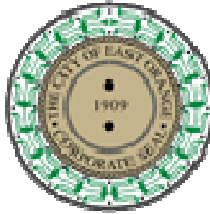


FALL 2017

Data Collection Report
Soil & Water Consulting



East Orange Golf Course



SOIL and WATER CONSULTING

Course Name: East Orange Golf Course

Date of Visit: October 4, 2017

	<u>10/14/16</u>	<u>5/17/17</u>	<u>7/8/17</u>	<u>10/4/17</u>
Humidity/Air Temperature	60%/63°	64%/70	74%/77°	60%/75°
Green Temperature	56°	64°	73°	58°
Fairway Temperature	60°	62°	75°	62°

WATER	Acceptable Range For Water Sample	Sprinkler Head <u>10/14/16</u>	Sprinkler Head <u>5/17/17</u>	Sprinkler Head <u>10/4/17</u>
EC	<2.25 mmhos/cm	0.77	0.81	0.81
Sodium		20.12	22.41	23.07
Calcium	20 - 60 ppm	83.42	87.50	109.00
Magnesium	10 - 25 ppm	28.99	26.78	31.95
Potassium	5 - 20 ppm	2.30	0.75	1.16
Sulfur	30 - 90 ppm	51.48	48.48	56.19
Bicarbonate	<120 ppm	240.45	205.46	242.94
Boron	<0.67 ppm	0.14	0.13	0.13
Chloride	<177 ppm	102.47	101.95	104.00



SOIL and WATER CONSULTING

TEE	Acceptable Range For Standard Soil Sample	4,7,12(avg) 10/14/16	6,16 (avg) 5/17/17	11 5/17/17	4,15 (avg) 7/8/17	5 10/4/17	13,14 (avg) 10/4/17
Organic Matter (Humus)	2 - 3%	2.00	3.91	0.42	1.97	0.64	4.24
Sulfur	50 - 100 ppm	10.00	17.50	12.00	18.50	35.00	28.00
Mehlich III - Phosphorus	350 lbs/acre	244.33	852.00	220.00	872.50	380.00	932.00
Calcium	68%	60.31	68.31	64.94	71.17	69.29	69.29
Magnesium	15%	18.36	15.00	20.11	12.36	18.00	13.54
Potassium	5%	4.56	2.89	4.72	3.91	4.67	2.88
Sodium	<2%	5.00	1.40	6.00	2.60	3.62	1.11
Boron	1 - 1.5 ppm	0.31	0.73	0.28	0.64	0.28	0.74
Iron	120 ppm	168.00	326.50	205.00	303.50	248.00	336.50
Manganese	50 ppm	11.33	19.50	33.00	37.00	18.00	18.50

FAIRWAY	Acceptable Range For Standard Soil Sample	4,7,12(avg) 10/14/16	6,11,16 (avg) 5/17/17	4,15 (avg) 7/8/17	5,13,14 (avg) 10/4/17
Organic Matter (Humus)	2 - 3%	5.00	4.98	5.46	6.33
Sulfur	50 - 100 ppm	28.00	17.00	19.50	23.67
Mehlich III - Phosphorus	350 lbs/acre	194.00	273.33	144.50	238.33
Calcium	68%	57.81	63.76	62.87	68.70
Magnesium	15%	14.49	14.54	15.74	15.56
Potassium	5%	3.53	2.62	2.45	2.23
Sodium	<2%	1.63	1.36	1.76	1.12
Boron	1 - 1.5 ppm	0.63	0.65	0.68	0.79
Iron	120 ppm	202.67	216.00	191.00	236.00
Manganese	50 ppm	40.67	27.00	36.50	33.67

GREENS	Acceptable Range For Standard Soil Sample	4 10/14/16	7,12(avg) 10/14/16	6,10 (avg) 4/12/17	3,4 (avg) 4/12/17	4 7/8/17	15 7/8/17	5,13,14 (avg) 10/4/17
Organic Matter (Humus)	2 - 3%	0.39	6.55	2.95	0.53	0.53	4.98	4.81
Sulfur	50 - 100 ppm	44	21.25	21.50	21.00	58.00	24.00	46.00
Mehlich III - Phosphorus	350 lbs/acre	169	568.00	955.00	181.00	302.00	889.00	1,013.67
Calcium	68%	48.46	68.60	71.38	65.83	57.61	72.55	73.00
Magnesium	15%	13.52	14.98	12.98	16.97	8.92	14.56	15.41
Potassium	5%	11.58	5.70	5.76	5.65	10.55	4.72	4.11
Sodium	<2%	5.91	3.95	1.52	6.38	4.29	2.15	0.97
Boron	1 - 1.5 ppm	0.45	0.63	0.74	0.53	0.27	0.63	0.78
Iron	120 ppm	170	232.50	286.50	178.50	206.00	282.00	333.33
Manganese	50 ppm	12	14.25	15.50	13.00	14.00	13.00	14.00



SOIL and WATER CONSULTING

TEE	Acceptable Range For Saturated Paste Sample	7,12 (avg) 10/14/16	6,16 (avg) 5/17/17	4,15 (avg) 7/8/17	5 10/4/17	14 10/4/17
Nitrate -KBG	5 - 10 ppm	16.40	<0.5	<2.5	10.60	49.30
Phosphorus	2 - 10 ppm	0.62	0.31	0.88	0.57	0.72
Potassium	40 - 100 ppm	30.30	18.90	20.90	49.96	37.16
Calcium	60 - 200 ppm	60.12	28.64	35.12	89.77	93.29
Magnesium	20 - 70 ppm	18.02	8.32	10.20	23.06	27.33
Sodium	0 - 30 ppm	15.48	9.32	7.84	23.23	18.33
Soluble Salts	<1,920 ppm	400.00	180.00	244.50	560.00	584.00
Bicarbonate	<60 ppm	93.96	103.72	89.08	90.29	61.01
Chloride	<1,000 ppm	70.00	31.50	34.00	78.00	75.00
SAR	<4%	0.45	0.39	0.30	0.57	0.43

FAIRWAY	Acceptable Range For Saturated Paste Sample	7,12 (avg) 10/14/16	6,16 (avg) 5/17/17	4,15 (avg) 7/8/17	5,14 (avg) 10/4/17
Nitrate - Ryegrass	5 - 10 ppm	9.65	<0.5	0.90	37.95
Phosphorus	2 - 10 ppm	0.28	0.06	0.27	0.16
Potassium	40 - 100 ppm	11.91	9.26	9.20	8.02
Calcium	60 - 200 ppm	43.02	39.13	45.34	79.10
Magnesium	20 - 70 ppm	10.81	9.91	13.52	21.12
Sodium	0 - 30 ppm	10.09	10.06	10.31	16.06
Soluble Salts	<1,920 ppm	268.00	223.00	286.00	439.00
Bicarbonate	<60 ppm	56.13	89.08	86.64	41.49
Chloride	<1,000 ppm	48.50	46.50	58.00	73.50
SAR	<4%	0.35	0.38	0.35	0.42

GREENS	Acceptable Range For Saturated Paste Sample	7,12 (avg) 10/14/16	6,10 (avg) 5/17/17	4 7/8/17	15 7/8/17	5,14 (avg) 10/4/17
Nitrate - Bentgrass	1-3 ppm	6.55	3.15	19.10	1.60	5.58
Phosphorus	2 - 7 ppm	0.70	1.28	0.92	0.87	0.36
Potassium	25-40 ppm	62.33	28.85	124.51	33.80	46.77
Calcium	50- 75 ppm	107.63	25.22	179.75	29.44	86.06
Magnesium	15-30 ppm	32.13	6.98	19.24	9.05	22.82
Sodium	0 - 30 ppm	17.22	8.04	12.78	5.79	13.97
Soluble Salts	<1,000 ppm	604.00	201.00	921.00	215.00	489.50
Bicarbonate	<60 ppm	75.65	57.35	48.81	70.77	30.51
Chloride	<200 ppm	49.00	13.50	42.00	19.00	39.50
SAR	<4%	0.38	0.37	0.24	0.24	0.35



RECOMMENDATIONS



SOIL and WATER CONSULTING

Thoughts on the course visit

On the prior sample results pages, you will notice that I separated out the 5th tee from the 13th and 14th tees. The recommendations below reflect that. As we have seen in the past, the newer sand based tees are very different from the soil based tees. The sand based tees are becoming more fertile ground but with very little organic material and much higher infiltration rate, they just need more applications.

Overall, the tees and fairways lack potassium. It's not a surprise because of the weather we have had this year. I think higher potassium levels in the soils at your course would be beneficial because of the amount of play you have. The wear tolerance is increased going into the Winter months with an application of Sulfate of Potash now. As a general rule, some is better than none. So, if you were not able to do the entire recommendation I have made, then do as much as you can.

On the greens manganese levels could be worked on now that the weather is cooler. Your numbers are in the mid-teens when 50 -80 would be sufficient. This will help with disease suppression.



Notes from the visit

- Greens mowing height – 0.135"
- Recent greens fertility was liquid.
- Fairway mowing height- 0.535"
- Recent fairway fertility was 20-1-5 at a 1/3# of N rate (2 times)
- Green #4 finally got dry!
- Had begun seeding in rough #5, #6 and #9 and fairways #6, #9 and #15.
- Discussed tree work in the 4 green/5 green/14 green woods.

Fertilizer and Product Recommendations

Tees and Fairways-

Potassium- 100 pounds of product per acre (0-0-50) **FAIRWAYS ONLY!**

Potassium/Magnesium- 4 pounds of product per 1,000 square feet. (K-Mag; 0-0-22) **NEW SAND BASED TEES ONLY!**

Greens-

Manganese- 2 pounds of product per 1,000 square feet. (Tech-Magnum) Until Freeze