Club	Hole	Par	Yards	Yards Over	Est. Approach	Shot Distance	Est. Approach Shot Club
			Rec. Max.							Rec. Max.			
1	4	343	X 83	203		Fwy Wood+	1	4	364	✓ --	154		Hybrid/Long Iron
2	3	106	✓ --	106		Fwy Wood	2	3	132	✓ --	132		Mid Iron
3	4	336	X 76	196		Fwy Wood+	3	4	373	✓ --	163		Hybrid/Long Iron
4	4	291	X 31	151		Fwy Wood+	4	4	306	✓ --	96		Wedge
5	4	352	X 92	212		Fwy Wood+	5	4	369	✓ --	159		Hybrid/Long Iron
6	5	436	X 56	176		Fwy Wood+	6	5	460	✓ --	60		Wedge
7	3	126	✓ --	126		Fwy Wood+	7	3	147	✓ --	147		Hybrid/Long Iron
8	4	327	X 67	187		Fwy Wood+	8	4	343	✓ --	133		Mid Iron
9	5	457	X 77	197		Fwy Wood+	9	5	476	✓ --	76		Wedge
10	4	335	X 75	195		Fwy Wood+	10	4	367	✓ --	157		Hybrid/Long Iron
11	3	163	X 23	163		Fwy Wood+	11	3	176	✓ --	176		Fwy Wood
12	5	497	X 117	237		Fwy Wood+	12	5	508	✓ --	108		Short Iron
13	4	354	X 94	214		Fwy Wood+	13	4	363	✓ --	153		Hybrid/Long Iron
14	4	302	X 42	162		Fwy Wood+	14	4	319	✓ --	109		Short Iron
15	3	121	✓ --	121		Fwy Wood+	15	3	131	✓ --	131		Mid Iron
16	5	464	X 84	204		Fwy Wood+	16	5	479	✓ --	79		Wedge
17	4	323	X 63	183		Fwy Wood+	17	4	329	✓ --	119		Short Iron
18	4	287	X 27	147		Fwy Wood+	18	4	302	✓ --	92		Wedge
OUT	36	2,774	X				OUT	36	2,970	✓			
IN	36	2,846	X				IN	36	2,974	✓			
TOT	72	5,620	X				TOT	72	5,944	✓			

- ◆ The following charts demonstrate that the average male player playing from the white tees is able to hit a wide variety of shots into greens (below, right), while the slower swing speed player is unable to reach all but three greens in regulation. Of the holes they are able to reach, they must hit a fairway wood (no mid irons, short irons or wedges).

Anticipated Approach Shots by Club for Female Golfers

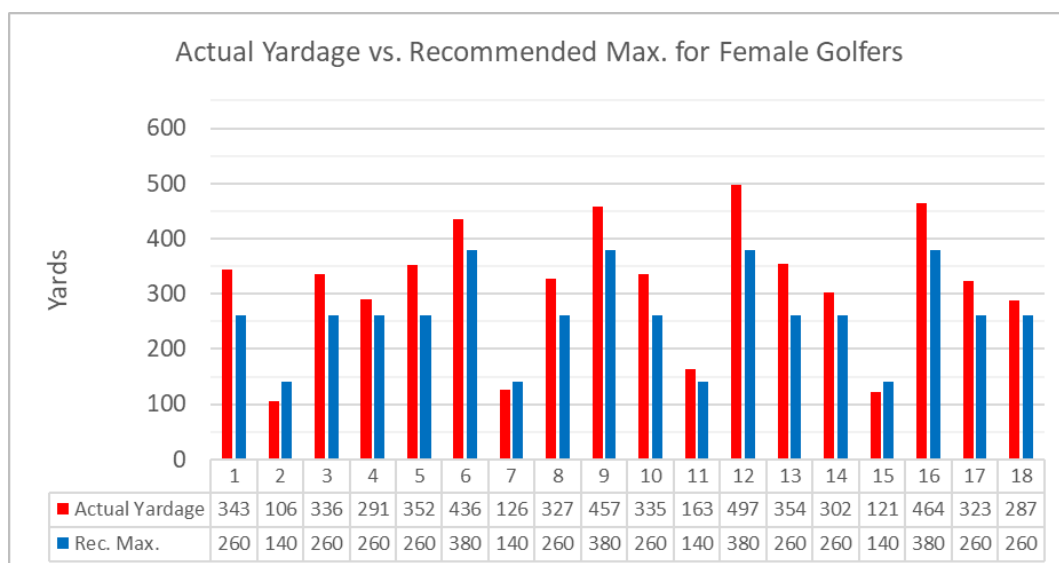


Anticipated Approach Shots by Club for Male Golfers



- **Findings**

- ◆ **The current forward tees are too long for a player with a swing speed of 60 to 65 miles per hour.** This analysis indicates that the average male golfer will hit a variety of approach shots into greens when playing from the white tees (see pie graph above right), but the slower swing speed players playing from the forward (red) tees most often will not be able to reach greens and only can reach greens with a 3-wood.
- ◆ **The challenge for average female and average male golfers is not proportional.** The golf course is much more difficult for the slower swing speed golfer, which results in longer round times (more shots) and less enjoyment for these players. Many facilities have addressed this issue by creating more forward tees. Round times are decreased and golfer satisfaction goes up, which is good for business and the reputation of the facility.
- ◆ **The meaning of the "+" sign behind the "Estimated Approach Shot Club?"** This sign shows that shots with fairway woods on these holes will end up short of the putting green for each hole by the distance shown titled "Yards Over Recommended Maximum."
- ◆ **Overall distance is not the only determining factor for adding forward tees.** The above data shows where forward tees are needed for average players with less swing speed; however, in many cases, placement of the forward tee at the desired length is not possible due to topography, hazards and other factors. In some cases, the existing forward tee may be the only choice, while others may still be too long. Regardless, a qualified golf course architect can suggest recommendations.
- ◆ **What should the forward tee length be to match the same clubs hit into the putting greens on every hole?** Without solid data, only an estimation can be determined. With this new data and the calculator, the distance for each hole can be calculated to give a very good estimate of what distance is required.
- **Actual yardage.** The following chart shows the actual yardage from the red tees compared to the recommended maximum yardage. The blue bars represent the recommended maximum yardage for the slower swing speed players to reach greens in regulation. The tees can be placed to offer shorter holes than the maximum to allow these players to hit shorter shots into greens.





# Summary

Thank you for the opportunity to visit with the leadership and board members at the Recreation Centers at Sun City to discuss short-range and long-term agronomic planning. It is impressive to see the continued commitment to upgrade the golf courses, which are one of the primary assets at the Recreation Centers at Sun City. It was also good to hear of future plans to upgrade the turf care facilities, and most notable will be the Lakes East and West turf care facility. These projects demonstrate to the maintenance employees the importance of their work and elevate the professionalism in which they conduct their jobs.



Turf reduction and new irrigation systems are big steps toward improving the sustainability of the golf facilities at the Recreation Centers at Sun City.

Thank you for your continued support of the USGA Green Section. I look forward to seeing the progress with the golf courses later this summer. Please do not hesitate to contact my office should you have any further questions or concerns.

## 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.

Respectfully submitted,



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# 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.

