

SUMMER 2016
Data Collection Report
Soil & Water Consulting



Coyote Springs Golf Club



SOIL and WATER CONSULTING

Course Name: Coyote Springs Golf Club

Date of Visit: June 9, 2016

	<u>9/30/15</u>	<u>3/24/16</u>	<u>6/9/16</u>
Humidity/Air Temperature	20%/92°	15%/70°	10%/100°
Greens Temperature	78.8°	57.8°	79°
Fairway Temperature	77.4°	57.4°	78°

	Acceptable Range For Water Sample	Hole #2 <u>9/30/15</u>	Hole #5 <u>3/24/16</u>	Hole #6 <u>6/9/16</u>
EC	<2.25 mmhos/cm	0.77	0.79	0.76
Sodium		78.12	84.04	89.22
Calcium	20 - 60 ppm	43.39	48.50	42.63
Magnesium	10 - 25 ppm	19.69	19.93	18.44
Potassium	5 - 20 ppm	11.19	10.68	11.75
Sulfur	30 - 90 ppm	97.56	99.60	90.12
Bicarbonate	<120 ppm	313.01	311.00	278.79
Boron	<0.67 ppm	0.40	0.33	0.35
Chloride	<177 ppm	27.74	31.83	30.64



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TEE	Acceptable Range For Alkaline Soils Sample	2 9/30/15	5 3/24/16	6 6/9/16
Organic Matter (Humus)	2 - 3%	0.44	0.43	0.69
Sulfur	12 - 16 ppm	18.00	19.00	34.00
Olsen - Phosphorus	13 - 20 ppm	17.00	8.00	13.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,322.00	4,512.00	4,132.00
Magnesium	>7% base saturation or at least 200 lbs/acre	14.82%/520	15.59%/586	17.90%/666
Potassium - TEC of 0 - 35	100 ppm	308.00	391.00	471.00
Copper	>0.8 ppm	0.31	0.31	0.35
Manganese	>1 ppm	<1	<1	1.00
Zinc	>1 - 2 ppm	0.63	0.44	0.61

FAIRWAY	Acceptable Range For Alkaline Soils Sample	2 9/30/15	5 3/24/16	6 6/9/16
Organic Matter (Humus)	2 - 3%	0.64	0.33	0.53
Sulfur	12 - 16 ppm	26.00	37.00	28.00
Olsen - Phosphorus	13 - 20 ppm	22.00	16.00	22.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,076.00	4,420.00	4,218.00
Magnesium	>7% base saturation or at least 200 lbs/acre	17.38%/618	17.08%/662	18.30%/698
Potassium - TEC of 0 - 35	100 ppm	383.00	496.00	478.00
Copper	>0.8 ppm	<0.2	<0.2	0.22
Manganese	>1 ppm	<1	<1	<1
Zinc	>1 - 2 ppm	0.44	0.90	0.47

GREEN	Acceptable Range For Alkaline Soils Sample	2 9/30/15	5 3/24/16	6 6/9/16
Organic Matter (Humus)	2 - 3%	0.50	0.27	0.59
Sulfur	12 - 16 ppm	31.00	25.00	25.00
Olsen - Phosphorus	13 - 20 ppm	24.00	19.00	17.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,956.00	3,228.00	3,658.00
Magnesium	>7% base saturation or at least 200 lbs/acre	12.61%/288	12.45%/320	12.48%/352
Potassium - TEC of 0 - 35	150 ppm	150.00	233.00	183.00
Copper	>0.8 ppm	0.53	0.74	0.89
Manganese	4 ppm or more	1.00	1.00	1.00
Zinc	>1 - 2 ppm	1.69	2.03	2.60



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TEE	Acceptable Range For Saturated Paste Sample	5,14 (avg) 3/24/16	6,15 (avg) 6/9/16
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	2.96	4.28
Potassium	40 - 100 ppm	26.44	41.25
Calcium	60 - 200 ppm	39.08	51.59
Magnesium	20 - 70 ppm	18.77	26.91
Sodium	0 - 30 ppm	83.29	126.42
Soluble Salts	<1,920 ppm	442.00	633.00
Bicarbonate	<60 ppm	247.70	335.56
Chloride	<1,000 ppm	26.50	55.50
SAR	<4%	2.74	3.55

FAIRWAY	Acceptable Range For Saturated Paste Sample	5,14 (avg) 3/24/16	6,15 (avg) 6/9/16
Nitrate - Ryegrass	5 - 10 ppm	<0.5	<0.5
Phosphorus	2 - 10 ppm	3.27	5.62
Potassium	40 - 100 ppm	41.20	60.28
Calcium	60 - 200 ppm	42.78	104.43
Magnesium	20 - 70 ppm	24.76	40.03
Sodium	0 - 30 ppm	119.25	218.39
Soluble Salts	<1,920 ppm	554.00	1,058.00
Bicarbonate	<60 ppm	301.39	225.74
Chloride	<1,000 ppm	28.50	196.50
SAR	<4%	3.59	4.62

GREEN	Acceptable Range For Saturated Paste Sample	5,14 (avg) 3/24/16	6,15 (avg) 6/9/16
Nitrate - Bentgrass	1-3 ppm	<0.5	<0.5
Phosphorus	2 - 7 ppm	3.66	3.07
Potassium	25-40 ppm	31.29	29.77
Calcium	50- 75 ppm	34.84	33.31
Magnesium	15-30 ppm	13.45	12.07
Sodium	0 - 30 ppm	68.96	58.39
Soluble Salts	<1,000 ppm	371.00	339.50
Bicarbonate	<60 ppm	225.74	175.71
Chloride	<200 ppm	17.50	27.50
SAR	<4%	2.50	2.20



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TEE	Acceptable Range For Tissue Sample	6,15 (avg) 6/9/16
Nitrogen	3.34%-5.10%	3.21
Phosphorus	0.35% - 0.55%	0.61
Potassium	2.0% - 3.42%	2.43
Calcium	0.25%-0.5%	0.81
Magnesium	0.16%-0.32%	0.40
Sulfur	0.27% - 0.56%	0.67
Boron	5-17 ppm	102.00
Iron	97-934 ppm	146.50
Manganese	30-73 ppm	42.15
Copper	6-38 ppm	14.30
Zinc	16-84ppm	38.30
Aluminum	52-92 ppm	173.50
Sodium	229-1107 ppm	1,725.00

FAIRWAY	Acceptable Range For Tissue Sample	6,15 (avg) 6/9/16
Nitrogen	3.34%-5.10%	3.31
Phosphorus	0.35% - 0.55%	0.62
Potassium	2.0% - 3.42%	2.44
Calcium	0.25%-0.5%	0.67
Magnesium	0.16%-0.32%	0.38
Sulfur	0.27% - 0.56%	0.56
Boron	5-17 ppm	74.65
Iron	97-934 ppm	113.50
Manganese	30-73 ppm	44.50
Copper	6-38 ppm	13.60
Zinc	16-84ppm	41.45
Aluminum	52-92 ppm	137.00
Sodium	229-1107 ppm	1,985.00

GREEN	Acceptable Range For Tissue Sample	6,15 (avg) 6/9/16
Nitrogen	3.0%-6.5%	3.14
Phosphorus	0.2%-0.55%	0.60
Potassium	0.86%-2.55%	2.21
Calcium	0.21%-0.50%	0.69
Magnesium	0.09%-0.22%	0.32
Sulfur	0.23%-0.39%	0.48
Boron	5-24 ppm	98.90
Iron	99-500 ppm	174.50
Manganese	30-160 ppm	94.60
Copper	9-40 ppm	15.50
Zinc	5-60 ppm	46.10
Aluminum	63- 408 ppm	112.50
Sodium	506- 2264 ppm	1,630.00



RECOMMENDATIONS



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Thoughts on the course visit

I'm sorry that we missed each other and thanks for having Cole ride around with me. He was able to catch me up on a few things that had been going on with the course. This is the first time I have done any significant amount of sampling in June and it was good to see the place in this season as well as our regular Spring and Fall visits. So, we don't have any Summer history to draw from to compare to this year, but it was a great idea to do this so I can help you make any adjustments going into the most stressful time of year.

The Bicarbonate level in the water is always a concern of mine as it relates to tying up nutrients in the soil. You can see on the Saturated Paste samples that the levels in the soil are elevated as well. However, your sand capping material throughout the course is a tremendous asset to help the "lose" the bicarbonates through drainage. Going forward, you will want to do more aerification and possibly even sand topdressing to combat thatch and generally keep the sand cap loose.



Focus of This Report

One thing I discussed with many Superintendents during my week in the area was major projects that their course needed. It ranged from new irrigation systems to renovation of the greens. When I first moved to Las Vegas in 2005, many courses were still considered new. Of course, Coyote Springs GC was built in the 2007 and is still considered young, but at almost 10 years old, it may be soon that you will need to adjust programs as Luke had done a few years ago.

My point is, that since the 2008/2009 economic and housing market crash, there has been a lot of deferred maintenance on golf courses in your area. What we consider the basics- such as reel grinders and decent mowing equipment- have been lacking in town for a few years. Most clubs have a hard time looking past the next 6 months let alone see the value in a million dollar irrigation system. (even though we know the money savings over 10-15 years would be huge) However, Las Vegas is a very difficult place to maintain a golf course and is punishing on equipment and parts in the field.

One area you may be able to keep ahead of your competition is to not let things go like many others have. If you can keep management advised of necessary program changes that you and I will discuss and asking for pieces of equipment, that 5 years ago weren't necessary, you will be able to maintain at a high level.

Notes from the visit

- Jake was on vacation. I rode the course with Cole S.
- Great root mass on greens!
- Verit-cut greens more regularly.

Fertilizer and Product Recommendations

Tee & Fairways

*** The Bicarbonate level in the irrigation water is high. Continue to use 7-7-7 and any other acidification products on ryegrass areas.**

Greens (Monthly applications)

Calcium- 5 pounds of product per 1,000 square feet. (Gypsum)

Magnesium/Potassium- 4 pounds of product per 1,000 square feet (0-0-22)

Manganese- 3 ounces per 1,000 square feet rate of techmagnum. (Manganese Sulfate)