

SUMMER 2017
Data Collection Report
Soil & Water Consulting



SUMMIT

The Summit Club



SOIL and WATER CONSULTING

Course Name: The Summit Club

Date of Visit: June 27, 2017

	<u>3/22/17</u>	<u>6/27/17</u>
Humidity/Air Temperature	23%/68°	5%/108°
Greens Temperature	65°	80°
Fairway Temperature	66°	82°

	Acceptable Range For Water Sample	Hole #11 12/10/16	Hole #18 3/22/17	Hole #4 6/27/17
pH	6.0-6.5	8.59	9.35	6.31
EC	<2.25 mmhos/cm	1.21	1.75	1.46
Sodium		119.20	233.20	151.60
Calcium	20 - 60 ppm	80.36	126.00	94.40
Magnesium	10 - 25 ppm	25.48	33.23	24.51
Potassium	5 - 20 ppm	10.36	28.66	12.65
Nitrate	10 - 25 ppm	<0.10	8.96	4.30
Phosphorus	5 - 20 ppm	0.43	0.59	0.66
Sulfur	30 - 90 ppm	259.74	300.60	325.80
Bicarbonate	<120 ppm	116.63	87.83	65.34
Boron	<0.67 ppm	0.18	0.29	0.18
Chloride	<177 ppm	134.46	282.55	191.44



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TEE	Acceptable Range For Alkaline Soils Sample	Jean Material 4/17/15	1 3/22/17	4 6/27/17
Organic Matter (Humus)	2 - 3%	<0.19	0.19	0.20
Sulfur	12 - 16 ppm	15.00	46.00	75.00
Olsen - Phosphorus	13 - 20 ppm	1.00	10.00	17.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	5,090.00	2,474.00	1,394.00
Magnesium	>7% base saturation or at least 200 lbs/acre	14.47%/552	7.65%/138	13.10%/154
Potassium - TEC of 0 - 35	100 ppm	71.00	71.00	84.00
Copper	>0.8 ppm	0.54	0.22	0.25
Manganese	>1 ppm	1.00	<1	<1
Zinc	>1 - 2 ppm	<0.4	0.54	0.99

FAIRWAY	Acceptable Range For Alkaline Soils Sample	Jean Material 4/17/15	1 3/22/17	4 6/27/17
Organic Matter (Humus)	2 - 3%	<0.19	0.19	0.24
Sulfur	12 - 16 ppm	15.00	111.00	202.00
Olsen - Phosphorus	13 - 20 ppm	1.00	24.00	19.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	5,090.00	1,956.00	2,004.00
Magnesium	>7% base saturation or at least 200 lbs/acre	14.47%/552	9.84%/146	11.14%/188
Potassium - TEC of 0 - 35	100 ppm	71.00	51.00	114.00
Copper	>0.8 ppm	0.54	<0.2	<0.2
Manganese	>1 ppm	1.00	<1	<1
Zinc	>1 - 2 ppm	<0.4	0.49	<.4

GREENS	Acceptable Range For Alkaline Soils Sample	1,8,13,15 (avg) 11/5/16	1 3/22/17	4 6/27/17
Organic Matter (Humus)	2 - 3%	0.62	0.57	0.49
Sulfur	12 - 16 ppm	38.00	35.00	107.00
Olsen - Phosphorus	13 - 20 ppm	14.50	5.00	3.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,132.00	1,790.00	2,006.00
Magnesium	>7% base saturation or at least 200 lbs/acre	11.37%/182.5	12.44%/178	12.29%/208
Potassium - TEC of 0 - 35	150 ppm	66.75	79.00	85.00
Copper	>0.8 ppm	0.28	<0.2	<0.2
Manganese	4 ppm or more	4.00	2.00	2.00
Zinc	>1 - 2 ppm	0.90	0.50	<0.4



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TEE	Acceptable Range For Saturated Paste Sample	Jean Material 4/17/15	1,10 (avg) 3/22/17	4,13 (avg) 6/27/17
Nitrate - Ryegrass	5 - 10 ppm	35.90	<1.0	
Nitrate - Bermudagrass	10 -15 ppm			<0.5
Phosphorus	2 - 10 ppm	0.06	9.27	4.92
Potassium	40 - 100 ppm	5.54	69.01	84.04
Calcium	60 - 200 ppm	44.21	99.52	124.74
Magnesium	20 - 70 ppm	23.23	15.53	45.09
Sodium	0 - 30 ppm	29.66	86.36	190.72
Soluble Salts	<1,920 ppm	360.00	496.50	1,197.50
Bicarbonate	<60 ppm	73.21	148.87	152.53
Chloride	<1,000 ppm	25.00	89.50	238.00
SAR	<4%	0.90	1.45	3.69

FAIRWAY	Acceptable Range For Saturated Paste Sample	Jean Material 4/17/15	1,10 (avg) 3/22/17	4,13 (avg) 6/27/17
Nitrate - Ryegrass	5 - 10 ppm	35.90	<0.5	
Nitrate - Bermudagrass	10 -15 ppm			<0.5
Phosphorus	2 - 10 ppm	0.06	7.17	3.22
Potassium	40 - 100 ppm	5.54	55.56	116.48
Calcium	60 - 200 ppm	44.21	295.79	258.94
Magnesium	20 - 70 ppm	23.23	51.35	77.31
Sodium	0 - 30 ppm	29.66	121.55	362.85
Soluble Salts	<1,920 ppm	360.00	960.00	2,054.00
Bicarbonate	<60 ppm	73.21	179.37	153.75
Chloride	<1,000 ppm	25.00	138.50	436.50
SAR	<4%	0.90	1.22	5.11

GREENS	Acceptable Range For Saturated Paste Sample	1,8,13,15(avg) 11/5/16	1,10 (avg) 3/22/17	4,13 (avg) 6/27/17
Nitrate - Bentgrass	1-3 ppm	4.78	<1.1	<0.5
Phosphorus	2 - 7 ppm	11.24	3.02	1.37
Potassium	25-40 ppm	48.32	52.04	42.10
Calcium	50- 75 ppm	105.96	87.38	97.00
Magnesium	15-30 ppm	28.64	23.29	30.92
Sodium	0 - 30 ppm	64.85	125.36	236.48
Soluble Salts	<1,000 ppm	738.25	736.00	1,125.00
Bicarbonate	<60 ppm	217.20	184.25	139.10
Chloride	<200 ppm	79.50	119.50	197.00
SAR	<4%	1.45	3.14	5.35



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TEE	Acceptable Range For Tissue Sample	4,13 (avg) <u>6/27/17</u>
Nitrogen	2.49%-4.56%	3.80
Phosphorus	0.26% - 0.38%	0.45
Potassium	0.95% - 1.97%	2.10
Calcium	0.50%-0.90%	0.91
Magnesium	0.13%-0.16%	0.33
Sodium	622-1709 ppm	4,415.00

FAIRWAY	Acceptable Range For Tissue Sample	4,13 (avg) <u>6/27/17</u>
Nitrogen	2.49%-4.56%	4.01
Phosphorus	0.26% - 0.38%	0.59
Potassium	0.95% - 1.97%	2.11
Calcium	0.50%-0.90%	0.78
Magnesium	0.13%-0.16%	0.30
Sodium	622-1709 ppm	4,245.00

GREENS	Acceptable Range For Tissue Sample	4,13 (avg) <u>6/27/17</u>
Nitrogen	3.0%-6.5%	3.51
Phosphorus	0.2%-0.55%	0.40
Potassium	0.86%-2.55%	1.90
Calcium	0.21%-0.50%	0.79
Magnesium	0.09%-0.22%	0.26
Sodium	506- 2264 ppm	3,100.00



RECOMMENDATIONS



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Thoughts on the course visit

One thing I did on this report was to include the original sample data we had from the Jean Capping Material prior to construction as well as some greens we sampled in mid- Fall 2016 during the grow-in to show where you were then and what you have changed to now. Of course, during a grow-in there are many ebbs and flows and things happen such as the sulfur burner coming on line recently. So, we have to look at data on a timeline and realize what you were trying to accomplish at a certain point in the process. For example, during the greens grow-in your Nitrogen levels were higher than now but you were able to keep them at a "safe" level. Also, you were using untreated effluent water everywhere until about 2 weeks ago. As you understand about Las Vegas, water is by far the #1 input to the turf and soil! The recent changes will go a long way in keeping the turf healthy.

The disease that we saw on the ryegrass is certainly in a weakened state from the beginning of the process in May. The fungicide applications have helped and as the bermudagrass growing conditions get better in the next 60 days, I expect the areas that are noticeable will begin to fade away. Your nitrogen levels are minimal in the tees and fairways. When conditions are right you may want to go back to adding some nitrogen to the program to encourage the bermudagrass until over-seed time. I would expect with the record breaking heat that the ryegrass will not make it through the Summer.



Notes from the visit

- Greens mowing height- 0.105"
- Recent Fertility on the greens was Iron, primo. Very little since March visit.
- Potable water started on Greens surface and surrounds the week prior to my visit.
- Fairway mowing height- 0.400"
- Recent fertility on Fairways was all recommendations from the Spring report.
- Sulfur burner just came on line.
- Bunker Sand algae issue. (Sent in sample for testing)
- Disease on ryegrass still active.

Fertilizer and Product Recommendations

Tees & Fairways

Nitrogen- 21-0-0 as needed for bermudagrass in July and August.

***Continue monthly Impact 7 sprays.**

Greens (Monthly applications)

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

Potassium- 2 pounds of product per 1,000 square feet. (Poly-K 0-0-50) in July **AND** 0-0-50 at same rate August and September.

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