

REPORT TO CITY COUNCIL

Approved by:

Council Meeting of: August 2, 2023 Agenda Number: <u>E-1</u>

rseph Hebert

Joseph Hebert, Parks & Community Services Director

Arnoldo Rodriguez, City Manager

SUBJECT:

Informational report on USGA Site visit to the Madera Municipal Golf Course

RECOMMENDATION:

This report is submitted for informational purposes only and there is no action requested from the City Council (Council)

SUMMARY:

During the June 21, 2023 Council meeting staff presented the Ninth Amendment to the Madera Municipal Golf Course Operation and Management Lease Agreement with SGM Inc. dba Sierra Golf Management, Inc. There is a provision in the original 2009 contract requiring an annual audit be conducted by the United States Golf Association (USGA); however, the report had not been previously prepared.

The staff is providing this report to inform Council that the USGA annual audit provision has been satisfied.

DISCUSSION:

On July 21, 2023, the USGA conducted its first audit of the Madera Municipal Golf Course. The audit findings were generally favorable. The course is over 30 years old and in good shape, except for several items requiring upgrades or general maintenance.

Recommendations made by USGA are presented below:

1. Upgrade Irrigation System

- 2. Increase Weed Control
- 3. Putting Greens increase sand dilution and decrease surface patch.
- 4. Bunker renovation
- 5. Upgrade to hybrid Bermudagrass

The establishment of a seven (7) member golf committee was approved by Council during the July 19, 2023, meeting. The USGA recommendations will be scheduled for discussion during the Committee's upcoming.

FINANCIAL IMPACT:

Funding for Golf Course Capital improvement projects will be generated by revenues outlined within contract amendment nine.

ALTERNATIVES:

This is an informational item only.

ATTACHMENTS:

1. USGA Site Visit Report for Madera Municipal Golf Course 21 July 2023



USGA. COURSE CONSULTING SERVICE

Site Visit Report

Madera Municipal Golf Club Madera, California

Visit Date: July 21, 2023

Present:

Jeremy Jordan, Golf Course Superintendent Dan Bacci, Sierra Golf Management Jon Christensen, Sierra Golf Management Brian Whitlark, USGA Green Section

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Executive Summary

Thank you for the invitation to conduct the first Course Consulting Service visit to Madera Municipal Golf Course on behalf of the USGA Green Section. The purpose of the Course Consulting Service is to collect and distribute information on the proper construction and maintenance of golf courses. Each visit offers an impartial yet concerned perspective regarding turfgrass growth requirements, practical information on maintenance practices to address your needs, and sharing information from other courses that we visit that may be helpful to your operation. This information is provided free of bias since the USGA is not affiliated with manufacturers or suppliers. In short, we are a tool to help your superintendent and management team provide better turf for better golf.

This was my first visit to Madera Municipal Golf Course. The golf course is about 30 years old, and it is clear that there have been no capital improvement projects completed at the golf course. The infrastructure of the golf course is aging, and the most important topic of this report will be the need to upgrade components of the irrigation system. We will also discuss the importance of significantly increasing weed control efforts. A brief summary of the topics discussed in this report is included below:

- Irrigation system. Despite a significant reduction in irrigated turf, the irrigation system is insufficient to properly deliver water adequately and efficiently to this golf course. It is recommended for the City to consider significant upgrades to the pump station and irrigation system at Madera Municipal Golf Course.
- **Weed control.** Weeds are a significant problem at this golf course, and weed control efforts need to be increased in primary playing areas such as green surrounds, fairways and tees.
- **Putting greens.** The putting greens are in good health in general, but they are very soft and spongy. We will discuss increasing cultural practices to improve sand dilution and decrease surface thatch.
- **Bunkers.** The bunkers have exposed sumps which are unsightly and impact playability but do help to drain the bunkers during rainfall events. While not an immediate priority in my opinion, a bunker renovation should be considered in the future.
- **Bermudagrass upgrade.** After upgrading the irrigation infrastructure, it is recommended to consider upgrading to hybrid bermudagrass, which could be sprigged to the fairways perhaps nine holes per year. This would improve golf course aesthetics and playability year-round.



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Irrigation

Observations

1. Antiquated System

The irrigation system is now over 30 years old. Most courses will replace irrigation satellites, sprinklers, lateral and mainline valves between year 15 and 25, and often courses will replace the entire irrigation system at year 30 to 35.

2. System Limitations

The irrigation system does not deliver water adequately and efficiently to this golf course. The system only delivers about 1,200 gallons per minute, which is only about 40% of what a typical golf course will pump out to an 18-hole golf course. This means not enough water can be delivered to the golf course during an evening irrigation cycle, and the time in which to apply water is 11 to 13 hours. A system with adequate pressure and flow could deliver more water in a window of only about six hours. The long water window creates wet conditions for golfers playing early in the morning and does not facilitate deep watering.

3. Multiple Sprinklers Per Valve

Most all golf courses I work with (approximately 90 golf courses per year) have the ability to control every sprinkler individually. At Madera, there are two to three sprinklers per station and, in some cases, five to six sprinklers per station. This means limited ability to apply site-specific water and results in inefficient use of water and overwatering.

4. Inconsistent Spacing

The spacing among the sprinklers is inconsistent, which results in localized wet and dry areas.

5. Valves Not Working

Mainline and lateral line valves are not working properly. This means that to conduct any repairs across the golf course, the team must shut off the pump station. During the summer months, this is a significant inconvenience and puts turfgrass throughout the golf course at risk of failure.

6. Pump Station in Poor Condition

The pump station is in very poor condition and is exposed to the elements.

7. No Independent Watering

It was great to see that irrigated turf was removed several years ago. It was reported that the team now irrigate only about 75 acres of turf compared to about 105 acres of turf several years ago. However, the sprinkler design is not set up to independently water only these 75 turf acres. This means water is applied where it is not needed.

8. Poor Sprinkler Design Around Greens

There are full-circle sprinklers around greens, which means water must be applied to green surrounds and bunkers when greens are watered. Ideally, greens would be watered with part-circle sprinklers designed only for the greens to allow deep watering of greens without flooding bunkers.



Recommendations

1. System Component Replacement

At the very least, it is suggested to replace swing joints, sprinklers and irrigation satellites and add a central irrigation computer. This is the very minimum irrigation component replacement plan. This plan does not allow for redesigning irrigation spacing to accommodate the new turf lines and does not replace lateral line pipes which are more likely to fail in the next five to ten years. Below is an industry reference that provides the expected useful service life of irrigation components:

GOLF COURSE ITEMS EXPECTED LIFE CYCLE

HOW LONG SHOULD PARTS OF THE GOLF COURSE LAST?

No two golf courses are alike except for one thing: deferring replacement of key items can lead to greater expense in the future, as well as a drop in conditioning and player enjoyment. The following information represents a realistic timeline for each item's longevity.

Component life spans can vary depending upon location of the golf course, quality of materials, original installation and past maintenance practices. The American Society of Golf Course Architects (ASGCA) encourages golf course leaders to work with an ASGCA member, superintendents and others to assess their course's components.

ITEM	YEARS
Greens (1)	15 – 30 years
Bunker Sand	5 – 7 years
Irrigation System	10 – 30 years
Irrigation Control System	10 – 15 years
Pump Station	15 – 20 years
Cart Paths – asphalt (2)	5 – 10 years (or longer)
Cart Paths – concrete	15 – 30 years (or longer)
Practice Range Tees	5 – 10 years
Tees	15 – 20 years
Corrugated Metal Pipes	15 – 30 years
Bunker Drainage Pipes (3)	5 – 10 years
Mulch	1 – 3 years
Grass (4)	Varies

NOTES: (1) Several factors can weigh into the decision to replace greens: accumulation of layers on the surface of the original construction, the desire to convert to new grasses and response to changes in the game from an architectural standpoint like the interaction between green speed and hole locations! (2) Assumes on-going maintenance beginning 1-2 years after installation. (3) Typically replaced because the sand is being changed – while the machinery is there to change sand, it's often a good time to replace the drainage pipes as well. (4) As new grasses enter the marketplace – for example, those that are more drought and disease tolerant — replanting may be appropriate, depending upon the site.

ASGCA thanks those at the USGA Green Section, Golf Course Builders Association of America, Golf Course Superintendents Association of America and various suppliers for their assistance in compiling this information.

The materials presented on this chart have been reviewed by the following Allied Associations of Golf:





2. Pump Station Replacement

In Central California, the irrigation system is the lifeblood of every golf course and effectively is the most important part of the golf course. Without it, you do not have a golf course. Replacing the irrigation system components in conjunction with upgrading to hybrid bermudagrass would have a significant positive impact on the golfer experience for the long-term viability and sustainability of this golf course. It is strongly recommended to replace the pump station with a system that is capable of delivering at least 2,500 gallons per minute.

- You may wish to reach out to Cloudburst Engineering in Palm Desert to assist with the pump station replacement.
- It is also strongly recommended to reach out to in irrigation designer such as <u>BTG Golf LLC</u> for consultation on the system hydraulics. It is critical to size the pipe properly leaving the pump station and throughout the golf course to provide adequate flow.
- Below I have included several articles on the importance of replacing the irrigation system.
 - How Do We Know When It Is a Good Time to Replace Our Irrigation System?
 - How Long Does an Irrigation System Last?
 - Irrigation System: There Is More Than Meets the Eye
 - <u>New Irrigation System Offers Significant Water Savings</u>
 - Proper Pump Maintenance and Testing
 - Making Your Case for An Irrigation Renovation
 - <u>USGA Water Use and Irrigation Literature</u>

Bermudagrass Upgrade

Observations and Recommendations

1. Hodgepodge of Grasses

The primary playing areas in green surrounds, fairways and tees consist of a hodgepodge of grasses including common bermudagrass, cool-season and warm-season weeds, and patches of hybrid bermudagrass. The current combination of grasses and weeds does not provide the ability to deliver good conditions any time of the year. While golfers may consider the conditions acceptable, there is a huge opportunity at this facility if the irrigation system is upgraded to convert to hybrid bermudagrass and deliver a far superior playing experience, and one that will use much less water.

2. Convert To Hybrid Bermudagrass

While many courses are sodding hybrid bermudagrass at a cost of about \$.70 per square foot, there is an option to sprig bermudagrass at a cost of about \$.15 per square foot. However, this would require closing nine holes for a period of about 90 days during the summer months to complete the conversion. It is important to note that it is <u>not</u> recommended to consider any conversion until the irrigation system is upgraded. The success of the conversion relies on improved irrigation coverage. The current system limitations would significantly limit the success of the conversion. Here is an article that explains <u>bermudagrass conversion</u> in greater detail.



Weed Control

Observations

1. Significant Weed Population

Unfortunately, the golf course is littered with both cool-season and warm-season weeds. Green surrounds, fairways and tees have a very high weed population which significantly detracts from the golfer experience. It also weakens the existing turfgrasses.

Recommendations

1. Increased Weed Control Program

While it may be several years until the City has the funds to upgrade the irrigation system and convert to hybrid bermudagrass, weed control efforts should be increased immediately. There is a big opportunity to significantly reduce the weed population during the summer months, which will ultimately increase the health of the common bermudagrass. Please consider the following weed control program:

- Increased nitrogen. First and foremost, nitrogen should be increased on fairways to improve common bermudagrass density and coverage. It is always impressive to see that when bermudagrass density improves, the weed population decreases. Ideally, you would apply at least 2 pounds of nitrogen per 1,000 square feet between mid-September in late October and apply another 2 pounds of nitrogen per 1,000 square feet from early April through the end of May. Nitrogen should be applied only where necessary during the summer months.
- **Spring preemergent weed control.** Please consider the following two options for preemergence weed control, which should begin in late February or early March:
 - One option is to spray indaziflam (Specticle[®]) on green surrounds, fairways and tees. The Specticle will kill a majority of existing cool-season weeds. Specticle can be expected to provide weed control through the end of August. It is critical to avoid spraying Specticle within a 15-foot barrier of the putting greens. In this zone, it is recommended to use a combination of prodiamine and Pennant Magnum[®] for preemergence control. A second application will be needed in late May, and the chemistry should be switch to granular Ronstar[®] to pick up goosegrass control.
 - The next option is to combine prodiamine with the Pennant Magnum in early March on green surrounds, fairways and tees. A second application will be needed with an alternative chemistry such as oxadiazon (granular Ronstar). Another option is simazine (Princep[®]).
- Fall postemergence goosegrass control. For postemergence control of goosegrass, it is strongly recommended to have Sencor[®] on hand. While the two-application strategy in the spring is very important to control the summer weeds, we discussed not using preemergence products in the fall given the common bermudagrass is susceptible to wet and soggy conditions. In fact, the annual bluegrass and ryegrass that recovers each fall effectively improves playing conditions during the winter months, especially in a wet winter, even without overseeding. It is worth noting that if you should ultimately convert the fairways to hybrid bermudagrass, then it would be important to control the winter weeds.



• Additional applications. There is also a fair amount of purple nutsedge on the golf course. For this weed, it is important to use Celero[®] with two to three applications from mid-July through mid-October. You also may consider purchasing Vexis[®], a granular product that can be used to spot apply to the nutsedge areas. The preemergent program provided above will help to control dallisgrass as well. However, when dallisgrass breaks through, it is recommended to spray Monument[®] as a postemergence control product.

Putting Greens

Observations

1. General Condition

I was able to view multiple greens during our visit, and I'm happy to report that all greens have a healthy combination of bentgrass and *Poa annua*.

2. Rooting Depth

Closer observation reveals roots extending to 5 to 6 inches in the greens.

3. Shear Strength

I utilized a shear strength tester to measure surface strength of greens. A value less than about 12 Newton meters (Nm) indicates weak surface strength. At Madera Municipal Golf Course, values ranged from 15 to 17 Nm, which is excellent this time of year, especially given the recent heat.

4. Excess Organic Matter

The putting greens are very soft and puffy, and ball marks are quite deep. A soil profile collected from greens reveals there is excess organic matter near the surface of the greens and there has not been enough sand applied for dilution.

Recommendations

1. Aeration and Vertical Mowing

It is recommended to continue with your program to conduct 5/8-inch-diameter core aeration on a 2- by 2-inch spacing this fall. It is recommended to immediately precede this operation with vertical mowing with blades set about 0.150 inches below the bottom of the rollers. Run the vertical mower up and back on the same pass and change directions, thereby making four passes over the greens. Follow by applying ample sand to dilute surface organic matter.

2. Increased Sand Topdressing

During the growing season, it is recommended to apply sand from February or March through October or November at a frequency of two or three times per month. Rates should range from as low as 40 to 50 pounds per 1,000 square feet to as high as 100 to 115 pounds per 1,000 square feet. During the primary growing season, conduct vertical mowing two to four times per month at light intensity. All these practices combined will help to reduce surface thatch and increase firmness. These practices will also help to smooth ball roll.



Bunkers

Observations

1. Exposed Sumps

The bunkers have an exposed sump in the lowest area of each bunker to facilitate drainage during rainfall events. While this may be effective to remove water, it is unsightly and negatively impacts play. Golfers must move their golf ball aside when the ball comes to rest in these low-lying areas. I will say this is extremely uncommon to see at golf courses.

2. Ample Sand

I was able to measure sand depth in a few greenside bunkers. It was great to see adequate sand at a depth of 6 to 7 inches. It was also good to hear that golfer comments concerning the bunkers are generally positive.

Recommendations

1. Continued Sand Addition

For the time being, it is recommended to continue to add sand where necessary in greenside bunkers. A good goal is to provide 7 to 9 inches of sand on the bunker floors. This will help with playability and drainage.

2. Bunker Renovation

A bunker renovation is needed at Madera Municipal Golf Course. However, I would strongly recommend focusing your capital monies on irrigation upgrades and converting to hybrid bermudagrass before any work may be considered on the bunkers.

Closing Comments

Thank you for an enjoyable morning spent on the golf course at Madera Municipal. Given that this was my first opportunity to see the property, it was impressive to see the amount of turf reduction and to see the greens in good condition. The major take-home message from this first initial visit is that it is strongly recommended to focus capital improvement funds on irrigation system upgrades and consider upgrading to hybrid bermudagrass. In the short term, it is necessary to increase funds for fertilizing primary playing areas and increasing weed control efforts. Thank you for your support of the USGA Green Section. Please do not hesitate to contact my office should you have any further questions or concerns.

Respectfully submitted,

Brian Whittark

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Distribution: Dan Bacci, Sierra Golf Management Jon Christensen, Sierra Golf Management



USGA Green Section

Turfgrass and Environmental Research

The <u>USGA Green Section</u> appreciates your support of the Course Consulting Service. First started in 1953, the Course Consulting Service provides unbiased assessments of golf facilities to optimize resources and reduce consumption of critical resources. The proceeds from the Course Consulting Service directly support the USGA's annual \$2 million investment in <u>turfgrass</u> and environmental research, which provides an estimated <u>\$2 billion annual</u> benefit to the U.S. golf industry. Follow the QR Code for more information.



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