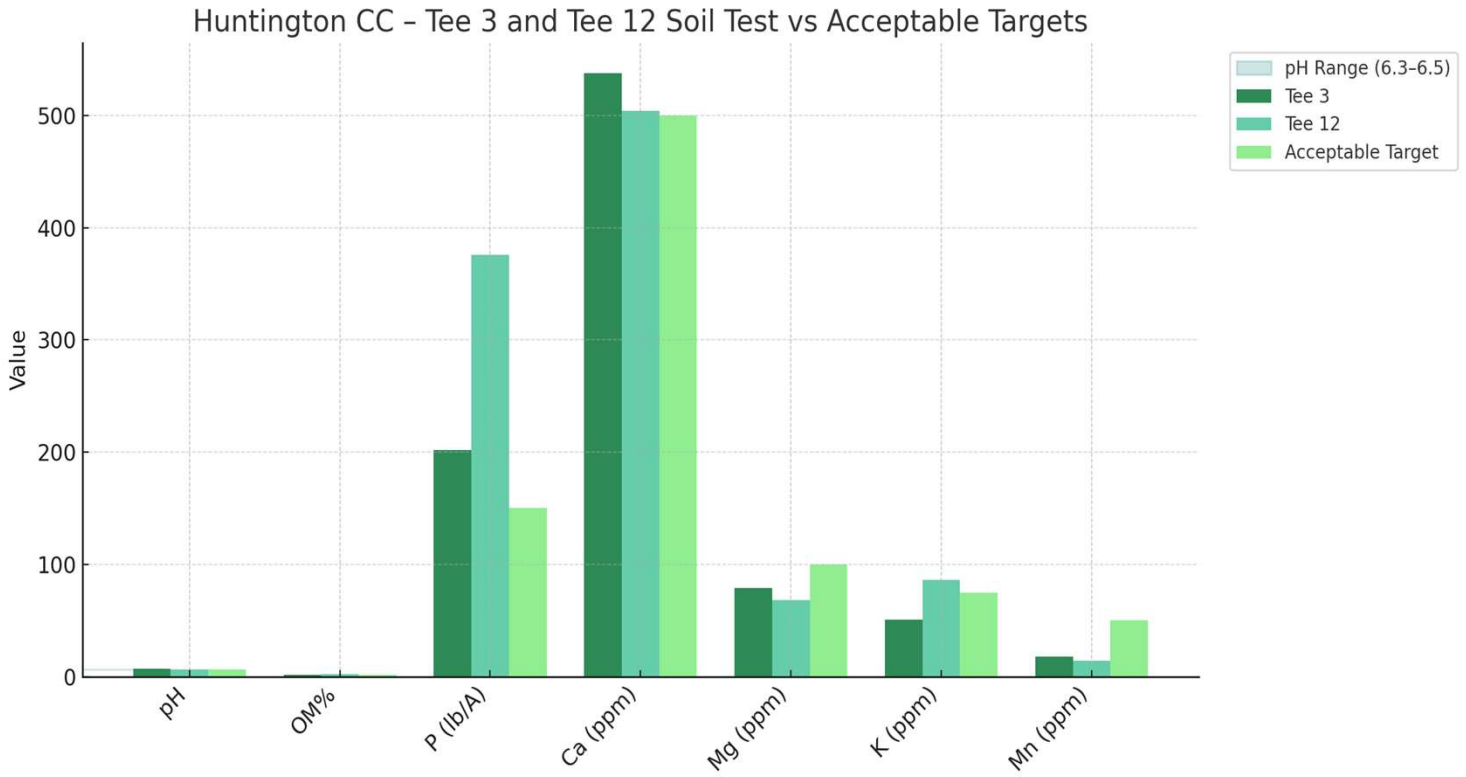
Client: Huntington Country Club

Summer 2025 Report

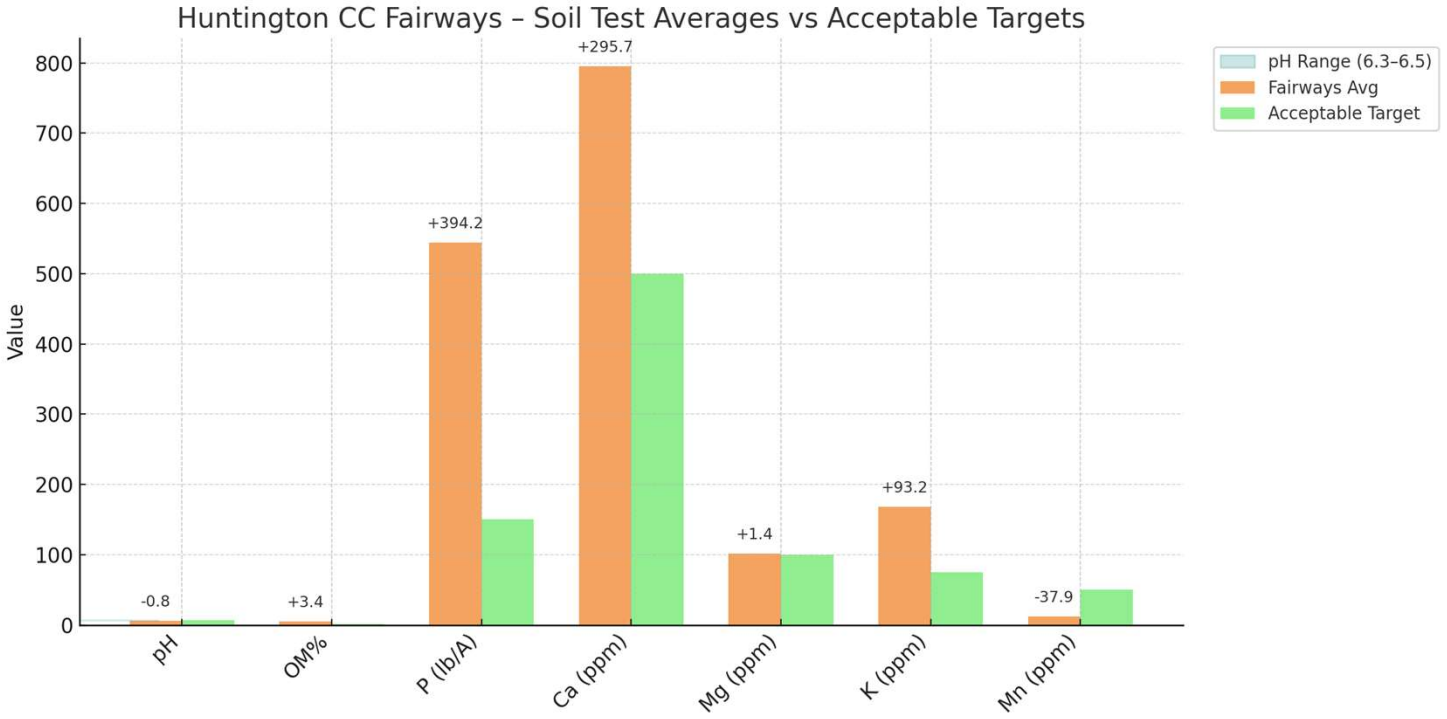
WATER	**Acceptable Range For Water Sample**	**Hole #7 8/14/25**
pH	6.5-7.0	6.96
EC	<2.25 mmhos/cm	0.21
Sodium		11.67
Calcium	20 - 60 ppm	17.01
Magnesium	10 - 25 ppm	5.02
Potassium	5 - 20 ppm	2.62
Sulfur	30 - 90 ppm	1.00
Bicarbonate	<120 ppm	29.58
Nitrate	0-2.0	7.57

The Irrigation water sample shows this water source is a slight “stripper” of the soil, like rain. Meaning, when you irrigate, the nutrients in the soil become available and are depleted. As you will see in the soil tests analysis, the pH of the soils are low and need to be adjusted higher. That is an effect of this water but can be mitigated with Lime applications.

At a near perfect pH, this water it is low in EC and hardness. It should naturally penetrate the soil. The only concern is the Nitrate Nitrogen that is readily available when you irrigate. It must be compensated for in your Summer and early Fall fertility plan.

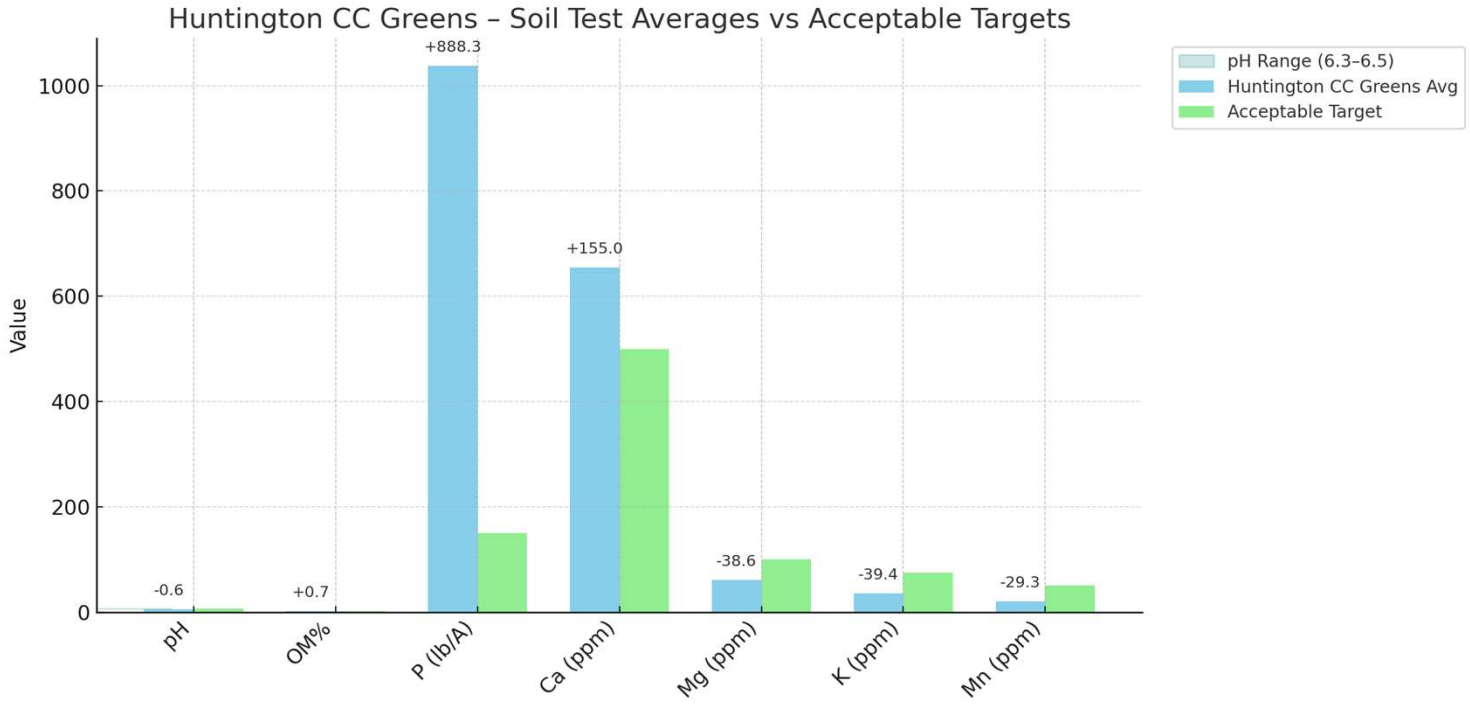


- Adjust pH by using Dolomitic limestone at a rate of 1,000 pounds of product per acre 2 times before Spring
- Magnesium/Potassium can be added in the form of 0-0-22 at a rate of 6 pounds of product per 1,000 sq ft 2 times before Winter



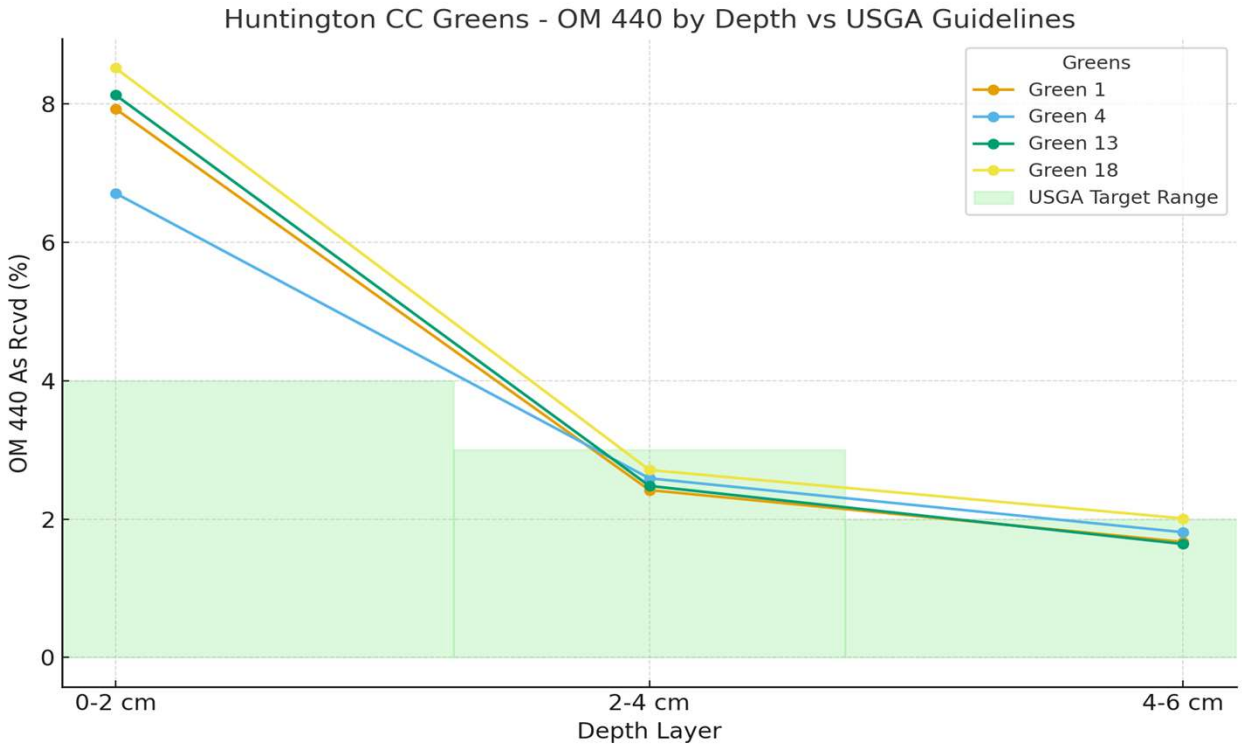
- Adjust pH by using Dolomitic limestone at a rate of 1,000 pounds of product per acre 2 times before Spring

SOIL AND WATER CONSULTING

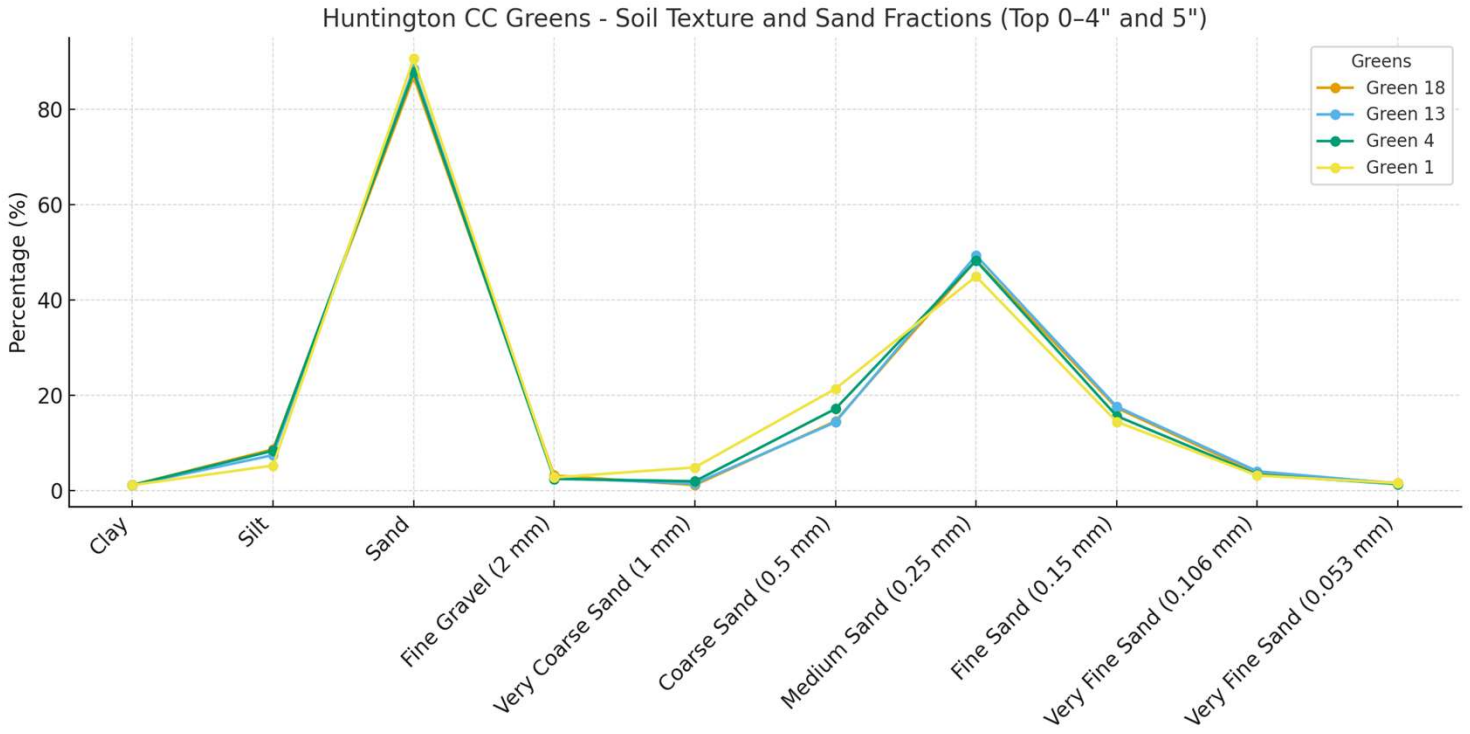


- Adjust pH by using Dolomitic limestone at a rate of 15-20 pounds of product per 1,000 sq ft 2 times before Winter
- Magnesium/Potassium can be added in the form of 0-0-22 at a rate of 6 pounds of product per 1,000 sq ft 2 times before Winter
- Manganese can be added in the form of Manganese Oxide or sulfate at a rate of 3 pounds of product per 1,000 sq ft until 50-80 ppm range is reached

SOIL AND WATER CONSULTING

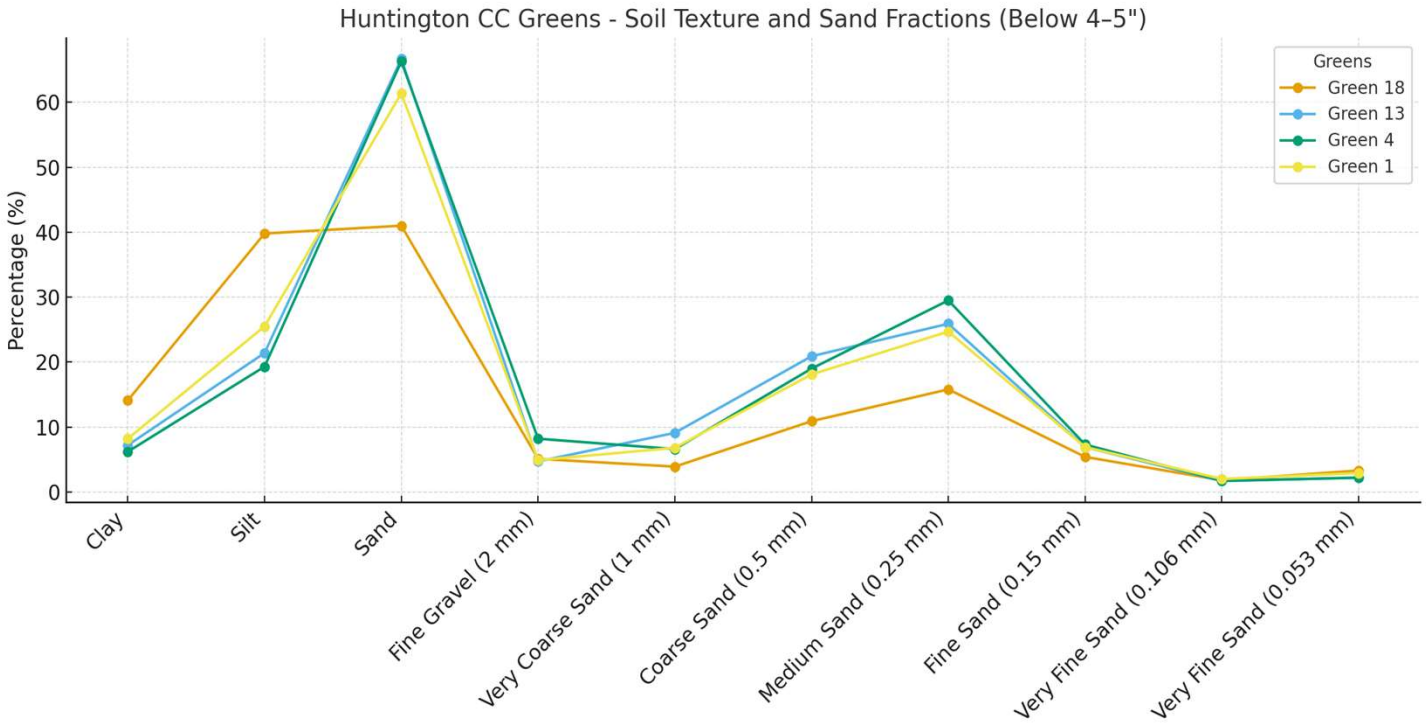


The previous page is pictures of the core samples we collected during my visit. The area circled in red, is the depth in the profile that I'm most concerned with. Although these greens seem to have the typical 4 to 5 inch amended layer on top of the native soil, there are multiple smaller layers inside the top 2 to 3 inches. Those layers make it difficult for water to drain quickly enough to have the playability the members expect. From the pictures alone, I could see where the greens would be soft and feel a bit spongy under foot. Using a recent study done by the USGA that measures the top 6 cm of a green's profile for organic material content, these greens have nearly double the national average for organic material built up in the top 2 cm. To correct this, it will require aerifications that focus on the top two inches. Using small hollow tines will accomplish this. Playability will increase as you do this, but it will take several years to correct fully.



- All greens in the top 4-5” are **sand-based (>85%)**, but the *distribution within the sand fractions* differs.
- **Green 1**: More coarse/very coarse sand → firmer, drier conditions.
- **Green 13**: Higher fine + very fine sands → tends toward more water retention.
- **Greens 4 & 18**: Sit in between, balanced but with slightly finer tendencies.

Although the top layer is sandy, increasing the amount of sand in the top 4-5” through routine core aerification will make for firmer and smoother playing surfaces as well as speed up water moving through the profile. Every visible layer in soil needs to fill up before it can release to the next level downward.



- **Green 18:** stands out with the **highest clay (14.1%) and silt (39.8%)**, and lowest sand content (41%) → much finer texture, likely native soil influence.
- **Greens 13 & 4:** are more sand-dominant (≈66%)
- **Green 1:** is intermediate (61.4% sand, 25.5% silt).
- Fractionally, **medium + fine sand** dominate the sand portion, while **Green 18** looks distinctly heavier.
- This contrasts sharply with the **top 0-4" profile**, where all samples were sand-based >85%. The **subsurface is much finer**, explaining potential drainage slowdowns or layering effects.

This area of the soil profile requires a coarser sand to help with drainage. Using Drill and Fill, Dry-ject , etc. gets this coarser material deeper and should be part of a revised greens aerification program.

During our ride around the course, I mentioned a study done many years ago. Washington State University did foundational work in the 1950s that helped explain how water moves through soils and sands—especially relevant to turfgrass management.

- *Water Moves by Gravity and Capillarity*- In coarse materials like sand, water movement is driven mostly by gravity (straight down). In finer soils like clay or silt, capillary action dominates—water moves sideways, upward, and downward more slowly due to tiny pore spaces.
- *Smaller Particles Hold Water Tighter*- Finer-textured soils retain water longer because the pores are smaller, meaning water clings more tightly and drains slower. Sands drain quickly because their large pores let water pass right through, but they also dry out faster.
- *Water Doesn't Jump from Coarse to Fine Easily*- One major insight from WSU's research: when water hits a layer of finer soil below a coarse one (like sand over clay), it perches on top of the finer layer. This "perched water table" effect causes a temporary barrier until the top layer saturates enough to push water through.
- *Layering Affects Drainage*- Putting sand over native soil doesn't guarantee good drainage. If the sand is too coarse and the underlying soil is fine, water hangs in the sand longer than expected. That's why WSU emphasized matching textures between soil layers to avoid water retention or slow drainage at the interface.
- *Practical Implication*- This knowledge set the groundwork for modern USGA green construction—using uniform sand profiles with proper drainage underneath to prevent perched water, promote fast drainage, and avoid soggy, stressed turf.

Bottom line: Water movement depends heavily on particle size and layering. Ignore that, and you're setting yourself up for drainage problems, disease, and turf decline. The greens will require some time to fix the thinner, top layers, but it is the most important issue I saw on the golf course.