FALL 2017

Data Collection Report

Soil & Water Consulting

The Las Vegas Country Club

SOIL and WATER CONSULTING

Course Name: Las Vegas Country Club
Date of Visit: September 22, 2017

	9/27/16	3/24/17	6/24/17	9/22/17
Humidity/Air Temperature	20%/88°	37%/64°	5%/110°	35%/75°
Greens Temperature	70°	56°	82°	72°
Fairway Temperature	72°	59°	80°	68°

	Acceptable Range For Water Sample	Hole #7 9/27/16	Hole #1 3/24/17	Hole #4 6/24/17	Hole #8 9/22/17
EC	<2.25 mmhos/cm	0.78	0.82	0.76	0.74
Sodium		17.87	21.37	18.35	19.72
Calcium	20 - 60 ppm	75.22	80.62	73.74	83.58
Magnesium	10 - 25 ppm	40.63	43.78	36.50	40.08
Potassium	5 - 20 ppm	10.48	10.61	3.34	3.93
Sulfur	30 - 90 ppm	182.70	211.56	168.27	200.52
Bicarbonate	<120 ppm	228.93	254.13	227.97	172.79
Boron	<0.67 ppm	0.09	0.12	0.09	0.09
Chloride	<177 ppm	26.38	24.34	20.77	18.72

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TEE	**Acceptable Range For Alkaline Soils Sample**	**7 9/27/16**	**1 3/24/17**	**4 6/24/17**	**8 9/22/17**
Organic Matter (Humus)	2 - 3%	2.13	1.41	1.20	3.26
Sulfur	12 - 16 ppm	43.00	80.00	268.00	49.00
Olsen - Phosphorus	13 - 20 ppm	15.00	12.00	9.00	15.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,022.00	4,188.00	5,582.00	4,392.00
Magnesium	>7% base saturation or at least 200 lbs/acre	19.38%/646	17.73%/648	14.87%/634	22.36%/844
Potassium - TEC of 0 - 35	100 ppm	186.00	440.00	137.00	188.00
Copper	>0.8 ppm	2.36	0.81	0.89	2.14
Manganese	>1 ppm	2.00	2.00	2.00	1.00
Zinc	>1 - 2 ppm	5.69	2.66	2.39	6.44

FAIRWAY	**Acceptable Range For Alkaline Soils Sample**	**7 9/27/16**	**1 3/24/17**	**4 6/24/17**	**8 9/22/17**
Organic Matter (Humus)	2 - 3%	3.72	5.06	5.13	5.17
Sulfur	12 - 16 ppm	179.00	8,376.00	3,557.00	224.00
Olsen - Phosphorus	13 - 20 ppm	20.00	34.00	48.00	25.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	5,084.00	22,882.00	13,456.00	6,588.00
Magnesium	>7% base saturation or at least 200 lbs/acre	17.13%/690	6.56%/1020	13.97%/1430	20.38%/1112
Potassium - TEC of 0 - 35	100 ppm	147.00	244.00	382.00	212.00
Copper	>0.8 ppm	1.38	1.22	1.05	2.27
Manganese	>1 ppm	2.00	2.00	1.00	1.00
Zinc	>1 - 2 ppm	8.72	6.76	9.14	12.73

GREENS	**Acceptable Range For Alkaline Soils Sample**	**7 9/27/16**	**1 3/24/17**	**4 6/24/17**	**8 9/22/17**
Organic Matter (Humus)	2 - 3%	0.77	1.00	0.82	0.67
Sulfur	12 - 16 ppm	36.00	126.00	139.00	56.00
Olsen - Phosphorus	13 - 20 ppm	51.00	62.00	53.00	61.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,754.00	3,446.00	3,610.00	3,216.00
Magnesium	>7% base saturation or at least 200 lbs/acre	13.34%/274	14.94%/390	14.86%/412	12.15%/286
Potassium - TEC of 0 - 35	150 ppm	58.00	60.00	122.00	62.00
Copper	>0.8 ppm	0.78	1.66	0.71	1.09
Manganese	4 ppm or more	2.00	2.00	1.00	2.00
Zinc	>1 - 2 ppm	3.66	4.53	3.56	3.40

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TEE	**Acceptable Range For Saturated Paste Sample**	**4,13 (avg) 6/24/17**	**8,17 (avg) 9/22/17**
Nitrate - Ryegrass	5 - 10 ppm		13.50
Nitrate - Bermudagrass	10 -15 ppm	49.65	
Phosphorus	2 - 10 ppm	1.83	3.46
Potassium	40 - 100 ppm	60.95	48.09
Calcium	60 - 200 ppm	214.12	102.90
Magnesium	20 - 70 ppm	108.03	40.52
Sodium	0 - 30 ppm	67.22	22.18
Soluble Salts	<1,920 ppm	1,454.50	678.50
Bicarbonate	<60 ppm	302.61	173.27
Chloride	<1,000 ppm	80.50	24.00
SAR	<4%	0.95	0.47

FAIRWAY	**Acceptable Range For Saturated Paste Sample**	**4,13 (avg) 6/24/17**	**8,17 (avg) 9/22/17**
Nitrate - Ryegrass	5 - 10 ppm		10.35
Nitrate - Bermudagrass	10 -15 ppm	55.85	
Phosphorus	2 - 10 ppm	1.26	0.70
Potassium	40 - 100 ppm	110.12	34.45
Calcium	60 - 200 ppm	599.42	166.19
Magnesium	20 - 70 ppm	260.59	82.55
Sodium	0 - 30 ppm	121.76	45.85
Soluble Salts	<1,920 ppm	2,700.50	934.50
Bicarbonate	<60 ppm	267.23	229.40
Chloride	<1,000 ppm	208.00	48.00
SAR	<4%	1.05	0.73

GREENS	**Acceptable Range For Saturated Paste Sample**	**4,13 (avg) 6/24/17**	**8,17 (avg) 9/22/17**
Nitrate - Bentgrass	1-3 ppm	14.00	10.00
Phosphorus	2 - 7 ppm	2.00	1.86
Potassium	25-40 ppm	89.12	17.92
Calcium	50- 75 ppm	184.27	82.65
Magnesium	15-30 ppm	82.08	43.13
Sodium	0 - 30 ppm	48.32	30.21
Soluble Salts	<1,000 ppm	1,132.00	505.00
Bicarbonate	<60 ppm	198.90	198.89
Chloride	<200 ppm	50.50	33.00
SAR	<4%	0.76	0.67

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TEE	**Acceptable Range For Tissue Sample**	**8,17 (avg) 9/22/17**
Nitrogen	2.49%-4.56%	
Phosphorus	0.26% - 0.38%	
Potassium	0.95% - 1.97%	
Calcium	0.50%-0.90%	
Magnesium	0.13%-0.16%	
Sodium	622-1709 ppm	

FAIRWAY	**Acceptable Range For Tissue Sample**	**8,17 (avg) 9/22/17**
Nitrogen	2.49%-4.56%	
Phosphorus	0.26% - 0.38%	
Potassium	0.95% - 1.97%	
Calcium	0.50%-0.90%	
Magnesium	0.13%-0.16%	
Sodium	622-1709 ppm	

GREENS	**Acceptable Range For Tissue Sample**	**8,17 (avg) 9/22/17**
Nitrogen	3.0%-6.5%	
Phosphorus	0.2%-0.55%	
Potassium	0.86%-2.55%	
Calcium	0.21%-0.50%	
Magnesium	0.09%-0.22%	
Sodium	506- 2264 ppm	

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RECOMMENDATIONS

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Thoughts on the course visit

According to my notes, the plans you had for applying 0-0-50 on or around 10/1 was going to be perfect. Potassium was the only deficiency on the greens data. The tees and fairways soils results were good as well, but some of that may have been due to a recent Nitrogen application. When that is in the soil around the same time that I collect samples, it will exaggerate the other minerals in the soil due to acidification. It is a good thing and should be factored in to your overall plans. For example, if you apply a 15-15-15 it wouldn't be necessary to also spray the acid based products like *Blast* or *pHacid*.

One thing to note for this report is that the tissue samples were collected about 3 weeks after the soil samples. Even though we did this on purpose for practicality, it can be useful to do this during the overseeding process because it gives you another check up for things like Nitrogen and Potassium.

Your water is very consistent as usual. When a sale of the Club is finalized, it would be very helpful for your overall program if you could get the Sulfur burners back online. Right now, you only have the proper acidification of the soil that is needed when you apply Nitrogen or a sulfur based amendment. It leads to ups and downs in growth that can be detrimental.

Notes from the visit

- Greens were closed.
- Recent fertility to the greens was ¾# rate of N on the 9/11 aerification.
- 0-0-50, gypsum and poly 0-0-50 will be applied by 10/1.
- Fairways were closed.
- No recent fertility to the fairways.
- This was a good year for bermudagrass.
- This may have been the worst year for goose grass.
- Consider a pre-emergent herbicide on fairways in Spring.
- Air seeded at 700 pounds per acre.

Fertilizer and Product Recommendations

Tee & Fairways

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

Greens (Monthly applications)

Potassium- 2 pounds of product per 1,000 square feet (0-0-50)

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

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