

Annexure A

Centre Pivot B4

REINKE IRRIGATION SYSTEMS
PIVOT SYSTEM SPRINKLER CHART
E65/60 Std 114"
REINKE IRRIGATION SYSTEMS
RMCchart0.97c

CASE NUMBER: RP042292

DATE: 17 May 2004

DEALER: SOTRAVIC LTEE
NUMBER: 89018

CUSTOMER NAME: MAURITIUS SUGAR AUTHORITY
SERIAL NUMBER: 0504-31765-2065SG

NUMBER OF TOWERS:	8	NOZZLE FILES:	R3000R , R3000G
GAUGE PRESSURE:	5.0 bar	NOZZLE SELECTION OPTION:	1
TOTAL SYSTEM FLOW:	3967.1 lpm	FRICITION C-FACTOR:	135
TOTAL PIPE LENGTH:	450.2 m	COVERAGE WITHOUT GUN:	451.1 m
END GUN TYPE:	SR100	ADJ. END GUN RADIUS:	31.3 m

SYSTEM lpm PER ha: 54.5

LAST TOWER ~ TIRE SIZE: 14.9 x 24

CENTERDRIVE: 48:1

SYSTEM MANUFACTURER: REINKE

1 194-65	SPAN	1,	60.4 m,	16.33 cm ID PIPE
4 194-65	SPANS	2- 5,	59.1 m,	16.33 cm ID PIPE
1 175-65	SPAN	6,	53.3 m,	16.33 cm ID PIPE
1 160-65	SPAN	7,	48.8 m,	16.33 cm ID PIPE
1 137-65	SPAN	8,	41.8 m,	16.33 cm ID PIPE
1 32GF	OVERHANG,		9.4 m,	14.73 cm ID PIPE

=====

DISCLAIMER

The uniformity of water application obtained with this system can be adversely affected by many variables including, but not limited to, the improper makeup or installation of the nozzle package; obstructed nozzles; tight and/or sloping soils; improper end gun arc settings; incorrect maintenance of pivot pressure; unfavorable climate conditions; and erratic and improper operating speed of the system. Reinke Mfg. Co., Inc. makes no warranty as to the uniformity of the coverage to be obtained from this water application printout other than its mathematical accuracy.

The products, which are specified as a part of this nozzle package design, are covered by the original manufacturer's printed "Warranty and Disclaimer", which applies to the individual components of their own manufacture. Reinke Mfg. Co., Inc. cannot be responsible for the performance of these products and makes no warranties, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, where permitted by law, and does hereby disclaim any liability for damages due to failure of these products to perform as anticipated.

=====

-OUTLET-		-SPRINKLER-			-REG-	LPM	PRESSURE		
NO.	LOC.	NO.	SEP.	MODEL	NOZZLE	MODEL	REQ.	DEL.	INLINE
1	2.7			PLUG					
2	5.6			PLUG					DROPS
3	8.5			PLUG					
4	11.4	1	11.4	R3000	TN-#14 Lime	LB15	3.6	5.1	4.8 72
5	14.3			PLUG					
6	17.2	2	5.8	R3000	TN-#14 Lime	LB15	4.8	5.1	4.8 78
7	20.1			PLUG					
8	23.0	3	5.8	R3000	TN-#15 Lime w/lav	LB15	6.1	5.9	4.7 84
9	25.9			PLUG					
10	28.8	4	5.8	R3000	TN-#17 Lvndr w/gra	LB15	7.4	7.6	4.7 84
11	31.7			PLUG					
12	34.6	5	5.8	R3000	TN-#17 Lvndr w/gra	LB15	7.8	7.6	4.7 84
13	37.5			PLUG					
14	40.4	6	5.8	R3000	TN-#18 Gray	LB15	8.9	8.4	4.6 84
15	43.3			PLUG					
16	46.2	7	5.8	R3000	TN-#19 Gray w/trqu	LB15	9.4	9.4	4.6 78
17	49.1			PLUG					
18	52.0	8	5.8	R3000	TN-#20 Turquoise	LB15	10.3	10.4	4.6 72
19	54.9			PLUG					
20	57.8	9	5.8	R3000	TN-#22 Yellow	LB15	12.6	12.5	4.6 60
60.4 TOWER NO. 1									
21	61.9			PLUG					
22	64.8	10	7.0	R3000	TN-#22 Yellow	LB20	14.2	14.4	4.5 66
23	67.7			PLUG					
24	70.6	11	5.8	R3000	TN-#22 Yellow	LB20	13.8	14.4	4.5 72
25	73.5			PLUG					
26	76.4	12	5.8	R3000	TN-#22 Yellow	LB20	14.7	14.4	4.5 78
27	79.2			PLUG					
28	82.1	13	5.8	R3000	TN-#24 Red	LB20	16.6	17.1	4.4 84
29	85.0			PLUG					
30	87.9	14	5.8	R3000	TN-#24 Red	LB20	16.9	17.1	4.4 84
31	90.8			PLUG					
32	93.7	15	5.8	R3000	TN-#25 Red w/white	LB20	18.4	18.5	4.4 84
33	96.6			PLUG					
34	99.5	16	5.8	R3000	TN-#26 White	LB20	19.6	20.1	4.3 84
35	102.4			PLUG					
36	105.3	17	5.8	R3000	TN-#26 White	LB20	20.4	20.1	4.3 78
37	108.2			PLUG					
38	111.1	18	5.8	R3000	TN-#27 White w/blu	LB20	22.4	21.5	4.3 72
39	114.0			PLUG					
40	116.9	19	5.8	R3000	TN-#30 Drk Brown	LB20	26.3	26.6	4.3 60

-OUTLET-		-SPRINKLER-				-REG-	LPM		PRESSURE
NO.	LOC.	NO.	SEP.	MODEL	NOZZLE	MODEL	REQ.	DEL.	INLINE

119.6 TOWER NO. 2

41	121.0			PLUG					
42	123.9	20	7.0	R3000	TN-#30 Drk Brown	LB20	26.8	26.6	4.2 66
43	126.8			PLUG					
44	129.7	21	5.8	R3000	TN-#30 Drk Brown	LB20	25.9	26.6	4.2 72
45	132.6			PLUG					
46	135.5	22	5.8	R3000	TN-#30 Drk Brown	LB20	26.2	26.6	4.2 78
47	138.4			PLUG					
48	141.3	23	5.8	R3000	TN-#31 Brwn w/orng	LB20	27.6	28.1	4.1 84
49	144.2			PLUG					
50	147.1	24	5.8	R3000	TN-#31 Brwn w/orng	LB20	28.6	28.1	4.1 84
51	150.0			PLUG					
52	152.9	25	5.8	R3000	TN-#32 Orange	LB20	30.8	30.2	4.1 84
53	155.8			PLUG					
54	158.6	26	5.8	R3000	TN-#33 Ornge w/grn	LB20	32.0	32.1	4.1 84
55	161.5			PLUG					
56	164.4	27	5.8	R3000	TN-#33 Ornge w/grn	LB20	32.5	32.1	4.0 78
57	167.3			PLUG					
58	170.2	28	5.8	R3000	TN-#34 Drk Green	LB20	34.1	34.1	4.0 72
59	173.1			PLUG					
60	176.0	29	5.8	R3000	TN-#36 Purple	HB20	38.7	37.6	4.0 60

178.7 TOWER NO. 3

61	180.1			PLUG					
62	183.0	30	7.0	R3000	TN-#37 Prpl w/blck	HB20	41.1	40.1	4.0 66
63	185.9			PLUG					
64	188.8	31	5.8	R3000	TN-#36 Purple	HB20	38.5	37.6	3.9 72
65	191.7			PLUG					
66	194.6	32	5.8	R3000	TN-#37 Prpl w/blck	HB20	39.5	40.1	3.9 78
67	197.5			PLUG					
68	200.4	33	5.8	R3000	TN-#37 Prpl w/blck	HB20	39.1	40.1	3.9 84
69	203.3			PLUG					
70	206.2	34	5.8	R3000	TN-#37 Prpl w/blck	HB20	39.9	40.1	3.9 84
71	209.1			PLUG					
72	212.0	35	5.8	R3000	TN-#38 Black	HB20	41.8	42.3	3.9 84
73	214.9			PLUG					
74	217.8	36	5.8	R3000	TN-#38 Black	HB20	42.7	42.3	3.8 84
75	220.7			PLUG					
76	223.6	37	5.8	R3000	TN-#34 Drk Green	HB20	33.5	34.2	3.8 78
77	226.5	38	2.9	R3000	TN-#27 White w/blu	HB20	21.8	21.8	3.8 72
78	229.4	39	2.9	R3000	TN-#28 Blue	HB20	22.8	23.6	3.8 72
79	232.3	40	2.9	R3000	TN-#27 White w/blu	HB20	22.3	21.8	3.8 66

-OUTLET-		-SPRINKLER-					-REG-	LPM	PRESSURE	
NO.	LOC.	NO.	SEP.	MODEL	NOZZLE		MODEL	REQ.	DEL.	INLINE
80	235.2	41	2.9	R3000	TN-#31 Brwn w/orng		HB20	28.8	28.4	3.8 60
237.8		TOWER NO. 4								
81	239.3	42	4.1	R3000	TN-#31 Brwn w/orng		HB20	29.1	28.4	3.8 60
82	242.2	43	2.9	R3000	TN-#29 Blue w/brn		HB20	24.8	25.2	3.8 66
83	245.1	44	2.9	R3000	TN-#28 Blue		HB20	23.9	23.6	3.8 72
84	248.0	45	2.9	R3000	TN-#29 Blue w/brn		HB20	24.8	25.2	3.7 72
85	250.9	46	2.9	R3000	TN-#29 Blue w/brn		HB20	24.5	25.2	3.7 78
86	253.7	47	2.9	R3000	TN-#29 Blue w/brn		HB20	24.5	25.2	3.7 78
87	256.6	48	2.9	R3000	TN-#29 Blue w/brn		HB20	24.8	25.2	3.7 84
88	259.5	49	2.9	R3000	TN-#29 Blue w/brn		HB20	25.3	25.2	3.7 84
89	262.4	50	2.9	R3000	TN-#30 Drk Brown		HB20	26.2	26.9	3.7 84
90	265.3	51	2.9	R3000	TN-#29 Blue w/brn		HB20	25.6	25.2	3.7 84
91	268.2	52	2.9	R3000	TN-#30 Drk Brown		HB20	27.0	26.9	3.7 84
92	271.1	53	2.9	R3000	TN-#30 Drk Brown		HB20	27.0	26.9	3.7 84
93	274.0	54	2.9	R3000	TN-#30 Drk Brown		HB20	27.3	26.9	3.7 84
94	276.9	55	2.9	R3000	TN-#31 Brwn w/orng		HB20	27.9	28.4	3.7 84
95	279.8	56	2.9	R3000	TN-#30 Drk Brown		HB20	27.3	26.9	3.7 78
96	282.7	57	2.9	R3000	TN-#31 Brwn w/orng		HB20	28.5	28.4	3.7 78
97	285.6	58	2.9	R3000	TN-#31 Brwn w/orng		HB20	28.4	28.4	3.6 72
98	288.5	59	2.9	R3000	TN-#31 Brwn w/orng		HB20	28.6	28.4	3.6 72
99	291.4	60	2.9	R3000	TN-#31 Brwn w/orng		HB20	29.1	28.4	3.6 66
100	294.3	61	2.9	R3000	TN-#35 Green w/prp		HB20	36.1	35.9	3.6 60
297.0		TOWER NO. 5								
101	298.4	62	4.1	R3000	TN-#35 Green w/prp		HB20	36.0	35.9	3.6 60
102	301.3	63	2.9	R3000	TN-#32 Orange		HB20	29.9	30.4	3.6 66
103	304.2	64	2.9	R3000	TN-#32 Orange		HB20	29.7	30.4	3.6 66
104	307.1	65	2.9	R3000	TN-#32 Orange		HB20	29.8	30.4	3.6 72
105	310.0	66	2.9	R3000	TN-#32 Orange		HB20	30.1	30.4	3.6 72
106	312.9	67	2.9	R3000	TN-#32 Orange		HB20	30.7	30.4	3.6 78
107	315.8	68	2.9	R3000	TN-#33 Ornge w/grn		HB20	31.6	32.3	3.6 78
108	318.7	69	2.9	R3000	TN-#32 Orange		HB20	30.9	30.4	3.6 78
109	321.6	70	2.9	R3000	TN-#33 Ornge w/grn		HB20	32.4	32.3	3.6 78
110	324.5	71	2.9	R3000	TN-#33 Ornge w/grn		HB20	32.3	32.3	3.6 78
111	327.4	72	2.9	R3000	TN-#33 Ornge w/grn		HB20	32.4	32.3	3.6 78
112	330.3	73	2.9	R3000	TN-#33 Ornge w/grn		HB20	32.9	32.3	3.6 78
113	333.1	74	2.9	R3000	TN-#34 Drk Green		HB20	33.7	34.2	3.6 78
114	336.0	75	2.9	R3000	TN-#33 Ornge w/grn		HB20	32.8	32.3	3.5 72
115	338.9	76	2.9	R3000	TN-#34 Drk Green		HB20	34.1	34.2	3.5 72
116	341.8	77	2.9	R3000	TN-#34 Drk Green		HB20	33.8	34.2	3.5 66
117	344.7	78	2.9	R3000	TN-#34 Drk Green		HB20	33.8	34.2	3.5 66
118	347.6	79	2.9	R3000	TN-#38 Black		HB20	41.4	42.4	3.5 60

-OUTLET-		-SPRINKLER-				-REG-	LPM		PRESSURE
NO.	LOC.	NO.	SEP.	MODEL	NOZZLE	MODEL	REQ.	DEL.	INLINE

350.3 TOWER NO. 6

119	351.7	80	4.1	R3000	TN-#37 Prpl w/blck	HB20	41.2	40.1	3.5 60
120	354.6	81	2.9	R3000	TN-#35 Green w/prp	HB20	36.2	35.9	3.5 66
121	357.5	82	2.9	R3000	TN-#35 Green w/prp	HB20	35.7	35.9	3.5 66
122	360.4	83	2.9	R3000	TN-#35 Green w/prp	HB20	35.5	35.9	3.5 72
123	363.3	84	2.9	R3000	TN-#35 Green w/prp	HB20	35.7	35.9	3.5 72
124	366.2	85	2.9	R3000	TN-#35 Green w/prp	HB20	36.0	35.9	3.5 72
125	369.1	86	2.9	R3000	TN-#35 Green w/prp	HB20	36.7	35.9	3.5 72
126	372.0	87	2.9	R3000	TN-#32 Orange	HB20	31.0	30.4	3.5 72
127	373.9	88	1.9	R3000	TN-#30 Drk Brown	HB20	27.0	26.8	3.5 72
128	376.1	89	2.3	R3000	TN-#34 Drk Green	HB20	33.3	34.2	3.5 72
129	379.0	90	2.9	R3000	TN-#35 Green w/prp	HB20	36.7	35.9	3.5 72
130	381.9	91	2.9	R3000	TN-#36 Purple	HB20	38.6	37.6	3.5 72
131	384.8	92	2.9	R3000	TN-#37 Prpl w/blck	HB20	39.1	40.1	3.5 72
132	387.7	93	2.9	R3000	TN-#36 Purple	HB20	37.5	37.6	3.5 72
133	390.6	94	2.9	R3000	TN-#36 Purple	HB20	38.5	37.6	3.5 66
134	393.5	95	2.9	R3000	TN-#37 Prpl w/blck	HB20	39.9	40.1	3.5 66
135	396.4	96	2.9	R3000	TN-#40 DrkTurquise	HB20	47.4	46.9	3.5 60

399.1 TOWER NO. 7

136	400.5	97	4.1	R3000	TN-#41 DrkTrq w/ms	HB20	48.6	49.6	3.5 60
137	403.4	98	2.9	R3000	TN-#37 Prpl w/blck	HB20	39.0	40.1	3.5 60
138	406.3	99	2.9	R3000	TN-#37 Prpl w/blck	HB20	39.2	40.1	3.5 66
139	409.2	100	2.9	R3000	TN-#37 Prpl w/blck	HB20	39.6	40.1	3.5 66
140	412.1	101	2.9	R3000	TN-#37 Prpl w/blck	HB20	40.3	40.1	3.5 72
141	415.0	102	2.9	R3000	TN-#38 Black	HB20	41.3	42.4	3.5 72
142	417.9	103	2.9	R3000	TN-#37 Prpl w/blck	HB20	40.4	40.1	3.5 72
143	420.8	104	2.9	R3000	TN-#38 Black	HB20	42.0	42.4	3.5 72
144	423.7	105	2.9	R3000	TN-#38 Black	HB20	41.6	42.4	3.5 72
145	426.6	106	2.9	R3000	TN-#38 Black	HB20	41.5	42.4	3.5 72
146	429.5	107	2.9	R3000	TN-#38 Black	HB20	41.8	42.4	3.5 66
147	432.4	108	2.9	R3000	TN-#38 Black	HB20	42.2	42.4	3.5 66
148	435.3	109	2.9	R3000	TN-#38 Black	HB20	43.0	42.4	3.5 60
149	438.2	110	2.9	R3000	TN-#40 DrkTurquise	HB20	46.1	46.9	3.5 60

440.8 TOWER NO. 8

150	441.3	111	3.2	R3000	TN-#39 Black w/trq	HB20	45.0	44.7	3.5 60
151	442.8			PLUG					
152	444.2	112	2.9	R3000	TN-#39 Black w/trq	HB20	44.4	44.7	3.5 66
153	445.7			PLUG					
154	447.1	113	2.9	R3000	TN-#37 Prpl w/blck	HB20	39.4	40.1	3.5 60

-OUTLET- NO.	LOC.	-SPRINKLER- NO.	SEP.	MODEL	NOZZLE	-REG- MODEL	LPM REQ.	DEL.	PRESSURE INLINE
155	448.2			PLUG					
156	449.4	114	2.3	R3000	TN-#38 Black	HB20	42.7	42.4	3.5 66

END GUN: (NOZZLE SELECTED BASED ON RECOMMENDED 170 DEGREE ARC.)
 450.2 SR100 .80" NOZZLE 485.1 476.4 3.5

2 INCH DIAPHRAM END GUN VALVE PRESSURE LOSS: 0.3 bar
 RESULTING END GUN PRESSURE: 3.2 bar

SYSTEM INLINE END PRESSURE: 3.5 bar, INCLUDING PLUS 0 m ELEVATION

TOTAL lpm DELIVERED: 3967.1

SYSTEM lpm PER ha: 54.5

SPRINKLER SPACING LIMITS HAVE BEEN EXTENDED AT SOME OF THE TOWERS.

114 MOUNTING ASSEMBLIES: First outlet= 4, Last outlet= 156
 Black Plastic Semi-Rigid 151870 (Length=152.44 cm)
 U-PIPE- 3/4"Male x Female Galv 008100
 DROP- 3/4"M Blk.Plastic <Vari> 143874 (Length=152.44 cm)
 Standard Tee 000100 (as needed)
 Standard Regulator 0000-000 (as needed)

===== NOZZLE SELECTION VERIFICATION =====

SPAN #	1	2	3	4	5	6	7	8	OH+EG
lpm REQ.	70.7	183.4	303.2	411.8	540.9	588.2	626.1	586.7	656.6
lpm DEL.	72.1	184.2	302.2	412.3	540.3	591.1	623.0	593.6	648.3
% DEV.	2%	0%	-0%	0%	-0%	0%	-0%	1%	-1%

=====

DATA FILE IDENTIFICATION

File	Sprinkler	Plate	SprNo	ID	Regulator	Flow	Duty	PSI	Outlet	ID
R3000R	Rotator	Red	1- 9	D4DF	LB15	LO	BLUE	15	Sqr	7678
R3000G	Rotator	Green	10-114	E425	LB20	LO	BLUE	20	Sqr	7628
					HB20	HI	BLUE	20	Sqr	748B

----- WATER APPLICATION DEPTH PER REVOLUTION -----

APPLICATION DEPTH (mm)	5.44	6.35	12.70	19.05	25.40	31.75	38.10
% TIMER SETTING	100	86	43	29	21	17	14
REVOLUTION TIME	17HRS	19HRS	39HRS	58HRS	78HRS	97HRS	117HRS
	27.0	12.75	14.25	29.25	43.5	58.5	72.75
			22.5				87.75

GROUND SPEED AT 100% TIMER SETTING: 2.77 m/min

The revolution time may vary some from the values indicated above. This may be due to generator speed, slippage, or over/under inflated tires.

Power frequency is 50 Hertz.
Loaded radius of tires is 59.7 cm.

=====
This computer printout is a mathematical calculation based upon information provided to Reinke Mfg. Co., Inc. This information concerns pipe length and inside diameter; surface finish; outlet spacing; water flow and pressure. The calculations are based upon this data and other applicable data being furnished as accurate. All figures are also based on 100% water application efficiency (zero wind velocity and no evaporation). The PRESSURE @ TOP OF INLET is measured at the first outlet on the main horizontal distribution pipe just after the top pivot elbow, while the GAUGE PRESSURE is measured on the vertical distribution pipe six feet below the top pivot elbow. The main pipe pressure is calculated as if the pipe is always level. The flow rate is based on the nozzle pressure, which may differ from the main pipe pressure due to the use of pressure regulators and/or drop pipes.
=====