Meadowood Agronomy Update

July 24th, 2023

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.

Here's where you can find the latest related materials associated with the following recommendations - greens renovation budget, irrigation quotes.

The Meadowood golf course has great potential. The layout and routing are all very well done. The conditioning of the course has lots of room for improvement, but in order to gain ground and to have lasting improvements, the infrastructure needs to be caught up. It will be impossible for the club to make any noticeable lasting improvements to the course until it has a strong foundation to work from.

Important infrastructure items have been pushed well beyond what many other courses have done. The club needs to find a way to bridge the gap to the next era since a full traditional course renovation is not an option. The goal should be to make the most impact on the course with the funds available.

In this report I will break down different areas of the course and maintenance operations. The course has 3 major expenses that need to be addressed first, as they are lynch pins for all the other aspects of the clubs success:

- Irrigation System
- Greens
- Bunkers

Once the club repairs the irrigation system, rebuilds the greens and bunkers, the staff can focus on the daily details and begin to progress toward making more lasting improvements. Currently the club is in an endless death spiral chasing hydraulic irrigation leaks and trying to maintain greens that have zoysia contamination. The zoysia contamination that is on the greens will prevent the greens from ever playing as well as other courses. The greens need to be maintained at higher height of cut and cannot be verti-cut as aggressively as the Champion grass needs to be, in order to not kill the patches of zoysia. The greens will always be slow and have patches of zoysia that may not make it through the winter months at greens height.

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.

Irrigation System

The irrigation system is a hydraulic control system. Unfortunately, the tubes used for these systems literally disintegrate in the ground after 25 years and begin to fail all at once. Currently your staff is spending most of its time chasing these leaks - which occur several times per week. These leaks are very time consuming and can take a day or more to locate and repair. These systems are very difficult to operate and maintain. You are fortunate you have someone on property who has the ability to operate it and repair it to a degree. If he were to leave, I'm not sure you could find a person to hire and operate it and this puts the club in a very poor position if he were to leave.



Once this is addressed the staff can be freed up to spend their time on detail work around the course as well as having a reliable system that can irrigate the course properly and keep the turf healthy and strong throughout the year.

New irrigation systems for a course your size would cost $2.5 - 3 million to replace. With limited funds, I feel it is more important to invest your funds on rebuilding the greens and bunkers instead of replacing the pipe at this time. I recommend the club pursue what they call a "spin-off" irrigation renovation. Fortunately, new technology now offers an option to replace the sprinkler heads and hydraulic control system with a 2-wire control system while using the existing pipe. Although the pipe on the course is beyond its life expectancy and should be replaced this option can buy the club time.

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.

There will continue to be some pipe leaks in the future, however they will be much less frequent and easier and quicker to repair then the hydraulic leaks you are experiencing now. This option has been done at other clubs when funds are not available to replace the pipe. In the future when the club has the money to replace the pipe, all the new sprinkler heads can be reinstalled to the new pipe. An estimate has been received for Meadowood for $835,580 to do a spinoff installation. Once an irrigation design expert GPS maps the course and lays out a control plan, a project RFP can be sent out for an exact number.

Included in this are several valves around the property to allow for the isolation of different areas of the course when repairs on pipes may be needed in the future. The greens would also have additional sprinklers added so the superintendent has the ability to water just the greens, or just the greens surrounds which will greatly improve the playability of the course. Typically, it would be important to install new pipe around the greens at this time however it is believed your loops were redone about 12 years ago and it may not be necessary. This needs to be further investigated and confirmed. The club has received 3 quotes for the irrigation design and GPS mapping and this phase can begin immediately. Best Quote $17,000

Greens

Your current greens which are a “no-till” renovation using the Champion turf method have become extremely contaminated and need to be rebuilt and regressed to a pure monostand of Tif-Eagle. There is nothing else short term that can be done to drastically improve the greens. Having a clean pure new stand of grass on your greens will give the membership the true putting surfaces your members deserve and desire. Again, rebuilding greens can be very expensive and there are several ways they can be rebuilt depending on the budget available. We have received 3 estimates to renovate your greens using different methods. Based on 3 acres which is the approximate original size of the greens here are some budgeting estimates. The club can also opt to reduce the size to 2.5 acres if needed to reduce cost.

3 Acres Estimates:

USGA Spec	$1,262,000
Modified 4 inch	$540,000
Downing Modified	$480,000

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.

Bunkers

The bunkers have become an eye sore and are not playable most of the time, especially following any rain event.







The bunkers are extremely contaminated and no longer have working drainage. Nothing short term can be done to improve the bunkers drastically as they are too far gone any gains will be erased by heavy rains. They will need to be prioritized and rebuilt as funds are available.

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.

Again there are several options in how this can be done. Ideally it should be done during a greens renovation while a crew is mobilized and on site with equipment. If it is done at this time the bunkers and greens will tie-in together better around the greens.

They should have the sand removed, new drainage and new sand installed for $140,000-$175,000 depending on how many and how big the bunkers will be. Or they can be completely rebuilt and reshaped with a liner or porous concrete liner for about $300,000+ depending on size and acreage.

Renovation Process Recommendations

The renovation process can be quite a burden on a club especially when downtime is needed for a greens renovation. The irrigation renovation can be accomplished in-play while closing a hole or 2 at a time for a few weeks. The greens construction will need to be done in a full closure for between 8-12 weeks in the summer and will need about a year of advance planning to secure a contractor and secure the grass required. It is very much advised to do the whole course at the same time instead of 9 holes at a time. The little revenue earned in the summer months for 9 holes is not worth the long term aggravation and additional costs to have a company come in twice.

The club should work with other clubs and courses in the area for reciprocity during a closure as your course will be a desired destination after the renovation. If everything can be secured and lined up, here is a possible timeline and budget.

Irrigation

July	Hire irrigation design firm
Late July/Early August	Map and design plan.
Early August	Bid out irrigation project.
ASAP	Lock in company and order materials
September	Complete project 3-4 weeks

Greens and Bunkers

August 2023	Thorough investigation of existing greens drainage and subsurface to ensure proper method is determined.
September	Select method of construction and bid contractors.
Close course May 1st 2024	
Mid-Late August	Reopen new course

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.

Possible Preliminary Budget

Irrigation Design	$17,000
Irrigation	$850,000
Greens	$540,000
Bunkers	$150,000
Total	$1,557,000 + 10% contingency

Additional Items

Tees and Fairways

The tees and fairways have an acceptable amount of Bermuda grass. With continued heavy verti-cutting and aerification along with aggressive herbicide and fertilizer applications, these areas will become very good playing surfaces with the installation of a reliable irrigation system. A total regressing of these areas would be a huge improvement, but not necessary at this time. If the club did want to explore this option, the best opportunity to do so would be during your closure and greens renovation. The estimated costs to re-grass all the tees and fairways would be approximately $250,000+ depending on the acreage.

Weeds

The weeds, especially the goosegrass, have become out of control. This is likely because of budget limitations and missed applications over years along with the overuse of cheaper chemistries causing resistance issues. The past few months the club has implemented aggressive applications of pre and post emergent herbicides with better chemistry and the weeds battle has significantly improved however the goosegrass will need a more aggressive approach. I have given the superintendent a recommendation from a professor at NC State, a potent spray combination that will kill 90% of the goosegrass however it could temporarily turn your bermudagrass off color for a period of time. In order to get the weeds under control the club should use this summer to use more aggressive sprays as recommended. The course will need temporary closures of 9 holes to accomplish this, so the spray is not tracked around by golfers.

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.

Tree Roots

The tree roots from the many large trees around the property have thinned the grass in many playable areas. These areas would instantly improve with a tree root pruner cut along the drip lines of these large trees. The course can be done in 1 day by an outside company for $2500. I would recommend this be done after an irrigation renovation so that no existing in service unknown irrigation hydraulic lines are accidently cut.



Club Entrance

The first impression of a club sets the tone for the experience. The landscaping and overall appearance from the bag drop to the pro shop needs to be freshened up. The club should receive quotes from local landscaping companies to come in and redo the beds with a few new plants, mulch and some fresh stones. All signage, bag racks and posts should be replaced or given a fresh coat of paint asap. Unfortunately, several of the trees around the clubhouse have outgrown their space and take away from the great views from inside the clubhouse. The club should keep the nice specimen trees and remove the ones that are blocking the views and causing shade and root issues for the areas between the proshop and 1st tee.

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.

Driving Range

The driving range needs to also be considered in the first impression category for the club experience. The driving range has not been given a high enough priority by maintenance staff especially considering the amount of use it receives from the membership. This area needs to have all the weeds eradicated with and aggressive herbicide application of very low rates of 4oz/A Sencor and .25oz/A Plyex to reset the area then regrow back the Bermuda grass with regular starter fertilizer apps every 3-4 weeks until the turf is lush and can recover quickly.

The key to a successful range tee is to have scheduled maintenance on a weekly basis to make sure all divots are filled and can begin to recover. It's all about time, and the sooner they are filled in the sooner the area will be ready again. Until the tee is in excellent shape the superintendent should include the range tee with his weekly greens spray package to improve the health and density of the grass. All divots on a range tee should be filled with a dirty heavy organic divot mix, not with clean topdressing or green sand.



This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.



Staffing

The structure of the skilled staff needs to remain the focus. Under the current structure you are unable to execute or plan projects properly. Any recommendations will be difficult to execute properly and put unrealistic expectations on your current staff. You currently have 1 person assuming the roles of 3-4 skilled positions. He cannot be expected to run the crew, fix the irrigation system, fix the equipment and plan upcoming agronomic practices. It's not the total number of staff, it's the number of skilled staff. The success of all future investments depends on the ability to service and maintain the improvements after completion. You currently do not have this ability.

The club needs to immediately add at least 2 skilled staff members.

Recommended positions:
1. Superintendent
2. Assistant Superintendent / Spray Tech
3. Mechanic / Irrigation Tech

The club has not been able to maintain a steady reliable crew of hourly laborers. The club has had difficulty in hiring staff, and once they do, unable to keep them for any period of time. Many of the potential staff are turning down offers because the club offers no benefits to its employees. Other clubs are offering benefits and many also include a portion of what is offered. Some examples include a monthly allowance if the benefits are accepted of $50-$100 a week

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.

for full time employees. Once the club is in-line with competitive wages and benefits, there must be a culture change. Leadership of this department needs to become organized and structured as a desirable and efficient work environment. Currently this department is in disarray because of so many obstacles. Once the renovations are complete and benefit options are in place this department needs to thrive and grow and improve daily.

This document, and linked/associated documents are proprietary materials created by KPI Golf Management for the exclusive use of our client. Not for distribution in any format for any reason without authorized consent.