

FALL 2017
Data Collection Report
Soil & Water Consulting



San Ramon Golf Club



SOIL and WATER CONSULTING

Course Name: San Ramon Golf Club

Date of Sample: September 11, 2017

<u>9/11/17</u>	
Humidity/Air Temperature	64%/71°
Greens Temperature	70°
Fairway Temperature	72°

WATER	Acceptable Range For Water Sample	Well Pond 9/11/17	Stream #9 9/11/17
pH	6.0-6.5	7.66	7.91
EC	<2.25 mmhos/cm	1.20	1.19
Sodium		162.60	118.20
Calcium	20 - 60 ppm	49.91	89.07
Magnesium	10 - 25 ppm	19.81	36.86
Potassium	5 - 20 ppm	1.34	2.17
Phosphorus	0.1 - 0.4 ppm	<0.20	<0.20
Nitrate	5 - 50 ppm	<0.10	1.11
Sulfur	30 - 90 ppm	1.11	66.21
Bicarbonate	<120 ppm	307.11	508.94
Boron	<0.67 ppm	1.21	0.39
Chloride	<177 ppm	225.53	104.00



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TEE	Acceptable Range For Alkaline Soils Sample	1,9,18 (avg) 9/11/17
Organic Matter (Humus)	2 - 3%	3.44
Sulfur	12 - 16 ppm	35.67
Olsen - Phosphorus	13 - 20 ppm	21.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	4,384.67
Magnesium	>7% base saturation or at least 200 lbs/acre	23.33%/991
Potassium - TEC of 0 - 35	100 ppm	100.33
Copper	>0.8 ppm	2.66
Manganese	>1 ppm	3.00
Zinc	>1 - 2 ppm	5.19

FAIRWAY	Acceptable Range For Alkaline Soils Sample	1,9,18 (avg) 9/11/17
Organic Matter (Humus)	2 - 3%	6.29
Sulfur	12 - 16 ppm	54.00
Olsen - Phosphorus	13 - 20 ppm	12.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	6,934.00
Magnesium	>7% base saturation or at least 200 lbs/acre	30.33%/2,295.3
Potassium - TEC of 0 - 35	100 ppm	194.33
Copper	>0.8 ppm	2.01
Manganese	>1 ppm	3.33
Zinc	>1 - 2 ppm	2.15

GREENS	Acceptable Range For Alkaline Soils Sample	1 9/11/17	9 9/11/17	18 9/11/17
Organic Matter (Humus)	2 - 3%	2.24	1.38	0.61
Sulfur	12 - 16 ppm	69	16	11
Olsen - Phosphorus	13 - 20 ppm	14	3	8
Calcium - TEC of 6 - 12	1,000 lbs/acre	3978	2728	1262
Magnesium	>7% base saturation or at least 200 lbs/acre	14.36%/474	14.63%/314	18.14%/192
Potassium - TEC of 0 - 35	150 ppm	149	41	26
Copper	>0.8 ppm	2.05	0.64	0.59
Manganese	4 ppm or more	5	2	2
Zinc	>1 - 2 ppm	4.69	2.97	2.14



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TEE	Acceptable Range For Saturated Paste Sample	1,18 (avg) 9/11/17
Nitrate - Ryegrass	5 - 10 ppm	9.30
Phosphorus	2 - 10 ppm	1.86
Potassium	40 - 100 ppm	11.79
Calcium	60 - 200 ppm	52.06
Magnesium	20 - 70 ppm	24.51
Sodium	0 - 30 ppm	207.41
Soluble Salts	<1,920 ppm	801.00
Bicarbonate	<60 ppm	167.17
Chloride	<1,000 ppm	212.00
SAR	<4%	5.91

FAIRWAY	Acceptable Range For Saturated Paste Sample	1,18 (avg) 9/11/17
Nitrate - Ryegrass	10 -15 ppm	19.20
Phosphorus	2 - 10 ppm	1.28
Potassium	40 - 100 ppm	8.97
Calcium	60 - 200 ppm	59.10
Magnesium	20 - 70 ppm	32.69
Sodium	0 - 30 ppm	322.33
Soluble Salts	<1,920 ppm	1,153.00
Bicarbonate	<60 ppm	184.25
Chloride	<1,000 ppm	398.50
SAR	<4%	8.54

GREENS	Acceptable Range For Saturated Paste Sample	1,5,16(avg) 9/11/17	12,18 (avg) 9/11/17
Nitrate - Poa/Bentgrass	1-3 ppm	15.23	6.45
Phosphorus	2 - 7 ppm	0.59	1.00
Potassium	25-40 ppm	43.36	7.47
Calcium	50- 75 ppm	64.01	24.52
Magnesium	15-30 ppm	20.69	10.54
Sodium	0 - 30 ppm	207.36	81.78
Soluble Salts	<1,000 ppm	888.33	347.50
Bicarbonate	<60 ppm	125.27	126.90
Chloride	<200 ppm	208.00	64.00
SAR	<4%	5.75	3.50



RECOMMENDATIONS



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Thoughts on the course visit

Thanks for having me to the golf course. It was a great idea to come and sample together, meet the new superintendent and get a feel for the general area. I think it helps put the data in some perspective. As you mentioned, the most important part of his property is the free and hardly limited water. It clearly makes a difference in seeing greener grass and healthier conditions- especially if compared to Vellano CC where water was limited this Summer. With that said, it is by far your largest input on the golf course and is therefore a valued commodity. It is a very harsh water! It has very high bicarbonate levels at the stream and pond. There is also enough sodium and chloride to be a factor. When you couple that with a very high Magnesium soil, the ground could get very sticky or even become impenetrably hard in drier times.

I don't want to make huge and expensive recommendations after one visit, but looking into treating the water source is an efficient and good way to spend budget dollars. The greens can use 2 monthly applications to offset the Bicarbonates and sodium and chloride but they are more manageable from an amendment stand-point, than the tees and fairways.



Notes from the visit

- Greens mowing height- 0.120"
- No recent fertility on the greens.
- Fairways mowing height- 0.500"
- No recent fertility on the fairways.
- Green #9 is a "newer" green.
- There is a 6" amended layer on the soil based greens.
- Course was built in the 60's and then some renovations to greens and back nine near housing.
- Greens 1, 9 and 18 seem chemically different.

Fertilizer and Product Recommendations

Tee & Fairways

** Treat the water!*

**Spray or inject acidifying products OR get Sulfur Burner.*

Greens (Monthly applications)

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

Potassium- 4 pounds of product per 1,000 square feet (0-0-50)