



SOIL AND WATER CONSULTING

Data Collection Report

Summer 2019

Date of Collection: 6/17/19

Client: Chimera Golf Club



Testing Results

	<u>6/16/15</u>	<u>6/6/16</u>	<u>6/25/17</u>	<u>6/22/18</u>	<u>6/17/19</u>
Air Temperature	20%/110°	10%/105°	16%/95°	10%/101°	12%/99°
Greens Temperature	74°	68.8°	78°	(avg)66.76°	(avg)83.9°
Fairway Temperature	78°	72.3°	80°	(avg)70.76°	(avg)83.55°

WATER	Acceptable Range For Water Sample	Pond #18 <u>6/16/15</u>	Pond #8 <u>6/16/15</u>	Pond #1 <u>6/6/16</u>	Direct Line #18 <u>6/25/17</u>	Wet Well <u>6/25/17</u>	Pond #18 <u>6/22/18</u>	Hole #7 <u>6/22/18</u>	Pond #18 <u>6/17/19</u>	Wet Well <u>6/17/19</u>
pH	6.0-6.5	7.23	7.76	6.74	7.84	6.54	7.32	6.79	6.88	6.76
EC	<2.25 mmhos/cm	2.00	1.07	1.90	1.86	1.93	1.87	1.90	1.85	1.83
Sodium		231.30	94.40	229.20	223.50	223.20	217.50	222.50	228.70	226.00
Calcium	20 - 60 ppm	104.40	79.45	101.60	97.45	99.68	93.84	95.36	104.30	103.70
Magnesium	10 - 25 ppm	33.81	24.65	32.72	28.85	28.43	30.33	30.59	34.60	34.33
Potassium	5 - 20 ppm	18.87	5.53	18.69	16.28	15.97	22.39	22.36	19.19	18.96
Phosphorus	0.1 - 0.4 ppm	1.28	<0.20	0.31	<0.20	<0.20	<0.20	n/t	<0.20	<0.20
Nitrate	5 - 50 ppm	12.11	0.33	14.24	14.18	13.37	11.56	n/t	15.39	14.89
Sulfur	30 - 90 ppm	355.50	236.67	364.50	298.62	364.50	313.50	389.10	411.60	416.40
Bicarbonate	<120 ppm	150.29	180.05	148.11	145.93	51.55	156.82	59.53	94.49	84.16
Boron	<0.67 ppm	0.37	0.14	0.38	0.33	0.32	0.35	0.35	0.40	0.40
Chloride	<177 ppm	294.12	96.00	289.35	266.21	256.67	282.71	286.97	262.80	262.29

TEE	Acceptable Range For Alkaline Soils Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16	1,7,16,18 (avg) 6/25/17	1,7,16,18 (avg) 6/22/18	1,7,16,18 (avg) 6/17/19
pH	6.3-6.5	7.85	7.65	7.27	7.22	7.65
Organic Matter (Humus)	2 - 3%	4.88	2.70	3.40	2.97	5.64
Sulfur	12 - 16 ppm	136.00	104.25	332.25	169.75	181.75
Olsen - Phosphorus	13 - 20 ppm	35.00	32.75	30.25	31.75	38.25
Calcium - TEC of 6 - 12	1,000 lbs/acre	5,522.00	4,567.00	5,421.00	4,705.00	5,620.50
Magnesium	>7% base saturation or at least 200 lbs/acre	11.84%/595	11.13%/468.5	10.96%/585.5	10.05%/467.50	13.36%/722
Potassium - TEC of 0 - 35	100 ppm	837.00	578.00	688.50	745.75	712.75
Copper	>0.8 ppm	1.44	0.99	0.84	1.06	1.21
Manganese	>1 ppm	3.25	1.25	0.00	1.50	2.25
Zinc	>1 - 2 ppm	7.09	6.48	6.73	6.53	10.84
FAIRWAY	Acceptable Range For Alkaline Soils Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16	1,7,16,18 (avg) 6/25/17	1,7,16,18 (avg) 6/22/18	1,7,16,18 (avg) 6/17/19
pH	6.3-6.5	7.80	7.55	7.30	7.32	7.42
Organic Matter (Humus)	2 - 3%	4.29	1.89	2.17	2.59	4.06
Sulfur	12 - 16 ppm	4,500.25	3,245.75	3,663.50	2,683.75	3,669.75
Olsen - Phosphorus	13 - 20 ppm	44.75	26.25	22.75	36.25	38.25
Calcium - TEC of 6 - 12	1,000 lbs/acre	16,667.50	9,296.00	13,130.50	10,421.50	13,571.00
Magnesium	>7% base saturation or at least 200 lbs/acre	5.42%/679	6.28%/447.50	6.08%/627	6.53%/509	7.57%/741
Potassium - TEC of 0 - 35	100 ppm	1,767.75	1,115.50	1,340.75	1,294.00	1,381.50
Copper	>0.8 ppm	1.82	1.20	1.11	1.80	1.61
Manganese	>1 ppm	4.00	1.75	<1.25	1.50	3.75
Zinc	>1 - 2 ppm	4.00	3.39	3.48	3.71	5.93
GREENS	Acceptable Range For Alkaline Soils Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16	1,7,16,18 (avg) 6/25/17	1,7,16,18 (avg) 6/22/18	1,7,16,18 (avg) 6/17/19
pH	6.3-6.5	7.52	6.92	6.95	7.60	7.15
Organic Matter (Humus)	2 - 3%	2.42	1.85	2.07	2.19	3.21
Sulfur	12 - 16 ppm	151.50	183.00	277.50	101.75	130.00
Olsen - Phosphorus	13 - 20 ppm	24.50	19.75	14.00	16.00	14.00
Calcium - TEC of 6 - 12	1,000 lbs/acre	2,620.50	2,053.50	2,647.50	2,184.00	2,353.00
Magnesium	>7% base saturation or at least 200 lbs/acre	9.65%/304.5	10.20%/253.50	9.215%/328.50	9.072%/262	11.86%/337
Potassium - TEC of 0 - 35	150 ppm	1,117.25	708.75	954.75	851.50	695.25
Copper	>0.8 ppm	0.70	0.64	0.54	1.00	0.82
Manganese	4 ppm or more	<1	1.75	<1	1.75	2.75
Zinc	>1 - 2 ppm	7.39	7.59	7.34	7.70	9.30

TEE	Acceptable Range For Saturated Paste Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16	1,7,16,18 (avg) 6/25/17	1,7,16,18 (avg) 6/22/18	1,7,16,18 (avg) 6/17/19
Nitrate - Bermudagrass	10 -15 ppm			67.63	0.58	<0.5
Phosphorus	2 - 10 ppm	1.34	2.33	2.60	3.40	1.33
Potassium	40 - 100 ppm	38.20	26.65	55.06	49.22	50.25
Calcium	60 - 200 ppm	257.48	124.49	366.06	158.13	227.08
Magnesium	20 - 70 ppm	71.57	34.66	102.03	46.53	74.33
Sodium	0 - 30 ppm	266.18	216.45	669.18	367.51	517.39
Soluble Salts	<1,920 ppm	1,691.25	1,114.75	3,172.75	1,463.75	1,800.00
Bicarbonate	<60 ppm	147.64	235.50	287.36	260.51	253.19
Chloride	<1,000 ppm	212.00	194.75	688.00	293.50	418.25
SAR	<4%	3.79	4.45	8.02	6.66	7.77
FAIRWAY	Acceptable Range For Saturated Paste Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16	1,7,16,18 (avg) 6/25/17	1,7,16,18 (avg) 6/22/18	1,7,16,18 (avg) 6/17/19
Nitrate - Bermudagrass	10 -15 ppm			83.68	15.48	<0.5
Phosphorus	2 - 10 ppm	1.01	1.32	2.67	5.66	1.68
Potassium	40 - 100 ppm	133.08	73.88	97.24	83.83	89.90
Calcium	60 - 200 ppm	542.03	470.70	604.28	487.52	509.13
Magnesium	20 - 70 ppm	149.80	107.44	158.30	108.58	131.19
Sodium	0 - 30 ppm	811.90	515.56	935.41	531.54	625.24
Soluble Salts	<1,920 ppm	3,485.00	2,865.75	4,566.50	2,623.50	2,670.50
Bicarbonate	<60 ppm	149.47	230.01	321.52	228.79	301.39
Chloride	<1,000 ppm	668.00	348.50	963.25	392.75	436.25
SAR	<4%	7.58	5.56	8.73	5.66	6.61
GREENS	Acceptable Range For Saturated Paste Sample	1,7,16,18 (avg) 6/16/15	1,7,16,18 (avg) 6/6/16	1,7,16,18 (avg) 6/25/17	1,7,16,18 (avg) 6/22/18	1,7,16,18 (avg) 6/17/19
Nitrate - Bermudagrass	10-15 ppm	12.10	<0.5	9.50	0.60	<0.5
Phosphorus	2 - 7 ppm	1.88	1.82	1.60	4.03	0.54
Potassium	25-40 ppm	38.21	32.02	49.09	34.52	38.64
Calcium	50- 75 ppm	228.65	217.05	321.34	132.71	179.23
Magnesium	15-30 ppm	60.17	55.20	90.81	38.61	58.16
Sodium	0 - 30 ppm	242.50	222.78	685.87	355.04	437.35
Soluble Salts	<1,000 ppm	1,360.75	1,492.00	3,024.25	1,382.25	1,549.00
Bicarbonate	<60 ppm	46.37	99.45	166.56	145.81	176.32
Chloride	<200 ppm	225.50	261.25	824.00	312.25	379.25
SAR	<4%	3.81	3.49	8.71	6.97	7.30