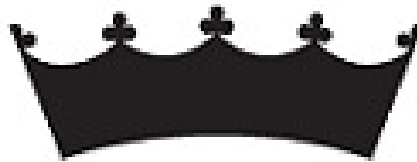




SPRING 2017

Data Collection Report
Soil & Water Consulting



SUMMIT

The Summit Club



SOIL and WATER CONSULTING

Course Name: The Summit Club

Date of Visit: March 22, 2017

<u>3/22/17</u>	
Humidity/Air Temperature	23%/68°
Greens Temperature	65°
Fairway Temperature	66°

	Acceptable Range For Water Sample	Hole #11 <u>12/10/16</u>	Hole #18 <u>3/22/17</u>
EC	<2.25 mmhos/cm	1.21	1.75
Sodium		119.20	233.20
Calcium	20 - 60 ppm	80.36	126.00
Magnesium	10 - 25 ppm	25.48	33.23
Potassium	5 - 20 ppm	10.36	28.66
Nitrate	10 - 25 ppm	<0.10	8.96
Phosphorus	5 - 20 ppm	0.43	0.59
Sulfur	30 - 90 ppm	259.74	300.60
Bicarbonate	<120 ppm	116.63	87.83
Boron	<0.67 ppm	0.18	0.29
Chloride	<177 ppm	134.46	282.55



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TEE	Acceptable Range For Alkaline Soils Sample	1 3/22/17
Organic Matter (Humus)	2 - 3%	0.19
Sulfur	12 - 16 ppm	46.00
Olsen - Phosphorus	13 - 20 ppm	10.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,474.00
Magnesium	>7% base saturation or at least 200 lbs/acre	7.65%/138
Potassium - TEC of 0 - 35	100 ppm	71.00
Copper	>0.8 ppm	0.22
Manganese	>1 ppm	<1
Zinc	>1 - 2 ppm	0.54

FAIRWAY	Acceptable Range For Alkaline Soils Sample	1 3/22/17
Organic Matter (Humus)	2 - 3%	0.19
Sulfur	12 - 16 ppm	111.00
Olsen - Phosphorus	13 - 20 ppm	24.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,956.00
Magnesium	>7% base saturation or at least 200 lbs/acre	9.84%/146
Potassium - TEC of 0 - 35	100 ppm	51.00
Copper	>0.8 ppm	<0.2
Manganese	>1 ppm	<1
Zinc	>1 - 2 ppm	0.49

GREENS	Acceptable Range For Alkaline Soils Sample	1 3/22/17
Organic Matter (Humus)	2 - 3%	0.57
Sulfur	12 - 16 ppm	35.00
Olsen - Phosphorus	13 - 20 ppm	5.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	1,790.00
Magnesium	>7% base saturation or at least 200 lbs/acre	12.44%/178
Potassium - TEC of 0 - 35	150 ppm	79.00
Copper	>0.8 ppm	<0.2
Manganese	4 ppm or more	2.00
Zinc	>1 - 2 ppm	0.50



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TEE	Acceptable Range For Saturated Paste Sample	1,10 (avg) 3/22/17
Nitrate - Ryegrass	5 - 10 ppm	<1.0
Nitrate - Bermudagrass	10 - 15 ppm	
Phosphorus	2 - 10 ppm	9.27
Potassium	40 - 100 ppm	69.01
Calcium	60 - 200 ppm	99.52
Magnesium	20 - 70 ppm	15.53
Sodium	0 - 30 ppm	86.36
Soluble Salts	<1,920 ppm	496.50
Bicarbonate	<60 ppm	148.87
Chloride	<1,000 ppm	89.50
SAR	<4%	1.45

FAIRWAY	Acceptable Range For Saturated Paste Sample	1,10 (avg) 3/22/17
Nitrate - Ryegrass	5 - 10 ppm	<0.5
Nitrate - Bermudagrass	10 - 15 ppm	
Phosphorus	2 - 10 ppm	7.17
Potassium	40 - 100 ppm	55.56
Calcium	60 - 200 ppm	295.79
Magnesium	20 - 70 ppm	51.35
Sodium	0 - 30 ppm	121.55
Soluble Salts	<1,920 ppm	960.00
Bicarbonate	<60 ppm	179.37
Chloride	<1,000 ppm	138.50
SAR	<4%	1.22

GREENS	Acceptable Range For Saturated Paste Sample	1,10 (avg) 3/22/17
Nitrate - Bentgrass	1-3 ppm	<1.1
Phosphorus	2 - 7 ppm	3.02
Potassium	25-40 ppm	52.04
Calcium	50- 75 ppm	87.38
Magnesium	15-30 ppm	23.29
Sodium	0 - 30 ppm	125.36
Soluble Salts	<1,000 ppm	736.00
Bicarbonate	<60 ppm	184.25
Chloride	<200 ppm	119.50
SAR	<4%	3.14



SOIL and WATER CONSULTING

TEE	Acceptable Range For Tissue Sample	1,10 (avg) 3/22/17
Nitrogen	3.34%-5.10%	6.08
Phosphorus	0.35% - 0.55%	0.66
Potassium	2.0% - 3.42%	2.65
Calcium	0.25%-0.5%	0.60
Magnesium	0.16%-0.32%	0.25
Sulfur	0.27% - 0.56%	0.54
Boron	5-17 ppm	20.35
Iron	97-934 ppm	422.50
Manganese	30-73 ppm	96.00
Copper	6-38 ppm	12.90
Zinc	16-84ppm	73.15
Aluminum	52-92 ppm	308.00
Sodium	229-1107 ppm	2,585.00

FAIRWAY	Acceptable Range For Tissue Sample	1,10 (avg) 3/22/17
Nitrogen	3.34%-5.10%	5.41
Phosphorus	0.35% - 0.55%	0.65
Potassium	2.0% - 3.42%	2.43
Calcium	0.25%-0.5%	0.88
Magnesium	0.16%-0.32%	0.30
Sulfur	0.27% - 0.56%	0.52
Boron	5-17 ppm	37.15
Iron	97-934 ppm	333.00
Manganese	30-73 ppm	120.05
Copper	6-38 ppm	11.35
Zinc	16-84ppm	65.05
Aluminum	52-92 ppm	293.50
Sodium	229-1107 ppm	2,800.00

GREENS	Acceptable Range For Tissue Sample	1,10 (avg) 3/22/17
Nitrogen	3.0%-6.5%	5.24
Phosphorus	0.2%-0.55%	0.46
Potassium	0.86%-2.55%	1.91
Calcium	0.21%-0.50%	0.95
Magnesium	0.09%-0.22%	0.29
Sulfur	0.23%-0.39%	0.71
Boron	5-24 ppm	35.20
Iron	99-500 ppm	826.00
Manganese	30-160 ppm	102.40
Copper	9-40 ppm	23.55
Zinc	5-60 ppm	66.70
Aluminum	63- 408 ppm	558.00
Sodium	506- 2264 ppm	5,335.00



RECOMMENDATIONS



SOIL and WATER CONSULTING

Thoughts on the course visit

Of all the courses I have seen in the past month, your turf was the best looking. The color was the darkest shade of green I had seen in quite a while. The tissue samples show why. The nitrogen levels were on the high end of the range I would like to see them in. However, the soil Nitrogen levels were low. I think this matters. With a disease like fusarium roseum it thrives on high N in the plant. Until the plants mature and the nitrogen applications are decreased, it will be an issue for you. So, over time, I expect to see fairways like the one pictured below, to heal and move on to strength.

The greens went through Winter well. There was a marked improvement from the visit I made December 10th. Many of the "pot marked" areas that came from the wind damage at seeding time had filled in. I mentioned purchasing brushes. I believe this blend of varieties of bentgrass like to be stood up and then cut. It seems to stop them from getting too laid over and grainy. I understand you have a full Summer season before the Grand Opening and brushing may help to improve putting even more.

The water sample was about what I would expect for this time of year. The Nitrate N from the irrigation water is significant and as you back down on Nitrogen applications, the Nitrates in the water should fill the gap-especially as you transition to bermudagrass. Things like sodium, chloride and pH were very high. The bicarbonates weren't bad but as we have discussed the Las Vegas area water ebbs and flows and has many constituents that are bad for grass growing. Having the potable water at grow-in was a big asset!



Notes from the visit

- Greens mowing height- 0.100" (switching to Wiley Rollers and have been grooming 4 times per week)
- 2 days prior to sampling 0-0-50 was applied to greens.
- Primo 2 times so far.
- K-Mag applied 1 time per month since January 1st.
- Fairway Height- 0.500" going to 0.450".
- 15-15-15 applied to tees and fairways within two weeks of sampling.
- 1.75" of rain since January 1st.

Fertilizer and Product Recommendations

Tees & Fairways (One time before June 15th)

Phosphorus- 100 pounds of product per acre. (11-55-00)

Magnesium/Potassium-400 pounds of product per acre.(0-0-22; K-Mag)

Manganese- Spray manganese sulfate at a 3 ounces per 1,000 square feet rate. (techmagnum)

Greens (Monthly applications)

Phosphorus- 2 pounds of product per 1,000 square feet. (11-55-00)

Magnesium/Potassium- Continue monthly applications.

Manganese- Spray manganese sulfate at a 3 ounces per 1,000 square feet rate. (techmagnum)

*** Synthetic acid spray and water in every two weeks**