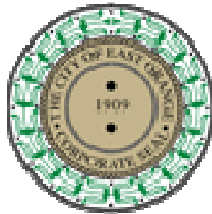


SPRING 2017
Data Collection Report
Soil & Water Consulting



East Orange Golf Course



SOIL and WATER CONSULTING

Course Name: East Orange Golf Course

Date of Visit: May 17, 2017

	<u>4/30/16</u>	<u>10/14/16</u>	<u>5/17/17</u>
Humidity/Air Temperature	75%/50°	60%/63°	64%/70
Green Temperature	49.3°	56°	64°
Fairway Temperature	50.8°	60°	62°

WATER	Acceptable Range For Water Sample	Sprinkler Head <u>4/30/16</u>	Sprinkler Head <u>10/14/16</u>	Sprinkler Head <u>5/17/17</u>
EC	<2.25 mmhos/cm	0.80	0.77	0.81
Sodium		21.18	20.12	22.41
Calcium	20 - 60 ppm	90.69	83.42	87.50
Magnesium	10 - 25 ppm	28.80	28.99	26.78
Potassium	5 - 20 ppm	1.49	2.30	0.75
Sulfur	30 - 90 ppm	49.08	51.48	48.48
Bicarbonate	<120 ppm	226.52	240.45	205.46
Boron	<0.67 ppm	0.15	0.14	0.13
Chloride	<177 ppm	104.00	102.47	101.95



SOIL and WATER CONSULTING

TEE	Acceptable Range For Standard Soil Sample	2, 9,17(avg) 4/30/16	4,7,12(avg) 10/14/16	6,16 (avg) 5/17/17	11 5/17/17
Organic Matter (Humus)	2 - 3%	0.56	2.00	3.91	0.42
Sulfur	50 - 100 ppm	20.00	10.00	17.50	12.00
Mehlich III - Phosphorus	350 lbs/acre	281.00	244.33	852.00	220.00
Calcium	68%	67.04	60.31	68.31	64.94
Magnesium	15%	16.74	18.36	15.00	20.11
Potassium	5%	4.08	4.56	2.89	4.72
Sodium	<2%	4.00	5.00	1.40	6.00
Boron	1 - 1.5 ppm	0.24	0.31	0.73	0.28
Iron	120 ppm	216.67	168.00	326.50	205.00
Manganese	50 ppm	16.67	11.33	19.50	33.00

FAIRWAY	Acceptable Range For Standard Soil Sample	2, 9,17(avg) 4/30/16	4,7,12(avg) 10/14/16	6,11,16 (avg) 5/17/17
Organic Matter (Humus)	2 - 3%	4.79	5.00	4.98
Sulfur	50 - 100 ppm	14.00	28.00	17.00
Mehlich III - Phosphorus	350 lbs/acre	172.33	194.00	273.33
Calcium	68%	69.51	57.81	63.76
Magnesium	15%	15.38	14.49	14.54
Potassium	5%	1.54	3.53	2.62
Sodium	<2%	1.18	1.63	1.36
Boron	1 - 1.5 ppm	0.61	0.63	0.65
Iron	120 ppm	205.67	202.67	216.00
Manganese	50 ppm	21.33	40.67	27.00

GREENS	Acceptable Range For Standard Soil Sample	2, 9,17(avg) 4/30/16	4 10/14/16	7,12(avg) 10/14/16	6,10 (avg) 4/12/17	3,4 (avg) 4/12/17
Organic Matter (Humus)	2 - 3%	4.09	0.39	6.55	2.95	0.53
Sulfur	50 - 100 ppm	15.67	44	21.25	21.50	21.00
Mehlich III - Phosphorus	350 lbs/acre	925.33	169	568.00	955.00	181.00
Calcium	68%	74.40	48.46	68.60	71.38	65.83
Magnesium	15%	17.65	13.52	14.98	12.98	16.97
Potassium	5%	2.19	11.58	5.70	5.76	5.65
Sodium	<2%	1.41	5.91	3.95	1.52	6.38
Boron	1 - 1.5 ppm	0.66	0.45	0.63	0.74	0.53
Iron	120 ppm	293.67	170	232.50	286.50	178.50
Manganese	50 ppm	9.67	12	14.25	15.50	13.00



SOIL and WATER CONSULTING

TEE	Acceptable Range For Saturated Paste Sample	1,10,18 (avg) 8/5/16	7,12 (avg) 10/14/16	6,16 (avg) 5/17/17
Nitrate -KBG	5 - 10 ppm	<0.5	16.40	<0.5
Phosphorus	2 - 10 ppm	0.09	0.62	0.31
Potassium	40 - 100 ppm	10.21	30.30	18.90
Calcium	60 - 200 ppm	24.52	60.12	28.64
Magnesium	20 - 70 ppm	7.69	18.02	8.32
Sodium	0 - 30 ppm	9.48	15.48	9.32
Soluble Salts	<1,920 ppm	171.50	400.00	180.00
Bicarbonate	<60 ppm	54.91	93.96	103.72
Chloride	<1,000 ppm	16.33	70.00	31.50
SAR	<4%	0.37	0.45	0.39

FAIRWAY	Acceptable Range For Saturated Paste Sample	1,10,18 (avg) 8/5/16	7,12 (avg) 10/14/16	6,16 (avg) 5/17/17
Nitrate - Ryegrass	5 - 10 ppm	<0.66	9.65	<0.5
Phosphorus	2 - 10 ppm	0.18	0.28	0.06
Potassium	40 - 100 ppm	2.31	11.91	9.26
Calcium	60 - 200 ppm	23.53	43.02	39.13
Magnesium	20 - 70 ppm	6.19	10.81	9.91
Sodium	0 - 30 ppm	7.17	10.09	10.06
Soluble Salts	<1,920 ppm	119.00	268.00	223.00
Bicarbonate	<60 ppm	57.76	56.13	89.08
Chloride	<1,000 ppm	16.33	48.50	46.50
SAR	<4%	0.31	0.35	0.38

GREENS	Acceptable Range For Saturated Paste Sample	1,10,18 (avg) 8/5/16	7,12 (avg) 10/14/16	6,10 (avg) 5/17/17
Nitrate - Bentgrass	1-3 ppm	Not Tested	6.55	3.15
Phosphorus	2 - 7 ppm		0.70	1.28
Potassium	25-40 ppm		62.33	28.85
Calcium	50- 75 ppm		107.63	25.22
Magnesium	15-30 ppm		32.13	6.98
Sodium	0 - 30 ppm		17.22	8.04
Soluble Salts	<1,000 ppm		604.00	201.00
Bicarbonate	<60 ppm		75.65	57.35
Chloride	<200 ppm		49.00	13.50
SAR	<4%		0.38	0.37



RECOMMENDATIONS



SOIL and WATER CONSULTING

Thoughts on the course visit

The first thing I noticed on the course was the quality of the cut on the tees. The day of my visit, you were fertilizing tees as well. The tees that are new and sand based need more attention than the original soil tees. For example, the 11th tee complex (pictured) has a sand based tee and a soil based tee side by side. For the fertilizer that you were applying in the picture, it will help either. However, you might see better performance on the sand based tees if you treat them as you treat the greens with regards to fertilizer and amendments.

The fairways still could use some available phosphorus. When you are able to apply the Mushroom soil product, it may be enough to only have to be concerned with it once every year and a half or so. Either way, you need to apply some starter fertilizer any time you plan to seed on the fairways.

Overall, the cooler Spring and dark and rainy days have made for good growing weather. My concern for East Orange GC is that when it gets hot and dry and irrigation is required more frequently that you have nutrient availability issues. So, I am trying to concentrate on getting your pH on native soil (fairways and some tees) to around 6.5 across the board and having acidifiers ready to treat the soil for the bicarbonates in your water.



Notes from the visit

- Greens mowing height- 0.145".
- PG Stimp- 10'1". (only rolled)
- Green #15 Stimp- 9'5". (only rolled)
- Applied 0-0-50 to greens on the 10th of May. (greens samples taken prior to)
- Tees were fertilized the day of my visit using a 10-10-10 at 0.5# rate of N per 1,000 sq ft.
- Fairway mowing height- 0.500".
- Quality of cut was greatly improved since the Fall of 2016.
- Preparing for the Media day on 5/22. (ended up rescheduling due to weather)

Fertilizer and Product Recommendations

New/sand Tees-

Magnesium/Potassium- 4 pounds of product per 1,000 square feet. (Sulpomag; K-Mag; 0-0-22)

Fairways-

Phosphorus- 500 pounds of product per acre. (Ferti-Soil "PMS")

* You could lime fairways to raise pH. However, there will be times during drought when you will need to spray acidifiers to combat the water source.

Greens-

See email from April