



SOIL AND WATER CONSULTING

Data Collection Report

Fall 2018

Date of Collection: 9/24/18

Client: Tucson Country Club



Testing Results

	<u>9/6/16</u>	<u>9/16/17</u>	<u>9/24/18</u>
Humidity/Air Temperature	20%/90°	32%/90°	50%/90°
Greens Temperature	n/t	80°	(avg)79.75°
Fairway Temperature	n/t	80°	(avg)78°

	<u>Acceptable Range For Water Sample</u>	<u>Effluent Lake 9/6/16</u>	<u>Hole #8 9/16/17</u>	<u>Hole #2 9/24/18</u>
EC	<2.25 mmhos/cm	0.46	0.32	0.41
Sodium		82.85	27.94	64.83
Calcium	20 - 60 ppm	17.75	38.61	17.79
Magnesium	10 - 25 ppm	1.06	2.33	1.33
Potassium	5 - 20 ppm	1.45	1.76	5.55
Sulfur	30 - 90 ppm	23.87	24.71	34.32
Bicarbonate	<120 ppm	195.82	129.96	124.55
Boron	<0.67 ppm	0.15	<0.05	0.09
Chloride	<177 ppm	16.00	10.55	37.28

TEE	Acceptable Range For Tissue Sample	2 9/24/18
Nitrogen	2.49%-4.56%	3.29
Phosphorus	0.26% - 0.38%	0.34
Potassium	0.95% - 1.97%	1.35
Calcium	0.50%-0.90%	0.62
Magnesium	0.13%-0.16%	0.12
Sodium	622-1709 ppm	1,600.00

FAIRWAY	Acceptable Range For Tissue Sample	2 9/24/18
Nitrogen	2.49%-4.56%	3.92
Phosphorus	0.26% - 0.38%	0.38
Potassium	0.95% - 1.97%	2.04
Calcium	0.50%-0.90%	0.48
Magnesium	0.13%-0.16%	0.15
Sodium	622-1709 ppm	1,190.00

GREENS	Acceptable Range For Tissue Sample	2,11 (avg) 9/24/18
Nitrogen	3.0%-6.5%	3.35
Phosphorus	0.2%-0.55%	0.62
Potassium	0.86%-2.55%	2.44
Calcium	0.21%-0.50%	0.36
Magnesium	0.09%-0.22%	0.16
Sodium	506- 2264 ppm	1,985.00

TEES	Acceptable Range For Alkaline Soils Sample	7 9/6/16	17 9/16/17	2,11(avg) 9/24/18
Organic Matter (Humus)	2 - 3%	2.17	2.93	2.34
Sulfur	12 - 16 ppm	34.00	116.00	35.50
Olsen - Phosphorus	13 - 20 ppm	9.00	9.00	7.50
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,536.00	3,044.00	3,821.00
Magnesium	>7% base saturation or at least 200 lbs/acre	6.79%/184	8.52%/214	8.07%/239
Potassium - TEC of 0 - 35	100 ppm	180.00	202.00	220.50
Manganese	50-80 ppm	n/r	n/r	59.00

FAIRWAYS	Acceptable Range For Alkaline Soils Sample	7 9/6/16	17 9/16/17	2,11(avg) 9/24/18
Organic Matter (Humus)	2 - 3%	2.35	2.99	3.00
Sulfur	12 - 16 ppm	47.00	49.00	26.50
Olsen - Phosphorus	13 - 20 ppm	10.00	9.00	14.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	3,364.00	3,950.00	3,505.00
Magnesium	>7% base saturation or at least 200 lbs/acre	8.10%/214	8.43%/258	8.29%/229
Potassium - TEC of 0 - 35	100 ppm	245.00	297.00	277.50
Manganese	50-80 ppm	n/r	n/r	48.00

GREENS	Acceptable Range For Alkaline Soils Sample	7 9/6/16	17 9/16/17	2,11(avg) 9/24/18
Organic Matter (Humus)	2 - 3%	0.42	0.66	0.85
Sulfur	12 - 16 ppm	11.00	24.00	9.50
Olsen - Phosphorus	13 - 20 ppm	9.00	9.00	10.50
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,090.00	2,270.00	1,784.00
Magnesium	>7% base saturation or at least 200 lbs/acre	7.31%/126	9.31%/176	10.46%/168
Potassium - TEC of 0 - 35	150 ppm	353.00	333.00	328.50
Manganese	50-80 ppm	n/r	n/r	69.00

TEE	Acceptable Range For Saturated Paste Sample	8,17 (avg) 9/16/17	2 9/24/18
Nitrate - Bermudagrass	10 -15 ppm	9.40	17.60
Phosphorus	2 - 10 ppm	3.65	1.34
Potassium	40 - 100 ppm	118.82	31.78
Calcium	60 - 200 ppm	176.12	90.85
Magnesium	20 - 70 ppm	21.34	13.81
Sodium	0 - 30 ppm	118.31	217.10
Soluble Salts	<1,920 ppm	1,081.00	854.00
Bicarbonate	<60 ppm	286.75	207.43
Chloride	<1,000 ppm	132.00	125.00
SAR	<4%	2.37	5.61

FAIRWAY	Acceptable Range For Saturated Paste Sample	8,17 (avg) 9/16/17	2 9/24/18
Nitrate - Bermudagrass	10 -15 ppm	37.80	27.70
Phosphorus	2 - 10 ppm	2.21	1.89
Potassium	40 - 100 ppm	56.66	51.07
Calcium	60 - 200 ppm	156.63	90.67
Magnesium	20 - 70 ppm	20.52	14.95
Sodium	0 - 30 ppm	150.19	195.56
Soluble Salts	<1,920 ppm	943.00	838.00
Bicarbonate	<60 ppm	333.12	275.77
Chloride	<1,000 ppm	78.00	105.00
SAR	<4%	3.02	5.01

GREENS	Acceptable Range For Saturated Paste Sample	8,17 (avg) 9/16/17	2,11(avg) 9/24/18
Dominant Plus Bentgrass	1-3 ppm	2.17	<0.7
Phosphorus	2 - 7 ppm	2.17	3.66
Potassium	25-40 ppm	33.94	27.21
Calcium	50- 75 ppm	46.63	19.17
Magnesium	15-30 ppm	6.58	4.42
Sodium	0 - 30 ppm	55.51	68.63
Soluble Salts	<1,000 ppm	391.00	286.00
Bicarbonate	<60 ppm	124.46	79.31
Chloride	<200 ppm	25.00	36.00
SAR	<4%	2.04	3.67