

FALL 2016

Data Collection Report
Soil & Water Consulting



CanyonGate Country Club



SOIL and WATER CONSULTING

Course Name: CanyonGate Country Club

Date of Visit: September 27, 2016

	<u>9/28/15</u>	<u>3/23/16</u>	<u>6/7/16</u>	<u>9/27/16</u>
Humidity/Air Temperature	15%/100°	25%/70°	10%/105°	20%/88°
Greens Temperature	66°	43.9°	(avg)72°	(avg)68°

WATER	Acceptable Range For Water Sample	<u>9/28/15</u>	<u>3/23/16</u>	<u>6/7/16</u>	Hole #10 <u>9/27/16</u>
EC	<2.25 mmhos/cm	1.28	1.49	0.99	1.10
Sodium		139.10	179.10	87.78	102.40
Calcium	20 - 60 ppm	73.65	70.19	67.94	67.39
Magnesium	10 - 25 ppm	24.97	21.70	27.78	29.84
Potassium	5 - 20 ppm	11.27	16.12	8.91	14.84
Phosphorus	0.1 - 0.4 ppm	0.87	1.50	0.45	0.90
Nitrate	5 - 50 ppm	6.59	15.83	5.90	9.09
Sulfur	30 - 90 ppm	208.41	236.46	135.09	129.51
Bicarbonate	<120 ppm	129.93	155.50	224.34	179.98
Boron	<0.67 ppm	0.19	0.25	0.13	0.17
Chloride	<177 ppm	174.12	193.19	119.32	148.42



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GREENS	Acceptable Range For Alkaline Soils Sample	1,3,6,7,9,10, 11,16,18 (avg) 9/28/15	2,4,5,8,12,13, 14,15,17 (avg) 3/23/16	PG,3,5,8,9,12, 16,17,18 (avg) 6/7/16	1,3,6,7,9,10, 11,16,18 (avg) 9/27/16
Organic Matter (Humus)	2 - 3%	0.70	0.67	0.75	0.78
Sulfur	12 - 16 ppm	27.00	41.56	68.11	22.22
Olsen - Phosphorus	13 - 20 ppm	32.89	25.78	44.33	35.11
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,712.67	2,761.11	2,925.56	2,445.11
Magnesium	>7% base saturation or at least 200 lbs/acre	11.19%/223.56	10.20%/191.4	10.32%/224	9.87%/176.44
Potassium - TEC of 0 - 35	150 ppm	53.67	100.78	91.89	61.44
Copper	>0.8 ppm	0.56	0.68	0.84	0.79
Manganese	4 ppm or more	1.44	1.44	3.67	3.11
Zinc	>1 - 2 ppm	4.28	4.84	6.51	5.37

GREENS	Acceptable Range For Saturated Paste Sample	PG,3,9,12,17,18 (avg) 6/7/16	1,6,7,9,10,16 (avg) 9/27/16
Nitrate - Bentgrass	1-3 ppm	55.77	0.93
Phosphorus	2 - 7 ppm	4.71	3.78
Potassium	25-40 ppm	50.39	20.85
Calcium	50- 75 ppm	128.03	36.14
Magnesium	15-30 ppm	30.40	10.91
Sodium	0 - 30 ppm	62.83	48.03
Soluble Salts	<1,000 ppm	958.33	370.83
Bicarbonate	<60 ppm	153.75	124.46
Chloride	<200 ppm	79.67	51.67
SAR	<4%	1.31	1.81

GREENS	Acceptable Range For Tissue Sample	1,9,10,16 avg) 9/27/16
Nitrogen	3.0%-6.5%	5.38
Phosphorus	0.2%-0.55%	0.74
Potassium	0.86%-2.55%	2.28
Calcium	0.21%-0.50%	0.76
Magnesium	0.09%-0.22%	0.41
Sulfur	0.23%-0.39%	0.58
Boron	5-24 ppm	8.03
Iron	99-500 ppm	739.50
Manganese	30-160 ppm	273.75
Copper	9-40 ppm	108.70
Zinc	5-60 ppm	92.65
Aluminum	63- 408 ppm	285.00
Sodium	506- 2264 ppm	2,960.00



RECOMMENDATIONS



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Thoughts on the Visit

It is good for you that the decision to construct new greens in 2017 seems to be a go! Now you can begin your plans for the next several months to be ready. There are some things that I would like you to consider in the planning of the project.

Firstly, the greens mix you chose will be critical. I highly recommend an 80/20 greens mix using Dakota Peat. Most people will say to use a 90/10 but Las Vegas is very unique and simply, unlike other nearby desert areas. During the boom time of golf course construction, many greens were built to a 90/10 specification. Many greens in Las Vegas have been rebuilt at least once or fail regularly on many courses. I certainly do not blame all of that on a 90/10 mix but I am convinced it is one of the factors.

Secondly, and more importantly than infiltration rate in a mix (which is why many say use 90/10) is the depth of the sand in the cavity. We can easily test a greens-mix to see where that sand "works" with regards to depth. Just specifying a 12" cavity of mix is not good enough, in my opinion. How fast does water need to move through a greens mix in Las Vegas? Maybe an inch per hour? An 80/20 will give you more than enough rate of water movement if the greens are constructed properly.

Thirdly, make sure you do some quality control testing prior to the mix being delivered. Your schedule is tight and anything that slows the process will be difficult. As much as I like the sand suppliers you will have to choose from, I trust the lab data. Everyone will have their own interest throughout the project. In the end, it will be Zac, Club Corp and Canyongate CC left with the greens.

I am certainly ready to help if you like. I have done a few construction jobs locally in the last 6-7 years and they have been or are going successfully. I am concerned with you getting a good product. You can manage greens very well! So, start off with greens that are built right and you and the company will be heroes to the membership.

Focus of This Report

With the construction of new greens upcoming, the decision was made to over-seed the greens with poa trivialis. The greens had good color and density the day of my visit. However, poa trivialis will have its issues until you dig up the greens in Spring. Routinely, I have seen Rapid Blight on poa trivialis in Las Vegas for over 10 years. It is almost inevitable. Protective fungicide applications may help in winter as watering is less, but when you have to water more, the sodium and negative salts in the effluent water will overtake any fungicide in my experience.

With that said, when Rapid Blight comes on certain greens it should just be unsightly until the dead poa trivialis is mowed out because you have good bentgrass on those greens. Where the bentgrass is thinner and the poa trivialis checks out, there may be a need to sod.

Hopefully, the weather will stay cool and irrigating won't be as important. As always, the less water the better!

Notes from the visit

- Greens mowing height @ 0.130".
- Recent fertility was 10-4-16 at 0.5 #'s / 1,000 sq. ft. of N on 9/12.
- Greens seeded to poa trivialis at 12.5 #'s / 1,000 sq. ft.
- Take - All Patch came on in August.
- Greens to be constructed in May/June.
- 8 weeks of construction
- 90-100 days of grow-in.
- November 2017 opening.

Fertilizer and Product Recommendations

Greens (Monthly applications)

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

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

Magnesium- 3 pounds of product per 1,000 square feet. (Pro-Mag)

Manganese- 2 pounds of product per 1,000 square feet.
(techmagnum)

* Continue pHacid spray program.